

WALES & WEST UTILITIES

Annual Environmental Report

2022 – 2023



WALES&WEST
UTILITIES

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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 beneath your feet – we supply gas to around 2.5 million households and businesses, serving a population of 7.5 million people. We cover an area that stretches from Wrexham to Redruth, from the mountains of North Wales to the cliff tops of Cornwall. The area we serve is a mixture of cities, towns, villages and open countryside. We are there for our customers 24 hours a day, 365 days a year – it is a vital service and one that we are extremely proud to deliver. Whilst much of our gas network is underground and out of sight, our services play a central role in the daily lives of all our customers. Whether it's a safe and reliable gas supply for heating your home or business, making the family dinner or for a nice hot bath, we understand how

important it is for our services to be there when our customers need them.

While we deliver for today, we also recognise the need to change for the future. We are committed to doing everything we can to achieve net zero emissions in the most efficient and least disruptive way for our customers. In 2023 we launched our first Sustainability Strategy, which outlines the actions we are taking as a business to deliver a sustainable future for our business and support our customers and communities through the transition of our energy system.

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.

The threat of climate change could not be starker. The United Nations Intergovernmental Panel on Climate Change reported that “time was running out” to reverse climate change, with around 40% of the world’s population “vulnerable” to its impacts. Responding to this by reducing carbon emissions will impact much of what we do as a country, and as a company.

This includes delivering a net zero ready network by 2035 so we can transport green gases

like hydrogen and biomethane, helping us to decarbonise heat, power, and transport. We will strive to increase biodiversity and improve air, land and water quality across our network, benefiting both the environment and the communities we work in.

By aligning our ambitions with the United Nations Sustainable Development Goals (SDGs) we are reducing our impact and encouraging others to do the same.



Welcome

I'm delighted to introduce our second 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. This AER, and those that follow it, will hold us accountable – measuring our successes and any shortcomings.

A significant success has been our reduction of 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 2022-23, however, driven by carefully targeted mains replacement and pressure management, we've reduced shrinkage by 4%, taking our total reduction to 7% already in the first two years of this five-year price control.

We have supported staff to work in a hybrid way which has helped us reduce non-operational business travel and build several new fit-for-the-future depots, including Bristol and Redruth. These depots conserve water, generate their own electricity to reduce their demand on the energy system, and are fitted to support the use of electric vehicles by our colleagues. This year, our Energy Savings Opportunity Scheme Assessment will offer us further opportunities for carbon reductions throughout our operations.

We are also supporting 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.

Biodiversity and achieving biodiversity net gain continues to be a focus for us. We'll be implementing biodiversity enhancements and protecting habitats on an ever-increasing portfolio of projects. Measures such as these aim not just to restore valuable ecosystems, but drastically improve them. We'll continue to build on our learning through GD2.

We are also delighted to announce the publication of our first Sustainability Strategy – a testament to our commitment to creating a more sustainable and responsible future. This strategy outlines our long-term ambitions aimed at mitigating our environmental impact, promoting social responsibility, and driving positive change within our business. For more information, you can find a copy of our strategy on our [website](#).

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 ourevironment@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 are passionate about preserving and enhancing the environment, but we are aware that our work may occasionally have a negative impact on it. We are committed to accepting responsibility for these effects and striving to reduce and eliminate them.

We work with our supply chain, partners and other stakeholder groups to deliver best practice and lead environmental innovation, demonstrating the benefit to businesses and society of protecting and enhancing the environment.

As part of our environmental road map, in 2019 we published our Environmental Action Plan (EAP) that built upon our record of reducing our impact on the environment. To build our EAP we looked at our long-term ambition and worked backwards to define the steps we need to take in 2020, GD2 and beyond to achieve them.

This year, we focused on building our Sustainability Strategy, which was published at a formal launch event where stakeholders were encouraged to identify and explore opportunities for collaboration in attaining our goals. This strategy sets out the overarching, long-term vision for our business and the key milestones we anticipate meeting to deliver it. Translating the big idea of

sustainability into the actions we are taking, the strategy has been shaped by stakeholder input and will be a platform for further engagement, not least as we develop our next business plan from 2026.

We believe we are well placed to deliver these plans and play our role in a sustainable future. We have structured the strategy in line with our existing Ambitions, Priorities and Values, reflecting the strengths of our organisation and our positive reputation with customers, colleagues and the communities we serve. The social and economic benefits we aim to deliver through our Sustainability Strategy and business plans are underpinned by sound environmental management.

Our environmental road map details how, over the next four decades, with the appropriate support from our stakeholders, we aim to deliver an environmentally sustainable network. The long-term goals are stretching and will require us to prioritise the environment, to collaborate with a range of external partners, and embrace innovative thinking and technologies. You can find out more about our EAP [here](#).

Our priorities and approach to environmental improvement have been driven through stakeholder engagement. Views and expectations from customers, peers, employees, our Customer Engagement Group and government have shaped our plan.

Overwhelmingly, our stakeholders care about the environment and delivering clean, reliable and



affordable energy. We take this mandate seriously and have developed the following core principles to govern how we approach the delivery of our EAP.

Legal compliance – environmental legislation provides frameworks under which we work to ensure a minimum standard of environmental compliance is always met.

Sustainable development – our EAP is intrinsically linked to our commitment to being a sustainable network. By carefully balancing environmental priorities with those of the wider

OUR ENVIRONMENTAL RESPONSIBILITIES

business, we demonstrate our support for the United Nations Sustainable Development Goals and the Well-being of Future Generations (Wales) Act 2015.

Collaboration – by working with others we can increase knowledge sharing and the positive impacts of our activities.

Transparency – we provide transparent, robust, reliable and understandable information on our impacts, our progress against targets and our ongoing strategy. We seek feedback and respond to concerns and ideas from within our value chain and the communities in which we work.

Continual improvement – we seek out best practices and drive continual environmental improvement within our business, striving to meet ever more stretching targets. We use Key Performance Indicators (KPIs) to track and understand performance. The KPIs provide early identification of risk and lead to corrective actions.

Holistic – environmental impacts are complex and interdependent. We consider all the environmental impacts of our decisions and use that knowledge to make the right decisions.

Value for money – we believe making the best business decisions should go hand in hand with making great decisions for the environment. We always look to maximise the environmental benefit of any investment made. We adopt efficient and effective procurement procedures to drive down costs and encourage innovative thinking.

Mapping our targets to external guidance

Our priorities and values provide the framework to engrain our sustainability targets throughout our business activity. In this report, we have also mapped these targets to external guidance to help our stakeholders understand how they align with the wider context of sustainable development: The United Nations Sustainable Development Goals and the Well-being of Future Generations (Wales) Act 2015.

The United Nations Sustainable Development Goals

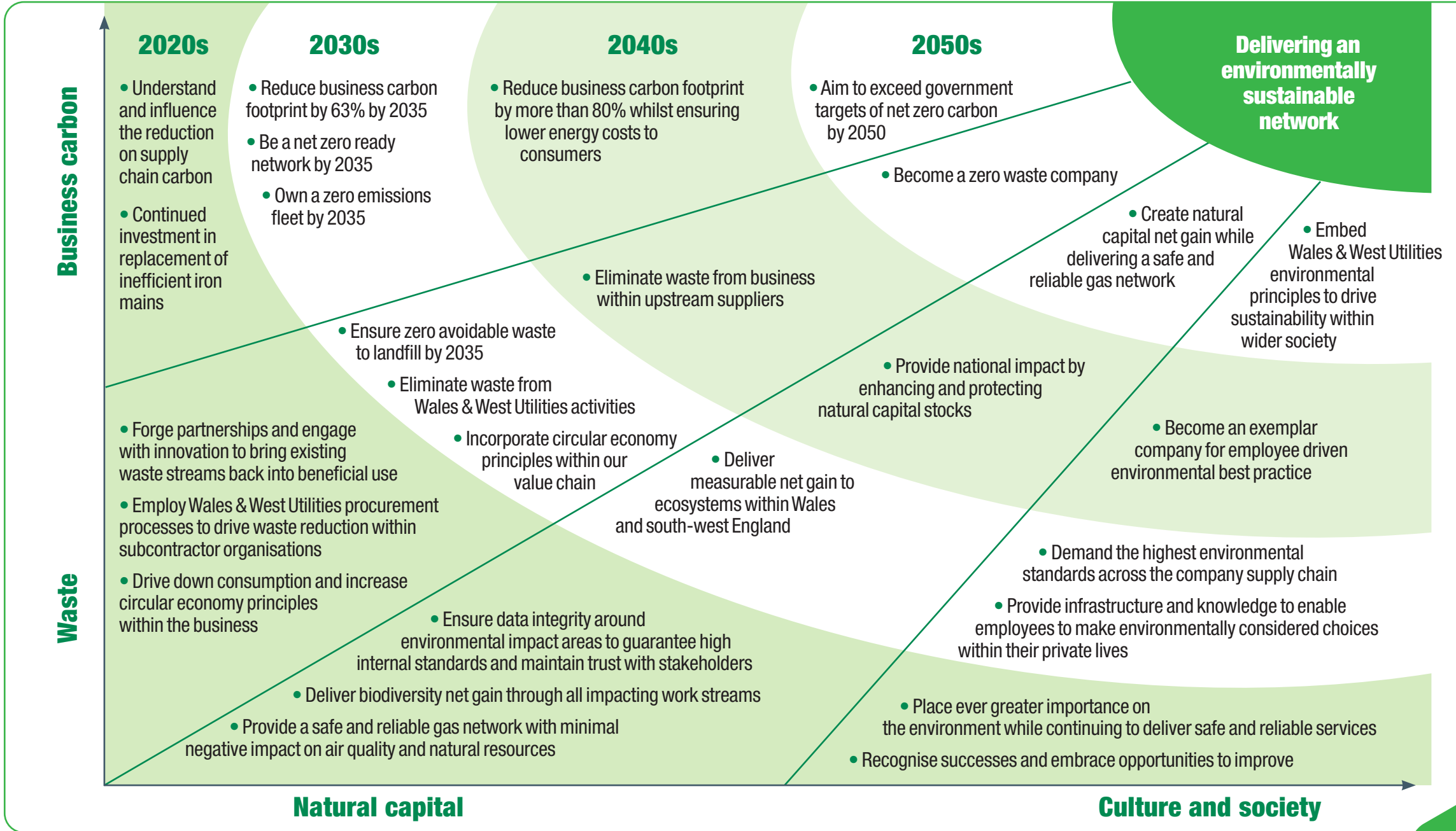
Our ambitions align with the following sustainable development goals:



