



Our Vision

Proud to be leading the way to a better future for Wales by managing the environment and natural resources of Wales sustainably.

Our Purpose

Through the new Environment (Wales) Act 2016, we

- must pursue the sustainable management of natural resources, and;
- apply the principles of sustainable management of natural resources;
...in the exercise of our functions.

Introduction

Our environmental management system (EMS) is helping develop Natural Resources Wales (NRW) into an excellent organisation by maintaining our ISO14001:2015 certification, our forest certification against the UK Woodland Assurance Standard and by reducing our own environmental impact and carbon footprint.

Our focus during this year has been to:

- reduce our carbon footprint – decarbonisation;
- conformity against the UK Woodland Assurance Standard;
- improve the status of designated features, access and interpretation on protected sites we manage;
- Reduce the average emissions of cars in the NRW fleet – decarbonisation

This report relates primarily to environmental sustainability, as distinct from wider sustainability actions or outcomes. Wider sustainability-related reporting can be found throughout our Annual Report & Accounts. During the coming years, we will continue to improve our corporate environmental reporting in working towards Integrated Reporting.

Summary of Performance

This year we have:

- met our target to reduce our carbon footprint by 5% in relation to occupied buildings energy use and business travel;
- retained certification to the UK Woodland Assurance Standard for the Welsh Government Woodland Estate we manage, following independent external audits and verification
- completed 67% of the National Nature Reserve management audit target and ensured any improvement actions identified were implemented
- purchased twenty-two sub 100 g/km cars and two new electric vehicles

Table 1: Corporate Environmental report summary table

2015/16	Units	2015/16	2016/17	2017/18
Greenhouse gas emissions ¹	Consumption (tCO ₂ e)	6,021	5,115	4,387
Estate energy	Consumption (million kWh)	6.9	6.3	6.0
	Expenditure (£k)	657	776	618
Estate waste	Generated (tonnes)	864	1,424	1,141
	Expenditure (£k)	205	225	273
Estate water	Consumption (m ³)	78,395	76,283	50,908
	Expenditure (£k)	39	32	25

Table 1 reflects relative change for key areas in the last year. More detail around each can be found within the related sections of this report.

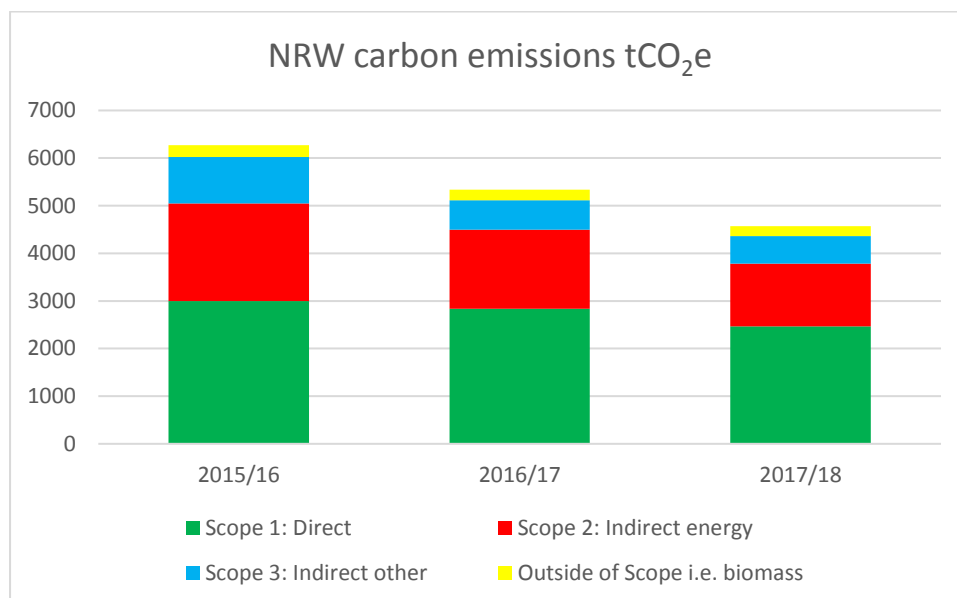
In summary:

- carbon emissions decreased in 2017/18 by 14.2% compared with the previous year
- energy use decreased in 2017/18 by 4.7% compared with the previous year
- waste generated decreased in 2017/18 by 19.9% compared with the previous year
- water consumption decreased in 2017/18 by 33.3% compared with the previous year

¹ (Scopes 1, 2 and 3 including air/rail travel and excluding outside of scopes emissions)

Greenhouse Gas Emissions

Our greenhouse gas emissions are outlined below:



Carbon emissions decreased in 2017/18 by 14.2% compared with the previous year.

