DISCRETIONARY REWARD SCHEME

CARING FOR THE ENVIRONMENT

WALES&WEST UTILITIES

WORKING** TO KEEP OUR CUSTOMERS **SAFE

Caring for the Environment

Delivering a low carbon, sustainable gas network is a key commitment for Wales & West Utilities. We are also contributing to wider industry requirements for a sustainable energy sector and we are determined to meet the challenges that this will bring while delivering value and quality customer service to our consumers – both now and in the future.

Embedding environmental considerations into our management and business systems is a fundamental part of our operational process, demonstrated not least in meeting the considerable expectations of external auditors and environmental regulators (both Local Authority and Environment Agency).

Minimising the impact of our activities on local communities and businesses across our network is at the forefront of everything we do, as is meeting the expectations of all of our stakeholders as we continue to introduce added value to deliver sustainable and cost efficient solutions.

Wales & West Utilities (WWU) is committed to continual improvement and to playing our part in reducing the impact of our operations and associated emissions.

Demonstrating our success

WWU has successfully managed an environmental management system and ISO 14001 process, embracing over 45 permits associated with waste, discharges and pollution control. We have an excellent historical record of both audit and compliance success with no prosecutions or prohibition notices being imposed on the business.

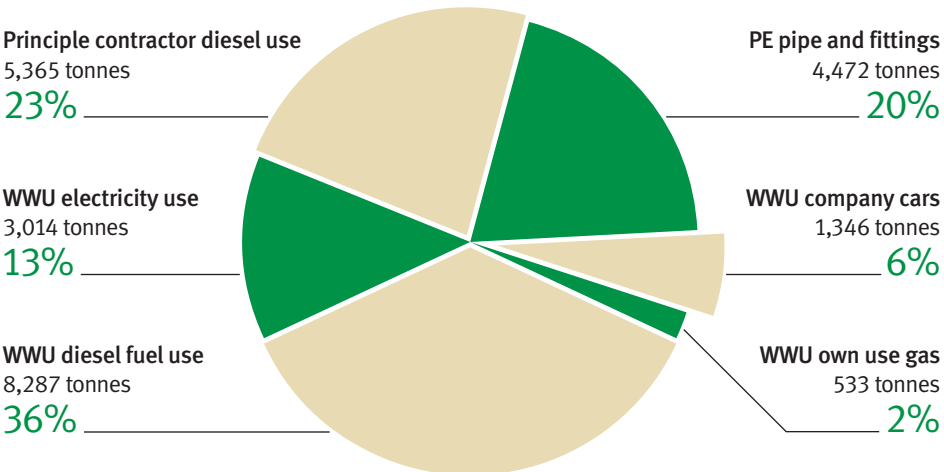
Reducing our Carbon Footprint

We have programmes in place to reduce – by 14% – our total Greenhouse Gas (GHG) emissions from 600,000 tonnes C02e in 2009/2010 to 514,000 by 2013. This will be achieved principally by investing over £350m in the replacement of 'at risk' iron mains and services and by proactively managing average system pressures.

It is, however, significant that direct GHG emissions from our business carbon footprint in 2009/10 were only 4% of our total GHG emissions overall.

The diagram below illustrates WWU's carbon footprint in 2009/10.

Business carbon footprint 2009/10
c23,000 tonnes CO_2 overall



Looking forward, from 2013 to 2021, we also expect to reduce our total GHG emissions from 514,000 tonnes C02e to 375,000 tonnes, representing a 38% reduction since 2008.

By introducing future improvements we aim to reduce our business carbon footprint incrementally to achieve a further 10% reduction by 2021.

Preserving Natural Resources

Historically, almost 100% of reinstatement material was imported stone from local quarries, as this was almost always the cheapest and most beneficial solution. Reducing WWU's reliance on imported natural products has been a major target for the business over several years and in 2009/10 we imported only 60% quarried material as can be seen from this chart.

Percentage of total imported material – purchased virgin aggregate

2009/10	104,238 tonnes	60.2%
2008/09	83,762 tonnes	62.9%
2007/08	100,000 tonnes	78.5%
2006/07	120,216 tonnes	82.5%
2005/06	82,153 tonnes	95.5%

By focusing on site awareness, dedicated segregation, product re-evaluation and collaboration with waste contractors, WWU has reduced the generation and disposal of hazardous waste from over 11,000 litres in 2008 to only 3,000 litres in 2010. However, we are not complacent and we will continue to explore opportunities to maintain and, where economically viable, reduce still further the production of hazardous waste volumes.

Historically, 100% of our excavated material would have been disposed of to landfill. However, during 2009/10, the volume was only 18% (46,000 tonnes). This significant reduction has been achieved by considering every opportunity to re-use or recycle on a project by project basis and by consistently working towards solutions that either remove the need for excavations in the first place, or significantly reduce them.

WWU's largest potential waste stream is directly generated by our workload in relation to excavated material from mains replacement, connections and repair. Typically since 2008, this has been of the order of 250,000 tonnes per annum.

Improved planning support and techniques, including direct insertion methods, thrust boring, directional drilling, coring and vacuum excavation techniques have all resulted in minimising the production of excavated spoil and realising additional sustainable and societal benefits, especially in relation to the impact of our work on local communities, traffic, habitats and landscapes. The following charts demonstrate this success.

