HISTORIC ENVIRONMENT SCOTLAND SUSTAINABILITY REPORT AITHISG SO-SHEASMHAICH 2015-16

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

Sustainability report

Aithisg so-sheasmhaich

We are the lead public body for Scotland's historic environment, responsible for leading and enabling the delivery of Scotland's first strategy for the historic environment, Our Place in Time

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INTRODUCTION

In a powerful drive towards a low carbon economy, the Scottish Government has set world leading climate change targets; to slash Scotland's carbon emissions by 80% by 2050, with an interim reduction of 42% by 2020. These targets present Scotland with significant social and economic opportunities, as well as challenges, and will require a range of actions across society and the economy.

This sustainability report has been prepared in accordance with Scottish Government guidelines and highlights Historic Environment Scotland's high level performance for financial year 2015-16 in a number of key areas: greenhouse gas (GHG) emissions, energy, waste management, business travel, water consumption, action on biodiversity, sustainable procurement and adaptation. The purpose of this reporting is to improve performance management in relation to sustainability, through greater accountability and transparency.

Since 2010, Historic Scotland made a considerable effort to reduce its operational GHG emissions. Our Carbon Management Plan, published in 2011, set an ambitious target to reduce these emissions by 25% (against a baseline year of 2008-09) by April 2015. This was to be achieved by reducing the carbon emissions associated with energy use in our buildings, waste generation, business travel and water consumption. Due to a variety of factors, we missed this target, achieving a total reduction of 17% in the year 2014-15. This plan has now expired, but as an interim measure while we develop our approach to carbon management, Historic Environment Scotland (HES), has continued to measure against the Historic Scotland baseline. Some adjustments have been made to the historic data contained within this report, when compared with the data contained in previous reports. This has occurred where errors have been found, or where more accurate data has been obtained following publication. Emissions have been calculated using the UK Government GHG Conversion Factors, except for waste where we have used the Zero Waste Scotland Carbon Metric for waste.

2015-16 Performance Summary

AREA	ACTUAL PERFORMANCE		TARGET	STATUS
Total GHG Emissions	8,487	tCO_2e	-25%	-17%
Total Energy Consumption	18,134,375	kWh	-15%	-13%
Total Waste Disposal	1,063	tonnes		
Recycle Rate	50	%		
Total Water Consumption	70,727	m^3		
Total Energy Expenditure	£ 1,280,984			
CRC Expenditure	£ £35,625			
Total Waste Expenditure	£ £164,945			
Total Business Travel Expenditure	£ £363,284			
Total Water Expenditure	£ £188,595			

RECENT CHANGES TO PUBLIC SECTOR SUSTAINABILITY REPORTING

From 2011-12 to 2014-15, Historic Scotland voluntarily published an annual sustainability report, following best practice guidance issued by Scottish Ministers, enabling HS to raise awareness of this area of its work and consolidate its exemplar status. Continuing to produce a report in this format gives continuity and enables us to track Historic Environment Scotland's progress against that of its predecessor organisations.

Part 4 of the *Climate Change (Scotland) Act 2009* stipulates that Scottish Ministers may set reporting requirements on selected public bodies and, in early 2015, Scottish Ministers chose to use this power. The *Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015* introduced mandatory reporting requirements for all major player public organisations. This means that from financial year 2015-16, Historic Environment Scotland is required, by law, to produce an annual sustainability/ climate change report.

In order to consolidate and standardise data and improve reporting consistency, standard templates were created for each segment of the public sector (e.g. non-departmental public bodies, NHS, local authorities, etc.). These templates were tested for the 2014-15 reporting year, when we voluntarily submitted a report **http://www.keepscotlandbeautiful.org/sustainability-climate-change/sustainable-scotland-network/climate-change-reporting/201415-reports/** before mandatory reporting came into force for 2015-16. Findings from the year of voluntary reporting were used to refine the system, resulting in the introduction of a new portal for the 2015-16 reporting year. Historic Scotland and subsequently Historic Environment Scotland have been intimately involved in the development of reporting mechanisms through their representation on the Scottish Government's Climate Leaders Officers Group and close relationship with the Sustainable Scotland Network. This, and Historic Scotland's previous experience in sustainability reporting, has set the organisation in a good position to adopt these new statutory requirements.