Scope 1 direct emissions decreased 13.0%, this was due to the decrease in fuel use in badged and operational vehicles and machines.

Scope 2 energy indirect emissions decreased by 20.8%, this was due to the reduction in both electricity use in occupied buildings and unmanned sites.

Scope 3 other indirect emissions decreased by 2.3%, this was due to grey vehicle and hire car mileage decreasing.

Table 2: Greenhouse gas emissions

Greenhouse Gas Emissions	2015/16	2016/17	2017/18
Scope 1: Direct emissions (tCO ₂ e)	2,999	2,835	2,466
Scope 2: Energy indirect emissions (tCO ₂ e)	2,048	1,662	1,317
Scope 3: Other indirect emissions (tCO ₂ e)	974	617	603
Total gross GHG emissions (tCO₂e)	6,021	5,115	4,387
<i>Outside of scopes (i.e. biomass)</i>	253	220	208

Note 1: Data not externally verified – Limited Assurance.

Note 2: The Scope 3 other indirect greenhouse gas emissions include; train travel, air travel, grey fleet travel, lease car travel, hire car travel, water and waste.

Note 3: Scope 3 emissions from the purchase of goods and services, aggregates use in construction and timber use are not included.

Energy

Our total energy use (which includes electric, mains gas, LPG, heating oil and biomass) in both occupied and unoccupied buildings has decreased by 4.7% based on the previous year's data.

Electricity use in occupied buildings decreased by 9.6%, whilst electricity used in unmanned sites decreased by 0.8%.

A reduction in biomass and LPG used was mainly due to the installation of a new biomass boiler at our Coed Y Brenin visitor centre.

There were slight increases in mains gas (1.0%) and heating oil (3.5%) used.

In the last year we have increased the amount of energy we generate from renewables from 1.4% to 2.2% in our occupied buildings. The increase was mainly due to installation of a hydro power scheme at our Garwnant visitor centre.

In March 2018 we installed photovoltaic panels at five sites, we will see the benefit of the energy generated in 2018/19. We also installed LED lighting at thirteen sites in 2017/18. Both the photovoltaic panels and LED lighting were funded by the Welsh Governments invest to save scheme.

The carbon emission savings were higher than expected due to the DEFRA greenhouse gas conversion factor for UK electricity decreasing further in 2017. This was due to a significant decrease in coal generated electric and an increase in gas and renewables generation.

Table 3: Energy Consumption

Resource use – Estate energy	Units	2015/16	2016/17	2017/18
Energy used: Occupied sites	Consumption (kWh)	5,550,100	5,209,072	4,918,340
	Consumption (tCO ₂ e)	2,011	1,723	1,436
Energy used: Unoccupied sites	Consumption (kWh)	1,319,745	1,131,651	1,122,103
	Consumption (tCO ₂ e)	610	466	395
Renewable energy: Self-generated	Generation (kWh)	81,713	76,649	106,856
	Consumption (% of energy used)	1.4%	1.4%	2.2%
Energy used: Total	Consumption (kWh)	6,869,845	6,340,723	6,040,443
	Consumption (tCO₂e)	2,621	2,189	1,830
	Expenditure (£k)	657	777	618

Water

Mains water consumption in our offices reduced by 368 m³ (6.2%) compared with the previous year. Our water use intensity (m³/FTE) is 3.1, which is below the average of 4.0 for water use ², and we have set a further reduction target for 2018/19.

The mains water at our non-office sites increased by 851 m³ (15.5%) compared with the previous year. This was mainly due to an increase in mains water usage at our Bwlch Nant Yr Arian visitor centre (473 m³ increase) and several toilet blocks at Tregaron, Geirionydd and Newborough (362 m³ combined increase). The increase was due to an increase in the number of visitors at the respective sites.

