WALES & WEST UTILITIES

Annual Environmental Report

2021–2022

WALES&WEST
UTILITIES

Contents

1 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 gas 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, 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.

We have recently updated our business Ambition, Priorities and Values. This has resulted in an enhanced focus on sustainability, something our colleagues, customers and stakeholders told us was critically important.

Our Ambition, Priorities and Values inform everything we do as a business – from our strategic planning to the performance management of our colleagues. As we navigate a period of disruption and volatility in the energy sector, and respond to cost of living and geopolitical challenges, they help keep our focus on our customers and the future.

In the long term, the threat facing us could not be starker. Earlier this year, the United Nations Intergovernmental Panel on Climate Change (IPCC) 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 – from the gas we transport through our network, to transitioning our fleet to electric and hydrogen vehicles.

For our part, we are committed to doing everything we can for the customers we serve to meet the Net Zero carbon emissions target in the most efficient, and least disruptive way possible. This includes an ambition to deliver a Net Zero ready network by 2035, so our network is ready to transport green gases like hydrogen and biomethane so we can play our part in decarbonising heat, power and transport.

We care about protecting and improving the environment and this extends beyond our Net Zero ambitions. In addition to driving down our carbon emissions, we will work hard to achieve reduced consumption and waste generation, embedding circular economy principles across the business. 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.

Our alignment with the UN Sustainable Development Goals (SDGs) will help to make sure we are reducing our impact and encouraging others to do the same.

2 Welcome

I'm proud to introduce our first Annual Environmental Report (AER). As a business, we are committed to doing everything we can to respond to the climate emergency – supporting customers to transition to green energy, while getting our house in order too, and reducing our impact on the environment. This AER, and those that follow it, will track our progress.

And we're making good progress. Led by our newly established Net Zero and Sustainability team, we're on track to meet our Carbon Commitments by the end of the RIIO-GD2 price control.

A significant success has been our reduction of shrinkage – that is gas lost from within our network. We planned to reduce this by 2% a year – with a 10% reduction over the whole of GD2. In 2021/22 however, driven by carefully targeted mains replacement and pressure management, we've reduced shrinkage by 3%.

Like many businesses, the experience of work for many – particularly those of us based in an office – has changed following the pandemic. Our adoption of hybrid working, and an assumption that meetings will be online unless necessary, has helped us reduce non-operational business travel.

The first year of the price control also brought some areas of challenge – particularly around eliminating single-use plastics and limiting polyethylene gas pipe waste. Clearly defined action plans and intensive oversight from our leadership team will mean we remain on track to meet our targets.

Looking forward, we continue to work on new ways to reduce our carbon emissions while increasing the amount we reuse and recycle. This includes significant investment in our estate, such as the construction of a number of new depots, including Bristol and Redruth. These will not only help us deliver a Net Zero-ready gas network, but they are also fit for the future – generating their own electricity, conserving water and fitted to support the use of electric vehicles by our colleagues. Next 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 Carbon Literacy Training to all. 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 will continue to be a focus for us too. Building on the work we have done this year, we'll be implementing biodiversity enhancements and protecting habitats on a broader range of projects and continuing to target Biodiversity Net Gain – an approach that aims to leave the natural environment in a measurably better state than it was previously – by improving biodiversity and ecosystems. We'll continue to build on our learning through GD2.

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

Graham Edwards
Chief Executive

3 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 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.

In 2019 we published our Environmental Action Plan (EAP) that built upon our record of reducing our impact on the environment. Between 2013 and 2021 we:

◗ Reduced our Scope 1 and 2 business carbon footprint by over 22%.
◗ Implemented a comprehensive waste segregation recycling scheme across our operational and office-based functions.
◗ Delivered 85 land management outputs, as part of our award-winning contaminated land programme, significantly reducing the contaminated land risk to consumers and vulnerable water bodies.
◗ Connected an impressive 19 biomethane producers to the network which has the equivalent capacity to heat approximately 151,000 homes.
◗ Enabled flexible generation to provide back up for renewable energy sources.
◗ Maintained our ISO 14001 environmental management system accreditation without a single major non-conformity.

To build our EAP we looked at our long-term ambition and worked backwards to define the steps we need to complete from 2021 to achieve them.

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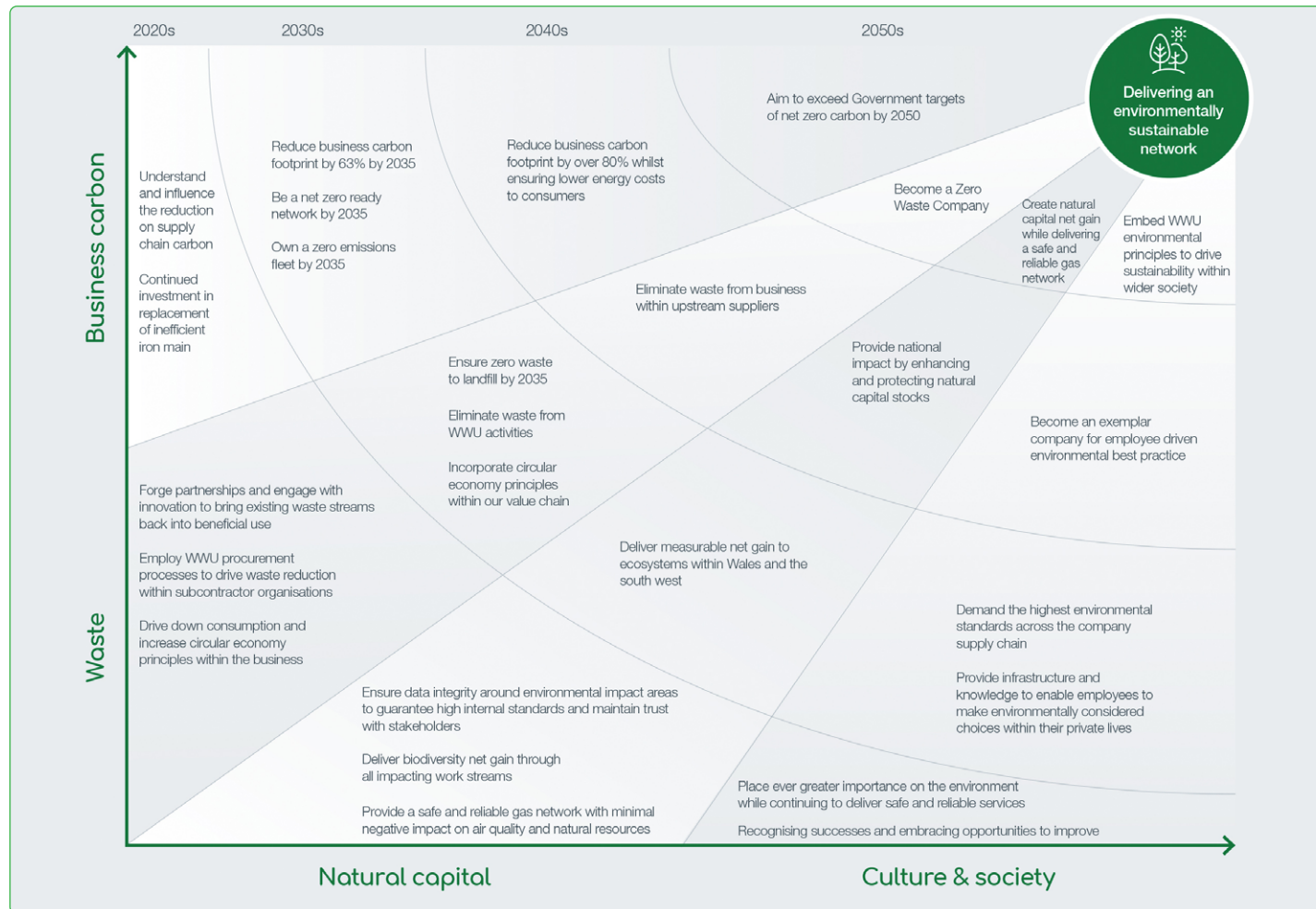
Our priorities and approach to environmental improvement have been driven through stakeholder engagement. Views and expectations from customers, peers, employees, our Customer Engagement Group (CEG) and government have shaped our plan.