For All Our Futures, our Corporate Plan for 2016-19 has embedded our leadership role in climate change in its objectives and sets Key Performance Indicators (KPIs) to which we will work and report over the coming years. We will therefore continue to publish a high-level sustainability report within our Annual Report & Accounts, in addition to submitting a Mandatory Climate Change Report via the Sustainable Scotland Network portal.

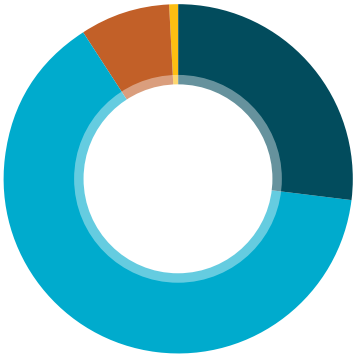
GHG EMISSIONS OVERVIEW

GHG emissions (tCO_2e)

	2008-09	2011-12	2012-13	2013-14	2014-15	2015-16	Change
Grand total	10,176	8,276	8,588	8,317	8,431	8,487	-17%
Energy	6,317	5,535	5,902	5,092	5,445	5,443	-14%
Waste	3,263	1,999	1,968	2,533	2,277	2,293	-30%
Business travel	547	693	668	648	662	693	27%
Water	49	49	50	45	47	59	20%

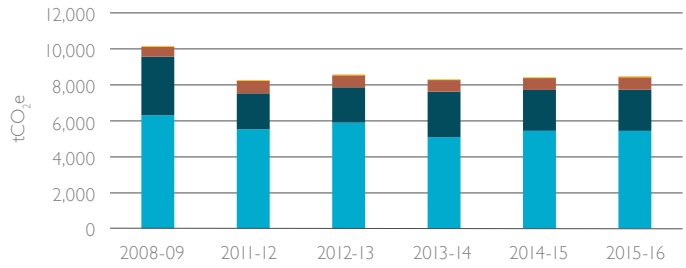
GRAPHICAL ANALYSIS

2015-16 Carbon Footprint



64.1% Energy
27.0% Waste
8.2% Business travel
0.7% Water

Annual Carbon Performance



TARGETS AND COMMENTARY

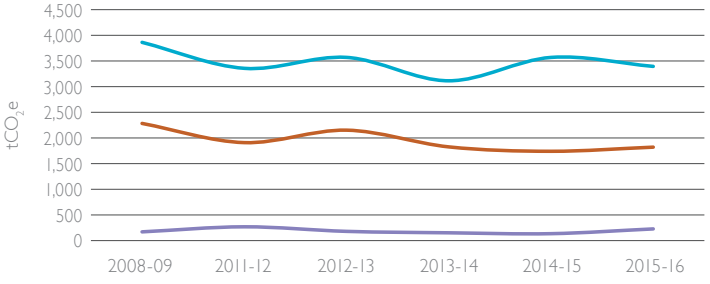
The merger on 1 October 2015 of Historic Scotland (HS) and the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) to create a new body, HES, has added around 95 staff, plus another headquarters building to an Estate of 335 historic properties, plus depots and offices, and the 1005 staff of Historic Scotland. In order to calculate the full carbon footprint of our operations, we have added the data from April to September 2015 from RCAHMS and HS to the data from October 2015 to March 2016 from HES. This made it likely that the figures would be quite different to those recorded in previous years for HS. Our contracts for energy, travel management service and water all changed at different times during 2015-16; due to variations in reporting format, this further complicated the collation and analysis of data.

During 2015-16, HES achieved an overall reduction in GHG emissions of 17% against the baseline year, matching the figure achieved by HS in 2015-16, despite having a larger Estate and more staff than Historic Scotland. This consists of a 14% reduction in energy emissions, a 30% reduction in waste emissions, a 27% increase in business travel emissions and a 20% increase in water emissions. The sustained reduction in energy and waste emissions indicates that we continue to reap the benefits of investment in energy efficiency measures and waste management made in previous years. This is discussed in more detail below.