Water used to operate our fish hatchery site was the most significant water abstraction use this year, at 36,721 m³. This however was a reduction of 25,968 m³ compared with the previous year. This usage was the key factor in total overall water usage reducing by 25,375 m³ (33.3%).

Table 4: Water Consumption

Resource use – Estate water	Units	2015/16	2016/17	2017/18
Water supplied - Office use:				
- Mains supply	Consumption (m ³)	6,830	5,923	5,555
- Abstraction	Consumption (m ³)	3	15	22
Water supplied - Non-office use:				
- Mains supply	Consumption (m ³)	5,555	5,488	6,339
- Abstraction	Consumption (m ³)	65,981	64,850	39,014
Water use intensity (for office use)	m ³ per FTE	3.4	3.3	3.1
Water supplied: Total	Consumption (m³)	78,395	76,283	50,908
	Expenditure (£k)	39	32	25
	Consumption (tCO₂e)	27	26	18

Travel

Our travel needs include; travel to manage sites, responding to serious environmental incidents, taking samples, dealing with flooding, site meetings and inter-office travel.

In 2017/18 we travelled 7,269,097 miles a reduction of 889,230 miles (10.9%) compared with the previous year.

This was mainly due to a reduction of 623,867 miles (10.3%) in badged vehicle mileage. This equates to a carbon saving of 133 tCO₂e and a cost saving of over £50K.

² Average = 4m³ per FTE (Source: Water Key Performance Indicators and benchmarks for offices and hotels. C657 CIRIA www.ciria.org)

We will continue to reduce inter-office travel using our travel decision tree and by increasing the use of skype conferencing, which will reduce the need to travel further.

Table 5: Travel detail

Travel by vehicle	Units	2015/16	2016/17	2017/18
Badged vehicles	Miles travelled	5,833,839	6,064,812	5,440,945
	Expenditure (£k)	800	768	749
Lease vehicles	Miles travelled	1,649,345	191,730	0
	Expenditure (£k)	162	18	0
Grey vehicles ³	Miles travelled	552,343	639,064	590,998
	Expenditure (£k)	244	287	266
Hire	Miles travelled	256,654	322,505	261,039
	Expenditure (£k)	59	74	88
Train	Miles travelled	865,693	864,366	938,418
	Expenditure (£k)	221	223	183
Air	Miles travelled	18,898	71,057	33,661
	Expenditure (£k)	6	19	9
Bicycle	Miles travelled	1,944	2,346	2,301
	Expenditure (£k)	< 1	< 1	< 1
Motorbike	Miles travelled	4,475	2,447	1,735
	Expenditure (£k)	1	1	1
Total vehicle travel	Miles travelled	9,183,191	8,158,327	7,269,097
	Expenditure (£k)	1,493	1,390	1,291

Waste Minimisation and Management

Overall waste generated decreased in 2017/18 by 19.9% compared with the previous year.

The office waste to landfill decreased by 11.6%, however the total amount of fly-tipped waste increased by 28.6%, fly-tip is any waste deposited illegally by 3rd parties on land we manage, once deposited we become the owners and are responsible for the disposal and associated costs.

³ Grey vehicles are staff's own private vehicles

The carbon emissions were higher than expected due to the DEFRA greenhouse gas conversion factor for waste to landfill increasing in 2017. This was due to a change in the calculation methodology that is not comparable with previous years.

Table 6: Waste Generated

Waste generated	Units	2015/16	2016/17	2017/18
Office waste Landfilled	Consumption (tonnes)	266	241	213
	Consumption (tCO ₂ e)	122	101	125
	Expenditure (£k)	25	22	24
Office waste Recycled / reused	Consumption (tonnes)	451	934	600
	Consumption (tCO ₂ e)	9	20	28
Office waste Incinerated	Consumption (tonnes)	14	15	27
	Consumption (tCO ₂ e)	< 1	< 1	< 1
Fly tipped waste	Consumption (tonnes)	133	234	301
	Consumption (tCO ₂ e)	32	65	135
Total waste	Consumption (tonnes)	864	1,424	1,141
	Consumption (tCO₂e)	164	186	274
	Expenditure (£k)	205	225	273

Sustainable Procurement

NRW's Vision for Procurement is to ensure "that we only buy goods, works or services that we really need, to get the best value for money, to optimise the impacts on the environment, on people and on the local economy."

