WALES & WEST UTILITIES

Annual Environmental Report

2023 – 2024

WALES&WEST UTILITIES

Contents

Introduction

Who we are

At Wales & West Utilities, we look after the pipes that keep the gas flowing across Wales and south-west England.

We respond to gas emergencies, keeping communities safe; we connect new homes and businesses; and we upgrade the gas network, to keep the gas flowing safely and reliably today, and to prepare it to transport green gases like hydrogen and biomethane so we can all play our part in a green future.

We own and maintain more than 35,000 kilometres of gas pipes – enough to stretch from the UK to New Zealand and back again. Using those pipes – most of which lie hidden underground – we supply gas to around 2.5 million households and businesses, serving a population of 7.5 million people. Whilst much of our network is out of sight, the impact of our services on the lives of customers is easy to see. Across the cities, towns, villages and open countryside we serve, a safe and reliable gas supply makes cooking family meals or enjoying a hot bath possible.

As well as keeping the gas flowing today, we're working on solutions for the future to help the UK reach net zero emissions by 2050. In 2023, we published our first Sustainability Strategy, giving us clear actions to deliver a cleaner, greener future, whilst making sure everyone benefits from the energy transition. Decarbonising heat, power, and transport will help us deliver a net zero ready network by 2035. Our commitment to enhancing biodiversity, improving air, land and water quality across our network will help deliver environmental net gain, in turn benefitting our communities. Aligning our ambitions with the United Nations Sustainable Development Goals (SDGs) means we are reducing our impact and encouraging others to do the same.

Finally, our renewed business Ambition, Priorities and Values resulted in an enhanced focus on sustainability, something our colleagues, customers and stakeholders told us was critical. These inform everything we do as a business – from our strategic planning to the performance management of our colleagues. They help keep our focus on our customers and the future as we navigate a period of disruption and volatility in the energy sector and respond to unprecedented cost of living and geopolitical challenges.

Welcome

I'm delighted to introduce our third Annual Environmental Report (AER). As a business, we are committed to doing everything we can to respond to the climate emergency – supporting customers on a just transition to green energy, whilst also reducing our environmental impact. Our AERs aim to help hold us accountable – measuring our successes and any shortcomings.

We've made significant progress in reducing gas shrinkage – that is gas lost from within our network. Our target was to reduce this by 2% each year with a 10% reduction over the whole of GD2. In 2023-24 we reduced our shrinkage by 3%, taking us to a 10% reduction already in the first three years of this five-year price control. This is primarily driven by carefully targeted mains replacement and pressure management programmes. While these efforts have been successful, future performance may be influenced by external factors such as weather conditions. We will continue to monitor these factors closely.

By supporting a continued hybrid work model, we've also successfully maintained reduced non-operational business travel and expanded the use of hybrid and ultra-low-emission vehicles (ULEVs) in our company car fleet to 92% against our 75% target. This year, our Energy Savings Opportunity Scheme Assessment will identify potential opportunities for carbon reductions throughout our operations.

In a landmark partnership with leading hydrogen innovators, we successfully trialled a hydrogen-powered fuel cell electric vehicle (FCEV). This collaborative effort created a first-of-its-kind hydrogen ecosystem, enabling the FCEV to achieve its highest recorded mileage – exceeding 2,000 km over four weeks in challenging weather conditions. This successful trial demonstrates the potential of hydrogen technology for decarbonising our fleet and paves the way for future UK hydrogen vehicle deployments.

We have also supported our colleagues by rolling out our internal carbon awareness training and including this training as part of our new employee onboarding process. This gives them all the information they need on our carbon commitments and underlines the central role our team must play if we are to meet our targets.

Effective waste management continues to be a focus for us, and we're working with our supply chain to embed circular economy principles to reduce our impacts. We continue to see substantial legislation changes in this area, illustrating the strong governmental focus to reduce environmental impacts of waste. While we have experienced some challenges, we continue to strive towards our zero waste to landfill ambitions and will build on our learning and take opportunities to improve through GD2 and beyond.

I hope you find this report of interest and, as always, if you would like to talk about its contents, or explore how we could work together, please get in touch at ourenvironment@wwutilities.co.uk

Graham Edwards
Chief Executive

Our environmental responsibilities

It's our ambition to help communities and the environment thrive by delivering reliable, affordable and sustainable energy that will help power a green recovery and get the UK to net zero.

We aim to preserve and enhance the environment in everything we do, but while maintaining a reliable, secure network today and supporting the net zero transition, we acknowledge that our work may occasionally have a negative impact. Accepting responsibility for these effects will always be our stance, alongside striving to reduce and eliminate them.

Together with our supply chain, partners, and other stakeholder groups, we deliver best practice and collaborative innovation, demonstrating to business and society the benefit of looking after the environment.

Our actions to reduce emissions and improve our impact are guided by our Environmental Action Plan (EAP), published in 2019. We started with our long-term goals and worked backwards to define how we would achieve them in 2020, GD2 and beyond. In preparation for our next price control period in 2026, we'll assess and revise our EAP through collaboration with industry experts, stakeholder involvement, and building on our GD2 lessons.

In 2023, we developed our Sustainability Strategy, which we published at a formal launch event where stakeholders were encouraged to identify and explore opportunities to collaborate toward achieving our goals. The strategy translates the big idea of sustainability into the actions we're taking and establishes our long-term overall vision for the business and the key milestones we plan to meet during our delivery. Shaped by stakeholder input, the strategy will be a platform for further engagement, particularly as we develop and deliver on our next business plan for the period from 2026.

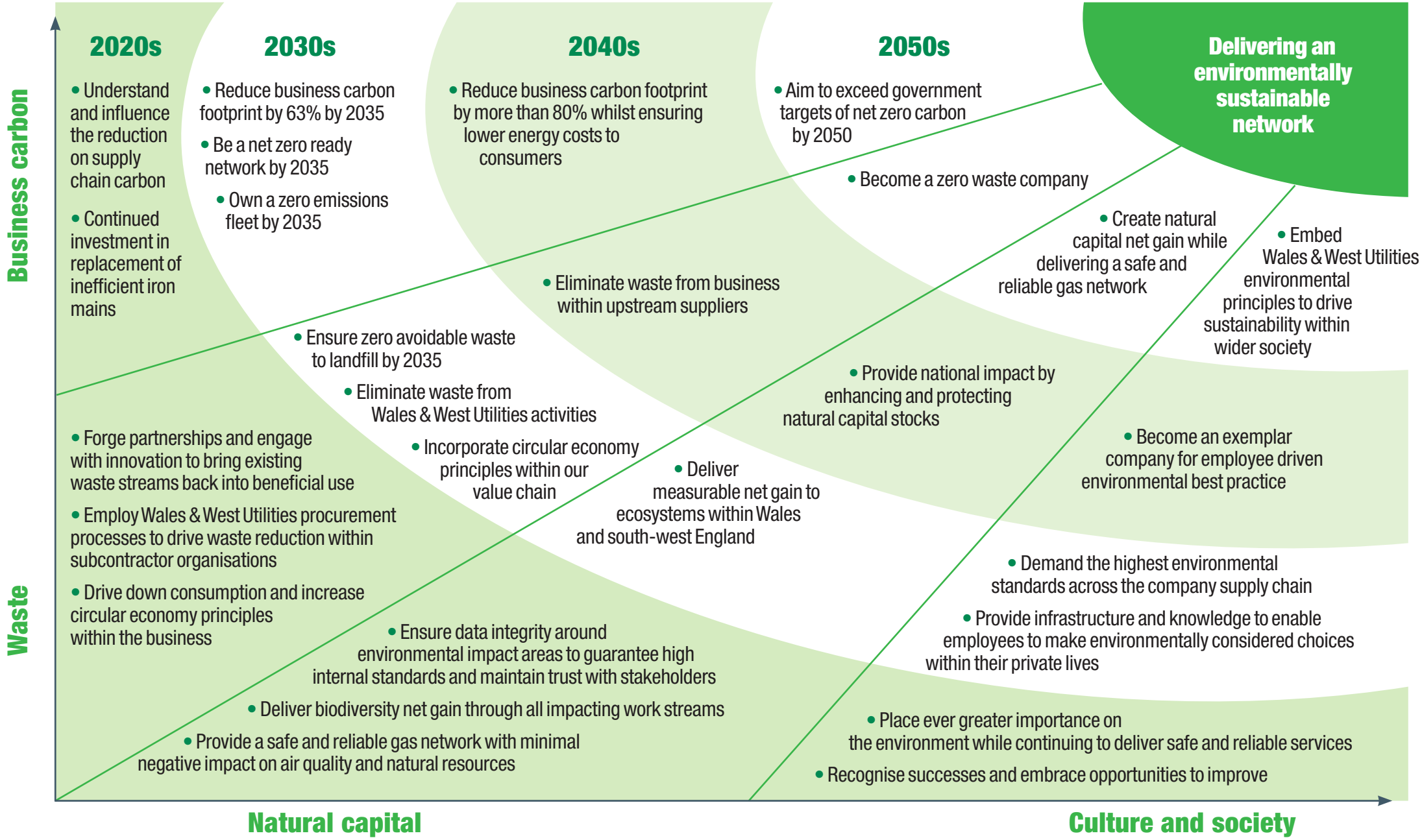
We've made the company's existing Ambitions, Priorities and Values central to the sustainability strategy structure, reflecting the strengths of the organisation as well as our positive reputation with customers, colleagues, and the communities we work in. The social and economic benefits that we'll deliver through our Sustainability Strategy and Business Plans are underpinned by our sound environmental management.

In this regulatory year we have also undertaken a full review of our waste management processes. This was partly in readiness for the new Workplace

Recycling Regulations put in place by the Welsh Government which came into effect after the reporting year – and to provide us with the information we need to understand and improve our processes, while also supporting our GD3 ambition review.

Long term, the goals of our environmental road map are growing, and will require us to prioritise the environment, alongside other business commitments, to collaborate with a range of external partners, and to embrace innovative thinking and technologies. You can find out more about our EAP here.

How we aim to deliver an environmentally sustainable network



Our priorities and approach to environmental improvement have been driven through stakeholder engagement, which is any individual, group or organisation that has a connection to our business. Views and expectations from customers, peers, colleagues, our Customer Engagement Group (CEG) and government have all shaped our plan.

The vast majority of our stakeholders care about the environment and delivering clean, reliable, and affordable energy. We take this duty seriously and have developed the following core principles to hold in check how we approach the delivery of our EAP.

Legal compliance – Environmental law provides guidance that we work under to make sure the company always meets a minimum standard of environmental regulations.

Collaboration – Working with others gives us opportunities to increase knowledge sharing and the positive impacts of our activities.

Transparency – We provide clear, straightforward and reliable information on our impacts, our progress against targets, and our ongoing strategy. We seek feedback and respond to concerns and ideas from our partners, stakeholders, and the communities we work in.

Continual improvement – We look for best practices and make ongoing environmental improvements within our business, striving to meet evermore stretching targets. Using Key Performance Indicators (KPIs) enables us to track and understand performance. The KPIs find risks early on, so that we can take actions to fix them.

Holistic – Environmental impacts are complex and connected. We think about all the environmental impacts of our decisions and use that knowledge to make the right decisions.

Value for money – It's our view that making the best business decisions should go hand in hand with making great decisions for the environment. It's therefore important to us to maximise the environmental benefit of any investment made. We use effective procurement procedures to drive down costs and encourage thinking in new ways.

Mapping our targets to external guidance

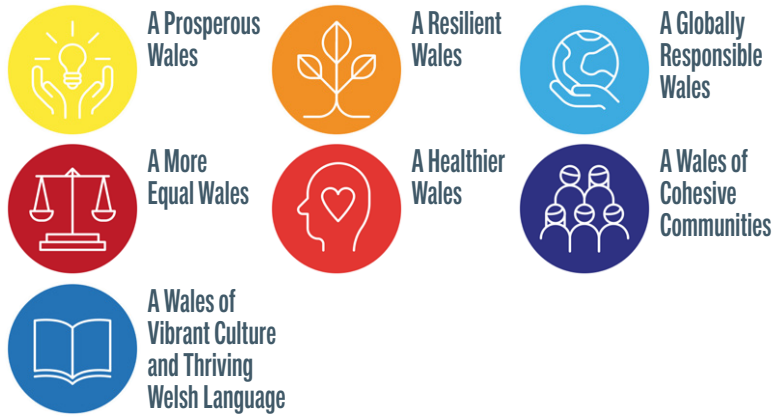
Our EAP is firmly rooted in our commitment to sustainable business practices. We balance environmental priorities with those of the wider business to support the United Nations Sustainable Development Goals and the Well-being of Future Generations (Wales) Act 2015. This landmark legislation requires organisations to consider the long-term impact of their decisions on people and the planet. By aligning our sustainability targets with these frameworks, we demonstrate our dedication to a sustainable future and provide transparency to our stakeholders.

The United Nations Sustainable Development Goals

Our ambitions align with the following sustainable development goals:

The Well-being of Future Generations (Wales) Act 2015 Goals

Our ambitions align with the following well-being goals for Wales and the principles apply across our network:



For more information on how our ambitions align with the goals, please see our Sustainability Strategy:
sustainability-strategy-2023.pdf (wwutilities.co.uk)

Dashboard indicators

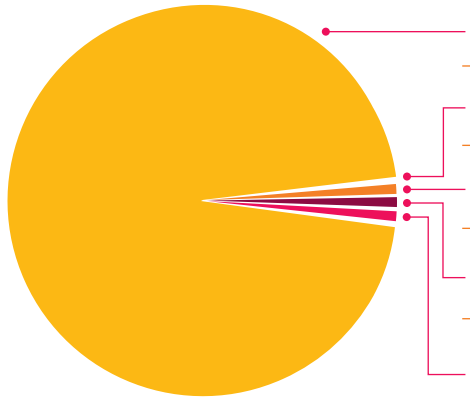
Our Key Performance Indicators show our in-year performance against Ofgem's assessment criteria and our own commitments. Where applicable, the status indicator shows how our in-year progress relates to our RIIO-2 targets.

I.1	Contribution to energy system decarbonisation	2023-24 Update
I.1.1	Annual addition of low-carbon and renewable energy capacity connected to the network	One additional site connected adding 450 standard cubic metres per hour
I.1.2	Annual investment in ongoing innovation activities that are primarily supporting decarbonisation and/or protecting the environment	£2.8 million

I.2	Climate change impacts	2023-24 Update	Status
I.2.1	Licensee's long-term greenhouse gas reduction ambition, to reduce greenhouse gas (GHG) emissions by 37.5% by 2035 (well below [wb] 2°C) aligned with a science-based methodology and excluding shrinkage	4.4% increase against 2019-20 baseline due to change in business model (see table 6 for further information)	
I.2.2	Annual change in licensee's business carbon footprint excluding losses/shrinkage in comparison to its end of RIIO-2 target*	4.5% decrease against 2022-23 (see table 6 for further information)	
I.2.3	Annual change in total shrinkage (reduce gas loss to atmosphere by 10% by 2026)	3% reduction	

* No carbon target (excluding shrinkage) was proposed in our 2019-20 business plan reflecting the expected increases associated with the change in our business model.

I.3	Resource use and waste	2023-24 Update	Status
I.3.1	Annual total waste (office, network depots, spoil)	221,328 tonnes	—
I.3.2	Fate of waste	Recycle: 98.8% of total waste	—
		Reuse: 0% of total waste	—
		Recover: <1% of total waste	—
		Incineration: <1% of total waste	—
		Landfill: 1% of total waste	●



I.4	Sustainable procurement	2023-24 Update	Status
I.4.1	Proportion of suppliers meeting the licensee's environmental supplier code or equivalent	78% of suppliers (by value)	●

I.5	Local environment	2023-24 Update	Status
I.5.1	Annual investment in schemes to enhance/restore local environmental quality	£0.84 million	—
I.5.2	Land area being treated in schemes to enhance/restore local environmental quality	2.69 hectares	—
I.5.3	Net change in biodiversity units from network development projects granted planning consent in the year that impact the local environment	0% change (no relevant projects in the year)	—
I.5.4	Number of reportable environmental incidents	0	●

Note: Status indicators are only included for key performance indicators with relevant targets.

For further details on these Key Performance Indicators, please see Section 5 below and our AER summary which can be found in Appendix 3.

Environmental Action Plan commitments and environmental impacts

Environmental Action Plan (EAP) commitments

Our EAP, with its ambitions and commitments, was developed in collaboration with a range of stakeholders, who provided feedback that we needed to address the following areas:

- our business carbon footprint – including embodied carbon
- consumption, waste, and circular economy
- natural capital
- culture and society
- our ambitions.