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 environment strategy.

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

Sustainable Development – our environment strategy is intrinsically linked to our commitment to being a sustainable network. By carefully balancing environmental priorities with those of the wider business we will demonstrate our support for the United Nations Sustainable Development Goals and the Well-being of Future Generations (Wales) Act.

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 environment 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.

You can find out more about our EAP **here**.

4 Dashboard Indicators

Our Key Performance Indicators show how we are doing against Ofgem assessment criteria and our own commitments.

I.1	Contribution to energy system decarbonisation	2021/22 Update
I.1.1	Annual addition of low carbon and renewable energy capacity connected to the network	600 Standard cubic metres per hour
I.1.2	Annual investment in on-going innovation activities that are primarily supporting decarbonisation and/or protecting the environment	£1.5m

I.2	Climate change impacts	2021/22 Update
I.2.1	Licensee's long-term greenhouse gas reduction ambition, to reduce Greenhouse Gas (GHG) emissions by 37.5% by 2035 (WB2°C, aligned with a science-based methodology and excluding shrinkage)	5.5% reduction against target 5%
I.2.2	Annual change in licensee's business carbon footprint excluding losses/shrinkage in comparison to its end of RIIO-GD2 target*	5.5% reduction against 2019/20 baseline
I.2.3	Annual change in total shrinkage (Reduce gas loss to atmosphere by 10% by 2026)	3% reduction against baseline
I.2.4	Ensure 75% of company cars are hybrid or ultra-low emission vehicles by 2026	68%
I.2.5	Move commercial fleet from Euro V to Euro VI compliant vehicles over GD2	71%
I.2.6	Reduce carbon emissions associated with non-operational travel by 5% by 2026	57% reduction

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

I.3	Resource use and waste		2021/22 Update
I.3.1	Annual total waste (office, network depots, spoil)		150,614 tonnes
I.3.2	Fate of waste:	Reuse	<1 % of total waste
		Recycle	87% of total waste
		Recover	<1% of total waste
		Landfill	12% of total waste
I.3.3	Reuse and recycle at least 80% of excavated spoil by 2026		88% reuse
I.3.4	Increasing use of recycled aggregate to greater than 20% by 2026		27% used
I.3.5	Reduce office waste by 25% by 2026		5% reduction against baseline
I.3.6	Reduce paper consumption by 75% by 2026		47% reduction against baseline
I.3.7	Limit PE gas pipe waste to 5% by weight by 2026		13%

I.4	Sustainable procurement	2021/22 Update
I.4.1	Proportion of suppliers meeting the licensee's environmental supplier code or equivalent	74% of suppliers (by value)

I.5	Local environment	2021/22 Update
I.5.1	Annual investment in schemes to enhance/restore local environmental quality	£0.28m
I.5.2	Land area being treated in schemes to enhance/restore local environmental quality	18.7 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

5 Environmental Action Plan Commitments and Environmental Impacts

EAP Commitments

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

◗ Our business carbon footprint; including embodied carbon;
◗ Consumption, waste, and circular economy;
◗ Natural Capital; and
◗ Culture and society.

Our Ambitions

In our EAP, we set out ambitions that stretch past the current price control period, which ends in 2026. Our ambitions demonstrate where we want to be as a business, subject to funding arrangements, 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-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.
◗ 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 ambitions by delivering what we can now. Tables 1, 2 and 3, below summarise how we are doing against those commitments.

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* 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 Carbon 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 2021 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 • 410km of metallic mains replaced in 2021/22 • 3% CO_2e saved in 2021/22	🟢
Ensure 75% of company cars are hybrid or ultra-low emission vehicles by 2026.	Excluding shrinkage, our fleet has the biggest impact on our Scope 1 emissions. We will reduce the carbon impact of our fleet and associated air quality impacts by: • swapping out traditional internal combustion engine vehicles for 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.	2026	• Implementation of employee incentive to choose ULEV & EV made prior to 2021 • 68% by the end of 2021/22	🟢
Refresh our commercial fleet from Euro V to Euro VI compliant vehicles over GD2.		Annual	• 71% by the end of 2021/22	🟢
Reduce carbon emissions associated with non-operational travel by 5% by 2026.		2026	• Impact of COVID-19 from 2020 to 2021 supressing results for 2021/22 • 57% reduction from baseline	🟢
Collaborate with others to understand and take opportunities to reduce our fleet and tooling emissions.	Ultra-low emission vehicles and tools are not available for all the operations we complete to deliver a safe and reliable gas network. By collaborating with third parties and distribution networks we continue to understand and take advantage of the potential for alternatively fuelled fleet vehicles and tools.	2026	Building our green fleet strategy	🟢

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

TABLE 1 – Status update on EAP Carbon Commitments (cont.)

EAP Carbon Commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
Ensure energy efficiencies are installed in all new properties.	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.	2026	Site identification 2021/22 Bristol Depot under construction 2021/22. 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	70 tonnes offset in 2021/22.	🟢
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 20th 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 GDNs and the Energy Networks Association (ENA), to deliver to government, a GDN holistic UK and network specific assessment of the risk.	2026	We published the WWU and joint ENA/GDN collaborative 3rd Round Climate Adaption Report in 2021/22.	🟢

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TABLE 2 – Status update on EAP Resource Management & Waste Commitments

EAP Circular Economy 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	12% achieved in 2021/22.	🟢
Deliver a minimum of 80% waste reused and recycled by 2026.		2026	87% achieved in 2021/22.	🟢
Reuse and recycle at least 80% of excavated spoil by 2026.		2026	88% achieved in 2021/22.	🟢
Increasing use of recycled aggregate to greater than 20% by 2026.		2026	27% achieved in 2021/22.	🟢
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 2021/22. New initiatives in 2021/22 included paper targets, confectionary wrappers, and single use plastic (SUP).	🟢
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. Our paper commitment excludes essential customer correspondence.	2026	The impact of COVID-19 from 2020 and our new hybrid working policy has positively affected our results. 47% paper reduction (against 2019/20 baselines) saving over 180 trees from being cut down.	🟢

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TABLE 2 – Status update on EAP Resource Management & Waste Commitments (cont.)

EAP Circular Economy Commitment	Description and expected benefit	Target year	Implementation milestones	RAG indicator*
Eliminate single use plastic by 2022.	We are committed to eliminating single use plastics where viable alternatives exist. A plastic bag trial to eliminate the use of bags (except for hazardous waste) is ongoing and we are expecting to implement the change during 2022/23. Our single use plastic targets exclude plastics required to deliver a safe and reliable gas network and where viable cost-effective alternatives don't exist. However, we will seek to collaborate and innovate within these complex areas to determine alternatives to current practices.	2022	Migrate from reducing consumable single use plastic by 2022 to reducing plastic packaging over RIIO-GD2.	🟠
	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 PE gas pipe waste to 5% by weight by 2026.	PE pipe and fittings contribute significantly to our Scope 3 BCF. All waste PE pipe is collected from depots to be recycled by manufacturers into new PE pipe however, by ensuring we are efficient in our use of PE pipe we limit unnecessary manufacturing impacts.	2026	13% pipe waste in 2021/22.	🟠
	Status Update: We have seen pipe waste increase over the 2021/22 year, influenced by a number of factors including COVID-19 and the change to our operating model. This is a major focus for the business with signficant 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.	We are continually reviewing our procurement practices, strengthening circular economy themes within them. Including: • setting clear performance requirements • encourage collaboration and innovation • consider end of life costs within design action.	2026	Joined the Supply Chain Sustainability School to support sustainability themes in supply chain. Built life cycle considerations into an increased number of tender events.	🟢

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TABLE 2 – Status update on EAP Resource Management & Waste Commitments (cont.)