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:








Dashboard indicators

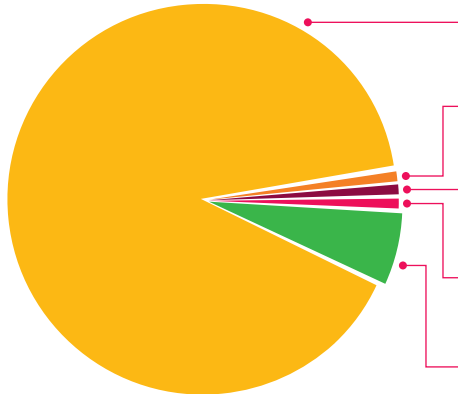
Our Key Performance Indicators show our in-year performance against Ofgem's assessment criteria and our own commitments. Where applicable, the status indicator shows how our in-year progress relates to our RIIO-2 targets.


I.1	Contribution to energy system decarbonisation	2022-23 Update
I.1.1	Annual addition of low-carbon and renewable energy capacity connected to the network	No additional capacity to the 20 sites connected to Wales & West Utilities' network for this year.
I.1.2	Annual investment in ongoing innovation activities that are primarily supporting decarbonisation and/or protecting the environment	£2.2 million


I.2	Climate change impacts	2022-23 Update
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	9.8% increase against 2019-20 baseline (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*	16.2% increase against 2021-22 (see table 6 for further information) 
I.2.3	Annual change in total shrinkage (reduce gas loss to atmosphere by 10% by 2026)	4% 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.

Note: Where applicable, the RAG indicator shows how our in-year progress relates to our RIIO-2 targets.

I.3	Resource use and waste	2022-23 Update										
I.3.1	Annual total waste (office, network depots, spoil)	232,191 tonnes										
I.3.2	Fate of waste	<div><table><tr><td>Recycle</td><td>94.1% of total waste</td></tr><tr><td>Reuse</td><td><1% of total waste</td></tr><tr><td>Recover</td><td><1% of total waste</td></tr><tr><td>Incineration</td><td><1% of total waste</td></tr><tr><td>Landfill</td><td>5.8% of total waste</td></tr></table></div>	Recycle	94.1% of total waste	Reuse	<1% of total waste	Recover	<1% of total waste	Incineration	<1% of total waste	Landfill	5.8% of total waste
Recycle	94.1% of total waste											
Reuse	<1% of total waste											
Recover	<1% of total waste											
Incineration	<1% of total waste											
Landfill	5.8% of total waste											

I.4	Sustainable procurement	2022-23 Update
I.4.1	Proportion of suppliers meeting the licensee’s environmental supplier code or equivalent	76% of suppliers (by value) 

I.5	Local environment	2022-23 Update
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
I.5.4	Number of reportable environmental incidents	0 

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 commitments

Our Environmental Action Plan (EAP), its ambitions and commitments were developed in collaboration with a range of stakeholders who provided feedback we needed to address the following areas:

- our business carbon footprint; including embodied carbon;
 - consumption, waste, and circular economy;
 - natural capital; and
 - culture and society.
- Our natural capital ambition is to 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 on the following pages summarise how we are doing against those commitments.

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 allowing us to meet them. Our ambitions include:

- Our short and long-term science aligned ambition is to reduce our GHG emissions by 37.5% by 2035 (wb2°C) striving for 63% by 2035 (1.5°C) and to be a carbon net zero company by 2050*.
- Our resource and waste ambitions are to be a zero avoidable waste company by 2050 and send zero waste to landfills by 2035.
- More than 80% of our suppliers (by value) will meet the environmental standards set out within our supply chain charter by 2026.








* **Note:** Science Based Target Initiative has removed the ability for oil and gas industry companies to be accredited by SBTi. We have kept the science aligned ambition as confirmed with Ofgem in Draft Determination EAP Addendum.

TABLE 1 – Status update on EAP carbon commitments

EAP commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
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. 438 km of metallic mains replaced in 2022-23. 7% CO ₂ e reduction from baseline by the end of 2022-23.	
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:	2026	Implementation of employee incentive to choose ULEVs and EVs made prior to 2021. 85% by the end of 2022-23.	
Refresh our commercial fleet from Euro V to Euro VI compliant vehicles over GD2.	<ul style="list-style-type: none">• swapping out traditional internal combustion engine vehicles for ultra low emission and hybrid vehicles,• improving the efficiency of internal combustion vehicles where green alternatives are not available, and• reducing the amount we use our vehicles.	Annual	80% by the end of 2022-23.	
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. 27% reduction from baseline by the end of 2022-23.	
Collaborate with others to understand and take opportunities to reduce our fleet and tooling emissions.		2026	Building our green fleet strategy.	







* 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 commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
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 efficacy across our property portfolio and reduce our Scope 1 and 2 emissions. Forging 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 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.	
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	2,700 tonnes offset in 2022-23 (heavy goods vehicle (HGV) emissions included in 2022-23 offsets).	
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	20 biomethane connections with the twentieth connected during 2021-22.	
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 the Energy Networks Association (ENA) 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 fourth round of Climate Adaption Consultations in 2022-23.	




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

EAP commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
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	6% achieved in 2022-23.	
Deliver a minimum of 80% waste reused and recycled by 2026.		2026	94% achieved in 2022-23.	
Reuse and recycle at least 80% of excavated spoil by 2026.		2026	94% achieved in 2022-23.	
Increasing use of recycled aggregate to greater than 20% by 2026.		2026	21% achieved in 2022-23.	
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	5% reduction from our baseline in 2022-23.	
	Status update: Our office waste reduction has remained at 5% from baseline as we've re-populated our offices and settled into our new hybrid working patterns. Within Wales, new waste legislation changes are due to take effect early in 2024 and this will expand our opportunities for recycling. We will continue to seek out initiatives that will allow us to deliver the environmental improvement whilst still delivering value for money.			
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. 49% paper reduction (against 2019-20 baselines) saving more than 190 trees from being cut down.	

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

EAP commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
Eliminate single use plastic by 2022.	<p>We are committed to eliminating single use plastics where viable alternatives exist.</p> <p>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.</p>	2022	<p>Migrate from reducing consumable single use plastic by 2022 to reducing plastic packaging over RIIO-2.</p> <p>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.</p> <p>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.</p>	
Status update: We have made great strides to eliminate consumable single use plastics with some operational trials underway to eliminate some remaining waste streams, including waste management on operational sites and street works. 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.				
We have ambitions to limit polyethylene (PE) gas pipe waste to 5% by weight by 2026.	<p>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.</p>	2026	9% pipe waste in 2022-23.	
Status update: We have seen pipe waste decrease over the 2022-23 year, influenced by a number of factors including the use of infinity coils and re-banding techniques to bring shorter coils back into use. This is a major focus for the business with significant executive oversight and involvement and we are defining an action plan that puts us on track to meet 5% by 2026.				
Embed circular economy principles within the business, and measure the success of associated outcomes.	<p>We are continually reviewing our procurement practices, strengthening circular economy themes within them, including:</p> <ul style="list-style-type: none">• setting clear performance requirements• encouraging collaboration and innovation• considering end of life costs within design action.	2026	<p>Continued membership with the Supply Chain Sustainability School and engagement with industry working groups to support sustainability themes in supply chain.</p> <p>Built life cycle considerations into an increased number of tender events.</p>	

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








EAP commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
Auditing a minimum of five of our main contractors (by value) annually.	To make sure 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	Revised Supplier charter published in November 2022. The scope of supplier environmental audits will be agreed following the completion of the supply base mapping process and redevelopment of the pre-qualification questionnaire (PQQ). Supply mapping to identify which contractors demonstrate best practice, setting achievable standards by which to measure activity across categories (expected completion early 2024). PQQ redevelopment is key to embedding positive environmental awareness and behaviours in future supply agreements (expected completion late 2023).	

TABLE 3 – Status update on EAP natural capital commitments

EAP commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
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.	2026	We have committed to using the Defra Biodiversity Metric to determine and report on the biodiversity value.	
Understand, monitor and promote biodiversity within our long-term land assets.	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	We designated 0.49 hectares of our new Bristol Depot for long-term biodiversity provision. The site includes construction of a newt pond.	
Develop and monitor a tool to robustly quantify our contribution to ecosystem services from these assets.		2026	We have identified more than 15 sites where biodiversity enhancements are viable, and we began working towards delivering those enhancements in 2022-23. 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.	