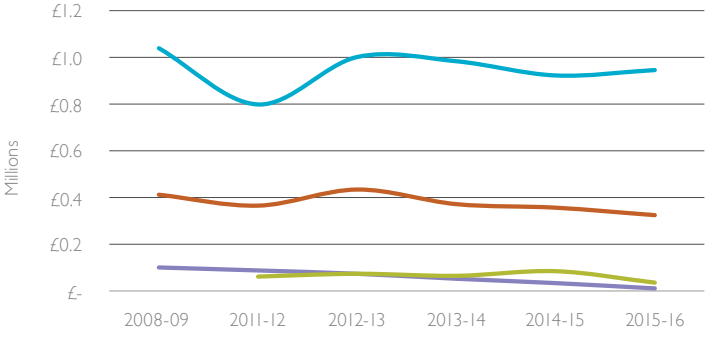
ENERGY

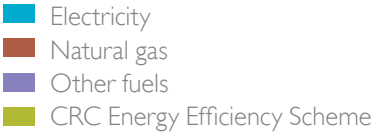
	2008-09	2011-12	2012-13	2013-14	2014-15	2015-16	Change
GHG emissions (tCO_2e)							
Electricity	3,863	3,357	3,570	3,114	3,569	3,394	-12%
Natural gas	2,283	1,909	2,152	1,826	1,740	1,821	-20%
Other fuels	171	269	180	152	135	228	34%
Actual consumption (kWh)							
Total Energy	20,876,906	18,911,128	20,098,336	17,534,663	17,167,130	18,134,375	-13%
Electricity	7,787,221	7,425,676	7,760,354	6,990,145	7,221,669	7,344,074	-6%
Natural gas	12,342,571	10,398,443	11,618,945	9,921,750	9,409,112	9,871,990	-20%
Other fuels	747,114	1,087,009	719,037	622,768	536,349	918,311	23%
Financial indicators							
Total Energy	£1,551,671	£1,251,390	£1,509,204	£1,407,086	£1,312,506	£1,280,984	-15%
Electricity	£1,039,079	£798,364	£1,001,574	£983,323	£922,463	£945,620	-9%
Natural gas	£412,048	£365,255	£434,177	£371,542	£356,444	£324,481	-21%
Other fuels	£100,543	£87,771	£73,453	£52,221	£33,599	£10,883	-89%
CRC Energy Efficiency Scheme		£61,517	£73,570	£64,766	£84,571	£35,625	N/A
3rd party re-charge: Electricity	-£96,588	-£122,329	-£131,564	-£94,964	-£98,217	-£28,780	-70%
3rd party re-charge: Natural gas	-£85,691	-£44,958	-£76,675	-£82,251	-£60,964	-£29,855	-65%

GHG Emissions: Energy



Expenditure: Energy





TARGETS AND COMMENTARY

Energy use in our buildings represents 64.1% of our overall carbon footprint. In 2015-16, Historic Scotland set a Key Performance Target (KPT) to reduce energy consumption by 15%, against a baseline year of 2008-09. In addition, RCAHMS had a key peformance target to reduce its 'ecological footprint' (CO_2 emissions).

The data shown above demonstrates that HES has missed the KPT initially assigned to Historic Scotland, reducing total energy consumption by 13%. This can be broken down as follows: a 6% reduction in electricity consumption, a 20% reduction in natural gas consumption and a 23% rise in other fuels (i.e. burning oil, LPG and gas oil). These reductions can be attributed to the ongoing fabric and technological improvements throughout the HS estate, the continued roll-out of Climate Change Awareness Training to staff members, the influence of our network of Green Champions and mild weather. When compared with the data from 2014-15, John Sinclair House has reduced its GHG emissions from energy use by 13.5%. In October 2015, we began a programme of energy efficiency improvements at John Sinclair House. We have improved control of the building temperature through installation of a Building Management System, replaced windows and air conditioning units with more energy efficient models, and introduced insulation to uninsulated cavity walls and the library ceiling. All these initiatives have enabled John Sinclair House to function in a more energy efficient and sustainable way.

Financially, HES has reduced its total energy spend by 15%. Spend on the CRC Energy Efficiency Scheme (CRC) is lower than the previous year because it only applied to Historic Scotland and we therefore only had to pay for a part year. As an Non-Department Public Body, HES is not part of the Scottish Government Group and therefore falls out of the current (2014-2019) phase. Thus our expenditure on CRC was significantly lower than previous years despite a price increase per tonne of carbon, from £15.60 to £16.10 (forecast sale) and from £16.40 to £16.90 (buy-to-comply sale). In the Budget of 16 March 2016, the Chancellor of the Exchequer announced that the government has decided to close the CRC scheme following the 2018-19 compliance year. This will be replaced with an increase in the Climate Change Levy, a tax on energy for non-domestic customers, which will impact on our energy expenditure from 2019.