EAP Circular Economy 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	Supplier charter published in April 2021. Audits of 2021/22 contractors scheduled for 2022/23.	🟢

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. In line with best practice WWU 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 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.		2026	• We designated 0.49 hectares of our new Bristol Depot for long term biodiversity provision. The site, which is still under construction, will include the construction of a new newt pond.	🟢
Develop and monitor a tool to robustly quantify our contribution to ecosystem services from these assets.		2026	• We have identified over 15 sites where biodiversity enhancements are viable and will start to deliver 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 service.	🟢

* 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 to support afforestation across the network in long-term managed schemes.	2026	During the 2021/22 year we were required to fell 261 trees. To support our commitment, we have planted 20 trees in collaboration with South Gloucestershire Council and have commissioned the planting of 1,500 trees in the autumn of 2022.	🟢
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 improves the air quality for customers within our network.	2026	We have evaluated the air quality impacts associated with purchased gas and company vehicles during 2021/22. We will continue to improve and broaden the assessment over the coming years.	🟢
Delivering 85 land management outputs.	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 2021/22 we delivered 37 of our 85 land management outputs.	🟢

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

6 Decarbonisation, Biomethane and Other Low Carbon Gas Connections

During RIIO-GD2 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.

We connected an additional biomethane site in the reporting period taking the total number of biomethane sites to 20 delivering 1.87 TWh of green gas into our network, which is enough to heat over 156,000 homes. We are on track to connect the first BioSNG plant in Swindon this year which will be our 21st entry connection; this site will produce synthetic natural gas from a feedstock of residual household waste. We are working with developers to connect and commission a further five sites that have booked capacity with us over the next few years. In total, the 26 sites would provide heat to 190,000 homes, or around

1 million domestic hybrid heating systems. The introduction of the new government 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.

Our Proactive Approach

We recognise that there are a variety of gas producers who may want to connect to the WWU 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, 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, at a cost, which is returned to customers within 30 working days and will provide the detail 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 WWU owned assets. We utilise the "minimum connection" model at WWU where we own only the Remotely Operated Valve (ROV) and telemetry unit as well as adopting entry services that deliver 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.

The new incentive scheme, GGSS, does appear to have had the desired effect in increasing interest for entry inquiries in our network area. This is after a few years of very small numbers of enquiries and no new sites connecting due to, in part, the diminishing Renewable Heat Incentive (RHI) meaning that new projects were not feasible.

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. To resolve these issues and facilitate future 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. 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. WWU has 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. A compressor is being installed which takes gas from the intermediate pressure tier and puts it into the high-pressure tier where there is sufficient demand to take the gas away at all times, thus creating a demand on the IP system to allow the green gas to continue to inject into the IP

which was previously constrained at periods of low demand. Final reports are expected from this project in the early part of 2023 and will provide a blueprint for potential roll out of these solutions and technologies where required.

We are also exploring opportunities on the green gas production side with a view to getting more gas to grid projects up and running. We partnered with NGN on the Biomethane Study project to identify areas for potential growth in biomethane production, by reviewing both feedstock potential and gas grid capacity, to identify suitable clusters or key target plants that could convert from Combined Heat and Power (CHP) to biomethane injection, with minimal effort for maximum economic, environmental and social benefit. This project has helped identify areas within our network with high potential for additional biomethane connections in coming years and made recommendations around the feasibility of models to support these connections. It has been shared with industry stakeholders including BEIS, and supports ENA's Gas Goes Green pathway.

Our Performance in 2021/22

Over the last year, we took 12 days on average to respond to the 27 initial enquiries and took an average of 21 days to respond to the three capacity study requests which is in line with the volunteered standard of service timescales as indicated above.

We have transported 707.4 GWh of green gas in 2021/22 year which is 4% 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.

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.

How We Will Continue to Deliver Improvements

We support two biomethane working groups at the Energy Networks Association (ENA); the Biomethane Technical Working Group which is a network only group and the Entry Customer Network Forum (ECNF) which includes customer participants from across the industry. During 2021 we led some work to review calorific value (CV) target setting by networks and published the findings in a report titled *GDN Standardisation of CV Targets*, available **here**.

More recently in 2022, we have led a piece of work for the GDNs to standardise our capacity study process and customer facing reports via the Technical Working Group. This work is ongoing at present but will help achieve consistency across our green gas processes.

We have received 13 speculative enquiries for blending hydrogen into our network, three 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. In the meantime, we are continuing work with our customer to connect the first Bio-SNG entry site in Swindon which will deliver gas with a hydrogen content of up to 1%. This facility can turn up the levels of hydrogen content of the gas produced which will be a consideration for the future as the safety case for blending is proved.

We participate in industry programmes including Gas Goes Green which are considering 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 several 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: **www.energynetworks. org/creating-tomorrows-networks/ gas-goes-green.**

Stakeholder Engagement

We supported the Utility Week live conference held at the NEC in Birmingham in May this year. We presented on our collaborative project OptiNet, where, as described above, we are working with Cadent to prove Technical Solutions to facilitate increased volumes of green gas into the distribution network.

We have engaged with BEIS and ADBA to brief out the key findings from the Biomethane Study reports completed under the Gas Goes Green project 4.2. This study looked to identify areas

for potential growth in biomethane production, by reviewing both feedstock potential and gas grid capacity, to identify suitable clusters or key target plants that could convert from CHP to biomethane injection, with minimal effort for maximum economic, environmental, and social benefit. The three output reports can be found via the link: **Biomethane Study | ENA Innovation Portal** (energynetworks.org)

We intend on working closely with ADBA in the coming years to explore the potential opportunities of maximising green gas to grid and supporting projects to facilitate new connections to our network.

TABLE 4 – Connections activity for low carbon sources of gas

Biomethane connection	2021/22
Enquiries	27
Connection studies	3
Capacity of connection studies	2,250 SCMH
Connections	1
Capacity connected	600 SCMH
Volume (energy value) of biomethane injected	707.4 GWh
Average monthly flow rate (all connections)*	58.95 GWh / month 5,441,518 SCM / month 7,456 SCMH

Other green gas	
Enquiries	3
Connection studies	0
Capacity of connection studies	0 SCMH
Connections	0
Capacity connected	0 SCMH
Volume (energy value) of other green gas	0 GWh
Average monthly flow rate (all connections)*	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 through schemes such as the Strategic Innovation Fund and the Network Innovation Allowance.

In 2021/22, 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 2021/22 we invested £1.5m combined in NIA and Carry Over NIA projects and case studies on some of these projects are provided below.

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

Innovation	Issue or barrier	Annual achievements	Expected benefits	Timescales
Regional Decarbonisation Pathways	Achieving Net Zero emissions targets by 2050 will mean we have to dramatically change the way we transport, store, convert and use energy across the country. While there have been high-level studies into how that will happen, until recently there has been little research into what it means at the local level. This project developed an analysis and a plan of how we might decarbonise our gas network at a regional and sub-regional level.	We have worked with partners to devise closely linked strategic conceptual plans for the decarbonisation of our gas network. The strategic plan was developed by Energy Systems Catapult (ESC), with input from Costain, and consisted of whole system modelling and assessment of the network implications, while the conceptual plan was an engineering analysis by Costain showing what the gas network could look like and how to achieve it.	The in-depth plans have helped provide the data and analysis we need to advise on energy network transformation policy on the pathway towards Net Zero. In particular, they show: • hydrogen has an important role in energy system designs that cost-effectively meet carbon budgets and Net Zero goals • adopting hybrid heating systems offers significant value to the energy system • hydrogen can completely replace liquid fossil fuel use in industry • the decisions made by industry will have a large impact on the scale of hydrogen production • a transition to hydrogen can be achieved by developing a dedicated hydrogen backbone. Alongside these results, the project also demonstrated how Wales could become a net exporter of hydrogen in future thanks to its existing liquefied natural gas infrastructure and deep-water ports.	Start Date: July 2021 Planned end date: August 2022