We have developed a Market Approach Plan which allows requisitioners to question the need to buy, and to consider in practical terms the impact of their purchase and all available options before entering into a contract. The plan also contains the Sustainability Impact Assessment, which examines the impact of the purchase on a whole life cost basis and identifies mitigation controls.

The approach ensures we link our supply choices to our policy priorities and objectives, making the right choices to help reduce the consumption of primary resources, using materials with fewer negative impacts on the environment and implementing effective performance monitoring and transparency.

Behaviour change

As part of our work to embed our Environmental Management System (EMS) into the culture of our organisation, we have delivered several training courses to staff. Training areas have included awareness raising around our key environmental procedures, waste management, timber procurement and incident response.

Environmental incidents

There have been fifteen environmental incidents because of our work or that of our contractors. This compares with ten environmental incidents in the previous year. There was one high category environmental incident in 2017/18 relating to sea water ingress to a freshwater reed bed leading to fish fatalities. No enforcement action will be taken as the incident was caused by asset failure due to third party interference. When incidents occur because of our work (or that of our contractors), we review what has happened, and act to address the root cause of the incident.

Governance and Reporting

We report on our carbon footprint as part of our performance framework, which is reported by the Executive Team to the Board (in open public session) three times each year.

We collect the data used within this sustainability report through a combination of meter readings (e.g. gas, electricity), invoices (e.g. fuel card purchases), suppliers data (e.g. train miles) and finance data, using the most accurate source/s we have available. We also look to minimise use of any estimated data in our reporting, and we are working to improve in this area.

Carbon Positive Project

NRW's Carbon Positive Project was funded by the Welsh Government to show leadership in decarbonisation in Wales' public sector and beyond. It has explored how our organisation can address its carbon impact across buildings, transport, land and operational assets and procurement of goods and services.

The Project looks beyond the carbon emissions we currently report on as part of our Environmental Management System (EMS) to understand our wider net carbon status (the balance of our emissions and sequestration). The Project has calculated the net carbon status for NRW, accounting for both greenhouse gas emissions and carbon sequestration across the whole of NRW's estate. The calculation builds upon the information from our EMS to understand the emissions of the organisation in its wider sense, e.g. to include emissions from the purchase of goods and services, timber production and construction, and to recognise the role of the NRW-managed estate for carbon. A report setting out the approach and the calculation will be published in 2018.

The Project also evaluated the range of potential mitigation measures to reduce our carbon impact as an organisation, seeking input from both staff and other organisations. The evaluation sets out the wide range of potential measures open to NRW and captures the predicted costs, carbon benefit, and wider benefits these measures could provide to NRW as well as exploring the potential scale of adoption across the organisation.

To pilot some of these measures, the Project delivered a series of demonstration projects, including: electric vehicles and charging infrastructure, solar PV on buildings and operational assets, peatland restoration, woodland planting and trialling carbon planning tools in large procurement frameworks. These helped to

inform the feasibility, costs and benefits NRW might see from the adoption of proposed measures.

The opportunities identified through the evaluation of mitigation options will help to build a strategic, costed and prioritised programme of delivery for NRW to address its carbon impact over the next 3-5 years, to steer decarbonisation in NRW moving forward and to embed carbon management across the organisation. This plan will be principally for internal use and will be finalised in 2018.

The Project continues to share its approach and experiences to disseminate best practice and lessons learnt in carbon management across Wales' public sector and to assist in the delivery of Wales' ambition for a carbon neutral public sector by 2030.

Future Strategy

Next year we want to:

- Reduce our carbon footprint further and have set a target to reduce our carbon dioxide emissions (tCO₂e) from occupied buildings, travel and water use by 5% based on 2017/18 data
- Maintain certification against the UK Woodland Assurance Standard (UKWAS) and the ISO14001:2015 environmental standard
- Improve the status of designated features, access and interpretation on protected sites we manage
- Develop mechanisms for active travel to be the favoured choice of NRW commuter travel and for appropriate business journeys – decarbonisation
- Further Improving the organisations environmental performance

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Correspondence welcomed in both Welsh and English

Call us on **03000 65 3000** (24-hour) to report environmental incidents