In our EAP, we set out ambitions that stretch past the current price control period, which ends in 2026. Our ambitions demonstrate where we want to be as a business, subject to appropriate funding, legislation, control, and technological developments that allow us to meet them. Our ambitions include:

Short and long-term science aligned ambition

Reduce our GHG emissions by 37.5% by 2035 (wb2ºC) striving for 63% by 2035 (1.5ºC) and to be a carbon net zero company by 2050.

Resource waste ambitions

Be a zero-waste company by 2050 and send zero waste to landfill by 2035.

More than 80% of our suppliers (by value) will meet the environmental standards set out within our supply chain charter by 2026.

Natural capital ambition

Achieve natural capital net gain across all our activities by 2050, deliver measurable biodiversity and ecosystem services net gain by 2035, and achieve biodiversity net gain on projects from 2026.

Over GD2, our commitments will support us to meet our longer-term ambitions by delivering what we can now. Tables 1, 2 and 3, below summarise how we are doing against those commitments.

TABLE 1 – Status update on EAP carbon commitments

EAP carbon commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator* 2022-23	RAG indicator* 2023-24
Reduce gas loss to atmosphere (shrinkage) by 10% by 2026.	Reduce gas shrinkage by 10% against the 2020-21 baseline through the continued replacement of old metal pipe and services per year. This commitment will produce the greatest carbon reduction from our most significant carbon emissions source.	2026	Change in business model in 2021 brought our mains replacement in-house. 487 km of metallic mains replaced in 2023-24. 10% CO_2e reduction from 2020-21 baseline by the end of 2023-24.		
Ensure 75% of company cars are hybrid or ultra-low-emission vehicles by 2026.	Excluding shrinkage, our fleet has the biggest impact on our Scope 1 emissions. We will reduce the carbon impact of our fleet and associated air quality impacts by: • swapping out traditional internal combustion engine vehicles for zero or ultra-low-emission and hybrid vehicles, where operationally suitable and cost-effective • improving the efficiency of internal combustion vehicles where green alternatives are not available • reducing vehicle use.	2026	Implementation of employee incentive to choose ULEVs and EVs made prior to 2021. 92% by the end of 2023-24.		
Refresh our commercial fleet from Euro V to Euro VI compliant vehicles over GD2.		Annual	96% by the end of 2023-24.		
Reduce carbon emissions associated with non-operational travel by 5% by 2026.		2026	Impact of COVID-19 from 2020 to 2021 suppressed results for 2021-22. 52% reduction from baseline by the end of 2023-24.		
Collaborate with others to understand and take opportunities to reduce our fleet and tooling emissions.	Ultra-low-emission vehicles and tools are not available for all the operations we complete to deliver a safe and reliable gas network. By collaborating with third parties and distribution networks we continue to understand and take advantage of the potential for alternatively fuelled fleet vehicles and tools.	2026	Building our green fleet strategy. Working with industry leaders to trial FCEVs.		

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

TABLE 1 – Status update on EAP carbon commitments (cont.)

EAP carbon commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator* 2022-23	RAG indicator* 2023-24
Practically reduce our building energy use, ensuring environmental efficiencies with all new properties are considered and installed.	By striving to achieve excellent energy performance standards within new properties we will improve energy efficiency across our property portfolio and reduce our Scope 1 and 2 emissions. Entering green energy contracts (REGO certified) and collating sufficiently detailed reporting will allow our energy use to be interrogated and improved over time.	2026	Site identification 2021-22. Using certified green electricity for all consumption since April 2021. Bristol Depot construction completed in 2022. Assessment and programme development 2022-23.	●	●
Publicly report on and look to reduce our Scope 3 and embodied carbon emissions.	Determining our Scope 3 business carbon footprint (BCF) (starting with a streamlined assessment using the GHG Protocol S3 Evaluator tool) in line with industry best practice will allow us to identify hotspots and to focus our future carbon reduction efforts.	Annual	Initial Scope 3 assessment completed 2021-22. Carbon assessments and environmental impact questions are now included in PQQ and ITT evaluations.	●	●
Offset 100% of our rail and air travel carbon footprint.	During any one year, business requirements result in our employees taking air and rail travel. We will offset 100% of these emissions with accredited, additional and transparent offsets supporting global decarbonisation where our emissions have been unavoidable.	Annual	2,400 tonnes offset in 2023-24 (heavy goods vehicle (HGV) emissions included in 2023-24 offsets), bringing our total offset to 5,170 tonnes in the price control so far.	●	●
Continue to proactively facilitate the connection of green gas.	The use of green gas reduces the environmental impact of the gas we distribute within our network. By proactively supporting external business to connect their green gas to our network we are working towards the decarbonisation of heat.	2026	21 biomethane connections with the latest connected during 2023-24.	●	●
Update our climate risk management with the latest government issued climate change projections.	Use up-to-date government issued climate change projections to assess the risk of climate change to the network and protect it into the future. We work with other gas distribution networks (GDNs) and industry experts to deliver to government a GDN holistic UK and network specific assessment of the risk.	2026	In collaboration with the other GDNs, we responded to the consultation on the fourth round of Climate Adaptation reporting in 2023.	●	●

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

TABLE 2 – Status update on EAP resource management and waste commitments

EAP circular economy commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator* 2022-23	RAG indicator* 2023-24
Send a maximum of 20% waste to landfill by 2026.	Landfilling waste delivers a range of negative environmental impacts including biodiversity loss, ground gas generation and release of sequestered carbon. By embedding circular economy principles within the business, we will reduce the amount of material we landfill and the negative impacts it causes. By reusing and repurposing waste streams we will give traditional wastes we generate a new purpose. By repurposing our spoil and promoting the use of recycled aggregate we will reduce the depletion of finite virgin material.	2026	1% sent to landfill in 2023-24.		
Deliver a minimum of 80% waste reused and recycled by 2026.		2026	99% waste reused and recycled in 2023-24.		
Reuse and recycle at least 80% of excavated spoil by 2026.		2026	99% excavated spoil reused or recycled in 2023-24.		
Increasing use of recycled aggregate to greater than 20% by 2026.		2026	15% achieved in 2023-24.		
	Status update: We have seen a slight decrease in the use of recycled aggregate this year. This is largely due to the availability of recycled materials that are suitable for use in all weather conditions. We are working with our suppliers to adjust the composition of the recycled material to ensure it is safe and suitable for use all year round.				
Reduce office waste by 25% by 2026.	In addition to tackling our material waste streams, we will reduce the waste by increasing the reuse, repurpose and recycle disposal routes.	2026	18% increase from our baseline in 2023-24.		
	Status update: We have seen an increase in our office waste production in 2023-24. This is largely due to site clearances at four sites that were in addition to our business-as-usual office waste collections. These site clearances were to facilitate the build or renovation of more energy efficient depots that will support our commitment to reduce our overall building consumption use. Within Wales, new waste legislation changes came into effect in April 2024, and this has expanded our opportunities for recycling. We will continue to seek initiatives to enable delivery of the environmental improvement while still delivering value for money.				

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

TABLE 2 – Status update on EAP resource management and waste commitments (cont.)

EAP circular economy commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator* 2022-23	RAG indicator* 2023-24
Reduce paper consumption by 75% by 2026.	By committing to operating within the highest tiers of the waste hierarchy, we will work harder to reduce our consumption in addition to investing in better disposal practices.	2026	The impact of COVID-19 from 2020 and our new hybrid working policy has positively affected our results. 51% paper reduction (against 2019-20 baselines) saving over 205 trees from being cut down.		
Eliminate single use plastic by 2022.	We are committed to eliminating single use plastics where viable alternatives exist. Our single use plastic targets exclude plastics required to deliver a safe and reliable gas network and where viable cost-effective alternatives don't exist. However, we will seek to collaborate and innovate within these complex areas to determine alternatives to current practices.	2022	Migrate from reducing consumable single use plastic by 2022 to reducing plastic packaging over RIIO-2. A trial concluded in 2022 to eliminate the use of operational plastic bags (except for hazardous waste). Valuable employee feedback has been collected and we are working to roll this out more widely. In March 2022 we began rolling out stainless steel bottles to our operational teams and removed the single use plastic bottles from our procurement catalogue. In our canteen areas, we have replaced all plastic cutlery with wooden alternatives and takeaway boxes are now biodegradable. We continue to explore safe alternatives for coffee cup lids, and in the meantime have implemented an environmental tax to incentivise the use of reusable options instead.		
	Status update: We have made great strides to eliminate consumable single use plastics. Where cost and availability have impacted our commitment, we will continue to seek out alternatives that deliver the environmental improvement whilst still delivering value for money.				

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

TABLE 2 – Status update on EAP resource management and waste commitments (cont.)

EAP circular economy commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator* 2022-23	RAG indicator* 2023-24
We have ambitions to limit polyethylene (PE) gas pipe waste to 5% by weight by 2026.	PE pipe and fittings contribute significantly to our Scope 3 BCF. All waste PE pipe is collected from depots to be recycled by manufacturers into new PE pipe. However, by ensuring we are efficient in our use of PE pipe we limit unnecessary manufacturing impacts.	2026	10% pipe waste in 2023-24 (100% of our PE waste is recycled into lower grade pipe).		
	Status update: We have seen pipe waste levels remain consistent during 2023-24 after previously introducing the use of infinity coils and re-banding techniques to bring shorter coils back into use. As we move into more complex mains replacement activities, there is a risk that this benefit may be eroded. This is a major focus for the business with significant executive oversight and involvement, and we will continue to seek opportunities to reduce our waste levels where available.				
Embed circular economy principles within the business, and measure the success of associated outcomes.	We are continually reviewing our procurement practices and strengthening circular economy themes within them, including: • setting clear performance requirements • encouraging collaboration and innovation • considering end of life costs within design action.	2026	Continued membership with the Supply Chain Sustainability School and engagement with industry working groups to support sustainability themes in the supply chain. Built life cycle considerations into tender events from 2022.		
Auditing a minimum of five of our main contractors (by value) annually.	To ensure robust and reliable data is provided, we are committed to undertaking environmentally focused procurement audits of suppliers, focusing on the top 80% by value. This audit programme will lag the regulatory reporting year, ensuring appropriate time and resource is assigned to the process.	2026	A system solution is actively being sought to effectively manage supplier data. This will allow for accurate measurement and monitoring of supply chain metrics in one solution, informing future environmental audit activity. In the meantime, supplier mapping has created a picture of the number of suppliers adopting effective environmental management systems and those already recording their carbon data. A revised Supplier Charter was published in January 2024 and accompanies the supplier mapping questionnaire. Redevelopment of the PQQ is complete, aligning requirements across categories into a single question library.		

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

TABLE 3 – Status update on EAP natural capital commitments

EAP commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator* 2022-23	RAG indicator* 2023-24
Develop a robust and accurate reporting tool for measuring biodiversity value.	Biodiversity is valuable but is also essential to the success of the ecosystem services on which we depend. In line with best practice Wales & West Utilities has adopted the Defra Metric for monitoring and recording biodiversity units on sites. By applying the metric to available long-term land assets, we are working towards increased biodiversity benefits within our network which do not present an unacceptable financial/operational burden. Although increased biodiversity does not always support increased ecosystem services, understanding and looking to improve ecosystem services is our long-term ambition.	2026	In line with UK standard reporting mechanisms, we have committed to using the Defra Biodiversity Metric to determine and report on the biodiversity value. During 2021 we contributed to the design of the NATURE Tool; a free to use assessment model that allows us to understand the contribution we have to ecosystem services. In 2022 we designated 0.49 hectares of our new Bristol depot for long-term biodiversity provision. The site includes construction of a newt pond. We continue to conduct ecological surveys on this enhancement (see section 10 for more information).		
Understand, monitor and promote biodiversity within our long-term land assets.		2026			
Develop and monitor a tool to robustly quantify our contribution to ecosystem services from these assets.		2026			
Planting five trees for every tree we cut down.	To ensure the integrity of the network we are sometimes required to remove trees which represent a risk to the pipeline and (therefore) the communities in which we work. We recognise that this has a negative impact on biodiversity within our network. As such we are committed to addressing this impact by collaborating with stakeholders within Wales and the south-west of England to support afforestation across the network in long-term managed schemes.	2026	During the 2023-24 year we identified 627 trees that were posing a safety risk to the network and needed to be cut down. To support our commitment, we have commissioned the planting of 3,135 trees in the autumn of 2024. In addition to this, we have also planted 22 trees in collaboration with South Gloucestershire Council, taking our total planted in respect of the year to 3,157, and 6,551 over the price control so far.		

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

TABLE 3 – Status update on EAP natural capital commitments (cont.)

EAP commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator* 2022-23	RAG indicator* 2023-24
Understanding the impact our business has on air quality and making significant steps to minimise it.	Poor air quality is a significant risk to human health. By trying to understand our impact on air quality we will seek out and implement initiatives that improve the air quality for customers within our network.	2026	We continually assess and evaluate the air quality impacts associated with purchased gas and company vehicles, with the first review taking place in 2021-22. We will look to improve and broaden the assessment over the coming years. In 2023-24 we launched our Cycle to Work scheme to encourage our colleagues to reduce their commuting emissions and our impact on air quality.		
Delivering 85 land management projects (over 70 sites).	We own a portfolio of former gas production sites and have a duty of care to ensure that these sites do not represent a significant risk to human health or the environment. By proactively managing the sites and remediating where appropriate we are reducing the risk that the sites represent.	2026	During 2023-24 we delivered 10 of our 85 land management outputs. This resulted in a total of 69 projects achieved so far during GD2.		

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

Decarbonisation, biomethane and other low-carbon gas connections

Greening the gas network is a key part of our vision for the future, and during RIIO-2 we're committed to making this happen – to making sure green gas is connected to our network.

By adapting our gas distribution network to meet the forecast changes linked with progress to a net zero-ready network, we are committed to establishing ourselves as leaders in the decarbonisation of gas distribution systems.

In addition, we're keen to promote connections that support renewable energy and reduce the net carbon and greenhouse gas emissions of energy networks.

The 21 biomethane sites connected to our network have the capacity to deliver 1.81 TWh of green gas into our network, which is enough to heat around 160,000 homes.

Our 21st connection was the first in the south Wales area and resulted in a small increase in connected capacity since last year's reporting. We're working with developers to connect and commission a further seven sites that have booked capacity with us over the next few years. In total, the 28 sites could provide heat to 200,000 homes. The government's Green Gas Support Scheme (GGSS) has triggered an increased interest in this area resulting in 45 entry enquiries for biomethane in the last regulatory year, alongside one enquiry for hydrogen blending.

Our proactive approach

We recognise that there are a variety of gas producers who may want to connect to our network, and we seek to meet customer needs by offering a range of services to suit.

When we receive an enquiry, our initial response is provided free of charge and where possible within 15 working days, to give developers an early view on project feasibility. This can be followed by a capacity study that we charge for to recover cost. The results are returned to customers within 30 working days and will provide the details of the capacity available to them with any daily and seasonal variations. We offer virtual or in person discussions depending upon the need and circumstance.

There is a fixed charge associated with the booking of entry capacity which is held and put towards the connection costs including purchase of Wales & West Utilities owned assets. We utilise the "minimum connection" model where we own the remotely operated valve (ROV), to control gas entry to our network, and everything downstream of it which is just the entry pipeline. We also own the communications equipment to ensure robust monitoring and control of the green gas into our network.

Before a connection can be made, we must satisfy ourselves that the gas to be injected is compliant with the relevant regulations or, if not, that exemptions have been agreed and put in place in advance of injection. We require gas quality and functional safety assessments along with a Network Entry Agreement (NEA) which sets out the technical and operational conditions for the connection.

Current incentives under the GGSS, along with wider net zero policies, appear to have been effective in stimulating interest for entry enquiries in our network area. This is after a few years of very few enquiries and no new sites connecting which appeared to be due, at least in part, to the diminishing Renewable Heat Incentive (RHI) – meaning that new projects were not feasible for potential gas producers.

Getting the incentives right is important but there is another issue that the networks are increasingly facing as we connect more green gas, and this is where demand is constrained either seasonally or daily. This means too much gas being produced for local

demand, so having to curtail injection, causing issues for the gas producers. To resolve these issues and facilitate future green gas entry connections, we are looking to new technologies and ways of controlling the network so that the demand for green gas is there when needed and meets green gas availability, eliminating the need to curtail green gas injection.

Trialling new solutions and projects

In our collaboration with Cadent on the OptiNet project, we are trialling new solutions which will automate control and increase demand on the distribution networks. We have successfully completed the Smart Pressure Control trial which allows our gas sites to change their pressure setpoints automatically in response to system pressures at the entry and extremity points to satisfy both. We continue to support the OptiNet project and await the trial results from Cadent's compressor part of the project so that final reports can be published, and the project closed with industry learning communicated following closure.