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

Innovation	Issue or barrier	Annual achievements	Expected benefits	Timescales
Tools of Engagement	Understanding how the gas network and local authorities (LA) will create local energy plans that meet a new decentralised and decarbonised energy system is a critical step towards achieving Net Zero targets by 2050. This NIA-funded project aims to test, develop, and finalise a toolkit that will help bring networks and local authorities together to improve community planning for the energy system of the future and the role each plays in decarbonising energy.	We carried out a high-level stakeholder engagement survey that identified the need for some kind of tool to help promote better links between local authorities and energy networks. Next, we used feedback from the survey to develop a simplified version of the Pathfinder tool with a better user interface and less populated layout. After initial testing, we made some alterations to the Pathfinder tool and have since taken this from a prototype to a working, usable version.	This is the first time this kind of sophisticated pathway tool has been made available to local authorities. Using it will give local authorities all the information they need to: • create Net Zero policy that delivers decarbonised systems in the most efficient, cost-effective way • understand, plan, and choose energy projects in the context of network planning • forge closer links with energy networks when devising Net Zero policy. The Pathfinder modelling is customisable to any geography, meaning the tool can be shared by other GDNs with local authorities across the UK, helping them with the decisions they need to make to accelerate their journey towards decarbonised energy systems.	Start date: October 2021 Planned end date: August 2022
HyPark	As the number of electric vehicles (EVs) on our roads increases, so does the demand for charging facilities. This project aimed to assess the part gas could play in helping to power EV charging stations at commercial and local authority properties and in areas where the electricity network is constrained and unable to support EV charging at scale.	Partnering with Passiv UK and EV charging specialists Easee, we have reviewed current and predicted EV uptake, future traffic patterns, and likely charger use over the next 15 years to assess the need for capacity. Following this, we worked with Western Power Distribution, Scottish and Southern Electricity Networks, and SP Energy Networks to measure indicative costs for the upgrade of the electricity network against the cost of connecting fuel cells to the existing gas grid. Using this data, we proved the feasibility of HyPark and its potential commercial viability and submitted an application to take the project to alpha testing.	Successful completion of the discovery phase proves gas has a viable and important part to play in the future of EV charging. Among the benefits HyPark would bring are: • accessible EV charging stations that ease the pressure on the electricity grid • energy efficient fast and slow charging • potential heat from fuel cells fed into local heating networks • potential for HyPark to become community energy hubs.	Start date: March 2022 End date: April 2022

7 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.

13 CLIMATE ACTION

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 (2°C). We know that this will be challenging and do not expect to see a linear decrease in our emissions; we will be working to lay the foundations for significant reductions when industry and innovation can meet our needs.

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	2021/22	2020/21	Comments
Building energy use	Purchased gas	297	215	Increase in purchased gas reflects the impacts of COVID-19 in 2020/21 with the 2021/22 emissions showing the business returning to normal operating conditions.
	Building – electricity (location based)	914	903	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)	0	N/A	WWU purchased certified green electricity from April 2021.
Operational transport	Road (operational fleet and Company Cars)	10,381	8,677	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	2021/22	2020/21	Comments
Fugitive emissions	IIGs	–	–	Not applicable in 2021/22
Fuel combustion	Diesel	N/A	N/A	Scope 1 and 2 fuel combustion noted in building energy use and operational transport, above.
	Gas	N/A	N/A	
Gas shinkage		374,185	368,071	See Tables 7 to 10 for more details.
Total excluding shrinkage (market based)		11,591 (10,678)	9,795	Increase compared to 2020/21 but decrease against 2019/20 baseline.
Total including shrinkage (market based)		385,776 (384,863)	395,866	Overall reduction of 3%.
Carbon (Scope 1 and 2 in tCO$_2$e) / £m turnover		833	870	
Carbon (Scope 1 and 2 in tCO$_2$e) / GWh gas throughput of the network		6.7	6.5	
Renewable energy generated (kWh)		130,883	134,387	WWU 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 (tCO$_2$e)

Legend:
- Purchased electricity (market based)
- Transport – company cars
- Transport – operational fleet
- Purchased gas
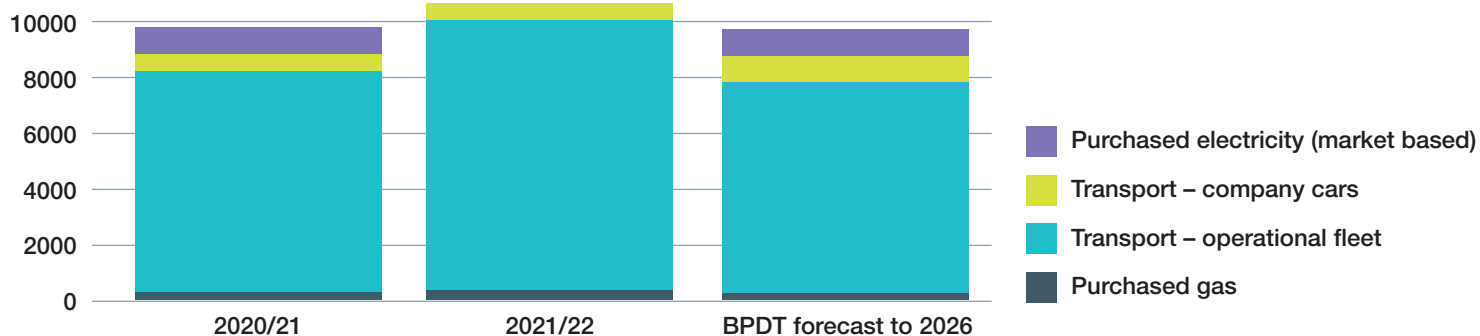
Note: 2021/22 and 2020/21 data sourced from RRP reported carbon data. 2021/22 data shows market based emissions with purchased zero carbon emissions electricity. In the forecast emissions sourced from the 2019 Business Plan Data (BPDT) Table 5.10 calculated using location based electricity supply.

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, has increased. 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.

The carbon intensity of miles travelled by the operational fleet has decreased from 2020/21 to 2021/22. This reflects an increase in both miles travelled by the fleet and the associated carbon emissions. However the carbon emissions per mile has reduced due to an increased number of petrol, hybrid and electric vehicles replacing diesel vehicles.

CHART 2 – CO$_2$e intensity of an operational mile travelled, expressed in kgCO$_2$/mile

	2020/21	2021/22
Company cars	0.27	0.19
Fleet	0.79	0.68

Legend: ■ Fleet ■ Company cars
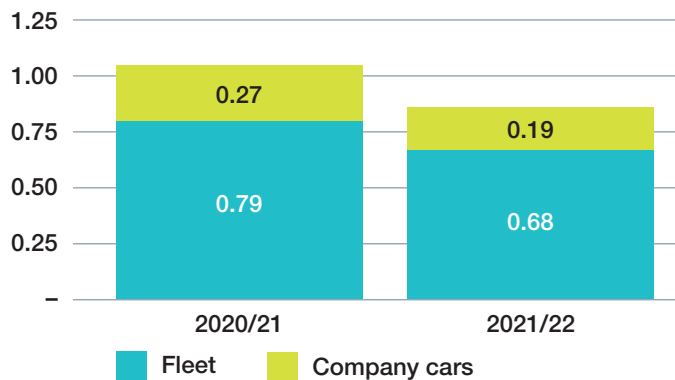
Some of the work we are doing to reduce our Scope 1 and 2 emissions includes:

CASE STUDY – FLEET

We are committed to moving 75% of company cars to hybrid or ultra low emissions vehicles (ULEV) by 2026, explore green alternatives for our commercial fleet and achieve a zero emissions fleet by 2035. As at 31 March 2022, 68% of our company cars had been replaced with hybrid/ULE vehicles with a further 57 ULEV and zero emissions vehicles (ZEV) on order. Furthermore, we also have 93 medium term leases for new starters of which 90% are ULEV.

To facilitate the efficiency and reliability of our ULEV and ZEV fleet we have also installed 42 additional charging points, initially in 2020, with a further three installed in our new depot at Redruth as part of the on-going development and another 12 were commissioned at our Bristol depot in 2022. We will continue to seek opportunities for the installation of charging ports as part of on-going operational depot enhancements.

CASE STUDY – DEPOTS

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

Our most recent construction, a depot in Bristol, will be completed in 2022. 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 buildings as well as the wellbeing and comfort of our employees. In addition to this, we have also 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 on-site badger runs. You can find more information on our biodiversity work in section 10.

Business Carbon Footprint – Shrinkage

7 AFFORDABLE AND CLEAN ENERGY

**12 RESPONSIBLE CONSUMPTION AND PRODUCTION**

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 (OUG) and theft of gas (ToG).

◗ 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).