* 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*
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 2022-23 year we were required to cut down 370 trees. To support our commitment, we have planted 23 trees in collaboration with South Gloucestershire Council and have commissioned the planting of 1,850 trees in the autumn of 2023.	
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.	
Delivering 85 land management outputs (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 2022-23 we delivered 22 of our 85 land management outputs. This resulted in a total of 59 outputs achieved so far during GD2.	

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Decarbonisation, biomethane and other low carbon gas connections

During RIIO-2 we are committed to proactively facilitating the connection of green gas to our network.

Greening the gas network is a key part of our vision for the future. We are committed to establishing ourselves as leaders in the decarbonisation of gas distribution systems by adapting our GDN to meet the forecast changes associated with progress to a net zero-ready network.

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

The 20 biomethane sites connected to our network have the capacity to deliver 1.78 TWh of green gas into our network, which is enough to heat around 150,000 homes. Unused capacity at one of our existing sites has been released back to Wales & West Utilities so that it can be booked by another site, creating a small drop in connected capacity since last year's reporting. We are 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 27 sites would provide heat to 193,000 homes. The government's Green Gas Support Scheme (GGSS) has triggered an increased interest in this area resulting in 27 entry enquiries for biomethane in the last regulatory year. In addition to these enquiries for biomethane, we have also had three enquiries for

entry capacity for landfill gas and one for hydrogen blending.

Our proactive approach

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

An initial enquiry response is provided free of charge, and where possible within 15 working days of receipt, to give developers an early view on project feasibility. This can be followed by a capacity study, for which we charge to recover cost, which is 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 and purchase of Wales & West Utilities owned assets. We utilise the "minimum connection" model where we own the remotely operated valve, 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 small numbers of 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, i.e. 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. To this end, we have collaborated with Cadent on the OptiNet project to trial 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 in order to satisfy both. At present, a compressor is being commissioned to take green gas back up



the pressure tiers from the intermediate pressure (IP) tier to the high pressure (HP) tier where there is a wider availability of sufficient demand to take the gas away at all times. This creates a demand on the IP system to allow the green gas to continue to inject into the IP network which was previously constrained at periods of low local demand on that part of the intermediate pressure network. Final reports are expected from this project in late 2023 and will provide a blueprint for potential roll out of these solutions and technologies where required.

We are already applying the learning from the smart pressure control part of the OptiNet project and have started a project to roll out the technology throughout our distribution network. A successful roll out will allow the connection of further green gas entry sites in addition to those with booked capacity already. We are also at early-stage discussions with an existing customer to install an in-grid compressor to support their maximum entry capacity requirements and future expansion.

Our performance in 2022-23

Over the last year, we took 13 days on average to respond to the 27 initial enquiries for biomethane and took an average of 29 days to respond to the nine capacity study requests, which is in line with the volunteered standard of service timescales as indicated in [Our proactive approach](#) section on the previous page.

We transported 739.94 GWh of green gas in the 2022-23 year which is 4.6% 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 the sites becoming more resilient and reliable and us managing system pressures effectively allowing the sites to flow. Partly responsible for this increase was the reconnection of an existing site in December 2022 which enabled them to flow their maximum booked capacity into the network.

The majority of internal KPIs are around gas quality monitoring at the entry point. We continue to work with the connected sites to keep issues to a minimum and we have seen a reduction in Ofgem audit actions year on year since connecting these sites. This covers non-compliance issues, Gas Act, and regulation breaches as well as observations requiring site/process improvements. To put this into context, for the winter period 2022-23, across the 20 entry sites, we had to stop entry of gas to our network more than 300 times remotely from our control room. This will be due to maintenance activities and system issues in a small number of cases but primarily due to gas quality.

How we will continue to deliver improvements

Biomethane

We support two biomethane working groups at the Energy Networks Association; the Gas Entry Connections Technical Working Group (TWG), which is a network only group, and the Entry Customer Network Forum which includes supplier and customer participants from across the industry. During 2022-23 we took on the chair

position of the TWG where we have continued to lead and support our colleagues and customers in this part of the industry.

We continue the work started in 2022, to standardise and improve our capacity study process and customer facing reports via the TWG. This work is ongoing at present but will help achieve national consistency across our green gas processes.

Hydrogen

We received 14 speculative enquiries for blending hydrogen into our network, with one in the last regulatory year. As a group of 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 Gas Goes Green 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 considering the impacts on all areas including safety, customers and regulatory requirements. Work is carried out collaboratively across the GB networks so that resources are used most efficiently, and learning is shared.

[More information can be found here.](#)

Stakeholder engagement

We are continuing our work with Cadent to prove technical solutions that will facilitate increased volumes of green gas into the distribution network via the OptiNet project.

Following the outputs from the biomethane study reports completed under the Gas Goes Green project, we held our own “Opportunities for Green Gas Connections Day” in November 2022 where we targeted potential cluster projects identified in the south Wales area. Project discussions are in the early stages, but we continue to liaise with our stakeholders to maximise green gas to grid and to support new gas injection connections to our network.



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

Biomethane connection	2021-22	2022-23
Enquiries	27	27
Connection studies	3	9
Capacity of connection studies	2,250 SCMH	10,500 SCMH
Connections	1	0
Capacity connected	600 SCMH	0 SCMH
Volume (energy value) of biomethane injected	707.4 GWh	739.94 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
Other green gas		
Enquiries	3	4
Connection studies	0	0
Capacity of connection studies	0 SCMH	0 SCMH
Connections	0	0
Capacity connected	0 SCMH	0 SCMH
Volume (energy value) of other green gas	0 GWh	0 GWh
Average monthly flow rate (all connections)*	0 SCMH	0 SCMH

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

Innovating for decarbonisation and to protect the environment



Innovation plays a crucial role in developing options and evidence for the low-carbon transition and developing new approaches to enhance environmental protection. We work collaboratively with other networks and a range of third parties to deliver innovative projects dedicated towards decarbonisation of the gas network

through funding mechanisms such as the Strategic Innovation Fund and the Network Innovation Allowance.

In 2022-23, our innovation portfolio has included a range of projects to develop the evidence base for low-carbon hydrogen conversion; to understand the impact of new technologies; to understand the development of the energy system in the areas we serve; and to

better support customers in vulnerable situations through the transition. In 2022-23 we invested £2.2 million in innovation projects combined across all funding mechanisms, and case studies on some of these projects are provided below.

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

Innovation	Issue or barrier	Annual achievements	Expected benefits	Timescales
Hydrogen for Aviation	<p>The aviation sector has a significant challenge to help achieve net zero, as it currently contributes 2.5% of global CO₂ emissions and 7% of UK greenhouse gas emissions. The good news is, hydrogen has the potential to help decarbonise the sector by providing alternative aircraft fuel and energy for its supply chain.</p> <p>With the government’s Jet Zero policy demanding at least 10% of jet fuel is a sustainable aviation fuel (SAF) by 2030 and with Wales & West Utilities’ area being home to leading aerospace businesses, it’s crucial the business understands the potential scale and timing of requirements for hydrogen for aviation, alongside potential barriers and challenges.</p>	<p>Partnering with ARUP and key stakeholders in the aviation industry the project is assessing demand from aviation across the Hydrogen South West (HSW) and South Wales Industrial Cluster (SWIC) areas, focusing on Bristol and Cardiff as case studies, to gain a deeper understanding of opportunities and barriers. This will inform the infrastructure requirements and any repurposing of assets for hydrogen around them, with recommendations for further steps to fill evidence gaps.</p> <p>The project will:</p> <ul style="list-style-type: none">• Undertake a baseline review of current literature and Technology Readiness Level (TRL) for hydrogen use in UK aviation, including SAF, hydrogen for fuel cell and combustion for aircraft, ground operations and supply chain.• Map stakeholders and produce an engagement plan for gathering the required demand data from a wide range of sources across the aviation sector.• Carry out case studies for potential hydrogen requirements (demand, quality/purity, and other considerations) for Bristol and Cardiff airports and aerospace sectors and look at how this may evolve in different phases between 2022-2050 in the following areas: ground operations, SAF, short- and long-haul aircraft and the supply chain.	<p>This project will give us a deeper understanding of how gas networks can support the decarbonisation of future airport operations in the wider aviation sector and its supply chain where hydrogen plays a key role.</p> <p>It will enable each gas network to understand the potential demand and therefore make crucial hydrogen investment decisions while also opening opportunities for new consortia to help drive a whole-systems approach to developing robust and low-risk hydrogen supply chains.</p>	<p>Start date: January 2023</p> <p>Planned end date: June 2023</p>