DIRECT BUSINESS IMPACTS

The greatest impacts arise from electricity and natural gas consumption in our buildings. HES continues to roll-out technical improvements to our estate as outlined in our previous Carbon Management Plan. Reducing our energy consumption plays a pivotal role in meeting our carbon targets. It also produces cost savings, in terms of both direct energy costs, the Climate Change Levy and the CRC Energy Efficiency Scheme.

INDIRECT BUSINESS IMPACTS

Reducing energy consumption across our large and technically challenging estate plays a role in meeting national climate change targets. Also, through our range of publications, borne from technical research and our own experiences, HES continues to disseminate information to a range of audiences on improving energy efficiency in traditional and historic buildings.

WASTE

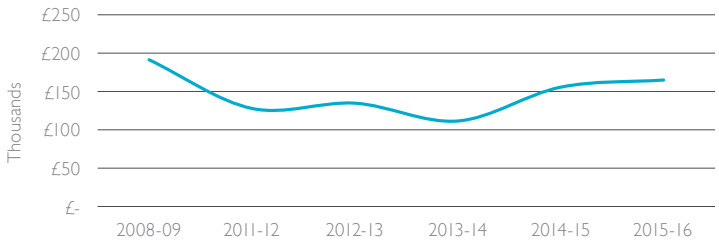
	2008-09	2011-12	2012-13	2013-14	2014-15	2015-16	Change
GHG emissions (tCO_2e)							
Total waste	3,263	1,999	1,968	2,533	2,277	2,293	-30%
Total arising	3,477	2,222	2,313	2,866	2,874	2,680	-23%
Landfill	294	149	70	142	94	118	-60%
Recycled/re-used	-508	-372	-149	-229	-197	-238	-53%
Energy from waste	0	-11	-21	-43	-40	-19	N/A
Construction landfill	0	11	62	40	20	29	N/A
Construction recycled	0	0	-308	-243	-474	-278	N/A
Actual output (tonnes)							
Total waste	1,383	924	1,003	1,212	1,206	1,063	-23%
Landfill	851	432	204	409	272	340	-60%
Recycled/re-used	532	390	157	240	206	249	-53%
Energy from waste	0	31	58	121	112	57	N/A
Composted	0	40	83	72	63	54	N/A
Construction landfill	0	31	180	116	57	84	N/A
Construction recycled	0	0	322	254	496	279	N/A
Hazardous waste	0	0	0	0	0	0	N/A
Financial indicators							
Total waste disposal	£191,392	£127,871	£134,760	£111,505	£155,630	£164,945	-19%
Non-hazardous waste	£191,392	£127,871	£134,760	£111,505	£155,630	£164,945	-19%
Hazardous waste	£-	£-	£-	£-	£-	£ -	N/A

GRAPHICAL ANALYSIS

Waste Composition

- 32% Landfill
- 24% Recycled / re-used
- 5% Energy from waste
- 5% Composted
- 8% Construction landfill
- 26% Construction recycled
- 0% Hazrdous waste

Expenditure: Waste Disposal



TARGETS AND COMMENTARY

Waste represents around 27% of our overall carbon footprint. HES has not set any specific waste reduction targets. However, the HS Carbon Management Plan included waste in its overall target to reduce operational GHG emissions.

Our Waste Prevention and Reuse Plan, published in 2013, highlights a number of opportunities and objectives to reduce waste from our operations. Work during 2015-16 included the sale of reusable cups in our headquarters café to reduce the number of disposable cups sent to landfill, improvements to staff recycling facilities at Longmore House and John Sinclair House, the continuation of a visitor waste recycling pilot at Linlithgow Palace and Stirling Castle and the extension of this pilot to include Edinburgh Castle. At each of these monuments, our in-house conservation squads were able to retrofit existing litter bins for recycling, a great example of creative reuse, which has also resulted in a substantial cost saving for HES.

The data above shows an overall 23% reduction in waste tonnage against our baseline year. Although this may partly be influenced by gaps in our data, it still appears that we have achieved a substantial reduction in waste produced, despite the addition of John Sinclair House to our Estate portfolio and several major conservation and maintenance projects on our sites. Overall, HES has a recycle rate of 50%. This is slightly worse than the previous year and indicates issues with quality of data provided by our many waste contractors as well as the technical challenges in rolling out full recycling facilities across a vast and complex Estate and a need for further staff behavioural change.