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

CHART 3 – WWU 2021/22 leakage breakdown

MP leakage 10.2%
AGI leakage 13.8%
AGI venting 10.3%
Interference 0.4%
LP Service leakage 11.5%
LP Mains leakage 53.7%
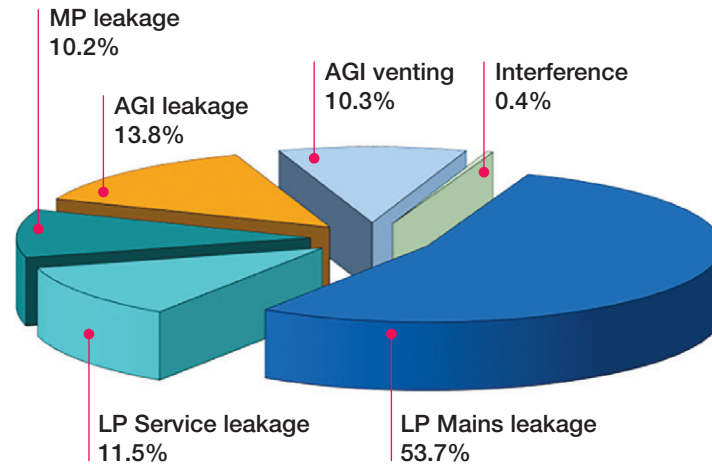
The following tables provide details on how we are bringing our leakage volumes down.

TABLE 7* – Leakage volumes

GWh	2021/22	2020/21
Low Pressure Mains	162.5	169.2
Medium Pressure Mains	30.9	31.6
Services	34.8	37.4
AGIs	73.1	72.7
Interference	1.1	1.0
Total	302.4	312.0
Target total	306.0	357.2

TABLE 8* – Leakage emissions

tCO_2e	2021/22	2020/21
Total	370,892	382,602
Target total	375,285	438,077

TABLE 9* – Other shrinkage volumes

GWh	2021/22	2020/21
Own use	6.5	6.8
Theft	11.4	12.1
Target	17.9	18.9

TABLE 10* – Other shrinkage volumes

tCO_2e	2021/22	2020/21
Own use	1,189	1,252
Theft	2,104	2,216
Target	3,293	3,469

Due to continual metallic mains replacement with low leakage polyethylene (PE) and pressure management, we performed well against targets as submitted to Ofgem in October 2021. Leakage emissions reduced by 11,710 tCO_2e from previous year, equating to a 3.1% reduction.

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* Tables 7-10 show our shrinkage and leakage volumes and emissions in Regulatory Year 2021/22 and 2020/21. 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.

CASE STUDY – TACKLING OWN USE GAS

7 AFFORDABLE AND CLEAN ENERGY

17 PARTNERSHIPS FOR THE GOALS

Gas venting remains a necessary part of normal operations, for maintenance and safety purposes which can be either manual or automatic. This results in unburned natural gas being released into the atmosphere which, due to its main constituents (methane and carbon dioxide), has a significant environmental impact. We have recently collaborated with NGN on a NIA funded gas venting research project to investigate possible alternative solutions that can reduce our overall emissions in this area. Rosen was appointed as our technical experts, and they carried out a large-scale data analysis activity to understand the level of venting that occurs across the distribution networks.

From this research exercise, it was confirmed that pneumatic controllers formed the largest source of venting from WWU's network. We are now proactively seeking appropriate alternative solutions and replacing pneumatic controllers with either a low or no emissions arrangement.

We have also been trialling a zero emission odorization (ZEO) system at Pucklechurch which is an electric actuated system with zero emission design for gas odorant injection. This would reduce emissions by approximately 0.7 tCO_2e per year at each offtake.

Business Carbon Footprint – Scope 3

7 AFFORDABLE AND CLEAN ENERGY

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

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 the next four years. 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 not applicable or material to WWU, and therefore could be discounted. A list of the Scope 3 categories and their description is provided in the glossary.
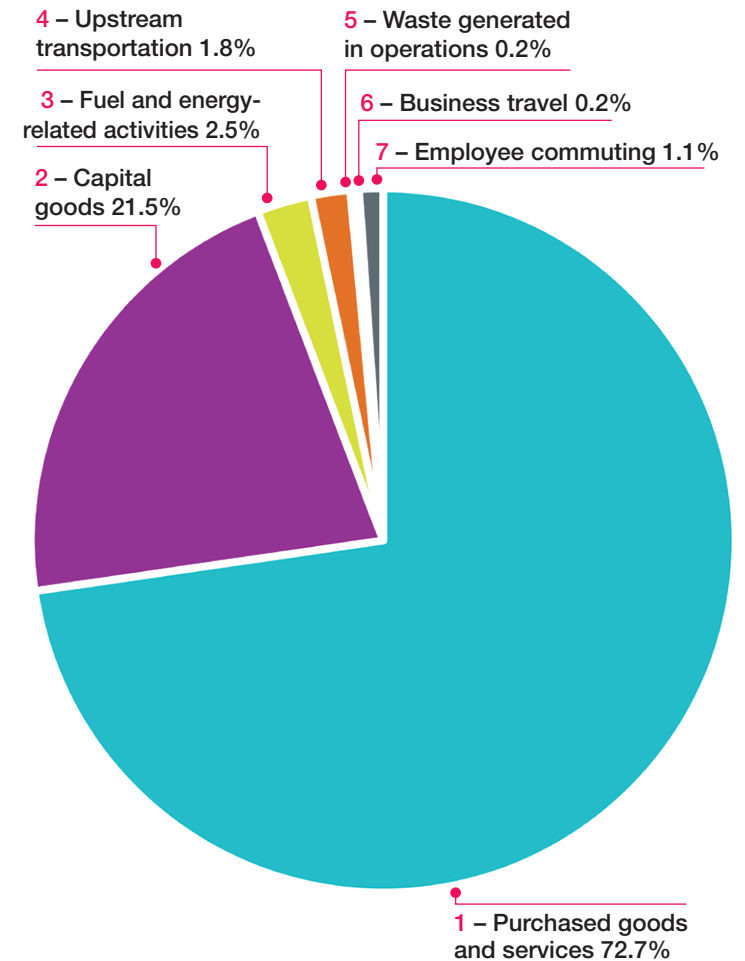
A summary of the initial screening assessment is presented below and demonstrates that a significant proportion of the carbon falls within Purchased Goods and Services and Capital Goods. Based upon this assessment, and in line with the other GDNs, we plan to prioritise primary data sources that fall 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_2e	% of Total Scope 3
1 – Purchased Goods and Services	Extraction, production, and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2 – 8.	65,836	72.7%
2 – Capital Goods	Extraction, production, and transportation of capital goods purchased or acquired by the reporting company in the reporting year.	19,445	21.5%
3 – Fuel and Energy Related Activities	Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year, not already accounted for in Scope 1 or Scope 2.	2,224	2.5%

TABLE 11 – 2019/20 Scope 3 baseline assessment using primary data and spend analysis (cont.)

Category	Description	Footprint tCO$_2$e	% of Total Scope 3
4 – Upstream Transportation	• Transportation and distribution of products purchased by the reporting company in the reporting year between a company's tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company). • Transportation and distribution services purchased by the reporting company in the reporting year, including inbound logistics, outbound logistics (e.g. of sold products), and transportation and distribution between a company's own facilities (in vehicles and facilities not owned or controlled by the reporting company).	1,674	1.8%
5 – Waste Generated in Operations	Disposal and treatment of waste generated in the reporting company's operations in the reporting year (in facilities not owned or controlled by the reporting company).	198	0.2%
6 – Business Travel	Transportation of employees for business related activities during the reporting year (in vehicles not owned or operated by the reporting company).	142	0.2%
7 – Employee Commuting	Transportation of employees between their homes and their worksites during the reporting year (in vehicles not owned or operated by the reporting company).	1,020	1.1%

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

4 – Upstream transportation 1.8%

3 – Fuel and energy-related activities 2.5%

2 – Capital goods 21.5%

5 – Waste generated in operations 0.2%

6 – Business travel 0.2%

7 – Employee commuting 1.1%

1 – Purchased goods and services 72.7%

For the 2021/22 reporting year we have significantly increased the scope of primary data reported within our Scope 3 emissions footprint. The results are presented below.