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

Innovation	Issue or barrier	Annual achievements	Expected benefits	Timescales
HyLine Cymru	<p>Alongside the UK’s ambitious net zero targets, there is strong demand from industry to decarbonise. Hydrogen can replace natural gas in industrial processes and can also be used for heating and cooking in homes, so developing the infrastructure for it is critical if we are to enable the switch to the fossil-free fuel, especially where electrification is not possible.</p> <p>This feasibility study builds on our previous project, Regional Decarbonisation Pathways, to begin the development for such infrastructure – a dedicated hydrogen pipeline system running from Pembroke to our Dyffryn Clydach offtake and onwards to Port Talbot to connect hydrogen production with demand.</p>	<p>The feasibility study, conducted in collaboration with partners in SWIC and Apollo Engineering, is split into the following discrete work streams:</p> <ul style="list-style-type: none">• Demand analysis and flow assurance – an initial assessment of low-carbon hydrogen production and demand in line with developing projects to guide the supply side and inform the scenarios.• Expansion options and storage – using the above analysis to set out the future expansion of the pipeline beyond Port Talbot, including opportunities for blending into the existing Local Transmission System and linkage with Project Union.• Planning and regulatory requirements – setting out the approach for securing all necessary consents for the pipeline and associated facilities within the necessary timescales as well as exploring the regulatory operating model for the pipeline.• Pipeline engineering design – developing a pipeline basis of design that includes the “minimum functional specifications” for material selection, assets and equipment that ensure safety and suitability for hydrogen transportation.• Pipeline conversion options/phasing – considering a number of alternative pipeline corridors using software such as AutoCAD Map 3D to align CAD and GIS map data to optimise the route.• Financial assessment and programme design – generating the costings for the required assets based on preferred route and demand scenarios, design basis and specification. This also includes a prospective programme for the Front-end Engineering Design (FEED), detailed design, and construction phases required to commission the pipeline in the early 2030s.	<p>This study is the first phase of developing a dedicated hydrogen pipeline system in south Wales that links hydrogen production with industrial demand. The pipeline would provide the infrastructure for key industrial customers to begin fuel-switching their processes to hydrogen in the 2030s. It would also create the demand that would unlock additional planned hydrogen production facilities in the region and enable the anticipated domestic heating conversion process.</p>	<p>Start date: November 2022</p> <p>End date: June 2023</p>

Climate change impact

Governments and companies worldwide are pledging to achieve net zero emissions of greenhouse gases in the face of 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 science aligned ambition is to reduce our Scope 1 and 2 emissions, excluding shrinkage, by 37.5% by 2035 (wb2°C). We know that this will be challenging and do not expect to see a linear decrease in our emissions; we are working

to reduce emissions where feasible and lay the foundations for further reductions in the future.

Our shrinkage reduction target is to reduce shrinkage by 10% by 2026. This target 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 within our operational control, across all our work streams and within the geography in which we operate.

TABLE 6 – Scope 1 and 2 Business carbon footprint

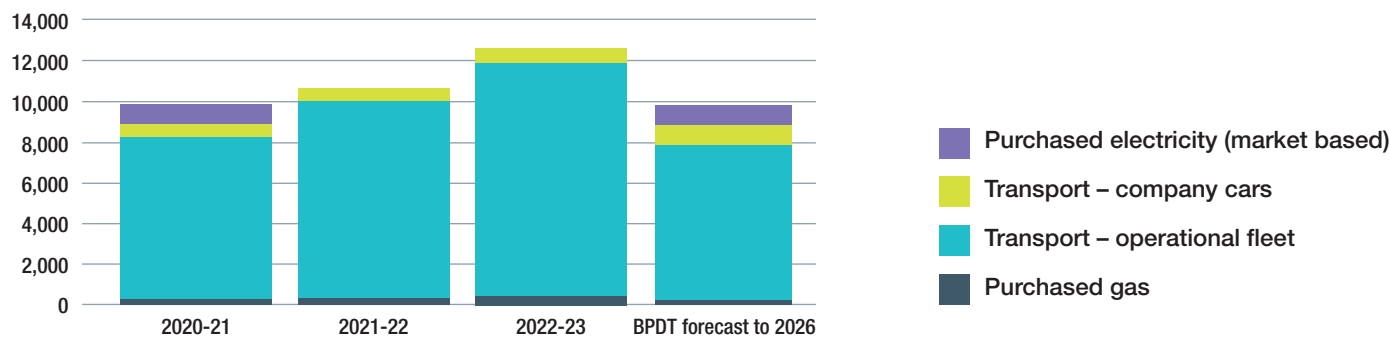
Emissions in tCO ₂ e	Specific area	2020-21	2021-22	2022-23	Comments
Building energy use	Purchased gas	215	297	237	Increase in purchased gas in 2021-22 reflects the business returning to normal operating conditions following the impacts of COVID-19 in 2020-21.
	Building – electricity (location based)	903	914	847	Purchased electricity was comparable to 2019-20. In the future we expect to see purchased electricity used to charge vehicles to rise and impact the total amount purchased.
	Building – electricity (market based)	N/A	0	0	Wales & West Utilities purchased certified green electricity from April 2021.
Operational transport	Road (operational fleet and company cars)	8,677	10,381	12,166	Expected carbon emission increase was anticipated and reflects the comparative impact of COVID-19 and changes to our business model. See below for details.

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

Emissions in tCO ₂ e	Specific area	2020-21	2021-22	2022-23	Comments
Fugitive emissions	IIGs	N/A	N/A	N/A	Not applicable.
Fuel combustion	Diesel	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	
Gas shrinkage		386,071	374,185	360,945	See tables 7 to 10 for more details.
Total excluding shrinkage (market based)		9,795	11,591 (10,678)	13,250 (12,403)	Increases 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.
Total including shrinkage (market based)		395,866	385,776 (384,863)	374,195 (373,348)	Reduction of 5% to baseline.
Carbon (Scope 1 and 2 in tonnes CO ₂ e) / £m turnover		870	833	722	Reduction in emissions and increasing turnover resulting in a decrease year-on-year.
Carbon (Scope 1 and 2 in tonnes CO ₂ e) / GWh gas throughput of the network		6.5	6.7	7.4	Reduction in throughput is more significant than the reduction in emissions, resulting in an increase year-on-year.
Renewable energy generated (kWh)		134,387	130,883	120,570	Wales & West Utilities generates 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 (tCO₂e)



Note: 2021-2023 data sourced from Regulatory Reporting Pack (RRP) reported carbon data. 2021-22 and 2022-23 data 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.

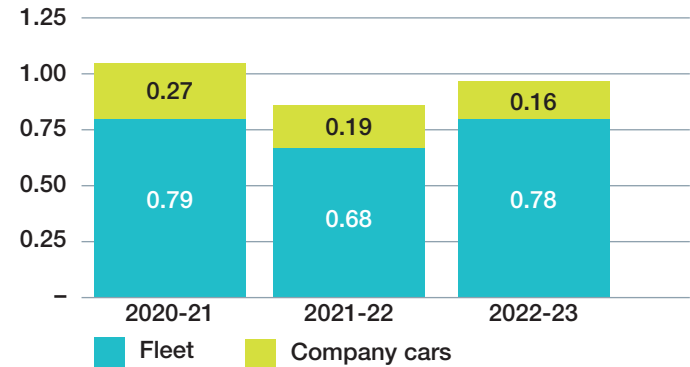
CLIMATE CHANGE IMPACT

Our 2020-21 Scope 1 and 2 transport carbon emissions reflect the impact of COVID-19 on our business, where we were unable to operate as normal with many work streams reduced to ensure we complied with government directives on working from home.

During 2021-22 we changed our business model, insourcing our mains replacement work. This means that the number of employees and associated vehicles reported in our Scope 1 emissions increased. We also switched to a renewable energy supply in April 2021, which saw the emissions associated with purchased electricity (market based) reduce to zero.

As expected, our first full year post-lockdown restrictions saw an increase in emissions in line with our workload returning to normal pre-pandemic levels. Going forward, we anticipate that insourcing the mains replacement work will mean that we have greater direct control over the vehicles our colleagues use and the ability to convert them to green alternatives, subject to availability of viable options.

CHART 2 – CO₂e intensity of an operational mile travelled, expressed in kgCO₂/mile



The overall carbon intensity of miles travelled by the operational fleet has increased from 2021-22 to 2022-23. We have introduced more hybrid and ultra

low emission vehicles into the business (see Fleet case study) resulting in a lower carbon intensity for company cars. The overall increase is due to the higher quantities of fuel purchased by the commercial fleet due to increased workload. During COVID-19 we experienced challenges procuring new vehicles due to poor market

conditions and so the fleet grew older and less efficient. Additional vehicles were then hired to grow the fleet to remove the need for vehicle sharing which also led to an increased carbon footprint.

Some of the work we are doing to reduce our Scope 1 and 2 emissions includes:

CASE STUDY – FLEET

We are committed to moving 75% of company cars to hybrid or ultra low emission vehicles (ULEV) by 2026, explore green alternatives for our commercial fleet and achieve a zero emissions fleet by 2035. As of 31 March 2023, 85% of our company cars had been replaced with hybrid/ULE vehicles, 6% of which were zero emission vehicles (ZEV). All current vehicles on order are either ZEV or ULEV. Additionally, we have 40 medium term leases, of which 100% are ULEV.

To facilitate the efficiency and reliability of our ULEV and ZEV fleet we have also installed a total of 61 charging points up to March 2023, with a further 29 planned for installation in 2023-24. We will continue to seek opportunities for the installation of charging ports as part of ongoing operational depot enhancements, subject to available site electricity capacity.



CASE STUDY – DEPOTS

As part of our Property Strategy, we are modernising and investing in fit for purpose depots to support Operational effectiveness and efficiency. The new depots in Redruth and Bristol (and planned Cullompton in 2024 and Plymouth in 2025) are built to the latest building standards and high energy efficiency.

Our most recent constructions in Redruth and Bristol achieved excellent energy performance certificate ratings of A+ and A respectively. At Bristol, we have consolidated into a single, energy-efficient building as opposed to the several, temporary, single-glazed and insufficiently insulated buildings that were spread out across the site.

We have installed modern, double-glazed windows and high-energy-rated insulation to minimise energy loss and maximise both the efficiency of the building as well as the wellbeing and comfort of our employees. In addition to this, we have installed 12 electric vehicle chargers and an integrated solar system.