Financial indicators demonstrate a cost reduction of 19% against the estimated baseline costs, but a rise in costs against the previous year (2014-15). This rising cost reflects the increase in landfill tax (within the context of our low recycle rate) and the ad hoc continuation of existing contracts whilst we develop a more corporate approach to waste management.

DIRECT BUSINESS IMPACTS

HES produces a large amount of waste through a number of different operations, such as visitors, offices and construction. The organisation produces waste at approximately 150 sites, with collections from 25 contractors. Reducing our waste output, diverting the remainder from landfill and streamlining our waste management has the potential to significantly reduce our environmental impact and deliver both financial and management efficiencies.

INDIRECT BUSINESS IMPACTS

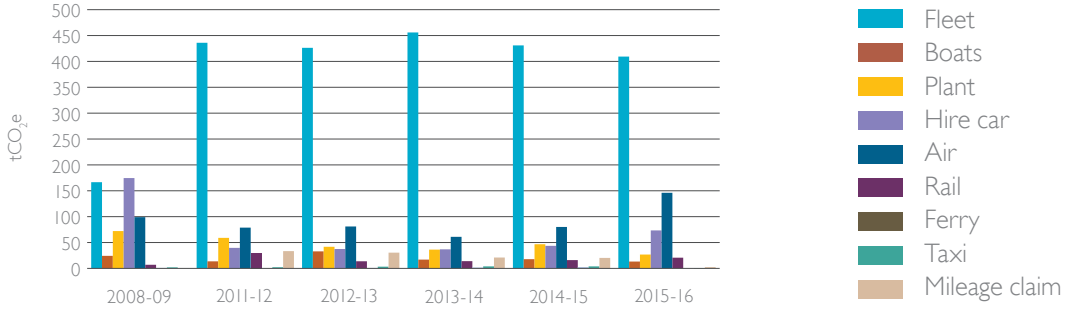
HES is able to place certain requirements on waste and other (e.g. catering, landscaping, etc.) contractors in terms of waste disposal performance. The Agency is also in a position to influence visitors and staff members through the provision of recycling facilities and visible signage at our sites.

BUSINESS TRAVEL

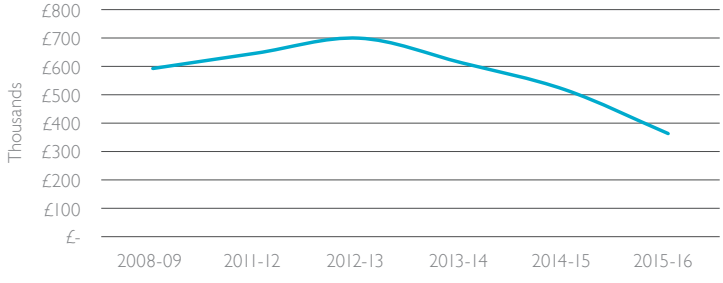
	2008-09	2011-12	2012-13	2013-14	2014-15	2015-16	Change
GHG emissions (tCO_2e)							
Total business travel	547	693	668	648	662	693	27%
Fleet	167	436	426	456	431	409	146%
Boats	24	14	33	17	18	13	-45%
Plant	72	59	42	36	47	27	-63%
Hire car	175	40	37	37	44	73	-58%
Air	99	79	81	61	80	146	48%
Rail	7	30	14	14	16	21	196%
Ferry	1	0	1	2	2	0	-97%
Taxi	2	2	3	4	4	1	-70%
Mileage claim	0	33	30	21	20	2	N/A
Financial indicators							
Total business travel	£592,525	£646,435	£699,440	£612,354	£517,708	£363,284	-39%

GRAPHICAL ANALYSIS

GHG Emissions: Business Travel



Expenditure: Business Travel



TARGETS AND COMMENTARY

Business travel represents 8.2% of our overall carbon footprint. HES has not set any specific business travel reduction targets, but our Business Travel Policy, launched in July 2015, provides a travel hierarchy to assist staff in choosing the most sustainable transport options.

HES is a large and geographically wide spread organisation with a range of business functions and staff travel is essential to carry out day to day business objectives. Part of our mission is to share and celebrate our cultural heritage with the world and our "Lead" strategic theme states that we will fulfil a leading and enabling role through our activites and by supporting empowering and collaborating with others. In many circumstances, fulfilment of these may require us to travel outwith Scotland, to other parts of the UK or abroad and this is reflected in 2015-16 in the significant rise in emissions from air and rail travel.