We're applying the learning from the smart pressure control part of the OptiNet project and are working on several projects to roll out the concept for our distribution network. A successful roll out will allow the connection of further green gas entry sites in addition to supporting those with booked capacity already.

Since last summer, we have been working on a first-of-its-kind project for Wales & West Utilities, installing a reverse compressor for an existing customer to support their maximum entry capacity requirements and future site expansion. The compressor will move green gas from the constrained medium pressure (MP) network into the high-pressure (HP) system where there is sufficient demand to take the gas away throughout the year. This approach creates an artificial demand on the MP system and allows the biomethane entry site to stay where it is and continue injecting into the MP network. Wales & West Utilities is supporting this project as it further decarbonises the immediate MP network and starts to decarbonise the higher-pressure tier that the green gas is being compressed into. The project will create a blueprint for future installations where required to facilitate more green gas into our network area.

Our performance in 2023-24

Over the last year, we took 14 days on average to respond to the 45 initial enquiries for biomethane and took an average of 30 days to respond to the six capacity study requests, which is in line with the volunteered standard of service timescales (15 and 30 working days respectively) as indicated on the previous page in Our proactive approach.

We transported 786.06 GWh of green gas in the 2023-24 year which is 6% higher than the previous year total. There has been a steady increase in green gas transported year on year which is due to a combined effort between connected sites becoming more resilient and reliable and us managing system pressures effectively allowing the sites to flow. We also connected a new site to the network in October 2023 which adds to the increase since last year.

The majority of internal KPIs are around gas quality monitoring at the entry point. We continue to work with the connected sites to keep these issues to a minimum, although we have seen a slight increase in Ofgem audit actions this year; we are attributing this to our new connection and site personnel changes where further training is required. These Ofgem audit actions cover non-compliance issues to areas such as The Gas Act and Regulation breaches as well as observations requiring site/process improvements. To put this into context, for the winter period 2023-24, across the 21 entry sites, we had to stop entry of gas to our network 134 times remotely from our control room. This was due to maintenance activities and system issues in a small number of cases, but it is primarily due to poor gas quality.

Our approach to delivering improvements

Biomethane

We support two biomethane working groups for collaboration with other gas networks. The Gas Entry Connections Technical Working Group (TWG) is a network only group, and the Entry Customer Network Forum which includes supplier and customer participants from across the industry. We continue to chair the TWG and through this have maintained high levels of support to our colleagues and customers, initialising cooperation and standardisation in this part of the industry.

We have used the TWG to standardise and improve our capacity study process and customer facing reports. We have also written and released a number of working instructions/guides to assist biomethane customers with complex day-to-day operations. This and other initiatives will help achieve national consistency across green gas processes.

We have engaged with our software supplier for support and training, so that we can use our modelling

capabilities for reverse compression. This will allow us to accurately model potential compressors being installed on our network and fully understand how they operate and any impacts they may have prior to installation. Further information on compressors can be found in Trialling new solutions and projects section on the previous page.

Hydrogen

We received 14 speculative enquiries for blending hydrogen into our network, with one in the last regulatory year.

Working with other GDNs, we have engaged with our software suppliers and have completed a training package that will allow us to use existing hydrogen-ready modelling tools to complete the network analysis required. Work is underway to identify, understand and address the changes that will have to be made to regulations, systems, and processes to accommodate hydrogen in our network. We participate in industry programmes including the Hydrogen Research & Development programme and related industry coordination groups which are considering the changes that will be needed for networks to transport hydrogen either as a blend of up to 20% by volume or 100%. These programmes are analysing the impacts on all areas including safety, customers, and regulatory requirements. Work is being carried out collaboratively across the GB networks to ensure the most efficient use of resources, while learning is via shared stakeholder engagement.

Building from previous engagement events, we continue to liaise with our customers and stakeholders to maximise green gas to grid and to support new gas

TABLE 4 – Connections activity for low-carbon sources of gas

Biomethane connections	2021-22	2022-23	2023-24
Enquiries	27	27	45
Connection studies	3	9	6
Capacity of connection studies	2,250 SCMH	10,500 SCMH	3,400 SCMH
Connections	1	0	1
Capacity connected	600 SCMH	0 SCMH	450 SCMH
Volume (energy value) of biomethane injected	707.4 GWh	739.94 GWh	786.06 GWh
Average monthly flow rate (all connections)*	58.95 GWh/month 5,441,518 SCM/month 7,456 SCMH/month	61.66 GWh/month 5,999,552 SCM/month 7,800 SCMH/month	65.50 GWh/month 6,046,587 SCM/month 8,398 SCMH/month
Other green gas			
Enquiries	3	4	1
Connection studies	0	0	0
Capacity of connection studies	0 SCMH	0 SCMH	0 SCMH
Connections	0	0	0
Capacity connected	0 SCMH	0 SCMH	0 SCMH
Volume (energy value) of other green gas	0 GWh	0 GWh	0 GWh
Average monthly flow rate (all connections)*	0 SCMH	0 SCMH	0 SCMH

*Irrespective of connection date. GWh – Gigawatt hours, SCMH – Standard cubic metres per hour.

injection connections to our network. Over the past year we've engaged with developers offering more diverse sources of biomethane such as landfill gas, with the aim of supporting customers and industry to realise the full potential in this area. We are also seeing an increase in existing biogas producers switching from power generation to supply gas directly to grid because of government tariffs and subsidies. The addition of propane and the recent quality issues of the gas has been a hot topic during 2023-24. This has led to a rise in discussions on blending in general and the use of blending tees to reduce the use of propane. While we support the installation of blending tees in principle, we have not yet trialled the equipment in our network to gain confidence in the solution. We hope to have some results later this year from a first-of-its-kind trial in the south-west region that we are supporting.

Innovating for decarbonisation and environmental protection

Innovation plays a key role in developing options and evidence to back the low-carbon transition as well as new approaches that could enhance environmental protection. We work collaboratively with other networks and a range of third parties to deliver leading-edge projects that are dedicated towards decarbonisation of the gas network. We use Ofgem funding mechanisms such as the Strategic Innovation Fund and the Network Innovation Allowance in addition to other funding sources external to the organisation.

In 2023-24, our innovation portfolio included projects that explored a range of subjects:

- developing the evidence base for low-carbon hydrogen conversion
- understanding the impact of new technologies
- understanding energy system development in the areas we serve
- how to better support customers in vulnerable situations throughout the energy transition.

In 2023-24 we invested £2.8m in innovation projects combined across all funding mechanisms, and case studies on some of these projects are provided later in the report.

A full report on our innovation activity, including further case studies on specific projects, can be found here.

TABLE 5 – Innovating to support the low-carbon transition and to protect the environment – case studies

Innovation	Issue or barrier	Annual achievements	Expected benefits	Timescales
NextGen Electrolysis – Wastewater to Green Hydrogen	Green hydrogen production is primarily achieved through polymer electrolyte membrane (PEM) electrolysis, which requires both carbon-free electricity and a considerable amount of purified water. There are therefore considerable barriers to its efficient and cost-effective production since it can only be made where the infrastructure to purify water to the required extent and sources of carbon-free electricity exist. Purifying water also requires lots of energy, so NextGen Electrolysis – Wastewater to Green Hydrogen is investigating using less pure water, such as that from rivers, taps, rain and manufacturing processes.	The project team investigated using innovative membraneless electrolysers and environmentally friendly, non-corrosive electrolyte, enabling green hydrogen to be produced with wastewater and renewable electricity and remove the need for water purification. HydroStar looked at electrolyser and electrolyte development, using three 2kW electrolyser testing units and simulation software, while the University of Exeter worked with them to model electrolyte across a range of water types with different concentrations of ions. They also looked at the effects of injecting hydrogen into specific areas of our network and how that will affect our customers and producers. Welsh Water advised on wastewater sources as well as providing analysis of which of their sites could be used for co-location production purposes. The completion of the 'Alpha' phase successfully demonstrated the NextGen electrolyser, which was able to produce hydrogen from nine different impure water sources, including seawater, final effluent water, and rainwater. We are in the process of applying for additional funding to support the next phase of the project which will test both 100% hydrogen and hydrogen blending using a variety of water sources to demonstrate the technology at two separate operational sites.	As well as addressing real-world manufacturing and operational constraints and reducing the cost for consumers, completion of this project will also enable the production of green hydrogen in remote rural communities by co-locating with solar farms and wind turbines to help lower the requirements of large electrical grid connections. It will also facilitate distributed generation across the network, reducing capital and operating costs and taking away the need for expensive and resource-hungry transportation. By removing the need for purification, the project could save around 4.5 Olympic size swimming pools' worth of water a day per gigawatt of hydrogen produced. Distributed generation would also reduce carbon emissions equivalent to removing 17,600 cars from the road annually. Ultimately, the project will enable lower-cost green hydrogen that helps the UK hit its net zero targets while minimising disruption to the consumer, in addition to lowering the cost of hydrogen for customers in the long term.	**Alpha phase** Start date: October 2023 End date: March 2024 **Beta phase** September 2024 initiation, planned end 2028

TABLE 5 – Innovating to support the low-carbon transition and to protect the environment – case studies (cont.)

Innovation	Issue or barrier	Annual achievements	Expected benefits	Timescales
HyVoltage	Exploiting existing gas network infrastructure could be crucial to meeting net zero targets, offering significant cost savings for networks and consumers regardless of whether the networks are used for distribution, storage, or both. To show how this could work in practice, this study aims to provide the evidence that sets in motion the policy and regulatory changes required to enable the use of flexible vector conversion technology that will allow the gas network to play the most beneficial role it can in the UK's journey to net zero.	This desktop study will be carried out in four distinct work packages: 1. Challenge definition – Frazer Nash will look at previous relevant network innovation projects and other publicly available sources and complete a literature review. It will then assess potential technologies for the Vector Conversion Sites (VCS) subsystems that allow flexing between gas and electricity distribution networks to balance demand, and identify the barriers, enablers, and benefits of VCS development. 2. Technical viability assessment – looking at VCS sizing and the most suitable gas pressure tiers and electricity voltages by conducting a workshop with stakeholders and analysing feasible voltage and pressure levels. The team will also assess locations on the network and the potential number required. 3. Commercial viability assessment – partner Cornwall Insight will define a business model that includes looking at how a new Vector Conversion Operator would work with electricity and gas suppliers and network operators. They will produce a cost/benefit analysis, assess potential policy and/or regulatory barriers and propose ways around them. 4. Outline design and technology road map – using the results of the above assessments, the team will set out use cases for VCS and define a first-of-a-kind model that could be demonstrated in future. They will also develop a road map to capture the technology, policy and regulatory changes needed for VCS to be successfully exploited.	VCS could produce hydrogen for storage when electricity supply exceeds demand. This hydrogen could be stored directly within the network or distributed to the consumer, bypassing the high-pressure transmission system. It would also enable generation of electricity from the gas network during times of peak electricity demand. Benefits include reducing overall energy system costs to the consumer by providing system flexibility and increasing energy security. If the project is successful, it hopes to show that exploiting existing gas network infrastructure is crucial to transitioning to a green energy system, offering significant cost savings for consumers, regardless of whether the networks are used for distribution, storage or both in order to meet UK net zero targets.	Start date: October 2023 Planned End date: October 2024

TABLE 5 – Innovating to support the low-carbon transition and to protect the environment – case studies (cont.)

Innovation	Issue or barrier	Annual achievements	Expected benefits	Timescales
Gas Control System Impact Assessment	Decarbonisation of the gas distribution networks (GDNs) will mean transition from natural gas to an alternative green gas such as hydrogen. While there has been significant progress in recent years to accelerate the shift to green gases, there are still many obstacles to overcome before 100% hydrogen can be injected into the network. Currently, the control systems used are not designed to manage significant change in asset configuration or multi-fuel systems, so to help with this transition we need to identify any changes that may be needed to ensure they can meet the requirements of a future green gas network.	Project partner WIPRO carried out an initial phase of work to determine the impacts of a range of future energy scenarios on control room processes and hence systems and teams. The impact assessment included: • systems and related processes that directly support System Operation activities in the distribution networks and the impact on the national transmission system • resource requirements that are directly impacted by any changes to those control room systems, e.g. if additional configuration will be required • links to external systems. Further work will be undertaken in different project phases, which will once again be collaborative between the networks.	This project has produced a timeline and prioritisation plan for further project phases that will follow to give networks a better understanding of the future needs of the system operator function and what changes are needed as the energy mix in the UK shifts. This will ultimately make transition to greener gases in the network easier to manage and ensure control room functions are fit for future purpose. All GDNs will be able to take the learnings from the project due to the similarity of current system operation functions and consistent arrangements between GDNs and National Gas Transmission. The project outputs were disseminated widely including with the UK Department for Energy Security and Net Zero, which has led to a follow up phase two of the project that will once again be collaborative between all gas networks.	Start date: June 2023 End date: January 2024

Climate change impact

Governments and companies worldwide are pledging to achieve net zero greenhouse gas emissions in response to a growing climate emergency. As a gas distribution network, we are committed to supporting the transition to greener energy through the gas we distribute and the way we run our business.

Our Scope 1 emissions are:

- gas consumption associated with heating
- fuel consumption associated with running our fleet and company cars
- shrinkage, the gas that we use to run the distribution network, gas that leaks out of old metal pipes and gas that is stolen from the network.

Our Scope 2 emissions are:

- our purchased electricity consumption.

Our ambition, backed by scientific research, is to reduce our Scope 1 and 2 emissions, by up to 37.5% by 2035 (wb2°C) – excluding shrinkage. We know this will be challenging and do not expect to see a linear decrease in our emissions. Laying the foundations for further reductions in the future, we are working to reduce emissions where feasible. Our shrinkage reduction target is 10% by 2026, the end of RIIO-2. This will rely on us meeting a tough mains replacement programme and continuing to proactively manage our system pressures.

Business carbon footprint – Scope 1 and 2

The following table reflects the Scope 1 and 2 carbon emissions across all our work streams and the geography in which we operate.

TABLE 6 – Scope 1 and 2 Business carbon footprint

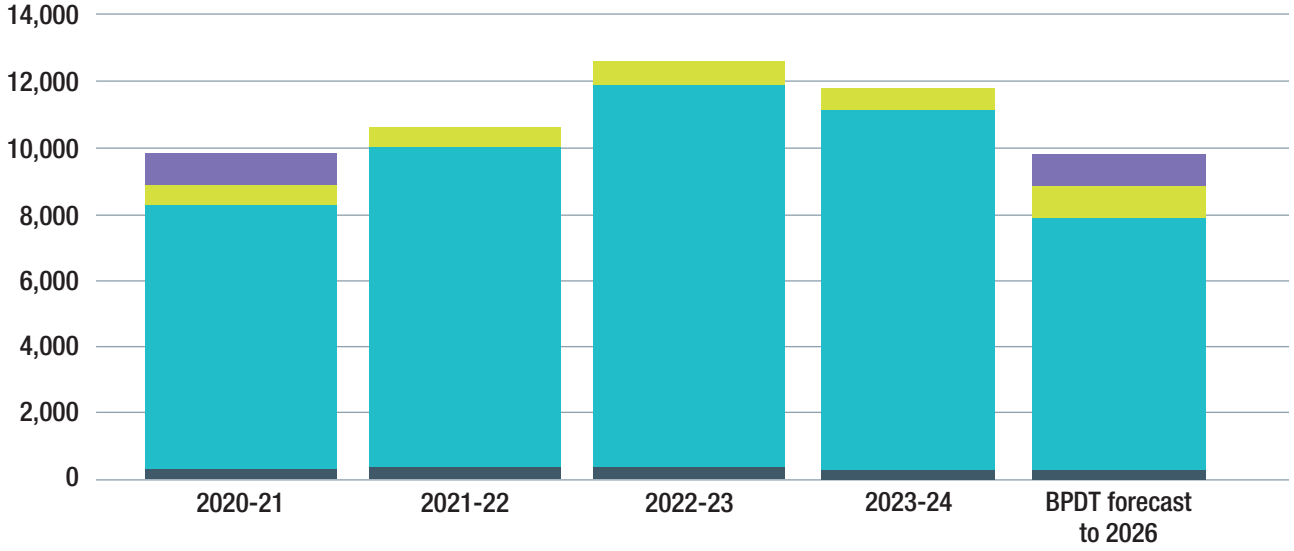
Emissions in tCO_2e	Specific area	2020-21	2021-22	2022-23	2023-24	Comments
Building energy use	Purchased gas	215	256	187	202	Increase in purchased gas in 2021-22 reflects the business returning to normal operating conditions following the impacts of COVID-19 in 2020-21.
	Building – electricity (location based)	903	927	833	907	As expected, we have seen purchased electricity used to charge vehicles begin to rise and impact the total amount purchased.
	Building – electricity (market based)	N/A	0	0	0	We purchased certified green electricity for all consumption from April 2021.