Taking into consideration the biodiversity and local environment requirements of the site, we have set aside 0.49 hectares at the rear specifically for long-term biodiversity enhancement. Through extensive work with local ecologists, we have installed a pond area to promote wildlife and flowers, removed the overgrown areas to encourage native regrowth and wildlife repopulation, and preserved the onsite badger runs. You can find more information on our biodiversity work in [section 10](#).



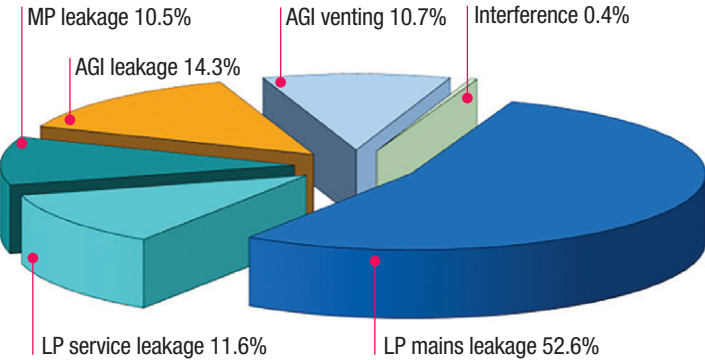


Business carbon footprint – shrinkage

Shrinkage is gas which is emitted through the gas distribution network. Shrinkage is assessed and reported annually using the approved Shrinkage and Leakage Model (SLM).* Shrinkage consists of 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 lost upstream of the consumer’s meter and emergency control valve (ECV).

CHART 3 – Wales & West Utilities 2022-23 leakage breakdown



* The SLM is the version 1.4 approved by Ofgem on 16 September 2014.

The following tables provide details on how we are bringing our leakage volumes down.

TABLE 7† – Leakage volumes

GWh	2021-22	2022-23
Low-pressure mains	162.5	153.5
Medium Pressure Mains	30.9	30.6
Services	34.8	33.9
AGIs	73.1	72.9
Interference	1.1	1.1
Total	302.4	292.0
Target total	306.0	300.3

TABLE 8† – Leakage emissions

tCO ₂ e	2021-22	2022-23
Total	370,892	358,071
Target total	375,285	368,350

TABLE 9† – Other shrinkage volumes

GWh	2021-22	2022-23
Own use	6.5	5.7
Theft	11.4	10.1
Target	17.9	15.7

† Tables 7-10 show our shrinkage and leakage volumes and emissions in Regulatory Year 2021-22 and 2022-23. 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.

TABLE 10† – Other shrinkage emissions

tCO ₂ e	2021-22	2022-23
Own use	1,189	1,038
Theft	2,104	1,836
Target	3,293	2,874

Leakage emissions reduced by 12,821 tCO₂e from the previous year, equating to a 3.5% reduction in annual emissions due to continual replacement of old metallic mains with low-leakage polyethylene (PE) and pressure management. Overall shrinkage emissions were reduced further due to a decrease in gas throughput.

We are replacing pneumatic controllers, which automatically vent gas as part of normal operation, with either low or no emissions alternatives. To date, we successfully replaced controllers associated with Jetstream regulator control systems with a regulator solution which removes the need for venting at four of our sites. This is estimated to equate to reducing more than 917 tCO₂e per year based on an assumption of 17,000 standard cubic metres of gas vented annually per site with a Jetstream system as estimated, through measurement, in 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. Where possible, we also replaced actuated valve slamshuts by including integral slamshut valves in the monitor regulators to reduce our emissions during maintenance activities.



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 a limited number of our Scope 3 emissions categories but committed to reporting more of our emissions and improve 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.

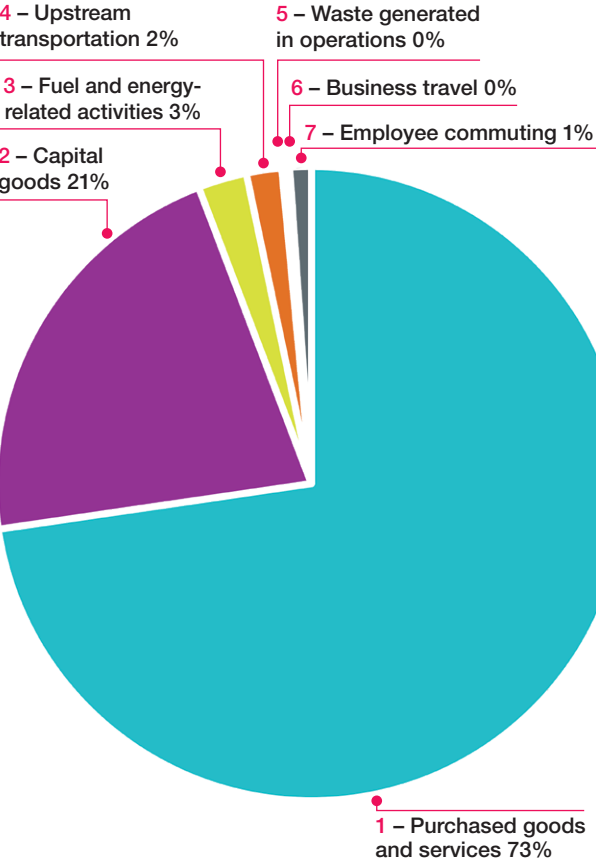
The assessment highlighted that Scope 3 categories 8 to 15 were either not applicable or material to Wales & West Utilities, and therefore could be discounted. A list of the Scope 3 categories and their description is provided in the [glossary](#).

A summary of the initial screening assessment is presented below 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 assess the Scope 3 emissions by spend 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 ₂ e	% 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	<ul style="list-style-type: none">• 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 2022-23 reporting year we have significantly increased the scope of primary data reported within our Scope 3 emissions footprint. The results are presented on right.

TABLE 12 – 2022-23 Scope 3 carbon reporting

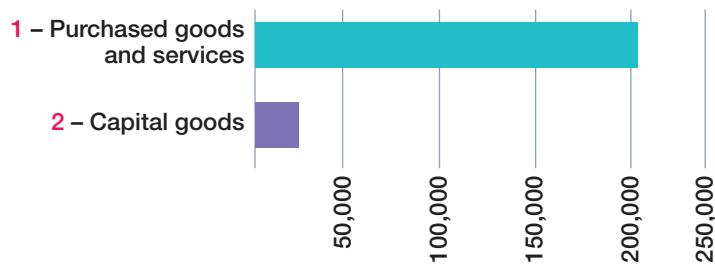
Descriptions	Footprint tCO ₂ e 2020-21	Footprint tCO ₂ e 2021-22	Footprint tCO ₂ e 2022-23	Comments
Purchased Goods and Services	599	4,166	4,291	
Helicopters (pipeline surveys)	49	63	72	
Contractor vehicles	549	140	0	We changed our business model in July 2021; contractor vehicles that were in Scope 3 are now in Scope 1.
Reinstatement materials	N/R	3,963	4,219	This includes internal and contractor reinstatement materials.
Capital Goods	3,480	3,512	4,326	
PE Pipe and Fittings	3,480	3,349	4,101	Data provided directly from the suppliers.
Copper and Steel pipe	N/R	163	215	Data provided by purchase orders.
IT (purchased equipment)	N/R	7	10	Data provided by purchase orders.
Fuel and Energy Related Activities	–	2,871	3,160	
WTT gas consumption	N/R	51	40	Converted from Scope 1 and 2 source data.
WTT and transportation and distribution electricity consumption	N/R	340	299	
WTT Fuel	N/R	2,480	2,821	
Waste Generated in Operations	–	185	277	
Spoil to landfill	N/R	153	231	
Office and depot waste	N/R	24	45	Data provided by waste management contractors.
IT	N/R	0.1	0.03	
Water supply waste	N/R	1	1	Data provided by utilities invoices.
Business Travel	0.5	104	197	
Private vehicles	–	44	130	2020-21 reported private vehicles in Scope 1.
Rail	–	1	4	Data provided by third-party corporate travel company.
Flights	–	–	3	
Hotel	–	55	55	
Hire cars, taxis, buses	0.5	4	5	
Employee Commuting	–	964	1,087	
Commuting	N/R	518	893	Calculation based on results of an employee survey (62% response rate in 2022-23).
Homeworking	N/R	446	194	
Carbon offset	N/R	-70	-2,700	Carbon offsetting rail and air emissions (including helicopters) along with emissions associated with our HGVs in 2022-23 via certified additional international offsets.
Total Gross Scope 3 Carbon (Net)	4,080	11,802 (11,732)	13,339 (10,639)	

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.

To ensure we continue to improve our Scope 3 carbon reporting we ran 95% of our year spend by value (excluding primary data reported above) through the GHG Protocol Evaluator tool. This tool calculates the carbon emissions associated with financial spend within the Scope 3 category and allows us to understand the potential carbon emissions not currently covered by primary data sources. This assessment has included significant areas of carbon such as business rates, where we have limited scope to influence change.

CHART 5 – Scope 3 emissions 2022-23 calculated via spend where primary data is not available

Scope 3 emissions by spend 2022-23 (tCO₂e)



The assessment also highlighted construction activities and telecommunications which will be a focus area for the remainder of GD2.