Overall, business travel emissions have increased by 27% when compared with the baseline year. Emissions from our fleet have shown improvement since 2013-14, though still sit 146% above baseline. This is likely to be due to considerable improvements in data quality during recent years, as well as the merging of the HS and RCAHMS' fleets. Emissions from hire cars show a 58% reduction against baseline, though are still up from the previous year. The increase in air travel emissions, a 48% increase on the baseline year, is a result of more international travel, which included travel to international conferences and for meetings relating to developing collaborative projects with other countries.

Business travel expenditure has reduced by 39% against the baseline year, despite improvements in data quality, indicating that staff are opting for more cost efficient methods of transport. This may be linked to better take-up amongst staff of services available under government procurement Framework Agreements, including the Travel Management Service and Hire Car contractor, which offer cumulative savings. We have recently entered into a Fleet Management Service agreement with Scottish Natural Heritage, which will enable us to implement continuous improvements to management and data quality.

DIRECT BUSINESS IMPACTS

Reducing staff travel and switching to lower carbon modes will help to reduce HES's carbon footprint, though this is a relatively small proportion of our overall emissions compared to energy. The greatest impacts will be a reduction in both direct and indirect costs. Encouraging employees to choose healthier forms of travel for short journeys, such as walking or cycling, can help to improve staff well-being and increase productivity.

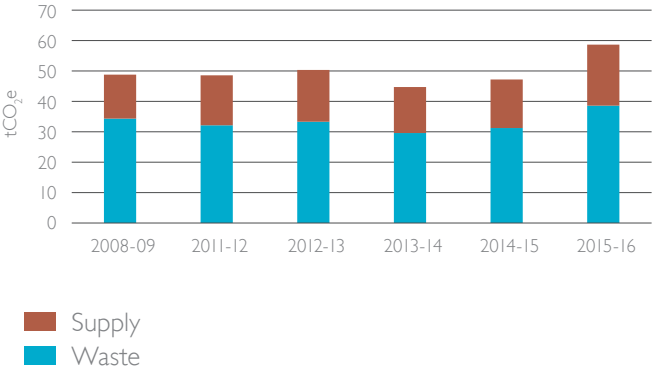
INDIRECT BUSINESS IMPACTS

Reducing emissions from business travel will play a part towards achieving national climate change targets and demonstrating exemplary behaviours. HES is also in a position to influence staff members, third party organisations and visitors in choosing more sustainable forms of transport. For instance, we include links to Traveline Scotland and the National Cycle Network on our website to help visitors plan visits to our sites in a sustainable way. We are a Cycle Friendly Employer and have bicycle racks available for staff and visitors at our headquarters and at some of our sites, including Stirling Castle. We have a salary advance scheme available to staff for the purchase of bicycles and season tickets for public transport.

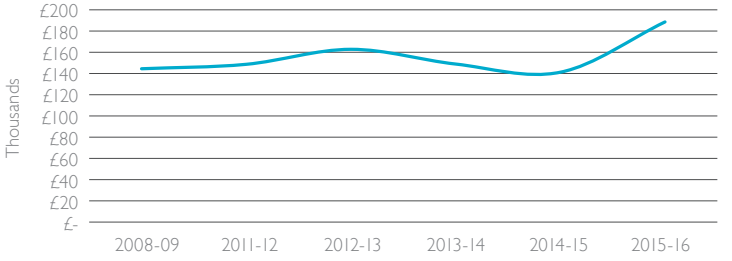
	WATER	2008-09	2011-12	2012-13	2013-14	2014-15	2015-16	Change
GHG emissions (tCO_2e)	Total water emissions	49	49	50	45	47	59	20%
	Supply	14	16	17	15	16	20	39%
	Waste	34	32	33	30	31	39	12%
Actual consumption (kWh)	Metered supplies	48,189	48,325	49,485	43,962	46,401	58,319	21%
	Unmetered supplies (estimate)	9,760	10,608	10,997	10,064	11,048	12,408	27%
Financial indicators	Water supply	£144,467	£148,655	£162,793	£148,910	£141,199	£188,595	31%
	3rd party re-charge: Water	£-	-£6,046	-£32,900	-£17,781	-£34,225	£-	N/A

GRAPHICAL ANALYSIS

GHG Emissions: Water



Expenditure: Water Supply



TARGETS AND COMMENTARY

Water represents less than 1% of our overall carbon footprint. HES has not set any specific water reduction targets.