TABLE 6 – Scope 1 and 2 Business carbon footprint (cont.)

Emissions in tCO_2e	Specific area	2020-21	2021-22	2022-23	2023-24	Comments
Operational transport	Road (operational fleet and company cars)	8,677	10,381	12,166	11,582	Carbon emission increase was anticipated between 2021 and 2023 reflecting the comparative impact of COVID-19 and changes to our business model. See below for details.
Fugitive emissions	IIGs	N/A	N/A	N/A	N/A	Not applicable.
Fuel combustion	Diesel	N/A	N/A	N/A	N/A	Scope 1 and 2 fuel combustion noted in building energy use and operational transport, above.
	Gas	N/A	N/A	N/A	N/A	
Gas shrinkage		386,071	374,185	360,945	348,937	See tables 7 to 10 for more details.
Total excluding shrinkage (market based)		9,795	11,564 (10,637)	13,186 (12,353)	12,691 (11,784)	Variances year on year largely due to the fleet. Baseline set in 2019-20. In July 2021 contractors (Scope 3) were onboarded as Wales & West Utilities staff (Scope 1) and workload then increased for the larger workforce. Workload increased marginally from 2022-23 to 2023-24.
Total including shrinkage (market based)		395,866	385,749 (384,822)	374,131 (373,299)	361,629 (360,722)	Reduction of 9% to baseline.
Carbon (Scope 1 and 2 in tonnes CO_2e) / £m turnover		870	833	722	641	Reduction in emissions and increasing turnover resulting in a decrease year-on-year.
Carbon (Scope 1 and 2 in tonnes CO_2e) / GWh gas throughput of the network		6.5	6.7	7.4	7.3	Reduction in both throughput and emissions resulting in a decrease year-on-year.
Renewable energy generated (kWh)		134,387	130,883	120,570	121,374	We generate solar electricity across our network to support the green electricity network.

CHART 1 – Composition of total Scope 1 and 2 emissions excluding shrinkage over time

Scope 1 and 2 market based carbon emissions (tCO_2e)



Note: 2021-2024 data sourced from Regulatory Reporting Pack (RRP) reported carbon data. 2021-22 onwards shows market-based emissions with purchased zero carbon emissions electricity. In the forecast emissions sourced from the 2019 Business Plan Data Tables (BPDT) Table 5.10 calculated using location-based electricity supply. BPDT forecast figures will be revised at the start of each price control period to reflect up-to-date information.

- Purchased electricity (market based)
- Transport – company cars
- Transport – operational fleet
- Purchased gas

Our 2020-21 Scope 1 and 2 transport carbon emissions reflect the impact of COVID-19 on our business. Many work streams were reduced as a result of compliance with government directives on working from home.

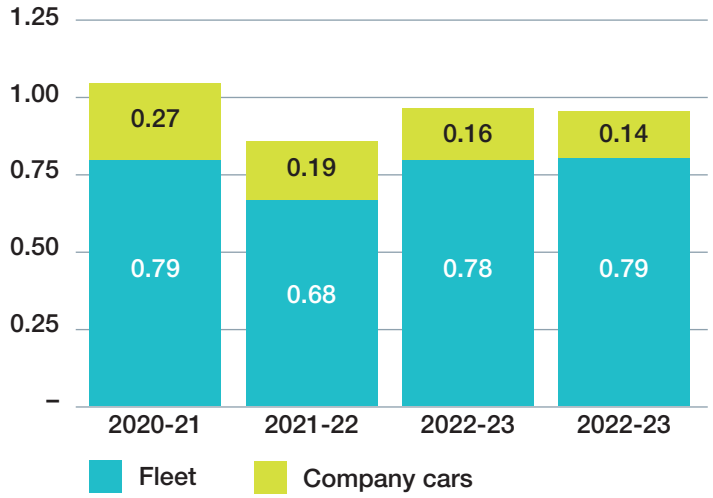
During 2021-22 we changed our business model, insourcing our mains replacement work. This resulted in an increase in the number of employees and associated vehicles reported in our Scope 1 emissions. However, the emissions associated with purchased electricity (market based) reduced to zero when we switched to a renewable energy supply in April 2021. Then, during our first full year following lockdown restrictions, 2022-23 saw an expected increase in emissions in line with our workload returning to normal pre-pandemic levels.

As anticipated, insourcing the mains replacement work has meant that we have greater direct control over the vehicles our colleagues use and the ability to convert them to green alternatives, subject to the availability of viable options. Despite our company car fleet increasing by 30% since 2021-22, we have seen emissions decrease across the board. This is due to more fuel-efficient vehicles and increasing the number of ULEVs/PHEVs/EVs.

We have also introduced more hybrid and ultra-low-emission vehicles, resulting in a lower carbon intensity for company cars (see the case study below).

The overall carbon intensity of miles travelled by the operational fleet has increased slightly between

CHART 2 – CO_2e intensity of an operational mile travelled, expressed in $kgCO_2$/mile



2022-23 and 2023-24, which can be expected due to the ageing fleet. During COVID-19 we experienced challenges procuring new vehicles due to poor market conditions and a lack of suitable new vehicles, and so the fleet grew older and less efficient. Additional vehicles were also hired to grow the fleet to remove the need for vehicle sharing, which then led to an increased carbon footprint. When our fleet vehicles reach their end of life, we currently replace like for like in the absence of suitable alternatives. However, newer and more efficient options are prioritised.

Our Transport team continues to future-proof our fleet by exploring greener alternatives for investment in the coming years.

Some of our work to reduce our business Scope 1 and 2 emissions is detailed in the following case studies.

CASE STUDY – Ultra-low or zero emission company cars

We are committed to moving 75% of company cars to plug-in, ultra-low-emission vehicles (ULEVs) or zero emission vehicles (ZEVs) by 2026.

As of 31 March 2024, 92% of our company cars had been replaced with such vehicles, with 7% of the fleet being ZEV. All current cars on order are either ZEV or ULEV.

To enhance the zero emission mileage capability of our plug-in company cars, we have also installed a total of 67 vehicle charging points up to March 2024, with a further 16 planned for installation by March 2026. Electricity is charged to drivers at a highly competitive cost so there is a strong incentive to maximise usage. We will continue to seek opportunities for the installation of vehicle chargers as part of ongoing operational depot enhancements, subject to available site electricity capacity.

CASE STUDY – Pedal Power: promoting health and sustainability with our Cycle to Work Scheme

In March 2023, we launched our new Cycle to Work Scheme, a government-backed initiative that aligns with our commitment to both employee wellbeing and environmental responsibility. Cycle to Work encourages healthy commuting habits by allowing employees to spread the cost of a new bike and safety gear (up to £2,000) over a year through salary sacrifice. This translates to reduced monthly payments and potential tax and National Insurance savings of up to 47%, making cycling a more accessible option.

The benefits extend beyond financial savings. Regular cycling promotes physical and mental wellbeing by reducing the risk of chronic illnesses and improving overall health. Additionally, employees save money on car running costs, parking fees, or public transport passes.

Furthermore, the scheme can contribute significantly to environmental sustainability. By encouraging cycling, we're actively reducing our company's carbon footprint. Fewer cars on the road mean less traffic congestion, cleaner air, and a smaller environmental impact – benefitting both our employees and the planet.

Commercial vehicles and low-emission opportunities

Our commercial vehicle fleet is around 1,400 vehicles strong; however, the availability of zero emission vans that are suited to our operational duty cycles is currently extremely limited. Battery electric vehicles (BEVs) typically offer only a short range – which is further curtailed in low ambient temperatures – and their significant payload reduction is a critical issue. Nevertheless, opportunities for ZEVs are being actively pursued through the acquisition of several battery electric vans for front-line, long-term trials. We ordered four BEVs in March 2023, with a quoted three-month delivery lead time. These are now expected to be delivered into fleet in July 2024. The purchase underlines our commitment to deploy ULEVs and BEVs where they do not hinder operational performance. The four BEVs will be trial vehicles.

Hydrogen fuel cell electric vehicles (FCEVs) are in their infancy though they are expected to offer a greater capacity and be a much better fit with our duty cycles. The results were very encouraging during a one-month trial of an early prototype FCE van that we ran in February 2024. Findings showed an operationally effective payload, a better range than an equivalent BEV and the potential for refuelling in a similar time to diesel – yet without range curtailment in cold conditions.

Consequently, we are now working hard to develop further opportunities for trial and the acquisition of FCEVs, to coincide with availability of green hydrogen supplies and suitable fuel dispensing facilities in our area – anticipated by Q1 2026.

We strongly believe that hydrogen FCEVs are an essential 'And' technology that is urgently required in the van market. More information about our position can be found here.

Renewal of our HGV fleet re-commenced in 2022, accelerated in 2023-24 and continues at pace. We've taken the opportunity to provide highly standardised vehicles with up-to-date technology, enhanced fuel efficiency and exhaust emissions performance. Additionally, a higher gross weight permits a 30% payload increase, which over time we expect to reduce the need to tip and/or re-load during the working day, minimising mileage. The Investment Paper for 2025 and 2026 LCV and HGV replacements has already been approved with the order placed.

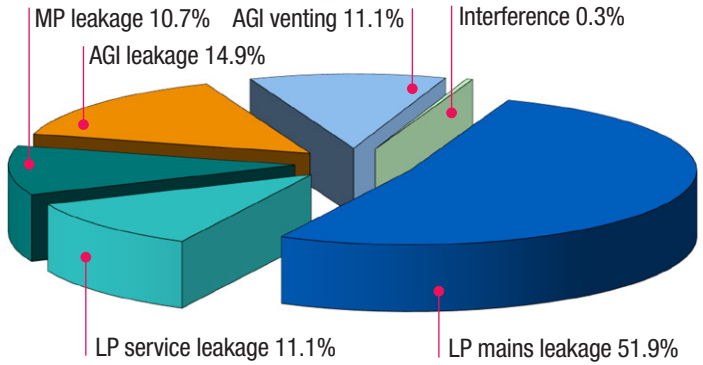
While zero emission HGVs are in their early infancy, we are engaging with industry partners to explore opportunities to trial a prototype hydrogen FCEV HGV.

Business carbon footprint – shrinkage

Shrinkage is gas which is emitted or used from the gas distribution network during transportation. Shrinkage volumes are assessed and reported annually using the approved Shrinkage and Leakage Model (SLM)*. Shrinkage occurs during leakage, own use gas and theft of gas.

- Leakage is comprised of low-pressure (LP) mains and services leakage, medium pressure (MP) mains leakage, above ground installation (AGI) leakage, AGI venting and interference (third-party) damage.
- Own use gas is the gas used for pre-heating at pressure reduction sites to prevent transported gas falling to sub-zero temperatures, causing freezing of components and ground heave.
- Theft of gas is unmetered gas that is used illegally upstream of the consumer's meter and emergency control valve.

CHART 3 – Wales & West Utilities 2023-24 leakage breakdown



*The current SLM is the Ofgem approved version v1.4 on 16 September 2014

The following tables provide a breakdown of leakage volumes changing over GD2.

TABLE 7† – Leakage volumes

GWh	2021-22	2022-23	2023-24
Low-pressure mains	162.5	153.5	146.4
Medium pressure mains	30.9	30.6	30.3
Services	34.8	33.9	31.2
AGIs	73.1	72.9	73.4
Interference	1.1	1.1	1.0
Total	302.4	292.0	282.2
Target total	306.0	300.3	294.2

TABLE 8† – Leakage emissions

tCO_2e	2021-22	2022-23	2023-24
Total	370,892	358,071	346,121
Target total	375,285	368,350	360,807

TABLE 9† – Other shrinkage volumes

GWh	2021-22	2022-23	2023-24
Own use	6.5	5.7	5.6
Theft	11.4	10.1	9.8
Total	17.9	15.7	15.4

TABLE 10† – Other shrinkage emissions

tCO_2e	2021-22	2022-23	2023-24
Own use	1,189	1,038	1,017
Theft	2,104	1,836	1,799
Total	3,293	2,874	2,816

Leakage emissions in more detail

As set out in table 8, leakage emissions reduced by 11,950 tCO_2e from the previous year, equating to a 3.3% reduction in annual emissions due to continual replacement of old metallic mains with low-leakage polyethylene (PE) and pressure management in the low-pressure (<75mbar) networks. Pressure management ensures that pressures are not too low as to maintain security of supply for our gas consumers and not too high particularly where areas have a large proportion of metallic mains pipes. However, pressures can be influenced by factors outside of the network's control such as extreme weather conditions which lead to increased demand. As such, harsher-than-average winter conditions in the future could adversely impact on future shrinkage performance.

We are in the process of replacing pneumatic controllers (which automatically vent gas as part of normal operation) with either low or no emissions solutions. In 2023-24, we replaced the controllers at three sites. According to estimates, this equates to reducing 688 tCO_2e per year based on an assumption of 17,000 scm of gas vented annually per site with a Jetstream system. This is based, through measurement, on a British Gas report from 1994 titled, "Review of natural gas venting from the transmission system". There are a further seven sites with these controllers scheduled to be replaced before the end of the price control period.

Digital Platform for Leakage Analytics (DPLA) collaborative project

We are working in collaboration with Cadent (as project lead), SGN, NGN and National Gas with Guidehouse (as technical experts) on the DPLA project. The project aims to demonstrate how to identify, predict, and locate gas leaks in the gas distribution network by means of data driven leakage modelling and methane leak detection technologies. Success would unlock the ability to proactively identify and remediate sources of leaks from the gas networks to reduce gas loss to the atmosphere, reduce carbon emissions, and improve safety. The collaborative efforts of the project mean that solutions will be applicable to all UK gas networks, helping us respond to the Global Methane Pledge and improve shrinkage monitoring.

† Tables 7-10 show our shrinkage and leakage volumes and emissions in Regulatory Years 2021-22, 2022-23 and 2023-24. Please note the values contained have been rounded to an appropriate level of accuracy. This may cause immaterial discrepancies between the totals presented within this document and the summation of their constituent parts. However, each individual figure is correct in its rounded form.

Business carbon footprint – Scope 3

Our Scope 3 carbon emissions are the result of activities not owned or controlled by us but are a consequence of the work we do. Between 2013 and 2021 we reported on a limited number of our Scope 3 emissions categories but committed to reporting more and improving the quality of our Scope 3 emission data over GD2. Working with a specialist consultant we benchmarked our 2019 Scope 3 emissions using primary data and the Greenhouse Gas Protocol Evaluator tool.

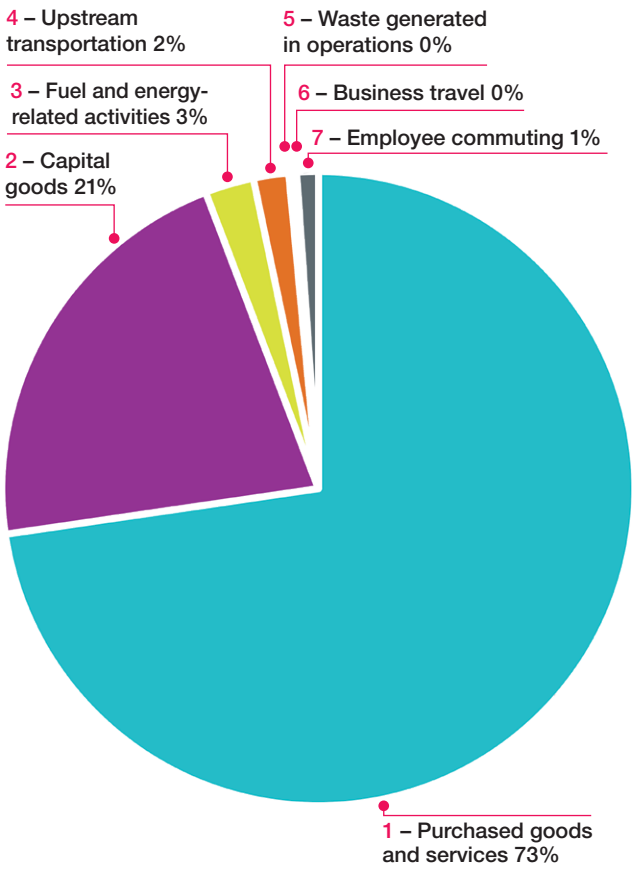
The assessment highlighted that Scope 3 categories 8 to 15 were either not applicable or material to us, and therefore could be discounted. A list of the Scope 3 categories and their description is provided in the glossary.