CASE STUDY – OFFSETS

We understand the ever-increasing importance of achieving net zero by 2050 and realise the impact we as a business have on the environment with the work that we do. Whilst our main focus is to reduce our emissions through improved efficiencies and changing the way we do things, 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 air and rail travel emissions. For 2022-23 we conducted a review of our fleet to determine the availability of lower emissions alternatives. This review highlighted that such alternatives are not currently available for our HGVs and as such we have taken the decision to include these emissions in our carbon offsets – the equivalent of more than one million litres of fuel.

Recognising that greenhouse gas emissions are a global issue, but that developing countries frequently bear a disproportionate share of the consequences, we have directed our offset funding toward supporting clean drinking water and renewable energy projects, such as solar and hydroelectric plants and wind farms in developing countries across the world, such as Africa and India. We will continue to offset our unavoidable emissions as we work towards achieving net zero.

CASE STUDY – COMMUTING AND HOMEWORKING

Our commitment to sustainability and reducing our carbon footprint has led us to focus on Scope 3 emissions, which encompasses indirect emissions arising from sources not owned or controlled by our organisation. One challenge we faced was accurately capturing data relating to employee commuting and homeworking emissions. To tackle this issue 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. This survey collected more extensive data on employee commuting patterns at different stages throughout the year, acknowledging that changes do happen and allowing us to acquire a better understanding of the various means of transport used, the distances travelled and any changes to our employees' properties or utility suppliers. Another feature of the survey was the ability to capture directorate and department details. This allowed us to precisely track the completion progress which was instrumental in ensuring a higher participation rate. With this improved survey, we saw an increase in responses, from 23% to 62%. As a result of the increased volume of responses, 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. As our employees transitioned out of predominantly home-based working to our hybrid working model we have as expected seen an increase in our year-on-year commuting emissions and subsequently a decrease in homeworking emissions. Despite this increase, overall, we have seen a decrease when compared to our pre COVID-19 commuting emissions.

Embodied Carbon

12

RESPONSIBLE CONSUMPTION AND PRODUCTION



13

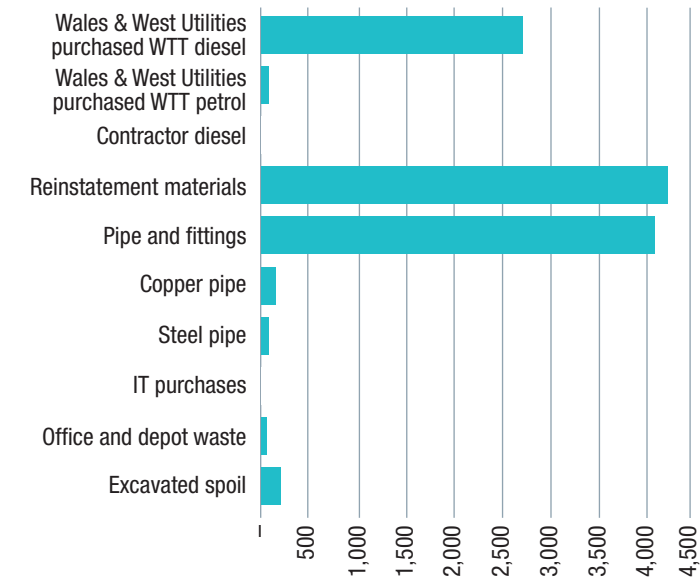
CLIMATE ACTION



Embodied carbon is all the carbon emitted in producing materials. It is estimated from the energy used to extract and transport raw materials as well as emissions from manufacturing processes.

Over RIIO-2 we will report embodied carbon on new construction projects that meet the threshold requirements ; we will work with other GDNs to ensure consistency in methodology. We will 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 2022-23 regulatory year and is a baseline for future reporting embodied carbon reduction.

CHART 6 – Embodied carbon 2022-23 (tCO₂e)



The embodied carbon graph demonstrates the importance of efficient management of our core activities and continuing to proactively manage our operational fleet significant embodied carbon source.

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

TABLE 13 – Status update on our 2022-23 embodied carbon and ambitions

Embodied Carbon Source	Description	Footprint tCO ₂ e 2021-22	Footprint tCO ₂ e 2022-23
Total Embodied Carbon	We will show how we are improving and seeking carbon efficient solutions over GD2.	25.08 tCO ₂ e/km pipe replaced	26.58 tCO ₂ e/km pipe replaced
		22.21 tCO ₂ e/£M turnover	22.47 tCO ₂ e/£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



We engage with around 1,200 suppliers across a diverse range of goods and services. The procurement function recognises the importance of the supply chain in supporting the environmental ambitions of the business and how having an engaged supply base can positively influence our sustainability strategy. To provide a clear channel of communication we have developed a Supplier Charter to provide a consistent way to publish our ambitions and requirements. This will be periodically updated and circulated to all partners during the mapping process and through our website. As well as reinforcing established standards of compliance and legality, the charter should highlight themes where the supply chain can support our future ambitions, including our focus on environmental awareness and activity, digital security, human rights, ethical business practices and transparent procurement principles.

To shape and inform future activity we need to build a picture of our supply base, from which 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. Through this process we aim to better understand who our suppliers are, what levels of risk exist in our business interactions, their environmental awareness and activity, along with their compliance or awareness of important initiatives such as Modern Slavery and the Real Living Wage. Due to scale a phased approach to mapping was adopted, initially prioritising the procurement categories where higher spend could provide an early indication across as much activity as possible by focusing on the top 50 vendors by spend. Early results confirmed

heightened awareness of both environmental and modern slavery legislation and risks and required activities, as expected from mostly larger organisations. Later phases are broadening the process and building 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 a number of themes, we create an understanding of how the supply base considers sustainability.

The map should ultimately inform key objectives:

- To identify where the supply chain poses a potential risk, such as environmental or reputational harm.
- To determine where opportunities exist to collaborate with suppliers and improve our effectiveness.
- To understand the type and level of support that individual suppliers may need to fulfil our expectations for an ethical supply chain.

It is important that today’s environmental ambitions start to become established in procurement practice. The current redevelopment of the pre-qualification questionnaire (PQQ) will ensure that only suppliers willing to support our future environmental expectations will be considered as potential partners. A standardised PQQ system for use across all procurement categories will provide a consistent, controlled method of supplier selection. Beyond the existing procurement considerations, the revised system will have a greater focus on emerging environmental themes, while remaining considerate of vendor size, activity, and risk.

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.

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. Inter-group collaboration continues with our sister companies where subject matter knowledge, commercial synergies, or environmental expertise offer an improved outcome.

TABLE 14 – Sustainable procurement performance indicators

Supply chain	2021-22	2022-23
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)
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)

Efficient resource use and waste

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.

We are adopting a circular economy approach, where resources are kept in use

in a closed-loop system rather than thrown away, wherever possible. 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 used directly by Wales & West Utilities and our activities to reduce our usage are summarised below:

TABLE 15 – Key materials used during the reporting period 2022-23

Resource	Volume consumed used	Environmental impact	Actions taken
Aggregate	92,098 tonnes	Potential environmental impacts associated with aggregate extraction including changes to the landscape, loss of habitat, noise, dust, erosion, and sedimentation.	<ul style="list-style-type: none"> 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. During 2022-23 we used 21% recycled aggregate as back fill material (27% in 2021-22). This continues to meet our commitment to increase the use of recycled aggregate to greater than 20%.
Reinstatement materials	Tarmac 32,131 tonnes Concrete 10,867 tonnes Paving 2,833 tonnes Soil 4,004 tonnes	Asphalt and concrete production are both carbon intensive and utilise a range of raw materials including aggregate and water.	<ul style="list-style-type: none"> By reducing the size of our excavations, we 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.



TABLE 15 – Key materials used during the reporting period 2022-23 (cont.)

Resource	Volume consumed used	Environmental impact	Actions taken
Diesel – fuel within the operational fleet	4,490,286 litres	Burning diesel releases carbon dioxide, a greenhouse gas, into the atmosphere. Diesel engines also emit particulate matter (PM) and nitrogen oxides (NOx) which contribute to the production of ground-level ozone and acid rain resulting in a negative effect on human health and biodiversity.	<ul style="list-style-type: none">• We proactively manage our operational diesel fleet, ensuring the vehicles are well maintained and moving towards efficient Euro VI engines, currently 80% (70% in 2021-22).• 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 ULEV and EVs.
PE and metal pipe	1,618 tonnes	The principal impacts associated with the manufacture of PE and metal pipe are associated with resources depletion and energy consumption.	<ul style="list-style-type: none">• 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 throughout Wales & West Utilities.• 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.	<ul style="list-style-type: none">• 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 printed on as part of our normal working practices. Since returning to working in the office we are encouraging staff to continue keeping the printing 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, with the aim to trial and roll out recycled paper as default in 2023-24.
Single use plastic (SUP)	Many types of plastic 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*.	<ul style="list-style-type: none">• Moving from SUP teabags and coffee point sundries to sustainable alternatives underway.• 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.

Waste summary



Initially focusing on reducing consumption and the generation of waste, and diverting waste from landfill through reuse, recycling and recovery we expect to achieve our ambition to send zero avoidable 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. 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
Total metric tonnes of waste produced directly by the company	150,614	232,191
Tonnes per £m turnover	325	448

TABLE 18 – Waste statistics 2022-23

	Reuse	Recycle	Recovery with energy	Incineration	Landfill
Total (tonnes/%)	–	218,403 94.1%	167 <1%	178 <1%	13,443 5.8%
Spoil	–	218,035 94.1%	–	–	13,380 5.8%
PE waste	–	155 <1%	–	–	–
Mixed recycling	–	86 <1%	–	–	–
Cardboard	–	31 <1%	–	–	–
Plastic wrapping	–	5 <1%	–	–	–
Pallets	–	90 <1%	–	–	–
Non-recyclable	–	–	167 <1%	133 <1%	63 <1%
Hazardous waste	–	–	–	44 <1%	–
IT equipment	0.004 <1%	1 <1%	–	–	0.02 <1%

Our performance against our RIIO-2 target of sending a maximum of 20% waste to landfill was met in the first reporting year. Although this is a great start, we are continually looking for areas to further improve. Here are some of the activities that we are engaging in.