TABLE 12 – 2021/22 Scope 3 carbon reporting

| Descriptions	Footprint tCO$_2$e 2021/22	Footprint tCO$_2$e 2020/21	Comments
Purchased Goods and Services	**4,166**	**588**	
Helicopters (pipeline surveys)	63	49	
Contractor vehicles	140	549	We changed our business model in July 2021; contractor vehicles that were in Scope 3 are now in Scope 1.
Reinstatement materials	3,963	NR	This includes internal and contractor reinstatement materials.
Capital Goods	**3,512**	**3,481**	
PE Pipe and Fittings	3,349	3,481	Data provided directly from the suppliers.
Copper and Steel pipe	163	NR	Data provided by purchase orders.
IT (purchased equipment)	0.1	NR	
Fuel and Energy Related Activities	**2,871**	**–**	
WTT gas consumption	51	NR	Converted from Scope 1 and 2 source data.
WTT and transmission and distribution electricity consumption	340	NR	
WTT Fuel	2,480	NR	
Waste Generated in Operations	**185**	**–**	
Spoil to landfill	153	NR	
Office and depot waste	24	NR	Data provided by waste management contractors.
IT	7	NR	
Water supply waste	1	NR	Data provided by utilities invoices.
Business Travel	**105**	**0.5**	
Private vehicles	44	–	
Rail	1	–	
Flights	–	–	
Hotel	55	–	
Hire cars, taxis, buses	4	0.5	
Employee Commuting	**964**	**–**	
Commuting	518	NR	Calculation completed by an employee survey (23% response rate).
Homeworking	446	NR	
Carbon offset	–70		We offset our rail and air (including helicopters) with certified additional international offsets.
Total Gross Scope 3 Carbon (Net)	**11,802 (11,732)**	**4,080**	

Notes: NR – 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.

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 2021/22 calculated via spend where primary data is not available.
Scope 3 Emission by spend 2021/22 (tCO$_2$e)
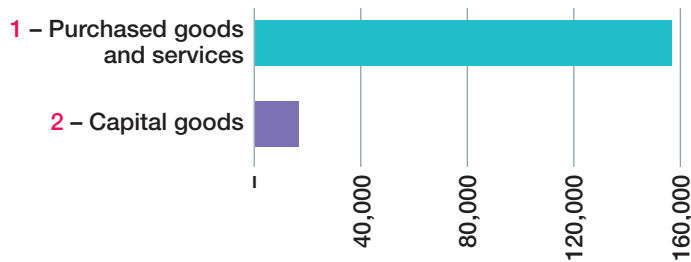
The assessment also highlighted construction activities and materials which will be a focus area for the remainder of GD2.

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 Verified Carbon Standard (VCS) credits via Carbon Footprint Ltd to offset our air and rail travel emissions. Our funding has gone toward supporting renewable energy projects such as solar and hydropower plants in developing countries across the world such as India, the Philippines and China. We will continue to offset our unavoidable rail and air emissions as we work towards achieving Net Zero.
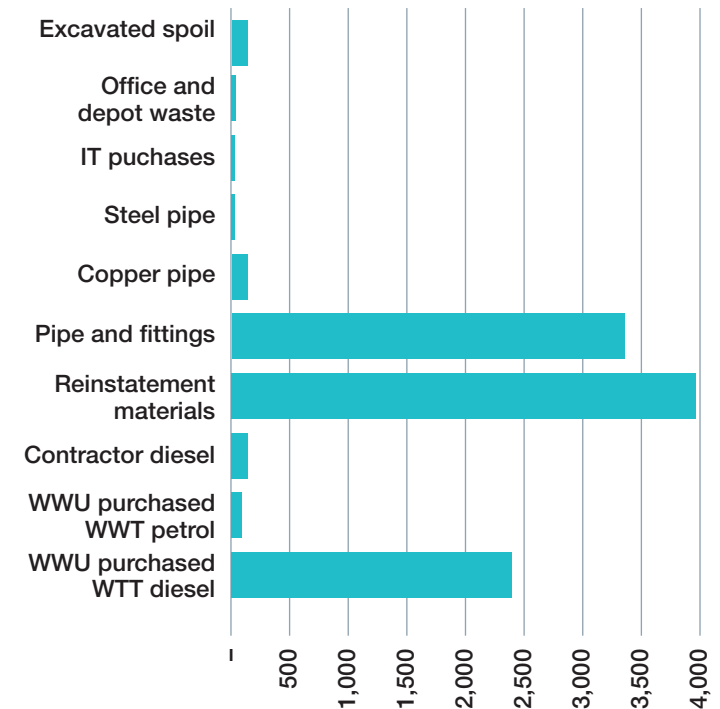
Embodied Carbon

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 GD2 we will report embodied carbon on chosen large construction projects; we will work with other GDNs to ensure consistency in methodology. We will also track the embodied carbon of materials and services we use on a daily basis through our Scope 3 reporting. The following graph shows the embodied carbon emitted during the 2021/22 regulatory year and is a baseline for future reporting embodied carbon reduction.

CHART 6 – Embodied carbon 2021/22
Embodied Carbon 2021/22 (tCO$_2$e)

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 2021/22 embodied carbon and ambitions

Embodied Carbon Source	Description	Footprint tCO$_2$e 2021/22
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 in 2021/22
		22.21 tCO$_2$e/£M turnover in 2021/22

We will work closely, over RIIO-GD2, with our supply chain to improve the quality of our embodied carbon reporting. See section 8 for more details.

8 Sustainable Procurement, Resource Use and Waste

In March 2022, a Sustainable Procurement Lead was appointed to develop and implement action plans aimed at aligning the supply chain with the broader environmental and sustainability ambitions of the business, while also providing a positive contribution to the environments in which we operate. Key to shaping future procurement workstreams and ensuring plans are both effective and targeted is a clear understanding of where there are opportunities to build on existing environmental activities within the supply chain.
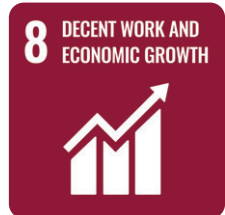
It is our ambition that more than 80% of suppliers (by value) will meet the environmental standards within the procurement policy by 2026. The number of suppliers included within annual reporting will incrementally increase across GD2, as tender events are completed. In addition, to ensure that robust and reliable data is provided, we are committed to undertaking environmentally focused procurement audits of suppliers, focusing on the top 80% by value.

Our strategy is to embed environmental sustainability in procurement policy and processes, and to develop foundations that will make for a more resilient supply base. In support of the strategy and to provide the clear communication of our expectations to the supply base, a Supply Chain Charter has been developed which shares our aspirations and commitment to ethical procurement. Alongside existing standards and compliance, suppliers will be expected to adopt all principles within the charter, including a focus on environmental awareness and activity, digital security, human rights, ethical business practices and transparent procurement principles.

As part of this strategy, we will:

◗ Map the current supply base and assess against key environmental objectives, establishing a foundation to help shape future activity

◗ Develop tools and metrics to measure and record environmental performance through pre-qualification questionnaires (PQQ) and contract management

◗ Engage with internal stakeholders to align the procurement team's environmental activities with long term business objectives

◗ Periodically review the Supply Chain Charter, embedding the document within supply agreements to provide clearly defined expectations.

Sustainability has become the focus of procurement activity, alongside the traditional supply management metrics when selecting and managing suppliers. 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
Percentage of suppliers (by value) meeting licensee's supplier code	74% (87% of suppliers questioned in benchmark of 80% 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)

9 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.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

We are adopting a circular economy approach, where resources are kept in use in a closed-loop system rather than thrown away. This will help us cut our reliance on new raw materials and use 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 WWU and our activities to reduce our usage are summarised below:

TABLE 15 – Key materials used during the reporting period 2021/22

Resource	Volume consumed used	Environmental impact	Actions taken
Aggregate	82,858 tonnes	Potential environmental impacts associated with aggregate extraction including changes to the landscape, loss of habitat, noise, dust, erosion, and sedimentation.	• We proactively seek to reduce the number and volume of excavations we dig. Utilising techniques including inserting new PE pipe into the pipe already buried in the ground. • Where we must dig, we seek to use recycled aggregate as backfill material. This reduces the impact of the resource use and reduces demand on virgin aggregate. • During 2021/22 we used 27% recycled aggregate as backfill material. This is a great start to our commitment to increase the use of recycled aggregate to greater than 20%.
Reinstatement Materials	**Tarmac** 41,044 tonnes **Concrete** 7,379 tonnes **Paving** 2,368 tonnes **Soil** 2,449 tonnes	Asphalt and concrete production are both carbon intensive and utilise a range of raw materials including aggregate and water.	• 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 2021/22 (cont.)**

Resource	Volume consumed used	Environmental impact	Actions taken
Diesel – Fuel Within the Operational Fleet	3,868,021 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.	• We proactively manage our operational diesel fleet, ensuring the vehicles are well maintained and moving towards efficient Euro VI engines, currently over 70%. • We are investigating alternative ULEV and ZEV 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	1,180 tonnes	The principal impacts associated with the manufacture of PE and metal pipe are associated with resources depletion and energy consumption.	• We employ a number of initiatives to support the efficient use of PE pipe including our investment in coil banding systems at main depots and use of service coil bags rolled out throughout WWU.