A summary of the initial screening assessment, as our 2019-20 baseline, is shown in table 11 on the right and demonstrates that a significant proportion of the carbon falls within purchased goods and services and capital goods. Based upon this assessment, and in line with the other GDNs, we plan to prioritise primary data sources that fall within the first seven Scope 3 categories, improving Scope and data quality over time. We will continue to highlight new areas of reporting and improvement and we will tackle our most significant issues of getting reliable primary data from our supply chain.

TABLE 11 – 2019-20 Scope 3 baseline assessment using primary data and spend analysis

Category	Description	Footprint tCO_2e	% of Total Scope 3
1 – Purchased goods and services	Extraction, production, and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2 – 8.	65,836	72.7%
2 – Capital goods	Extraction, production, and transportation of capital goods purchased or acquired by the reporting company in the reporting year.	19,445	21.5%
3 – Fuel and energy related activities	Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year, not already accounted for in Scope 1 or Scope 2.	2,224	2.5%
4 – Upstream transportation	• Transportation and distribution of products purchased by the reporting company in the reporting year between a company's tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company). • Transportation and distribution services purchased by the reporting company in the reporting year, including inbound logistics, outbound logistics (e.g. of sold products), and transportation and distribution between a company's own facilities (in vehicles and facilities not owned or controlled by the reporting company).	1,674	1.8%
5 – Waste generated in operations	Disposal and treatment of waste generated in the reporting company's operations in the reporting year (in facilities not owned or controlled by the reporting company).	198	0.2%
6 – Business travel	Transportation of employees for business related activities during the reporting year (in vehicles not owned or operated by the reporting company).	142	0.2%
7 – Employee commuting	Transportation of employees between their homes and their worksites during the reporting year (in vehicles not owned or operated by the reporting company).	1,020	1.1%

CHART 4 – 2019-20 Scope 3 baseline assessment using primary data and spend analysis



For the 2023-24 reporting year we have significantly increased the scope of primary data reported within our Scope 3 emissions footprint; the results are presented right.

TABLE 12 – 2023-24 Scope 3 carbon reporting

Descriptions	Footprint tCO_2e 2020-21	Footprint tCO_2e 2021-22	Footprint tCO_2e 2022-23	Footprint tCO_2e 2023-24	Comments
Purchased goods and services	599	4,166	4,291	4,242	In 2021-22, in line with regulatory reporting requirements, we included reinstatement materials in our reporting; this led to an increase in emissions reported from 2020-21.
Helicopters (pipeline surveys)	49	63	72	75	
Contractor vehicles	549	140	0	0	We changed our business model in July 2021; contractor vehicles that were in Scope 3 are now in Scope 1.
Reinstatement materials	N/R	3,963	4,219	4,167	This includes internal and contractor reinstatement materials.
Capital goods	3,480	3,519	4,326	4,212	
PE pipe and fittings	3,480	3,349	4,101	3,943	Data provided directly from the suppliers.
Copper and steel pipe	N/R	163	215	207	Data provided by purchase orders.
IT (purchased equipment)	N/R	7	10	62	Data provided by purchase orders.
Fuel and energy related activities	–	2,871	3,160	3,076	
Well To Tank (WTT) gas consumption	N/R	51	40	34	Converted from Scope 1 and 2 source data.
WTT and transportation and distribution electricity consumption	N/R	340	299	291	
WTT fuel	N/R	2,480	2,821	2,751	
Waste generated in operations	–	180	280	251	
Spoil to landfill	N/R	153	231	217	
Office and depot waste	N/R	24	45	31	Data provided by waste management contractors.
IT	N/R	0.1	0.03	0.07	
Water supply waste	N/R	2	4	2	Data provided by utilities invoices.
Business travel	0.5	104	197	391	
Private vehicles	–	44	130	53	2020-21 reported private vehicles in Scope 1.
Rail	–	1	4	10	Data provided by third-party corporate travel company. Increased flight emissions in 2023-24 reflect resumed business travel after COVID-19 restrictions.
Flights	–	–	3	275	
Hotels	–	55	55	47	
Hire cars, taxis, buses	0.5	4	5	6	
Employee commuting	–	964	1,087	952	
Commuting	N/R	518	893	812	Calculation based on results of an employee survey (85% response rate in 2023-24, 62% response rate in 2022-23).
Homeworking	N/R	446	194	141	
Total gross Scope 3 carbon	4 ,080	11,804	13,341	13,125	
Carbon offset	N/R	-70	-2,700	-2,400	Carbon offsetting rail and air emissions (including helicopters) along with emissions associated with our HGVs since 2022-23 via certified additional international offsets.

Notes: N/R = not recorded. Our Scope 3 reporting excludes Upstream Transportation in 2021-22 carbon accounts, reflecting business organisation and fuel being included within Scope 1 emissions. Values below 1 are reported to the first significant figure.

CHART 5 – Breakdown of Scope 3 emissions 2020-24

Scope 3 emissions (tCO_2e)

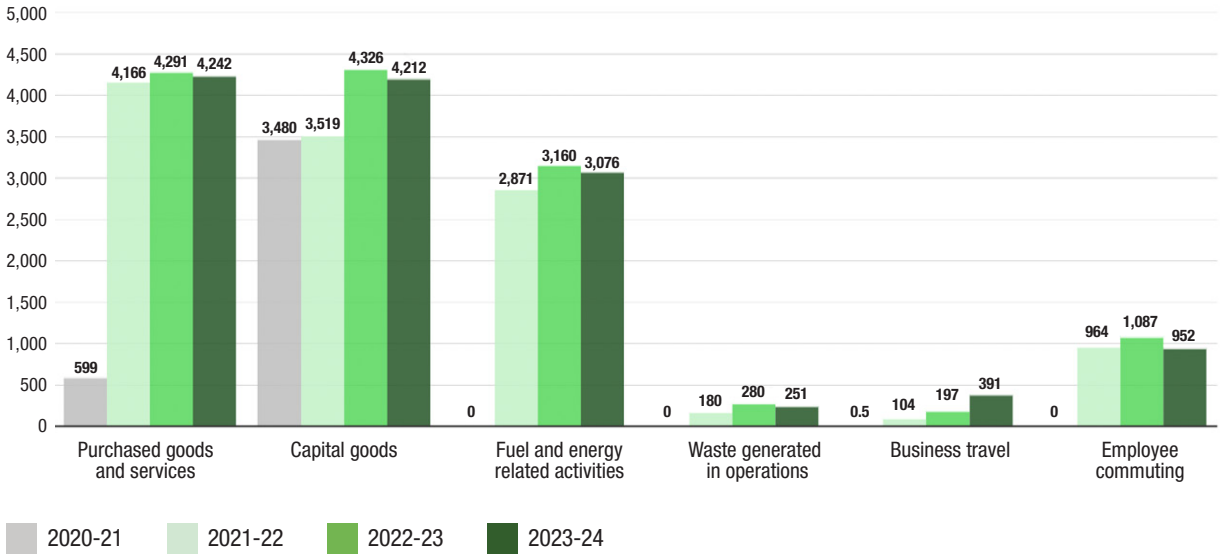
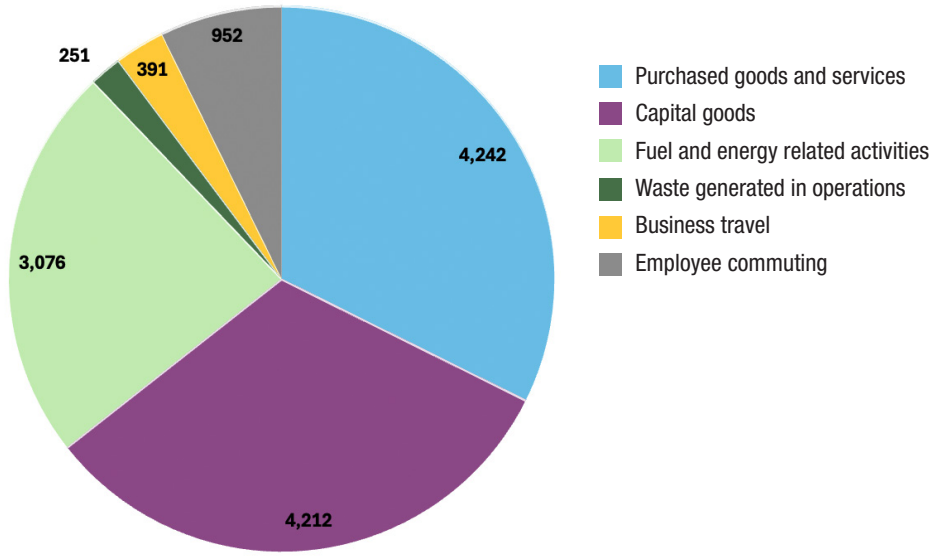


CHART 6 – Breakdown of Scope 3 emissions 2023-24

Scope 3 emissions (tCO_2e)



CASE STUDY – Carbon offsetting and responsibly handling unavoidable emissions

We understand the ever-increasing importance of achieving net zero by 2050 and realise the impact our business and work has on the environment. While our focus is to reduce our emissions through improved efficiencies, systems and processes, some emissions are unavoidable – and that is where carbon offsetting comes in.

Carbon offsetting is an opportunity for us to compensate for some of the unavoidable emissions generated within our day-to-day business, and we have done so through purchasing Gold Standard and Verified Carbon Standard (VCS) credits via Carbon Footprint Ltd, a verified carbon offsetting company, to offset our unavoidable air and rail travel emissions. In 2022-23 we conducted a review of our fleet to determine the availability of lower emission alternatives. As mentioned earlier in the report, this review highlighted that such alternatives are not currently available for our HGVs and, as such, we made the decision to include these emissions in our unavoidable carbon offsets. To date, that is the equivalent of over 1.8 million litres of fuel.

We are always looking to improve the environment in areas that are impacted by our work, but it is important to recognise that greenhouse gas emissions are a global issue and that developing countries frequently bear a disproportionate share of the consequences.

Among the few confirmed carbon offsets available in the UK, planting trees is the most common option. Given our significant tree planting efforts on our five for one programme, we have instead focused our carbon offsetting strategy on supporting projects in countries predicted to disproportionately suffer the impacts of climate change. We will continue to offset our unavoidable emissions as we work towards achieving net zero.

CASE STUDY – Commuting and homeworking

We are committed to reducing our overall carbon footprint. To achieve this, we have focused on understanding and reducing both our direct and indirect emissions. While accurately capturing data relating to employee commuting and homeworking emissions can be challenging, we developed an in-house survey that helped improve the quality of the data available to us.

The survey was designed to encourage maximum participation. It collected more extensive data on employee commuting patterns at different stages throughout the year, acknowledging that changes happen and allowing us a better understanding of the various means of transport used, the distances travelled and any changes to employee properties or utility suppliers.

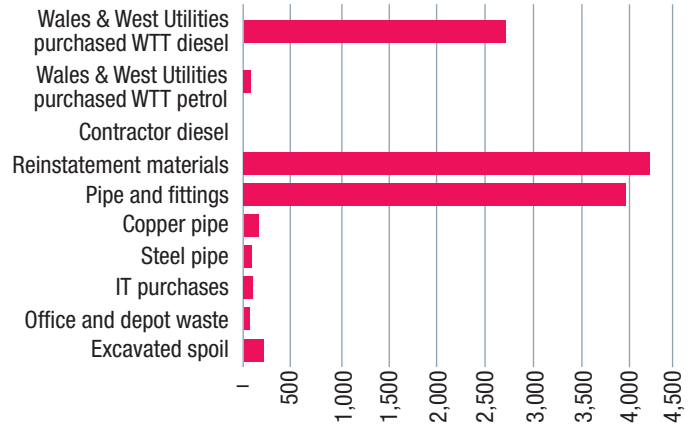
Directorate and department details could also be captured in the survey. This allowed us to precisely track the completion progress, which was instrumental in ensuring a higher participation rate. With this improved survey, we have seen an increase in responses, from 23% in 2021-22 to 62% in 2022-23 and now 85% in 2023-24. As a result of the continued improvement in response volumes, our data is now far more accurate and reliable, and we have gained a more comprehensive understanding of our commuting and homeworking Scope 3 emissions. When our employees transitioned out of predominantly home-based working to our hybrid working model in 2022-23, we saw an (expected) increase in commuting emissions, and a decrease in homeworking emissions. In 2023-24, with improved data and improved use of remote working facilities, we have witnessed a decrease in both commuting and homeworking emissions.

Embodied carbon

Embodied carbon describes the carbon released when producing materials. It is estimated based on the energy used to extract and transport raw materials, as well as the emissions created during manufacturing processes.

Over RIIO-2 we will report embodied carbon on new construction projects that meet the threshold requirements, and work with other GDNs to ensure consistency in methodology. We also track the embodied carbon of materials and services we use daily through our Scope 3 reporting. The following graph shows the embodied carbon emitted during the 2023-24 regulatory year and is a baseline for future reporting on embodied carbon reduction.

CHART 7 – Embodied carbon 2023-24 (tCO_2e)



The embodied carbon graph demonstrates the importance of efficient management of our core activities and continuing to proactively manage our operational fleet, which is a significant source of embodied carbon. The complexity and volume of our work also influence our overall carbon footprint, as these factors directly impact resource consumption and waste generation.

During GD2 we propose to monitor our embodied carbon against the following metrics:

TABLE 13 – Status update on our 2021-24 embodied carbon and ambitions

Embodied Carbon Source	Description	Footprint tCO_2e 2021-22	Footprint tCO_2e 2022-23	Footprint tCO_2e 2023-24
Total Embodied Carbon	We will show how we are improving and seeking carbon efficient solutions over GD2.	25.08 tCO_2e/km pipe replaced	26.58 tCO_2e/km pipe replaced	23.38 tCO_2e/km pipe replaced
		22.21 tCO_2e/£M turnover	22.47 tCO_2e/£m turnover	20.18 tCO_2e/£m turnover

We will work closely, over RIIO-2, with our supply chain to improve the quality of our embodied carbon reporting. See section 8 for more details.

Sustainable procurement, resource use and waste

Across a diverse range of goods and services, we engage with around 1,200 suppliers. Our procurement team recognise the importance of the supply chain in supporting the company's environmental ambitions, and that having an engaged supply base can positively influence our sustainability strategy.

Building a picture of our extensive supply base is important, to shape and inform future activity, and enable us to measure the effectiveness of future action plans. In 2022 we made a commitment to map our supply base, looking at areas considered key to delivering sustainability objectives. We aim to better understand who our suppliers are, from the levels of risk in our business interactions, to their environmental activity, and compliance with important initiatives such as Modern Slavery and the Real Living Wage. Due to scale, we adopted a phased approach to mapping, beginning by focusing on the top 50 vendors by spend. Early results confirmed heightened awareness of Environmental and Modern Slavery legislation, as well as risks and required activities – which we expected from the mostly larger organisations. Later phases will broaden the process and build a more complete picture of the whole supply base. Using desktop analysis of a supplier's web presence, or email surveys where we ask each supplier questioned to provide feedback across several themes, we create an understanding of how the supply base considers sustainability.

In addition to this mapping exercise, we have also developed a Supplier Charter that outlines our environmental ambitions and requirements. This charter provides a clear channel of communication and will be periodically updated and circulated to all partners during the mapping process and using our website. As well as reinforcing established standards of compliance, the charter should highlight themes where the supply chain can support our future ambitions.

To embed environmental considerations into our procurement practices, we are redeveloping the Pre-Qualification Questionnaire (PQQ). This will ensure that only suppliers committed to our sustainability goals are considered as potential partners. By standardising the PQQ across all procurement categories, we will create a consistent process for selecting suppliers who align with our environmental ambitions. The revised PQQ will focus on emerging environmental challenges while considering factors such as supplier size and risk.

Furthermore, continued membership of the Supply Chain Sustainability School (SCSS) has enabled internal training and learning across a range of topics, supporting the development of industry best practices and solutions. Intergroup collaboration continues with our sister companies where subject matter knowledge, commercial synergies, or environmental expertise offer an improved outcome.

Over the coming months, we will:

- continue to map the current supply base and assess against key environmental objectives, establishing a foundation to help shape future activity, amending supplier questionnaires to address emerging themes
- develop tools and metrics to measure and record environmental performance through PQQs and contract management
- engage with internal stakeholders to ensure that our approach supports long-term environmental goals and strategic ambitions
- periodically review and publish the Supplier Charter.