The data demonstrates that metered water consumption has increased by 20% when compared with the baseline year. Water expenditure has increased by 31%. This is likely to be linked to the addition of John Sinclair House to the building portfolio and the record-breaking visitor numbers at some of our flagship properties, such as Edinburgh Castle. Because water emissions form a small proportion of HES's carbon footprint we have not prioritised water efficiency to the same level as energy and waste.

DIRECT BUSINESS IMPACTS

Reducing water consumption across HES's estate would help to reduce costs and carbon emissions. However, given the small proportion that water consumption represents, this must be carefully considered on a cost/benefit basis.

INDIRECT BUSINESS IMPACTS

The processing, pumping and sanitation of fresh water is an energy intensive process, contributing 1% to the UK's national CO2 emissions. Reducing water consumption and improving efficiency can play a vital role in meeting national targets.

BIODIVERSITY

TARGETS AND COMMENTARY

During 2015-16, our Ranger Service have undertaken a number of activities to promote and support biodiversity. These include:

- Raising awareness through interpretation, community talks, conservation task groups, walks, attendance at county and local shows, and use of social media channels, radio and TV reports.
- Providing advice, guidance and assistance to colleagues relating to specific species or habitats e.g. bats, nesting birds, grasslands, waterways.
- Working with volunteer rangers and conservation surveyors to undertake 143 surveys for 9 species within Holyrood Park including - Adder's tongue fern, Stonecrop fanner, Maiden pink, Sticky catchfly, Wood sage plume moth, Six spot burnet moth, Himalayan balsam, Butterflies, Bumblebees.
- Contributing towards Local Biodiversity Action Plans and working with partners on their future development e.g. Edinburgh Local Biodiversity Action Plan 2016 - 2018.
- Joint resourcing activities with external organisations and charities to improve research of rare species on some of our sites.
- Joint work with external organisations, the community and partners to look for solutions to the blue green algal blooms on Linlithgow Loch.
- Working with communities and schools on specific projects providing resources such as bark chip, wildflowers grown on in our Holyrood Palace greenhouses or gardens, felled tree trunks or limbs, etc.
- Helping communities to achieve local and nationally recognised awards e.g. 'Bag the Bruck', Scotland in Bloom and Britain in Bloom.
- Making changes to grassland cutting regimes and tree management on our sites and in our Parks.

DIRECT BUSINESS IMPACTS

Through improved biodiversity, HES has an opportunity to enhance visitor experience at sites, through public engagement. This provides strong reputational and revenue drivers, to ensure we can continue to protect, conserve and manage the historic environment for generations to come.

INDIRECT BUSINESS IMPACTS

Protection and promotion of biodiversity will not only play an important role in enhancing HES sites, but will also safeguard native species. Through interpretive media, our public outreach will help to raise awareness and carry this important message to both national and international communities.

SUSTAINABLE PROCUREMENT

HES attend "Meet the Buyer" events to engage with existing and potential suppliers, advising them on our procurement processes and providing contact details of teams within the organisation to encourage suppliers to get in touch with our business areas to identify opportunities.

In line with best practice guidance, we have included the evaluation of employment practices and 'workforce matters' in the pre-selection documents for larger projects. This is seen as a key driver of service quality and contract delivery.

HES uses 'Sustainability Tests' for larger contracts to ensure that we build sustainable criteria into the specification of the product/ services where possible and also link this to evaluation criteria. We will, where applicable, use the Sustainable Procurement Tools currently being constructed by the Scottish Government in response to the sustainable procurement duty included in the Procurement Reform (Scotland) Act 2014.

We continue to promote the use of Supported Businesses and related organisations within HES with the result that several contracts have been placed with businesses who have a social and environmental purpose and those who are committed to giving people with disabilities the opportunity to be involved in a work environment.

HES requires, for relevant contracts, confirmation that goods have been procured in line with fair and ethical requirements e.g. procurement of timber goods with regard to Scottish Government Timber procurement policy. Included in the procurement of uniform items is a requirement that all goods are produced in line with the employment legislation of the country of origin and in accordance with all International Labour Organisation (ILO) conventions that have been ratified by the country of origin. Suppliers are asked to provide evidence of responsible sourcing and supply chain monitoring.