CASE STUDY – PPE RECYCLING

As we work towards our ambition to be a zero avoidable waste to landfill business by 2035, we are continually reviewing opportunities and innovations that will help us achieve this ambition whilst also reducing our environmental impacts.

Personal protective equipment (PPE) is vital to the safety of our Wales & West Utilities colleagues as we continue to deliver a safe and reliable gas supply. However, there has previously been limited options for disposal beyond being sent to landfill. In June 2021 we joined the nationwide scheme and introduced our own hard hat recycling programme throughout our network and as of 31 March 2022 we recycled more than 200 hard hats.

Unfortunately, this scheme is no longer available, but we took the opportunity to build on this by expanding to a full PPE recycling trial through a third-party provider. In October 2022 we began the trial at two depot locations, Bristol and Wrexham. Through this initiative, we placed designated bins at the depots which were collected monthly and the PPE was then sorted into three tiers. The first tier was the primary and preferred recycling route where the materials were securely shredded to create alternative products such as clothing. The second tier focuses on recycling the materials into end-of-life products such as insulation and sound boarding. Finally, if the first two options are not possible due to the type of material, then it was re-purposed for energy through refuse-derived fuel. This trial contributes to our sustainability goals and circular economy principles, and we will continue to work towards implementing this solution more widely across the network.

Local environment

Climate change resilience

We recognise the pivotal role we play in delivering a safe and secure supply of gas to our consumers. The risk from climate change has a potential to impact upon the resilience of our network. We have 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 a new risk assessment of climate related risk to Wales & West Utilities and the gas and electricity transmission and distribution networks using the UKCP18 climate change projections.

The main impacts on the network include:

- temperature—predicted increase
- precipitation—predicted increase in winter rainfall and summer droughts
- increasing wet/dry cycles
- increasing windstorm frequency (particularly when following high-intensity precipitation)
- significant cold spells – predicted decrease but more severe
- wildfires.

Early in 2022, our Wales & West Utilities 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:

Building adaptive capacity: helping to understand and respond to climate change challenges. This includes measures to create new information (e.g. data collection, research, monitoring, and awareness raising); to support governance and organisational structures; and to help 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:

- **Operational:** changes in processes and procedures. Low cost, quick to develop and implement e.g. inclusion of erosion monitoring in pipeline route walks.
- **Grey measures:** engineered/hard structural solutions. These tend to address a single issue well, but with limited flexibility.
- **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.
- **Hybrid:** a combination of green and grey measures.

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

- mapping and analysis of 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**.



Enhancing the local environment

We consider it essential that, as a responsible business, we operate in a sustainable manner to protect and enhance our natural environment. The following section details how we have started to focus our attention on biodiversity, air quality and land management.

As a gas distribution network, we do not have an extensive portfolio of large sites; instead, our properties often have limited footprints housing gas equipment, offices, or depots, resulting in low natural capital value. Given the insensitivity of using the Natural Capital Valuation Tool to formally assess our full site portfolio, we are instead focusing our efforts on individual site assessments using the approved Defra Metric. We believe this approach will provide the best value to our customers and allow us to concentrate on areas where significant improvements are available.

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 it is appropriate.

* Climate change adaptation reporting: third round reports – GOV.UK (www.gov.uk)

** Climate change adaptation reporting power: plans for the fourth round – GOV.UK (www.gov.uk)

TABLE 18 – In-year schemes to enhance or restore local environmental value

Scheme name	Location	Description	Environmental benefits	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.	2022-23
Tree planting	South Gloucestershire	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 2022
Tree planting	Wales & West Utilities network	Planting of a further 1,850 trees as a continuation of the “Five for One” Policy.	Improved air quality through pollutant absorption, providing natural habitat for wildlife.	Data captured 2022-23. Planting to commence in autumn 2023.

CASE STUDY –
BIODIVERSITY NET GAIN (BNG)
FEASIBILITY STUDIES

We are dedicated to encouraging sustainable practices and acknowledging the intrinsic worth of our natural capital. We have selected 15 strategic sites within our network for potential natural capital enhancements as part of our ongoing efforts to improve and protect the environment.

We have actively enlisted specialist ecologists to conduct detailed desktop feasibility assessments to ensure the viability of these efforts. These investigations will serve as the foundation for creating a detailed work plan aimed at delivering site improvements for the duration of our current price control period and beyond.

We hope to improve the resilience and ecological value of our network by diligently assessing and identifying significant locations, while also contributing to broader conservation goals. By collaborating with ecologists, we are harnessing their expertise to guide our decision-making process and ensure that our efforts are grounded in sound ecological principles.

As we move forward, we will continue to prioritise these initiatives and embrace the opportunities they present to make a positive impact on the environment and our stakeholders.



Land management

In Year 2 of GD2, Land Management completed 22 of the 85 projects (over 70 sites) required for delivery in GD2. This brings the number of projects delivered so far in GD2 to 59, well on track for our five-year target.

As part of our long-term land management programme, further assessments were completed in Year 2. These further assessments included site visits which also 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 2, several relatively large sites were subject to site investigation/monitoring. Upfront investment in site investigation/monitoring has two positive gains for consumers and the environment. The refinement of sources of contamination results in the reduction of remediation areas/volumes and therefore provides better value for consumers (less to remediate). In addition, this approach is considered more sustainable given that reduced remedial volumes result in fewer vehicle movements (export of contamination and importation of clean material).

In Year 2, Land Management also undertook upfront ecology surveys ahead of main remediation

works at our site in Quakers Yard, Treharris. The ecology work has included reptile surveys, bat roost inspections, dormouse surveys, arboriculture assessments and white-clawed crayfish eDNA tests, which have been undertaken

over an 11-month period. These surveys have informed the upcoming works but also guided the biodiversity net gain feasibility study and subsequent design of the long-term Ecological Management Plan (EMP).





Biodiversity

CASE STUDY – BIODIVERSITY ENHANCEMENTS AT BRISTOL

We are working closely with local ecologists to undertake a variety of biodiversity net gain (BNG) enhancements at our Bristol Depot, which is part of the Bristol Wildlife Network Sites, providing wildlife corridors in a network of designated sites in Bristol. Following an initial assessment to understand the current baseline, we established that the site had great potential to make substantial enhancements to biodiversity, ecosystem services and amenity value. A range of BNG intervention options were considered and discussed in detail with local planning authorities.

Work is currently ongoing and will be delivered on a timeline that is sympathetic to the natural environmental cycles of the site. This work includes improvements of the existing habitat to increase the cover of woodland by managing the existing dense scrub areas and planting up native trees to convert to a woodland habitat of good condition. Enhancements for wildlife such as the 100m² wildlife pond are now well established with thriving ecosystems that we will monitor and enhance on

an ongoing basis. There is a dead wood tree that has been retained during all post-interventions for its biodiversity value as a resource for invertebrates and other species. On site, we are also fortunate to have a mature sycamore tree, a naturalised species in the UK, which again will be retained as it attracts aphids and therefore a variety of their predators, such as ladybirds, hoverflies, and birds.

In September 2022 we installed a wildlife camera on site to monitor the variety of species our enhancements are attracting. Whilst an inner-city site, over the course of a week the camera captured foxes, badgers, roe deer and a variety of birds. During our site visits we also found slow worms hiding under rocks and a variety of native butterfly species all enjoying the nectar rich plant life on site.

The site is, or has the potential to be, home to protected species such as bats, reptiles, great crested newts and specially protected birds, among others, and we hope that the work we are carrying out here will be successful in attracting such species.



TABLE 19 – Impact on biodiversity

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

CASE STUDY – TREE PLANTING

A team of our colleagues turned out in force to plant trees in the Downend area of South Gloucestershire and improve biodiversity in the local area.

The initiative was part of our gas emergency and pipeline service's pledge to plant five trees for every one we must remove as part of our work to keep the gas flowing safely.

The planting in Downend was done in partnership with South Gloucestershire Council and enhanced the council's own tree planting programme.

During the day more than 20 trees were planted by members of our Sustainability Team and our Future Generations Network. It is hoped that, as well as supporting biodiversity and improving air quality, people will be able to enjoy seeing them grow during the coming years.

Sarah Williams, Wales & West Utilities Director of Regulation, Asset Strategy & HSE, said:

"Through investing £400 million in the gas network between 2021 and 2026 we are committed to helping communities right across Wales and south-west England go green. We're also focused on delivering a number of long-lasting initiatives that benefit the communities we serve – including improving air quality and biodiversity. Taking part in this tree planting exercise was not only great fun, allowing us to meet with colleagues in the great outdoors,

but it also will benefit the community in Downend by enhancing biodiversity, reducing carbon and improving wellbeing. We are delighted that we have been able to link with South Gloucestershire Council to enhance their programme and hope this will be one of many activities across our network."