TABLE 14 – Sustainable procurement performance indicators

Supply chain	2021-22	2022-23	2023-24
Percentage of suppliers (by value) meeting licensee's supplier code	74% (87% of suppliers questioned in benchmark of 80% of spend)	76% (83% of respondents in benchmark of 95% of spend)	78% (93% of respondents in benchmark of 85% of spend)
Percentage of suppliers (by value) that have their own sustainability metrics or KPIs	45% (54% of suppliers questioned in benchmark of 80% of spend)	71% (77% of respondents in benchmark of 95% of spend)	71% (85% of respondents in benchmark of 85% of spend)

Efficient resource use and waste management

Effective resource use and waste management is critical for the conservation of natural resources, making it central to ensuring a sustainable future. As waste production grows globally, so does the urgency with which we must focus on reduction, reuse, and recycling.

Where possible, we are adopting a circular economy approach, where resources are kept in use in a closed-loop system rather than thrown away. This will help us cut our reliance on new raw materials and reuse previously used materials.

The waste hierarchy is a fundamental principle that underpins our approach to waste management, and we use it to drive environmental improvement, moving away from disposal to the prevention of waste creation.

Through GD2 we have committed to a range of resource use and waste targets. See table 2 for more information.

Resources summary

The key materials we use directly and the activities to reduce our usage are summarised below:

TABLE 15 – Key materials used during the reporting period 2023-24

Resource	Volume consumed	Environmental impact	Actions taken
Aggregate	89,638 tonnes	Potential environmental impacts associated with aggregate extraction including changes to the landscape, loss of habitat, noise, dust, erosion, and sedimentation.	• We proactively seek to reduce the number and volume of excavations we dig. Utilising techniques including inserting new PE pipe into the pipe already buried in the ground. • Where we must dig, we seek to use recycled aggregate as backfill material, this reduces the impact of the resource use and reduces demand on virgin aggregate. Recycled aggregate requires specific conditions for it to be an effective product, and the UK weather can make that challenging at times. • During 2023-24 we used 15% recycled aggregate as backfill material (21% in 2022-23). Our commitment is to increase the use of recycled aggregate to greater than 20% and we continue to work with our suppliers to help achieve this goal.

TABLE 15 – Key materials used during the reporting period 2023-24 (cont.)

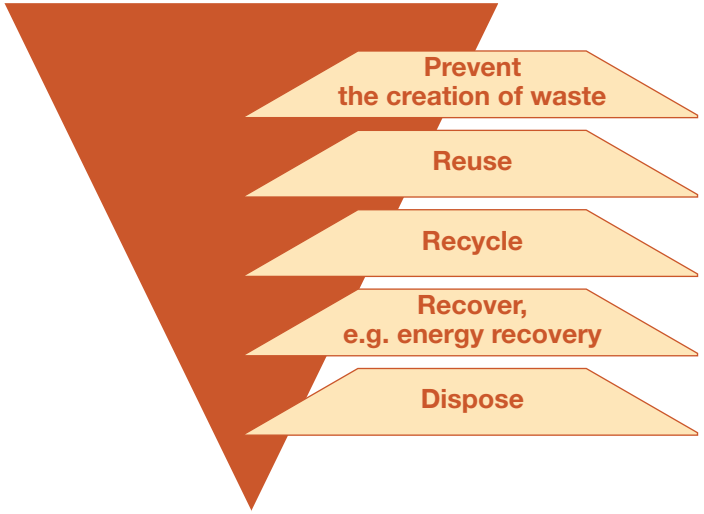
Resource	Volume consumed	Environmental impact	Actions taken
Reinstatement materials	**Tarmac** 38,055 tonnes **Concrete** 10,069 tonnes **Paving** 3,179 tonnes **Soil** 6,366 tonnes	Asphalt, concrete, and brick production are carbon intensive and utilise a range of raw materials including aggregate and water.	Where feasible, we reduce the size of our excavations through innovative solutions and favouring pipe insertion over open-cut methods. This allows us to limit the volume of reinstatement materials consumed. We are working collaboratively with our reinstatement supply chain to identify opportunities to further reduce the impact of our reinstatement activities.
Diesel – fuel within the operational fleet	4,410,239 litres	Burning diesel releases carbon dioxide, a greenhouse gas, into the atmosphere. Diesel engines also emit particulate matter (PM) and nitrogen oxides (NO_x) which contribute to the production of ground-level ozone and acid rain resulting in a negative effect on human health and biodiversity.	• We proactively manage our operational diesel fleet, ensuring the vehicles are well maintained and moving towards efficient Euro VI engines, currently 96% (80% in 2022-23). • We are investigating ULEV and ZEV alternatives across the fleet. • We have incentivised the ULEV and EV cars in our “user chooser” company car scheme. • We have increased the number of EV charging points across our depots and offices supporting company and personal ULEVs and EVs. • We have invested in battery operated tools and machinery where available and continue to trial technologies in this space.
PE and metal pipe	1,752 tonnes	The principal impacts associated with the manufacture of PE and metal pipe are associated with resources depletion and energy consumption.	• We employ a number of initiatives to support the efficient use of PE pipe including our investment in coil banding systems at main depots and use of service coil bags rolled out across our geography. • 100% of the PE waste disposed of through our third-party provider is recycled and made into secondary plastic pipe products.

Other actions taken in the year, which have less physical impact but support embedding environmental behavioural change within the business include:

TABLE 16 – Other materials focus areas for Wales & West Utilities during the reporting period

Resource	Environmental impact	Actions taken
Paper	Paper production requires enormous amounts of energy and water and can have negative environmental impacts including deforestation and air pollution. Although paper is widely recycled in the UK, paper waste remains an issue, with 26% of paper going to landfill.	• We have dedicated recycling bins for paper to ensure it is diverted from landfill. • We worked from home during COVID-19 where possible, which reduced the amount of paper we used as part of our normal working practices. Since returning to working in the office we are encouraging staff to continue keeping printing and other paper usage volumes low. • In 2021-22 we trialled recycled paper, testing its compatibility with office equipment. Further testing criteria were identified during 2022-23 to ensure the paper meets accessibility needs of our internal and external stakeholders.
Single use plastic (SUP)	Many types of plastics are recyclable, but it takes up to 500 years for plastic to fully decompose. Every year, the UK throws away enough plastic to circle the globe five times*.	• Moved from SUP teabags and coffee point sundries to sustainable alternatives. • Stationery framework tender includes environmentally friendly SUP free or recycled content at reduced cost. These items were implemented in 2022. • Reusable water bottles were issued to operational colleagues from March 2022. • In 2022-23 all plastic cutlery in our canteen areas was replaced with wooden alternatives. An environmental tax has been added to takeaway cups to incentivise the use of reusable alternatives.

Waste summary



Initially focusing on reducing consumption and the generation of waste, as well as diverting waste from landfill through reuse, recycling, and recovery, we expect to achieve our ambition to send zero waste to landfill by 2035.

The segregation of waste throughout both operational and support sides of the business is commonplace, which allows us to increase the recycled content of our waste streams. New and revised legislation offers additional opportunities to divert waste from landfill by encouraging recycling and recovery. However, we continue to look for new opportunities to divert waste from landfill. The following table shows how we performed during the year.

* www.recyclingbins.co.uk/recycling-facts/

TABLE 17 – Year on year comparison of waste produced

	2021-22	2022-23	2023-24
Total metric tonnes of waste produced directly by the company	**150,614**	**232,191**	**221,328**
Tonnes per £m turnover	**325**	**448**	**392**

TABLE 18 – Waste statistics 2023-24

	Reuse	Recycle	Recovery with energy	Incineration	Landfill
Total (tonnes/%)	–	218,585 99%	215 <1%	215 <1%	2,313 1%
Spoil	–	217,831	–	–	2,302
PE waste	–	172	–	–	–
Mixed recycling	–	232	–	–	–
Cardboard	–	30	–	–	–
Plastic wrapping	–	4	–	–	–
Pallets	–	86	–	–	–
Non-recyclable (general waste)	–	–	215	153	11
Hazardous waste	–	–	–	62	–
Metal waste	–	228	–	–	–
IT waste	–	4	–	–	–

Our performance against our RIIO-2 target of sending a maximum of 20% waste to landfill was met in the first reporting year and has continued to stay below target. We are continually looking for areas to further improve. Here are some of the activities that we're engaging in.

CASE STUDY – Taking Responsibility: Our "Sorted" Waste Management Campaign

Effective waste management is a cornerstone of our commitment to environmental responsibilities. Wales took a significant step forward announcing the introduction of new workplace recycling legislation, planned to come into force on 6 April 2024. This law will require businesses to segregate a wider range of materials for recycling, including food waste, paper and card, glass, plastic packaging, and metal. To prepare our staff and to ensure compliance in readiness for these changes, we developed our internal campaign, "Sorted".

"Sorted" doesn't just explain the changes; it equips our colleagues with the knowledge and resources they need to be ready to recycle effectively across all our Welsh depots. Information banners featuring the "Sorted" logo and clear explanations of the legislation changes were placed prominently at each depot in Wales. These banners also detail the new waste streams, and which bin each type of waste belongs in. We also replaced all the bins at each site with clearly labelled options for the new waste categories, giving colleagues an opportunity to adjust ahead of the changes and making it easy for them to do the right thing.

The "Sorted" campaign goes beyond immediate compliance and prepares us for any future legislative changes both in Wales and in England. The consistent branding creates a unified message around waste reduction, keeping environmental responsibility at the forefront of our employees' minds. By prioritising responsible waste management and empowering our colleagues, we demonstrate our commitment to a cleaner, more sustainable future.

CASE STUDY – Battery recycling

As part of our continued commitment to reducing our environmental footprint, this year we also implemented a battery recycling scheme across our depots. This initiative promotes responsible waste management practices while tackling a significant environmental concern. Throwing used batteries away with general waste poses an environmental and safety risk as they can leak harmful toxins into the soil and water, and even cause fires in landfills and recycling trucks.

Benefits of battery recycling

- **Reduced landfill waste:** By keeping batteries out of landfills, we contribute to a more sustainable waste management system.
- **Recycled resources:** Recovering valuable materials like lithium and cobalt from used batteries reduces reliance on virgin materials in new battery production.
- **Safer workplaces:** This incentive minimises the risk of fires, ensuring a safer work environment for our colleagues and our waste carriers.

Battery recycling is just one step on our journey towards a more sustainable future. We continue to explore innovative ways to reduce our environmental impact and achieve our zero-waste ambitions.

Local environment

Climate change resilience

The risk from climate change has potential to impact on the resilience of our network, and we recognise the pivotal role we play in delivering a safe and secure supply of gas to our customers. We've committed to use up-to-date, government issued, climate change projections to assess the risk of climate change to the network.

During 2021-22, we completed an assessment of climate related risk to us, and the gas and electricity transmission and distribution networks using the UKCP18 climate change projections.

The main impacts on the network

- Temperature – predicted increase
- Precipitation – predicted increase in winter rainfall and summer droughts
- An increase in wet to dry cycles
- Increasing windstorm frequency (particularly following high-intensity precipitation)
- Significant cold spells – predicted to decrease but be more severe
- Wildfires.

Early in 2022, our climate adaptations report was published on the government website*. The report identified a variety of risks and opportunities and helps to define our adaptation pathway, which includes the following.

Adaptation pathway features

Building adaptive capacity: helping to understand and respond to climate change challenges. This includes measures to create new information (data collection, research, monitoring, and awareness raising); supporting governance and organisational structures; and helping to build resilience and recovery after events.

Delivering adaptation actions: implementing actions that help reduce climate change risks or take advantage of opportunities. To assist in prioritisation and implementation, these can be divided into four sub-categories:

a. **Operational:** changes in processes and procedures, low cost, quick to develop and implement, such as the inclusion of erosion monitoring in pipeline route walks.
b. **Grey measures:** engineered/hard structural solutions. These tend to address a single issue well, but with limited flexibility.
c. **Green measures:** ecosystem-based adaptation. These can have more positive additional benefits, but can be complex, and typically not as effective as engineered options at reducing risk.
d. **Hybrid:** a combination of green and grey measures.

Moving forward, we will continue to build adaptive capacity by developing and implementing innovative approaches to face the challenges of climate change, including:

- mapping and analysing the impact of climate change on our pipes and above ground installations
- diverting of pipelines that may be at risk from river movement and coastal erosion
- protecting our governors and pressure reduction installations (part of the control system of the gas network) from flooding
- improving the resilience of pipes that cross rivers and streams – either above or below the water.

In 2023 we completed our response to the fourth round of Climate Change Adaptation consultations in collaboration with the ENA and other GDNs. Results of this consultation will be published on the government website†. We have started preparing for our Adaptation Report to government for the next reporting round, for submission in late 2024.

* Climate change adaptation reporting: third round reports – GOV.UK (www.gov.uk)
† https://www.gov.uk/government/consultations/climate-change-adaptation-reporting-power-plans-for-the-fourth-round

Enhancing the local environment

Operating in a sustainable manner to protect and enhance our natural environment is essential to us as a responsible business. The following section details how we focus our attention on biodiversity, air quality and land management.

While our gas distribution network comprises many sites, most have limited land footprints. These sites primarily serve functional purposes like gas assets and storage equipment, offices, or depots. This unique portfolio structure means a one-size-fits-all approach to natural capital valuation is not the most efficient use of resources.

Therefore, we're focusing on a targeted approach using the approved Defra Metric for individual site assessments. This allows us to tailor our efforts to areas with the most significant potential for improvement and deliver the greatest value for our customers.

We have not set a de-minimis area limit; although some of our sites may be small, we will continue to look for potential natural capital enhancements where appropriate.

TABLE 19 – In-year schemes to enhance or restore local environmental value

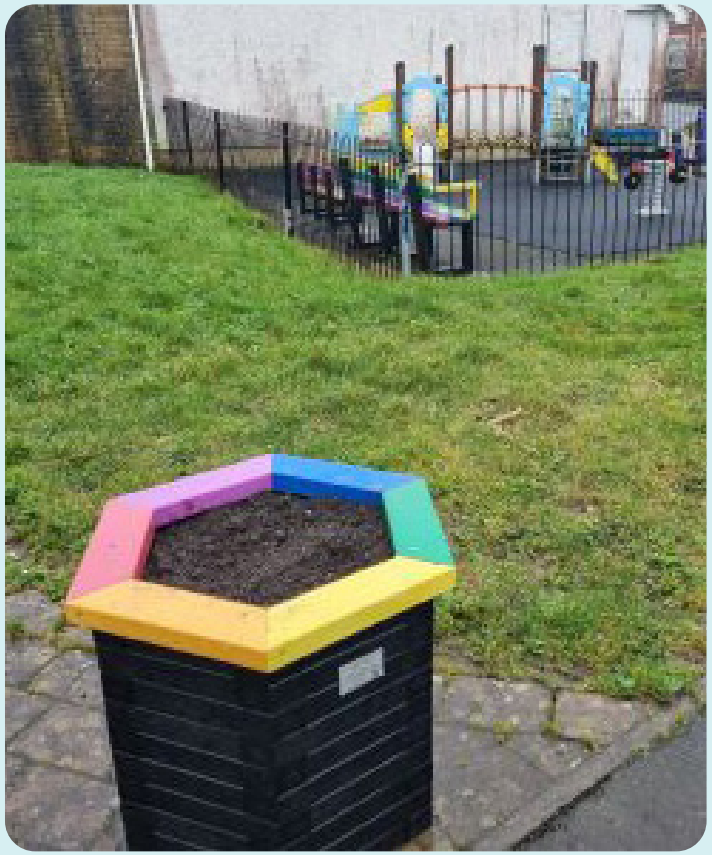
Scheme name	Location	Description	Environmental benefit	Timescales
Land management projects	Wales & West Utilities network	See land management section for more information.	Reducing the impact on water quality while bringing the site into beneficial use for the wider community. Supporting the local authority's plans for brownfield sites.	2023-24
Tree planting	Cwmbran	See below case study on tree planting.	Biodiversity benefits to local environment by providing natural habitat for wildlife. Benefits people in the surrounding area by having a positive effect on mental health and wellbeing, reducing stress and encouraging outdoor exercise.	November 2023
Tree planting	Wales & West Utilities network	Planting of a further 3,135 trees commissioned as a continuation of the "Five for One" Policy (1,850 trees planted in 2022-23).	Improved air quality through pollutant absorption, providing natural habitat for wildlife.	Data captured 2023-24. Planting to commence in autumn 2024.

CASE STUDY – Supporting our communities in Trimsaran with sustainability and safety

Encouraging connections with nature, adding a splash of colour, and showcasing the potential of recycled plastic were just some of the ways we helped promote a positive and sustainable environment in Trimsaran, one of the west Wales communities where we operate.

As part of our partnership with Trimsaran's Community Centre, we funded a range of recycled plastic benches, bins, picnic tables, and planters for the centre and children's play area. These durable and eco-friendly furnishings were produced by a local company that specialises in transforming waste plastic into high-quality, sustainable products.

This initiative not only beautified the community centre but contributed to a circular economy, reducing reliance on virgin plastic and promoting responsible waste management.