Percentage of total excavated material to landfill

2009/10	46,246 tonnes	17.9%
2008/09	40,629 tonnes	22.1%
2007/08	80,000 tonnes	34.0%
2006/07	77,860 tonnes	41.1%
2005/06	79,336 tonnes	55.2%

Percentage of total excavated material to recycling facility

2009/10	167,037 tonnes	64.8%
2008/09	99,179 tonnes	53.8%
2007/08	123,000 tonnes	52.3%
2006/07	100,019 tonnes	52.8%
2005/06	38,725 tonnes	26.9%

Our collective efforts on reducing waste in recent years have delivered combined benefits amounting to the equivalent of over 110 Olympic swimming pools.

One of the processes introduced in the last two years to support and contribute to these improvements and reduce the impact on those affected by our operations was WWU's innovative purchase of two vacuum excavator vehicles worth nearly £700,000.

Monster Trucks!!

The vehicles, although well established in mainland Europe, are relatively new to the UK. The technology provided by these vacuum trucks allows for safe, efficient excavation around buried gas pipes by literally 'hoovering' material out of the ground.

The use of vacuum excavation has reduced the number of incidents where gas pipes and other buried utility services such as electricity, water and telecoms have been damaged during the excavation process. This has obvious safety benefits for both WWU operators as well as the general public. CO_2 emissions associated with responding to these incidents are also diminished.

The use of four Vac Trucks reduces WWU's annual emissions of CO_2 by 248 tonnes CO_2e

When working in the highways, the use of vacuum excavation reduces the length of time a road closure or diversion is required for, hence reducing the level of disruption for local residents and businesses. By minimising the length of time working in the highway, WWU are reducing the amount of traffic compared with using traditional excavation processes which in turn reduces the amount of CO_2 emitted from standing traffic.

Traditional excavation techniques can damage tree roots and other fauna which act as a natural sponge for CO_2 during the process of photosynthesis.

The spoil excavated is stored in a unit mounted on the vehicle. This reduces the amount of surface stockpiles which can pollute drains and local watercourses. The dust filters incorporated in the vacuum design removes the risk of dust generation which has obvious health benefits for WWU operators and members of the public.

AdBlue, a chemical reagent, is injected into the exhaust gases as a post combustion process to help reduce the volume of harmful NOx (Nitrous Oxide) emissions produced from the diesel engines.

How it all works...

The vacuum trucks work in a similar way to a cyclonic cleaner, but with immense suction power. The high negative pressure air current removes all materials through a suction nozzle using a flexible arm attachment fixed to the back of the excavator. The spoil is then collected in a unit mounted on the vehicle and when it is full, the lid is hydraulically opened and the entire chamber is mechanically tipped placing the spoil in a low level skip.

Facts at a glance

In addition to WWU's own Vac Trucks, two further vehicles are on hire to the business. By using four Vac Trucks, WWU's environmental savings are even more considerable:

Each year, WWU sends....

- **2,762 tonnes less to landfill**
- **2,670 tonnes less to exempt sites**
- **9,999 tonnes less to SMR recycling sites**

Each year, WWU imports....

- **6,142 tonnes less of virgin aggregates**
- **9,289 tonnes less of SMR recycled material**

Each year, WWU saves....

- **£104k on haulage of saved material**
- **£324k on gate/material fees**
- **£2.8m on district teams/grab use**

Sensitive Environmental Challenge

One of the most challenging replacement projects undertaken by WWU has been the successful completion of a sensitive project within Dartmoor National Park.

Nearly 1,400m of Medium Pressure main was replaced by open cut method through Roborough Down near Plymouth – an extremely environmentally sensitive area within the National Park.

The three-month, £650,000 project, presented a number of challenges for WWU to meet legislation and gain approval from the Department of Trade and Industry.

Minimising the impact on flora and fauna, accommodating the rights of animals to roam within the National Park and recognising the popularity of the area with tourists all added to the operational challenges of the project.

There were archaeological issues, too. WWU discovered that part of the route had been a temporary RAF airfield during World War Two. Information on underground buildings in the area was limited and so a local historian was recruited to gather sketches and information. An archaeologist was also appointed to undertake a full watching brief during WWU's excavations and construction of the new pipeline.

Severe weather conditions on this vast open area of land at high level also contributed to the challenge and reinstatement had to be undertaken with great care to meet Dartmoor National Park's strict specifications.

The end result was a complete success with accolades from both the Maristow Estate and from the agent to the Commoners Association on the efficient construction of the new pipeline and the high quality of the reinstatement work.

WWU's care for the Environment

As we have said, delivering a low carbon, sustainable gas network continues to be a key commitment for Wales & West Utilities. We are determined to meet the ongoing challenges that this will bring while continuing to deliver value for all our stakeholders – both now and in the future.

Wales & West House Spooner Close
Celtic Springs Coedkernew Newport NP10 8FZ
T. 029 2027 8500 www.wwutilities.co.uk

Wales & West Utilities Limited
Registered in England and Wales: No. 5046791

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