DIRECT BUSINESS IMPACTS

Through sustainable procurement, HES has an opportunity to act as an exemplar in supporting local communities, jobs and skills. With effective management, this will provide many reputational benefits.

INDIRECT BUSINESS IMPACTS

The use of sustainability criteria in the tender evaluation process creates a demand for sustainable business, promoting wider competition and encouraging businesses to be more socially and environmentally responsible in providing their services. Through sustainable procurement and with our wide geographical coverage, HES can assist in supporting local skills and jobs, subject to the overarching Procurement Regulations requirements.

CLIMATE CHANGE ADAPTATION
TARGETS AND COMMENTARY

In May 2014, the Scottish Government published "Climate Ready Scotland: Scottish Climate Change Adaptation Programme", which sets out the government's aims over the next five years to prepare Scotland for climate change. In this, Historic Scotland was mandated to research the impacts of climate change on traditional buildings, disseminate knowledge, skills and tools to manage these, and work to increase the resilience of Scotland's built heritage and historic environment. These objectives have transferred to HES and will be a focus for for us over the coming years, with annual progress being reported here. The impacts of climate change on the historic environment are wide ranging and potentially devastating. However, the climate change agenda is a significant opportunity for the historic environment sector. By recognising its inherent sustainability, its resilience and longevity, and acknowledging the fact that it has always changed over time, the historic environment should be in a positive position to deal with the challenges ahead. Our technical research, often carried out in partnership with others, has been disseminated through events, training and publications. Our Technical Paper 15: "Assessing risks in insulation retrofits using hygrothermal software tools: Heat and moisture transport in internally insulated stone walls" was published on 1 October 2015. This paper provides an introduction to the basics of hygrothermal building physics, discusses assessment methodologies, including related methods, standards and software tools and illustrates these in a case study. Our ongoing work on traditional skills, notably the apprenticeship scheme and the development of the Engine Shed, is also key to improving the resilience of traditional buildings. "An assessment of climate change risks to the HES Estate", a project in which we are working in partnership Scottish Environment Protection Agency and British Geological Survey continued this year. The aim was to identify climate change impacts and vulnerabilities on the HES estate and an initial risk register was completed in March 2016, with internal stakeholder engagement and ground truthing due to continue in 2015-16. HES, along with National Health Service Scotland, Aberdeen City Council and Scottish Water was a member of the Adaptation Learning Exchange Risk Task Group facilitated by Adaptation Scotland, which provided a forum for public bodies to share knowledge and ideas as we developed our respective climate change risk assessments. We are on the Steering Group for Edinburgh Adapts, a partnership project which has developed a long-term vision and adaptation plan for a resilient Edinburgh, due to launch in November 2016.

We have worked with Adaptation Scotland and key agencies on developing visualisations of adapted communities; the Climate Ready Places website was launched in November 2015 and is available to use at http://www.sniffer.org.uk/climatereadyplaces/. We are on the Steering Committee for Scottish Government's Dynamic Coasts: National Coastal Change Assessment, a major policy-driven inter-agency research project collating information on coastal change, resilience and susceptibility to future coastal erosion. The NCCA aims to inform existing strategic planning (Shoreline Management Plans, Flood Risk Management Planning, Strategic and Local Plans, National and Regional Marine Planning etc.) and to also identify those areas which may remain susceptible in the coming decades and require supplementary support. The identification of susceptible assets will enable the development of future management policies and adaptation plans robustly based on a strategic and objective evidence base. The preliminary results of this are now available online at **http://www.dynamiccoast.com/** and various dissemination events are planned in 2016-17. In addition to this strategic and policy work, we have also continued to monitor the condition of Skara Brae, Orkney, through the use of digital scanning techniques and have been working in partnership with the NCCA to share data and collaborate on analysis.

HES grant-aids the work of SCAPE (Scottish Coastal Archaeology and the Problem of Coastal Erosion), including SCHARP (Scotland's Coastal Heritage at Risk) Project, enabling a deep understanding of the impact of coastal erosion on archaeology. HES is one of the funders of Wemyss Caves 4D, an ongoing project to create a detailed digital record of the caves and their carvings; data collected is freely available to explore online at **http://4dwemysscaves.org/**.

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