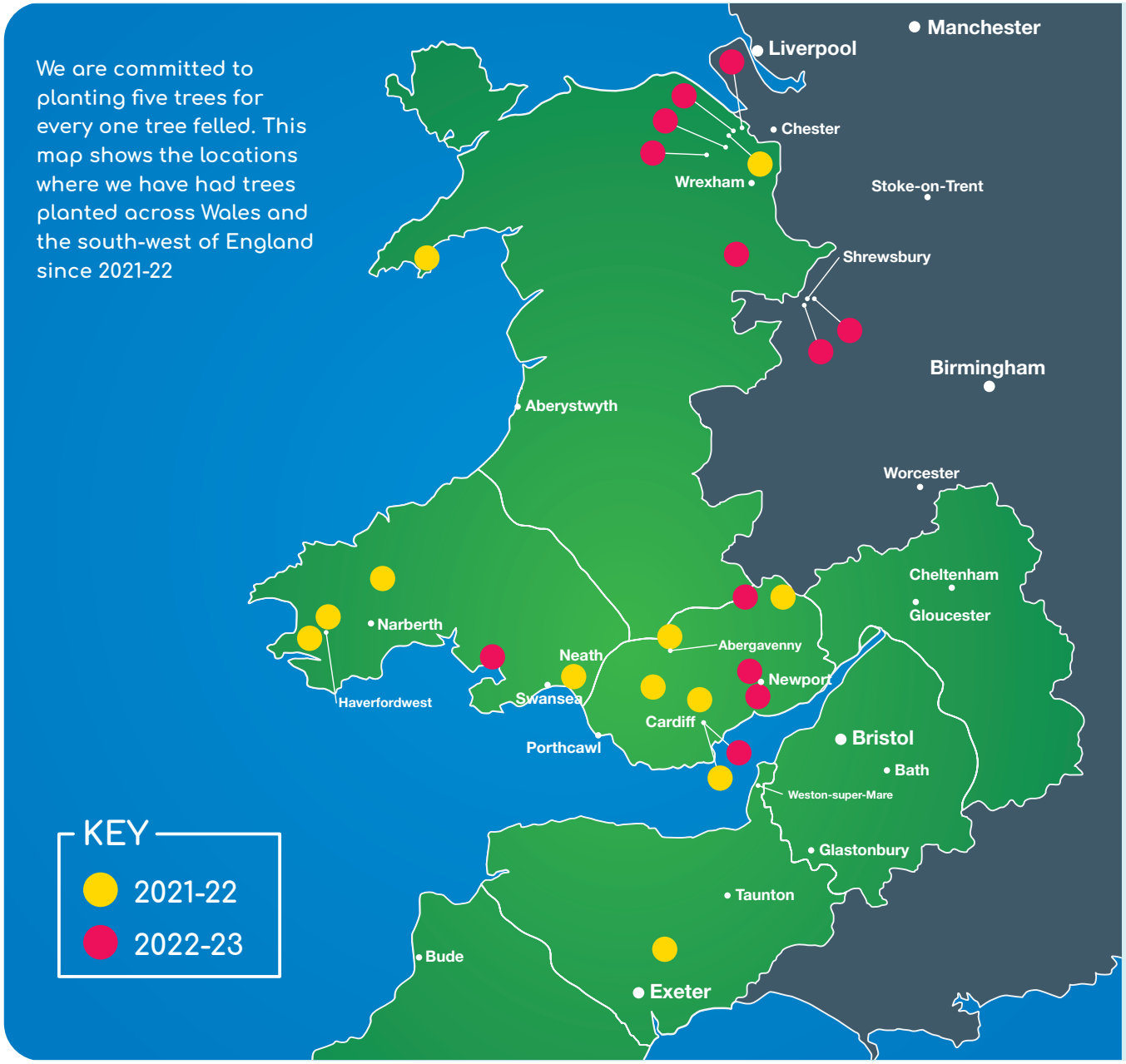
Along with the furniture, we also supported local pollinators by donating a selection of native, perennial bulbs for the planters. And as a further boost for the local gardening club, we gifted a selection of wild bird food and vegetable seeds, empowering members to grow fresh produce and connect with nature as well as their community through shared gardening activities.

Beyond our environmental initiatives, we also prioritise safety and education. During our visit, one of our Gas Ambassadors delivered a fun and interactive gas safety talk to a local Welsh school. This engaging session equipped students with the knowledge and skills to stay safe around gas appliances at home. More information on these talks can be found here*.

Our project with Trimsaran reflects our ongoing commitment to corporate social responsibility. By supporting local businesses, and promoting sustainability and a culture of safety, we're helping to build a brighter future for the communities we serve.

* Gas Safety Ambassador (wwutilities.co.uk)

We are committed to planting five trees for every one tree felled. This map shows the locations where we have had trees planted across Wales and the south-west of England since 2021-22



CASE STUDY – Tree planting and safety awareness in Cwmbran

A day of positive environmental action and safety awareness at Croesyceiliog Primary School couldn't be dampened by the rain, with huge efforts that resulted in more than 100 trees planted by Year 6 students, staff, and members of our Future Generations Network.

When trees represent a risk to the pipeline and therefore the communities in which we operate, removal is sometimes necessary. Recognising the environmental impact, we commit to planting five trees for every one removed. We collect our felling data during the April to March reporting period; however, to optimise tree survival, planting takes place during the following November to March season. We appoint a verified provider who plants native trees in school locations and other biodiversity sites and, where possible, we volunteer to support the planting activities. The planting at Croesyceiliog Primary School was part of the 1,850 trees we commissioned following felling works in 2022-23. Collaboration with stakeholders throughout Wales and the south-west of England is an important part of the process to support afforestation across the network. By replanting we aim to positively support biodiversity, climate regulation within urban environments, adaptation, and mental health.

Our team of all ages certainly enhanced the biodiversity in Cwmbran this year, and we further supported the school by providing a range of recycled plastic benches, picnic tables and planters so that students and faculty could enjoy watching their new trees thrive in sustainable comfort. We concluded the day with a Gas Ambassadors safety session, designed to educate students about gas safety and raise awareness of carbon monoxide, all in an interesting and engaging way.

Land management

In Year 3 of GD2, our Land Management programme completed 10 of the target 85 projects – across 70 sites – required for delivery during our GD2 five-year period. This brings the number of projects delivered so far in GD2 to 69, on track to meet our goals. As part of our long-term land management programme, further assessments were completed this year, including site visits that contribute to the monitoring and maintenance of our assets. These activities have been carried out as part of our duty of care under environmental legislation, to ensure that our assets do not pose a significant risk of harm to human health, controlled waters (surface and groundwater bodies) and the environment.

As stated in our Business Plan (2021–26) our long-term ambition will see environmental risks reduced to a minimum and the divestment of sites, where appropriate, to reduce ongoing costs to consumers. In Year 3, seven small sites and two relatively large sites were subject to investigation/monitoring. Upfront investment in site investigation/monitoring has two positive gains for consumers and the environment as follows:

1 The refinement of sources of contamination results in the reduction of remediation areas/volumes and therefore provides better value for consumers as there is less to make right.

2 In addition, this approach is considered more sustainable given that reduced remedial volumes result in fewer vehicle movements for the export of contamination and importation of clean material.

Of the two larger sites, one had low contamination risk under current use, and surplus land will be brought into beneficial use via divestment. The second large site will progress to remediation in Year 4.

In Year 3, Land Management completed one land remediation project at our site on the Isle of Anglesey. Land remediation is the process of cleaning up contaminated soil and groundwater at historical gas production sites. Pre-works included a public drop-in event to engage with the local community, ecological surveys, and vegetation management. The main remedial works included the removal of gross tar material associated with a former tar tank, and the excavation and treatment of two belowground gasholders (a total of 1,370 m^3 of material was excavated with 400 m^3 requiring treatment). The contamination was stabilised and solidified within the belowground gasholder tanks. The selected remedial method ensured material was recovered and remained on site with 96% being reused. The 4% that went to landfill were fly tipped items including vehicle parts, such as tyres recovered from the belowground gasholder tanks. This site is now under short to medium term monitoring to demonstrate the remediation has been successful.

Biodiversity

CASE STUDY – Biodiversity enhancements at Bristol

Foxes, badgers and five species of bat are among the welcomed visitors to our biodiversity net gain (BNG) enhancing project at our Bristol depot. Our site is part of the Bristol Wildlife Network Sites that provide wildlife corridors in designated spots across the city. Once we established the great potential to substantially enhance biodiversity, ecosystem services, and amenity value, we considered a range of BNG options and discussed them in detail with local planning authorities.

Managing existing dense scrub areas, planting up native trees, and creating a 100 m^2 wildlife pond are some of the actions we've taken so far to increase the cover of woodland and boost biodiversity value. It's about making the most of existing features as well as introducing new. By retaining a dead wood tree we're encouraging invertebrates into the ecosystem, while keeping the mature sycamore tree we're fortunate to have on site brings aphids and their varied predators that include ladybirds, hoverflies, and birds. Work is ongoing and delivered on a timeline that is sympathetic to the natural environmental cycles of the site.

Using cameras and specialised survey equipment, we monitor the wildlife activity on this inner-city site which brings rich and varied results. In September 2023 we commissioned an acoustic bat survey that monitored the bat calls over a seven-day period. Detectors were placed in different habitats within the site and, despite being later in the season, over 4,000 calls from five different species were identified. This included the common pipistrelle, soprano pipistrelle, common noctule, Leisler's bat and Daubenton's bat.

Our cameras also capture regular activity from foxes, badgers, roe deer and a variety of birds, while our wildlife pond has even attracted ducks. During our site visits we have found slowworms hiding under rocks and a variety of native pollinator species all enjoying the nectar rich plant life.

The site homes, or has the potential to home, protected species such as bats, reptiles, great crested newts, and specially protected birds among other creatures, and we hope the work we're carrying out here will be successful in attracting such species.

TABLE 20 – Impact on biodiversity

Project description	Baseline units	Post intervention units	Total net unit change	Percentage net change
Bristol BNG	4.31	5.14	1.04	19.2%

Air quality

Air pollution is not only a major risk to human health; it has significant impacts on the environment. Air quality is an important issue to our employees and Senedd Research highlights that Wales has some of the poorest air quality in the UK, where an estimated 1,000-1,400 deaths per year can be attributed to air pollution exposure.

We are committed to understanding and minimising our impact on air quality during GD2. Working with specialist consultants, we have established how to convert our operational activities into air quality data that can be monitored.

Key air quality impacts from Wales & West Utilities

Vehicles/sitework – Petrol or diesel-powered non-road mobile machinery (NRMM) and our operational and company fleets all emit nitrogen oxides (NO_x), particulate matter (PM_{10} and $PM_{2.5}$).

Energy plant – Gas boilers emit NO_x (and some PM_{10} and $PM_{2.5}$ but at a very low rate).

To benchmark our air quality impact, we have used data on our fleet operations in litres of fuel and miles driven and the kWh of gas consumed (including shrinkage). The assessment is detailed in the table following:

TABLE 21 – Air quality analysis

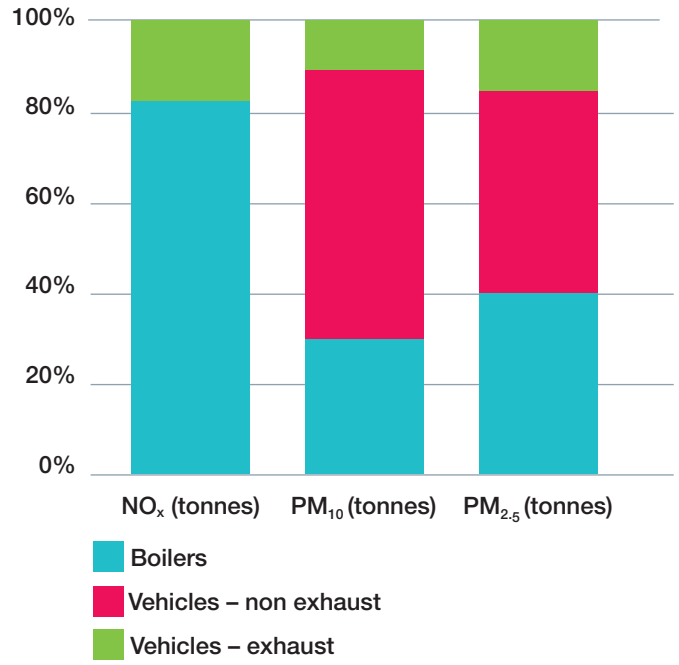
Emission source	NO_x (tonnes)	PM_{10} (tonnes)	$PM_{2.5}$ (tonnes)
Vehicles (exhaust)	16.692	0.174	0.174
Vehicles (non-exhaust including brake, tyre and road abrasion emissions)	–	0.934	0.505
Boilers	78.504	0.484	0.484
TOTAL	**95.196**	**1.591**	**1.162**

The data shows that boilers have a sizeable impact on NO_x, PM_{10} and $PM_{2.5}$. Over the next few years, we will explore ways to develop our understanding of the impact that boilers have on air quality and refine our reporting.

Our EAP goals and commitments will help to lessen our impact on air quality over GD2. The steps we anticipate taking include the following:

- Reduce travel by targeting a reduction in non-operational travel and promoting virtual team meetings.
- Improve the energy efficiency of buildings to reduce boiler use.
- Promote the use of alternative fuels, electric or hybrid vehicles and proactively investigate EV and other ULEV options for our operational fleet.

CHART 8 – Air quality impacts in 2023-24



Environmental incidents

We are committed to making continuous improvements in the management of our environmental impacts. Our independently accredited, ISO 14001, environmental management system provides the cornerstone from which we drive legal compliance and environmental performance through the business.

During the reporting period we successfully kept our ISO 14001 accreditation with no major or minor nonconformities. In September 2023, we successfully reaccredited our environmental management system to ISO 14001:2015. Our lead auditor was impressed with our high levels of compliance, commenting: “This was another good performance on the back of many, and teams were very friendly and cooperative.”

Our environmental performance is further demonstrated by the absence of environmental incidents reported to, or actions taken by, our environmental regulatory authorities (EA, NRW).

Statement on scope and quality

Data assurance statement

This is the third year we have published an AER. Ofgem requires that annual submissions be uploaded on the licensee's website.

The 2023-24 AER was completed in line with the RIGs and in line with the RIIO-2 Environmental Reporting Guidance (Version 1.0) and on this basis a full Data Assurance Guidance process has been conducted.

Members of the management team prepared methodology statements and completed risk assessments for the AER, which was then passed to the Head of Regulation and Internal Audit for review. All tables were subject to the requisite first line assurance, i.e. data preparer, second person review, business lead sign-off and executive sign-off, and these review stages included the following checks:

- Agreeing data that aligns with already published information where possible – including the RRP, Regulatory Accounts and Consolidated statutory financial statements, where such information has already been subject to varying levels of validation and data assurance.
- Agreeing data that aligns with the underlying workbooks.
- Reperforming calculations to ensure the correct results within the tables.
- Ensuring the commentary is aligned with the tables.

A final review has been undertaken by members of our Executive team. Independent data and process audits were also carried out, involving detailed reviews to agree the submissions details aligned with source data on a sample basis and reperforming calculations where required, to ensure correct results were recorded.

Information on the methodology, assumptions and estimations are provided in Appendix 1.

Appendix 1 – Methodology

Assumptions, methodologies and data sources used in the calculation of data within the AER are provided below.

Our confidence in the data is assigned using the qualitative assessment.

Red We have significant concerns on the data and analysis applied and have developed a strategy to improve the data.

Amber We have moderate concerns over the quality of data, but the analysis applied is within appropriate tolerances of the prescribed reporting requirements. We have developed a strategy to improve the data.

Green We have confidence that the data and analysis is within appropriate tolerances of the prescribed reporting requirements. However, improvements can be made.

ASSUMPTIONS TABLE 1 – Decarbonisation biomethane

Category	Methodology and assumptions	Data source	RAG rating
Annual addition of low-carbon and renewable energy capacity connected to the network	Maximum hourly flow capacity of the connected site, in the regulatory year.	Primary asset data.	