Louise Harris, Cabinet Member for Climate and Nature Emergency, said:

"We would like to thank Wales & West Utilities for supporting our vital work to boost biodiversity in our open spaces and help restore and protect nature for the future. They kindly supplied staff members to plant trees at a community tree planting event held at King George V Playing Field, Downend and covered the cost of the trees."





Air quality

Air pollution is not only a major risk to human health; it also has significant impacts on the environment. Air quality is an important issue to our employees and the [Welsh Senedd](#). [Researchers](#) tell us that Wales has some of the worst air quality in the UK. It estimates between 1,000-1,400 deaths per year in Wales can be attributed to exposure to air pollution.

We are committed to understand and minimise our impact on air quality during GD2. Working with specialist consultants, we established how to convert our operational activities into air quality data that we can monitor.

The main air quality impacts related to Wales & West Utilities are considered to be:

- vehicles/sitework – petrol or diesel powered non-road mobile machinery (NRMM) and our operational and company fleets all emit nitrogen oxides (NOx), particulate matter (PM₁₀ and PM_{2.5}); and
- energy plant – gas boilers emit NOx (and some PM₁₀ and PM_{2.5} but at a very low rate).

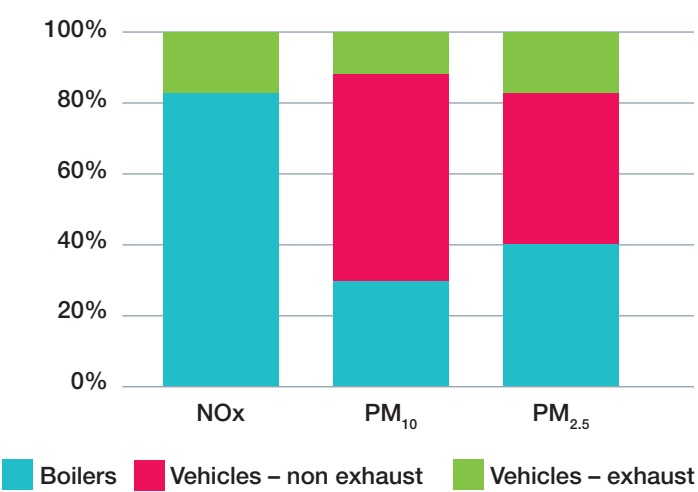
To benchmark our air quality impact, we have used data on our fleet operations in litres of fuel and miles driven and the kWh of gas consumed (including shrinkage). The assessment shows the following:

TABLE 20 – Air quality analysis

Emission source	NOx (tonnes)	PM ₁₀ (tonnes)	PM _{2.5} (tonnes)
Vehicles (exhaust)	16.952	0.179	0.179
Vehicles (non-exhaust including brake, tyre and road abrasion emissions)	–	0.953	0.515
Boilers	81.207	0.501	0.501
TOTAL	98.159	1.632	1.194

Please note the values contained above 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.

CHART 7 – Air quality impacts in 2022-23



The data shows that boilers have a sizeable impact on NOx, PM₁₀ and PM_{2.5}. Over the next few years, we will look 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 our air quality over GD2. Among the steps we anticipate taking to lessen the effects on our air quality are:

- 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 electric or hybrid vehicles and proactively investigate EV and other ULEV options for our operational fleet.

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 retained our ISO 14001 accreditation with no major or minor nonconformities. In October 2022, our lead auditor noted that, *“there was again a clear demonstration of compliance which is well in excess of minimum requirements during our visits to the operational teams. The management and operational teams at Wales & West Utilities are thanked for their co-operation during the visit”*.

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

The 2022-23 AER was completed in line with Ofgem's Regulatory Instructions and Guidance and in line with the RII0-2 Environmental Reporting Guidance (Version 1.0) and on this basis a full Data Assurance Guidance process has been conducted.

Management prepared methodology statements and completed risk assessments for the AER that was provided 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 to 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 to the underlying workbooks;
- reperforming calculations to ensure the correct results within the tables; and
- ensuring the commentary is aligned with the tables.

A final review has been undertaken by members of the Wales & West Utilities Executive team including the Director of Regulation, Asset Strategy & HS&E and the Director of Finance & IT. Additionally, following review of the risk assessments and discussion with management, a sample of data across the AER, including supplementary data, was reviewed by our Internal Audit function. Independent data and process audits were performed which involved detailed reviews to agree the submissions details to 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 2 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 2022-23 Innovation Report.	Wales & West Utilities Annual Innovation Report – Energy Innovation	




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 2020-21 and 2021-22 RRP data (GWh) converted to tCO ₂ e 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	<p>Helicopters – Fuel consumption data provided by contractor and converted using Defra factors.</p> <p>Contractor Vehicles – data provided by contractor, converted using Defra factors.</p> <p>Reinstatement materials – contractor data converted into volumes, then tonnes and then into carbon using the Defra factors.</p>	<p>Helicopters – Secondary data provided by supply chain.</p> <p>Contractor Vehicles – Secondary data provided by supply chain.</p> <p>Reinstatement materials – Primary data.</p>	
Capital goods	<p>PE Pipe and Fittings – data provided by contractors with no conversion required.</p> <p>Copper and Steel pipe – Primary purchase data converted into weight (kg) and then into carbon.</p> <p>Where pipe length and/or diameter detail was not available, conservative assumption applied.</p> <p>IT (purchased equipment) – Primary data converted using Defra factors.</p>	<p>PE Pipe and Fittings – Secondary data provided by supply chain.</p> <p>Copper and Steel pipe – Primary data.</p> <p>IT (purchased equipment) – Primary data.</p>	
Fuel and energy related activity (not included in Scope 1 or 2)	<p>WTT Energy consumption / T&D Losses – Utility consumption reports provided by third party and converted using Defra factors.</p> <p>WTT Fuel – third party and primary data combined and then converted using Defra factors.</p>	<p>WTT Energy consumption / T&D Losses – Secondary data provided by supply chain.</p> <p>WTT Fuel – Secondary data provided by supply chain / Primary data.</p>	




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 – 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 – 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 – 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 2022-23 carbon accounting data.	
Land management	Methodology for assessment is in line with Ofgem RIGs.	RRP submissions.	

Appendix 2 – Glossary

ADBA

The Anaerobic Digestion and Bioresources Association (ADBA), formerly the Anaerobic Digestion and Biogas Association, is a United Kingdom based trade association for the anaerobic digestion and associated industries.

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.

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 & 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.

SBTi's

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.

tCO₂e

Tonnes (t) of Carbon Dioxide (CO₂) 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).

Appendix 3 – Annual Environmental Report – a summary

Contribution to energy system decarbonisation	2022-23 Update	RAG rating
Current renewable energy capacity within the network.	1.78 TWh which is enough to heat around 150,000 homes	N/A
Continue to proactively facilitate the connection of green gas.	20 Biomethane connections with the 20th connected during 2021-22	N/A
Annual investment in ongoing innovation activities that are primarily supporting decarbonisation and/or protecting the environment.	£2.2 million	N/A
Climate change impacts	2022-23 Update	RAG rating
Our long-term greenhouse gas reduction ambition, to reduce GHG emissions by 37.5% by 2035 (wb2°C, aligned with a science-based methodology and excluding shrinkage).	9.8% increase against 2019-20 baseline	●
Annual change in business carbon footprint excluding losses/shrinkage in comparison to its end of RIIO-2 target	16.2% increase against 2021-22	●
Change in total shrinkage (Reduce gas loss to atmosphere by 10% by 2026).	4% in-year reduction against 2021-22 7% reduction against 2020-21 baseline	●
Ensure 75% of company cars are hybrid or ultra low emission vehicles by 2026.	85%	●
Move commercial fleet from Euro V to Euro VI compliant vehicles over GD2.	80%	●
Reduce carbon emissions associated with non-operational travel by 5% by 2026	27% reduction	●
Offset 100% of our rail and air travel carbon footprint	2,700 tonnes offset	●

Resource use and waste		2022-23 Update	RAG rating
Annual total waste (office, network depots, spoil)		232,191 tonnes	N/A
Fate of waste:	Reuse	<1 % of total waste	N/A
	Recycle	94.1% of total waste	N/A
	Recover	<1% of total waste	N/A
	Incineration	<1% of total waste	N/A
	Landfill	5.8% of total waste	N/A
Reuse and recycle at least 80% of excavated spoil by 2026.		94% reuse	●
Increasing use of recycled aggregate to greater than 20% by 2026.		21% used	●
Reduce office waste by 25% by 2026.		5% reduction against baseline	●
Reduce paper consumption by 75% by 2026.		49% reduction against baseline	●
Limit PE gas pipe waste to 5% by weight by 2026.		9%	●
Send a maximum of 20% waste to landfill by 2026.		6%	●
Deliver a minimum of 80% waste reused and recycled by 2026.		94%	●

Sustainable procurement		2022-23 Update	RAG rating
Proportion of suppliers meeting our environmental supplier code or equivalent.		76% (83% of respondents in benchmark of 95% of spend)	●
Percentage of suppliers (by value) that have their own sustainability metrics or KPIs.		71% (77% of respondents in benchmark of 95% of spend)	●

Local environment		2022/23 Update	RAG rating
Annual investment in schemes to enhance/restore local environmental quality.		£0.84 million	N/A
Land area being treated in schemes to enhance/restore local environmental quality.		2.69 hectares	N/A
Number of reportable environmental incidents		0	●
Planting five trees for every tree we cut down.		Felled 370 trees Commissioned 1,850 to be planted autumn 2023	●
Delivering 85 land management outputs.		During 2022-23 we delivered 22 of our 85 land management outputs	●

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