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 WWU during the reporting period

Resource	Environmental impact	Actions taken
Paper	The environmental effects of paper production include deforestation, the use of enormous amounts of energy and water as well as air pollution and waste problems, with reportedly 26% of paper going to landfill.	• We have dedicated recycling bins for paper to ensure it is diverted from landfill. • During COVID-19 we worked from home which reduced the paper we printed on as part of our normal working practices. Now we are moving back into the office we are encouraging staff to continue keeping the printing volumes low. • We have moved from using virgin paper to recycled paper as default. Per 500 pages of paper this uses 100% less wood, 72% less energy, 83% less water and 53% less carbon dioxide .
Single Use Plastic	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[1].	• Moving from SUP teabags and coffee point sundries underway. • Stationery framework tender includes environmentally friendly SUP-free or recycled content at reduced cost. Swaps to be implemented in 2022. • Issuing reusable water bottles to operational colleagues from March 2022.

Waste Summary

Prevent
the creation of waste

Reuse

Recycle

Recover,
e.g. energy recovery

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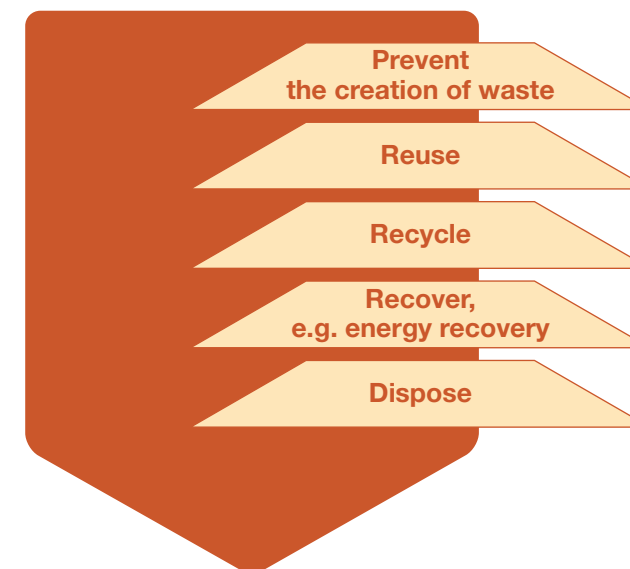
Initially focusing on reducing consumption and the generation of waste, and diverting waste from landfill through reuse, recycling, and recovery, we will achieve our ambition to send zero waste to landfill by 2035.

Throughout the operational and support sides of the business, segregation of waste is commonplace and 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.

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[1] www.recyclingbins.co.uk/recycling-facts/

TABLE 17 – Waste statistics 2021/22

					2021/22
Total metric tonnes of waste produced directly by the company (tonnes)					**150,614**
Tonnes per £m turnover					**325**
	Reuse	Recycle	Recovery with energy	Incineration	Landfil
Total (tonnes/%)	0.02 <1%	131,644 87%	151 <1%	200 <1%	18,624 12%
Spoil	–	131,481 87%	–	–	18,595 12%
PE waste	–	51 <1%	–	–	–
Mixed recycling	–	72 <1%	–	–	–
Cardboard	–	29 <1%	–	–	–
Plastic wrapping	–	7 <1%	–	–	–
Non-recyclable	–	–	151 <1%	161 <1%	29 <1%
Hazardous waste	–	–	–	39 <1%	–
IT equipment	0.05 <1%	5 <1%	–	–	0.6 <1%

Our performance against our GD2 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 improve. Here are some of the activities that we have been engaging in.

CASE STUDY – HARD HAT RECYCLING

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

To ensure their safety, our WWU colleagues are required to exchange their hard hats every three years, or if the hat becomes unserviceable or damaged, whichever is the sooner. This means as a business we can dispose of on average 500 used hard hats every year. Fortunately, technology has developed that uses the plastic in hard hats and turns them into pellets. The pellets are then used to make new items such as benches. Recycling processes like this one can have clear environmental benefits. In June 2021 we joined a nationwide scheme and introduced our own hard hat recycling programme throughout our network and as of 31 March 2022 we recycled over 200 hard hats.

WREXHAM DEPOT HARD HAT RECYCLING POINT

CASE STUDY – IPAD DONATION HELPS COMMUNITIES ACROSS WALES

17 PARTNERSHIPS FOR THE GOALS

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

As a business, we pride ourselves on supporting the communities we serve, so we were delighted to donate more than 80 iPads to charities, community groups, organisations and schools across Wales this year.

It follows a call from Business in the Community (BITC) who wanted to match communities in need with businesses who could help to address digital poverty during the height of the pandemic. As a long-standing supporter of BITC, we were able to identify technology that our business no longer had use for – but was still in good working order – to donate to organisations, so that local people across Wales could benefit. This not only helps to assist these organisations, but it also saves landfill space by extending the life of the equipment, which is in line with our circular economy principles to reduce waste and pollution by keeping items and materials in use.

The linkup between BITC and WWU has meant more than 80 iPads have been donated during the past few months. Organisations to benefit have included Marshfield Primary School, Family Friends Wrexham, Safe Families and Voluntary Action Merthyr Tydfil (VAMT).

This recycling programme will continue during the price control period and beyond.

10 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, we completed a new risk assessment of climate related risk to WWU 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 WWU climate adaptations report was published on the government website[1]. 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.

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 hold a portfolio of large sites; typically, our properties have small footprints housing gas infrastructure, therefore they do not hold significant natural capital value. Given the small number of sites we own and the insensitivity of formally assessing sites with the Natural Capital Valuation Tool, we believe this approach would not provide the best value to our customers.

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

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

CASE STUDY – NATURE TOOL DEVELOPMENT

We do however recognise the importance of natural capital end ecosystem service assessments. As part of our commitment to understand, monitor, and promote biodiversity and ecosystem services at our long-term assets, we actively supported the development of the NATURE Tool by WSP and the Ecosystem Knowledge Network.

The NATURE Tool is a free user-friendly, easy to use Excel tool to assess the impact of land use and management changes on natural capital performance. This will encourage both better decision making and clearly demonstrate the results of positive sustainable action. The NATURE Tool allows assessing up to 17 ecosystem services plus physical and mental health benefits through a scoring system indicating both the direction and magnitude of project impacts. The NATURE Tool can also be tailored to a local or corporate version, allowing the 'objective setter' to define policy priorities and natural capital objectives a project should achieve. This means that when using the NATURE Tool, we can create our own version where natural capital priorities and objectives are pre-defined by WWU and the requirements of stakeholders.

We plan to utilise this tool on our assessments in the future to ensure we understand all the benefits of our biodiversity enhancements, discussed below.

TABLE 18 – Schemes to enhance or restore local environmental value

Scheme name	Location	Description	Environmental benefits	Timescales
Land Management Projects	WWU 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.	2021/22
Tree Planting	South Gloucester	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.	February 2022
Tree Planting	WWU Network	Planting of 1,500 trees as part of the Five for One Policy.	Improved air quality through pollutant absorption, providing natural habitat for wildlife.	In autumn 2022

Land Management

In Year 1 of GD2, Land Management have completed 37 of the 85 projects required for delivery in GD2. As part of our long-term land management programme, desk-based assessments and site assessments were completed in Year 1. The site visits 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 significant 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. An example of this ambition, in Year 1 of GD2, is the Land Management site investigation at our Breakwater Hill, Plymouth site. The site investigation concluded a low environmental risk to human health and controlled waters, based on the absence of significant pollution sources. The site could now be brought into beneficial use for the wider community and support the local authority's regeneration plans for brownfield sites.