ASSUMPTIONS TABLE 2 – Innovation

Category	Methodology and assumptions	Data source	RAG rating
Annual investment in on-going innovation activities that are primarily supporting decarbonisation and/or protecting the environment	Year 3 of GD2 we spent £2.2m on innovative projects dedicated to decarbonisation. This figure reflects all external and internal spend on innovation projects.	Primary financial data.	
Innovating for decarbonisation and to protect the environment	Refer to published Wales & West Utilities 2023-24 Innovation Report.	Wales & West Utilities Annual Innovation Report	

ASSUMPTIONS TABLE 3 – Scope 1 and 2

Category	Methodology and assumptions	Data source	RAG rating
Licensee's long-term greenhouse gas reduction target, aligned with a science-based methodology (excluding shrinkage)	Target reduction of 37.5% by 2035 (wb2°C) equates to 2.5% annual reduction from baseline 2019-20. Actual % reduction to date calculated using 2019-20 RRP baseline and 2021-22 RRP Market based Scope 1 and 2.	RRP submissions.	
Annual change in licensee's business carbon footprint excluding losses/shrinkage in comparison to its end of RIIO-2 target	Calculated % reduction against 2019-20 RRP baseline using 2021-22 RRP Market based Scope 1 and 2.	RRP submissions.	
Annual change in total shrinkage (reduce gas loss to atmosphere by 10% by 2026)	Annual change calculated as % reduction from previous year using 2022-23 and 2023-24 RRPs data (GWh) converted to tCO_2e using Ofgem defined conversion factors. Target of 10% reduction by 2026 is against 2021-22 baseline.	RRP submissions.	
Ensure 75% of company cars are hybrid or ultra-low-emission vehicles by 2026	Total hybrid/ULEV as a % of total company cars. Target of 75% by 2026 is against 2021-22 baseline.	Primary data.	
Move commercial fleet from Euro V to Euro VI compliant vehicles over GD2	Total Euro VI complaint vehicles as a % of total commercial fleet vehicles.	Primary data.	
Reduce carbon emissions associated with non-operational travel by 5% by 2026	Target of 5% reduction by 2026 is against 2021-22 baseline.	April 2023 headcount.	

ASSUMPTIONS TABLE 4 – Scope 3 and embodied carbon

Category	Methodology and assumptions	Data source	RAG rating
Purchased goods and services	**Helicopters** – Fuel consumption data provided by contractor and converted using Defra factors. **Contractor Vehicles** – data provided by contractor, converted using Defra factors. **Reinstatement materials** – contractor data converted into volumes, then tonnes and then into carbon using the Defra factors.	**Helicopters** – Secondary data provided by supply chain. **Contractor Vehicles** – Secondary data provided by supply chain. **Reinstatement materials** – Primary data.	
Capital goods	**PE Pipe and Fittings** – data provided by contractors with no conversion required. **Copper and Steel pipe** – Primary purchase data converted into weight (kg) and then into carbon. Where pipe length and/or diameter detail was not available, conservative assumption applied. **IT (purchased equipment)** – Primary data converted using Defra factors.	**PE Pipe and Fittings** – Secondary data provided by supply chain. **Copper and Steel pipe** – Primary data. **IT (purchased equipment)** – Primary data.	
Fuel and energy related activity (not included in Scope 1 or 2)	**WTT Energy consumption / T&D Losses** – Utility consumption reports provided by third party and converted using Defra factors. **WTT Fuel** – third party and primary data combined and then converted using Defra factors.	**WTT Energy consumption / T&D Losses** – Secondary data provided by supply chain. **WTT Fuel** – Secondary data provided by supply chain / primary data.	

ASSUMPTIONS TABLE 4 – Scope 3 and embodied carbon (cont.)

Category	Methodology and assumptions	Data source	RAG rating
Upstream transportation and distribution	Not applicable in 2021-22, carbon associated with this category is incorporated and reported elsewhere.	N/A	N/A
Waste generated in operations	**Spoil to Landfill** – Primary data converted using Defra factors. **Biffa/DCW/CEVA/SIMS** – primary data provided by respective parties (in tonnes) converted using Defra factors. **IT (disposal)** – third party certified data provided and converted using Defra factors. **Water** – Third party data converted using Defra factors.	**Spoil to Landfill** – Primary data. **Biffa/DCW/CEVA/SIMS** – Secondary data provided by supply chain. **IT (disposal)** – Primary data. **Water** – Secondary data provided by supply chain.	
Business travel	**Business mileage (Private vehicles)** – Mileage expense primary data recorded in miles and converted using Defra factors. **Rail/Air/Hotel** – third party data provided by booking agent, converted using Defra factors. **Bus/Hire Car/Taxi** – primary data converted using Defra factors.	**Business mileage (Private vehicles)** – Primary Data. **Rail/Air/Hotel** – Secondary data provided by supply chain. **Bus/Hire Car/Taxi** – Primary Data.	
Employee commuting	**Employee commuting / Homeworking** – primary data from employee survey converted using Defra factors.	Primary data.	

ASSUMPTIONS TABLE 5 – Resource, waste and circular economy

Category	Methodology and assumptions	Data source	RAG rating
Annual total waste (office, network depots, spoil) and fate of waste	**Spoil to Landfill** – Primary data split by Landfill, Recycled and Exempt (and aggregate by material type), converted using Defra factors. **Biffa/DCW/CEVA/SIMS** – primary data provided by respective parties (in tonnes) converted using Defra factors.	Primary and secondary data.	
Reuse and recycle at least 80% of excavated spoil by 2026	Primary data with total recycled spoil as a % of total spoil. Target of 80% by 2026 is against 2021-22 baseline.	Primary data.	
Increasing use of recycled aggregate to greater than 20% by 2026	Primary data with total recycled aggregate as a % of total aggregate. Target of 20% by 2026 is against 2021-22 baseline.	Primary data.	
Reduce office waste by 25% by 2026	2019 baseline uplifted to reflect current waste data sources. Excludes hazardous waste.	Office and depot waste primary data from supplier.	
Reduce paper consumption by 75% by 2026	Primary data showing total prints (volumes of A4/A3, colour/black and white). Compared to 2019-20 baseline.	Primary data.	
Limit PE gas pipe waste to 5% by weight by 2026	Data provided by contractor and collated as % of waste disposed of against purchased.	Secondary data provided by supplier.	
Sustainable procurement	Data collected via supplier feedback.	Primary and secondary data.	

ASSUMPTION TABLE 6 – Local environment

Category	Methodology and assumptions	Data source	RAG rating
Impact on biodiversity – Bristol BNG	Forecasted data provided by external ecological assessment using Defra Metric.	Primary data provided by expert consultants.	
Air quality	Conversion of carbon accounting data using EEA & NAEI 2022 Emission Factor Database.	Wales & West Utilities 2023-24 carbon accounting data.	
Land management	Methodology for assessment is in line with Ofgem RIGs.	RRP submissions.	

Appendix 2 – Glossary

Biodiversity
Refers to the variety of animal and plant life in a particular area. This can include animal species, plants, fungi and microorganisms. Each of these species and organisms work together within Ecosystem Services.

CV
The amount of heat produced by a fuel's combustion at constant pressure and under “normal” (standard) circumstances is known as its calorific value (i.e. to 0°C and under a pressure of 1,013 mbar).

CHP
Combined Heat and Power systems are a technology that produces electricity and thermal energy at high efficiencies using a range of technologies and fuels.

Ecosystem Services
Ecosystem Services are the direct and indirect contributions ecosystems (known as natural capital) provide for human wellbeing and quality of life. This can include regulating services such as water purification, flood control, carbon storage and climate regulation.

Embodied Carbon
Is defined in the UK Green Building Council as: “The total greenhouse gas (GHG) emissions (often simplified to “carbon”) generated to produce a built asset. This includes emissions caused by extraction, manufacture/processing, transportation and assembly of every product and element in an asset,” as well as the activities associated with the operational and end of life processes.

Environment Agency (EA)
Is a non-departmental public body, established in 1995 and sponsored by the United Kingdom government’s Department for Environment, Food and Rural Affairs, with responsibilities relating to the protection and enhancement of the environment in England.

FCEV
An FCEV, or Fuel Cell Electric Vehicle, is a type of electric vehicle that uses a hydrogen fuel cell to generate electricity for propulsion. Unlike battery electric vehicles (BEVs), FCEVs do not rely on a large battery pack to store electricity.

Fugitive emissions
Are leaks and other irregular releases of gases or vapours from a pressurised containment. Reported within Scope 1.

Future Generations Network
A support network of like minded individuals looking to develop themselves and Wales & West Utilities during its transition to a sustainable energy company and workforce.

GDN
Gas Distribution Network.

GGSS
The Green Gas Support Scheme is a government environmental scheme that provides financial incentives for new anaerobic digestion biomethane plants to increase the proportion of green gas in the gas grid.

GWh
Gigawatt hours is a unit of energy used to represent the output of large quantities of electricity.

Natural Capital
Natural capital refers to the elements of the environment that provide valuable goods and services and can be considered as a stock that provides a flow of benefits to people and the economy. Capital assets include water, forests and clean air.

Natural Resources Wales (NRW)
Is a Welsh Government sponsored body, which became operational from 1 April 2013, with responsibilities to look after these natural resources and what they provide for us: to help reduce the risk to people and properties of flooding and pollution; to look after special places for wellbeing, wildlife and timber; and to work with others to help us all to manage them sustainably.

NIA
Network Innovation Allowance is a funding mechanism provided by the regulator, Ofgem, to allow networks to take forward innovation projects that have the potential to deliver longer-term financial and environmental benefits to consumers.

Own use Gas (OuG)
Own Use Gas is gas used for pre-heating to prevent gas falling to sub-zero temperatures.

Pathfinder Tool
The 2050 Energy Pathfinder has been built to assess the feasibility of how different future energy mixes would work in practice. It enables any energy scenario, current or future, to be modelled for a town, city, county or country and the results show the costs, carbon impact and any shortfall/surplus in heat and power supply. The simulator can determine the feasibility of alternate solutions across all energy types in a more integrated way.

PPE
Personal protection equipment includes clothes, helmets, goggles, or other garments or equipment designed to protect the wearer's body from damage or infection. Physical, electrical, heat, chemicals, biohazards, and airborne particulate matter are some of the hazards addressed by protective equipment.

PQQ
A Pre-Qualification Questionnaire is used to evaluate potential companies via a bidding process.

RHI
The Renewable Heat Incentive was a UK Government scheme aiming to encourage uptake of renewable heat technologies amongst householders, communities, and businesses through financial incentives, and increase heating coming from renewable sources.

RRP
Refers to the Regulatory Reporting Pack that is submitted to Ofgem on an annual basis. A number of key data requirements within the AER will be derived from our RRP submissions. The assessment of that data is completed in line with Ofgem published Regulatory Instructions and Guidance (RIGs).

SAF
Sustainable aviation fuel is the main term used by the aviation industry to describe a non conventional (fossil derived) aviation fuel.

SBTis
The Science Based Targets initiative: Defines and promotes best practices in emissions reductions and net zero targets in line with climate science.

Scope 1
Emissions are direct greenhouse gas emissions that occur from sources that are controlled or owned by the organisation. Can include items such as company vehicles and company facilities.

Scope 2
Emissions are indirect greenhouse gas emissions associated with the purchase of electricity.

Scope 3
Emissions are indirect emissions as a result of the activities from assets not owned or controlled by the reporting organisation, but that the organisation indirectly impacts in its value chain. These can include employee commuting, capital goods and waste generated in operations. Details of the individual Scope 3 categories are available here.

SDGs
The United Nations approved the Sustainable Development Goals (SDGs), also known as the Global Goals, in 2015 as a universal call to action to eradicate poverty, safeguard the environment, and ensure that by 2030, all people enjoy peace and prosperity.

Shrinkage
Refers to the natural gas which is lost from the transportation network.

SIF
The Strategic Innovation Fund is a funding mechanism for the Electricity System Operator, Electricity Transmission, Gas Transmission and Gas Distribution sectors. The SIF aims to find and fund ambitious, innovative projects with the potential to accelerate the transition to net zero.

tCO_2e
Tonnes (t) of Carbon Dioxide (CO_2) equivalent (e) is a standard unit for counting greenhouse gas emissions regardless of whether they are from carbon dioxide or another gas such as methane.

ToG
Theft of Gas is unmetered gas that is lost upstream of the consumers meter and emergency control valve.

TWh
A Terawatt-hour is a unit of energy used for expressing the amount of produced energy, electricity and heat.

VCS
Verified Carbon Standard is a standard for certifying carbon emissions reductions.

WB2°C
The Paris Agreement's goal is to limit global warming to well below 2 degrees Celsius (WB2°C), preferably to 1.5 degrees Celsius, compared to pre-industrial levels.

Well-being of Future Generations (Wales) Act 2015
The Well-being of Future Generations Act requires public entities in Wales to consider the long-term consequences of their choices, to collaborate more effectively with individuals, communities, and each other, and to prevent long-term issues such as poverty, health disparities, and climate change.

WTT
A Well-to-Tank emissions factor, also known as upstream or indirect emissions.

WTW
A Well-to-Wheel emissions factor are also called "in-use" emissions as they are proportional to the fuel or energy consumption of the vehicle (= Well-To-Tank + Tank-To-Wheel).

ZEV
A Zero Emission Vehicle (ZEV) is a car, van, bus, or other motor vehicle that produces no tailpipe emissions while driving. This means they don't release harmful pollutants like carbon dioxide (CO_2) or nitrogen oxides (NO_x) into the air.

Appendix 3 – Annual Environmental Report – a summary

Contribution to energy system decarbonisation	2023-24 Update	RAG indicator* 2022-23	RAG indicator* 2023-24
Current renewable energy capacity within the network.	1.81 TWh which is enough to heat around 160,000 homes	N/A	N/A
Continue to proactively facilitate the connection of green gas.	21 Biomethane connections with the latest connected during 2023-24	N/A	N/A
Annual investment in ongoing innovation activities that are primarily supporting decarbonisation and/or protecting the environment.	£2.8 million	N/A	N/A

Climate change impacts	2023-24 Update	RAG indicator* 2022-23	RAG indicator* 2023-24
Our long-term greenhouse gas reduction ambition, to reduce GHG emissions by 37.5% by 2035 (wb2ºC, aligned with a science-based methodology and excluding shrinkage).	4.4% increase against 2019-20 baseline		
Annual change in business carbon footprint excluding losses/ shrinkage in comparison to its end of RIIO-2 target.	4.5% decrease against 2022-23		
Change in total shrinkage (reduce gas loss to atmosphere by 10% by 2026).	3% in-year reduction against 2022-23 10% reduction against 2020-21 baseline		
Ensure 75% of company cars are hybrid or ultra low emission vehicles by 2026.	92%		
Move commercial fleet from Euro V to Euro VI compliant vehicles over GD2.	96%		
Reduce carbon emissions associated with non-operational travel by 5% by 2026.	52% reduction		
Offset 100% of our rail and air travel carbon footprint.	2,400 tonnes offset		

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

Resource use and waste		2023-24 Update	RAG indicator* 2022-23	RAG indicator* 2023-24
Annual total waste (office, network depots, spoil).		221,328 tonnes	N/A	N/A
Fate of waste:	Reuse	0% of total waste	N/A	N/A
	Recycle	98.8% of total waste	N/A	N/A
	Recover	<1% of total waste	N/A	N/A
	Incineration	<1% of total waste	N/A	N/A
	Landfill	1% of total waste	N/A	N/A
Reuse and recycle at least 80% of excavated spoil by 2026.		99% reuse and recycle		
Increasing use of recycled aggregate to greater than 20% by 2026.		15% used		
Reduce office waste by 25% by 2026.		18% increase against baseline		
Reduce paper consumption by 75% by 2026.		51% reduction against baseline		
Limit PE gas pipe waste to 5% by weight by 2026.		10%		
Send a maximum of 20% waste to landfill by 2026.		1%		
Deliver a minimum of 80% waste reused and recycled by 2026.		99%		

Sustainable procurement	2023-24 Update	RAG indicator* 2022-23	RAG indicator* 2023-24
Proportion of suppliers meeting our environmental supplier code or equivalent.	78% (93% of respondents in benchmark of 85% of spend)		
Percentage of suppliers (by value) that have their own sustainability metrics or KPIs.	71% (85% of respondents in benchmark of 85% of spend)		

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

Local environment	2023-24 Update	RAG indicator* 2022-23	RAG indicator* 2023-24
Annual investment in schemes to enhance/restore local environmental quality.	£0.84 million	N/A	N/A
Land area being treated in schemes to enhance/restore local environmental quality.	2.69 hectares	N/A	N/A
Number of reportable environmental incidents.	0		
Planting five trees for every tree we cut down.	Felled 627 trees Commissioned 3,135 to be planted autumn 2024		
Delivering 85 land management outputs.	During 2023-24 we delivered 10 of our 85 land management outputs		

* Red indicates progress against the milestone is at significant risk and highly likely to be missed. Amber indicates progress is delayed but likely to be achievable before the end of the price control period. Green indicates progress against implementation milestones is on track.

wwutilities.co.uk

@WWUtilities

wwutilities

@WWUtilities

WALES&WEST UTILITIES