Biodiversity

CASE STUDY – BIODIVERSITY ENHANCEMENTS IN BRISTOL

15 LIFE ON LAND

Further to the building developments mentioned in section 7, we are also 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 was 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 and enhancements for wildlife such as a 100m^2 wildlife pond and a bug hotel. There is a standing dead wood tree that will be 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.

The site is, or has the potential to, home 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	Forecast 5.26	Forecast 0.95	Forecast 22%

Biodiversity

CASE STUDY – TREE PLANTING

A team of our colleagues turned out in force to plant trees in the Mangotsfield 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 they have to remove as part of their work to keep the gas flowing safely.

The planting in Mangotsfield 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 the company's sustainability team and 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, helped plant the trees and said:
"Through investing £400m 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 Mangotsfield 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 the first of many activities across our network."

Toby Savage, Leader of South Gloucestershire Council, said:

"We'd like to thank Wales & West Utilities for funding these trees and their hard work to plant them. Planting more trees is a vital part of the work needed to protect and restore nature and prepare for the impact of a changing climate. Working with proactive organisations like Wales & West Utilities is a great way to inspire more people to get involved."

Air Quality

15 LIFE ON LAND

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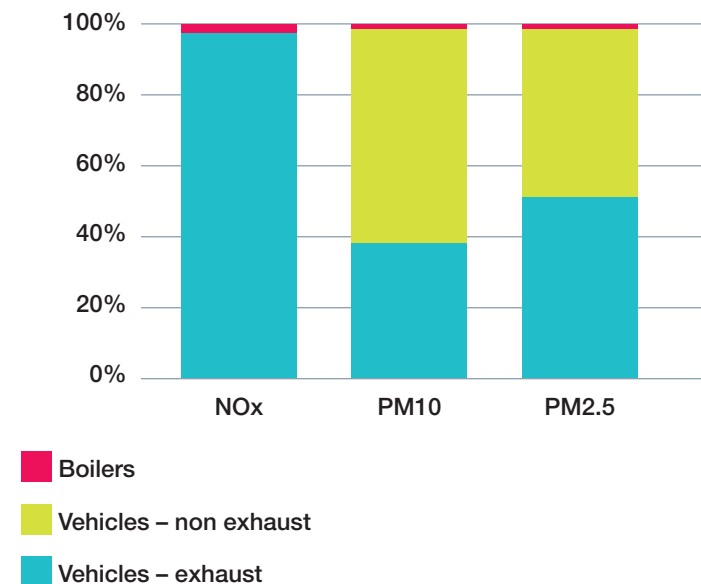
We are committed to understand and minimise our impact on air quality during GD2. Working with specialist consultants, we established how to convert our operational activities into air quality data that we can monitor.

The main air quality impacts related to WWU 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 PM2.5); and

◗ Energy plant – gas boilers emit NOx (and some PM10 and PM2.5 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 (excluding shrinkage own use). The assessment shows the following:

TABLE 20 – Air quality analysis

Emission source	NOx (tonnes)	PM10 (tonnes)	PM2.5 (tonnes)
Vehicle (exhaust)	46.721	0.565	0.565
Vehicles (non-exhaust including brake, tyre and road abrasion emissions)	–	0.911	0.546
Boilers	0.426	0.003	0.003
TOTAL	47.147	1.479	1.114

CHART 7 – Air Quality Impacts in 2021/22

- Boilers
- Vehicles – non exhaust
- Vehicles – exhaust

The data shows that the fleet has a significant impact on NOx, PM10 and PM2.5. 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 to:

◗ Reduce travel by targeting a reduction in non-operational travel and promoting virtual team meetings

◗ Improve the efficiency of buildings to reduce boiler use

◗ Promote the use of electric or hybrid vehicles and proactively investigate EV and 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 with no major or minor nonconformities. In September 2021, our lead auditor noted that: "As on previous visits, WWU have demonstrated a robust environmental management system, effective practical controls and strong environmental performance... Finally, WWU continue to demonstrate an ambitious agenda for innovation and improvement, much of it tied to the GD2 EAP process."

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

11 Statement on Scope and Quality

Data Assurance Statement

This is the first year that WWU has published our AER. Ofgem requires that the 2021/22 submission be uploaded on the Company's website.

The 2021/22 AER has been completed in line with the RIGs and in line with the RIIO-GD2 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 WWU Executive team including the Director of Regulation, Asset Strategy & HS&E and the Director of Finance. Additionally, following review of the risk assessments and discussion with management, the entire AER 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.

12 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 1 of GD2 we committed to spend £1.5m on projects. This figure reflects all innovation spend in year 1 of GD2 on innovation projects.	Primary Financial Data.	🟢
Innovating for decarbonisation and to protect the environment	Refer to published WWU 2021/22 Innovation report.	WWU Annual Innovation Report.	🟢

ASSUMPTIONS TABLE 3 – Scope 1 and 2

Category	Methodology and assumptions	Data source	RAG rating
Licensee's long-term greenhouse gas reduction target, aligned with a science-based methodology (excluding shrinkage)	Target reduction of 37.5% by 2035 (WB2°C) equates to 2.5% annual reduction from baseline 2020. 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-GD2 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 RRPs data (GWh) converted to tCO2e 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/ULE 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.	March 2022 Headcount.	🟢

ASSUMPTIONS TABLE 4 – Scope 3 & Embodied Carbon

Category	Methodology and assumptions	Data source	RAG rating
Purchased goods and services	**Helicopters** – Fuel consumption data provided by contractor and converted using DEFRA factor. **Contractor Vehicles** – data provided by contractor, converted using DEFRA factors. **Reinstatement materials** – contractor data converted into volumes, then tonnes and then into carbon using the DEFRA factor.	**Helicopters** – Secondary data provided by supply chain. **Contractor Vehicles** – Secondary data provided by supply chain. **Reinstatement materials** – Primary data.	🟢
Capital goods	**PE Pipe and Fittings** – data provided by contractors with no conversion required. **Copper and Steel pipe** – Primary purchase data converted into weight (kg) and then into carbon using ICE 3.0 factors. Where pipe length and/or diameter detail was not available, conservative assumption applied. **IT (purchased equipment)** – Primary data converted using DEFRA factors.	**PE Pipe and Fittings** – Secondary data provided by supply chain. **Copper and Steel pipe** – Primary data. **IT (purchased equipment)** – Primary data.	🟢
Fuel and energy related activity (not included in Scope 1 or 2)	**WTT Energy consumption / T&D Losses** – Utility consumption reports provided by Inspired Energy (third party consolidating our utility bills), converted using DEFRA factors. **WTT Fuel** – Key Fuels weekly invoice data (litres purchased) and monthly business mileage data (company car expenses claims) converted using DEFRA factors.	**WTT Energy consumption / T&D Losses** – Secondary data provided by supply chain. **WTT Fuel** – Secondary data provided by supply chain / Primary data.	🟢

ASSUMPTIONS TABLE 4 – Scope 3 & 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	🟢
Waste generated in operations	**Spoil to Landfill** – Environmental report received from Work Management team containing volumes of spoil and aggregates used each month – split by Landfill, Recycled and Exempt (and aggregate by material type). Converted using DEFRA factors. **Biffa/DCW/CEVA** – monthly reports provided by respective parties (in tonnes) converted using DEFRA factors. **IT (disposal)** – report of IT purchases and disposals provided by IT team in no. of units and weight (tonnes), converted using DEFRA factors. **Water** – Utility consumption reports provided by Inspired Energy (third party consolidating our utility bills), 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 & 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.	WWU 2021/22 carbon accounting data.	🟢
Land management	Methodology for assessment is in line with Ofgem RIGs.	RRP submissions.	🟢

13 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 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.

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.

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.

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).

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 greenhouse gas 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**.

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

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

potential to accelerate the transition to Net Zero.

tCO$_2$e
Tons (t) of Carbon Dioxide (CO$_2$) equivalent (e) is a standard unit for counting GHG 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.

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).