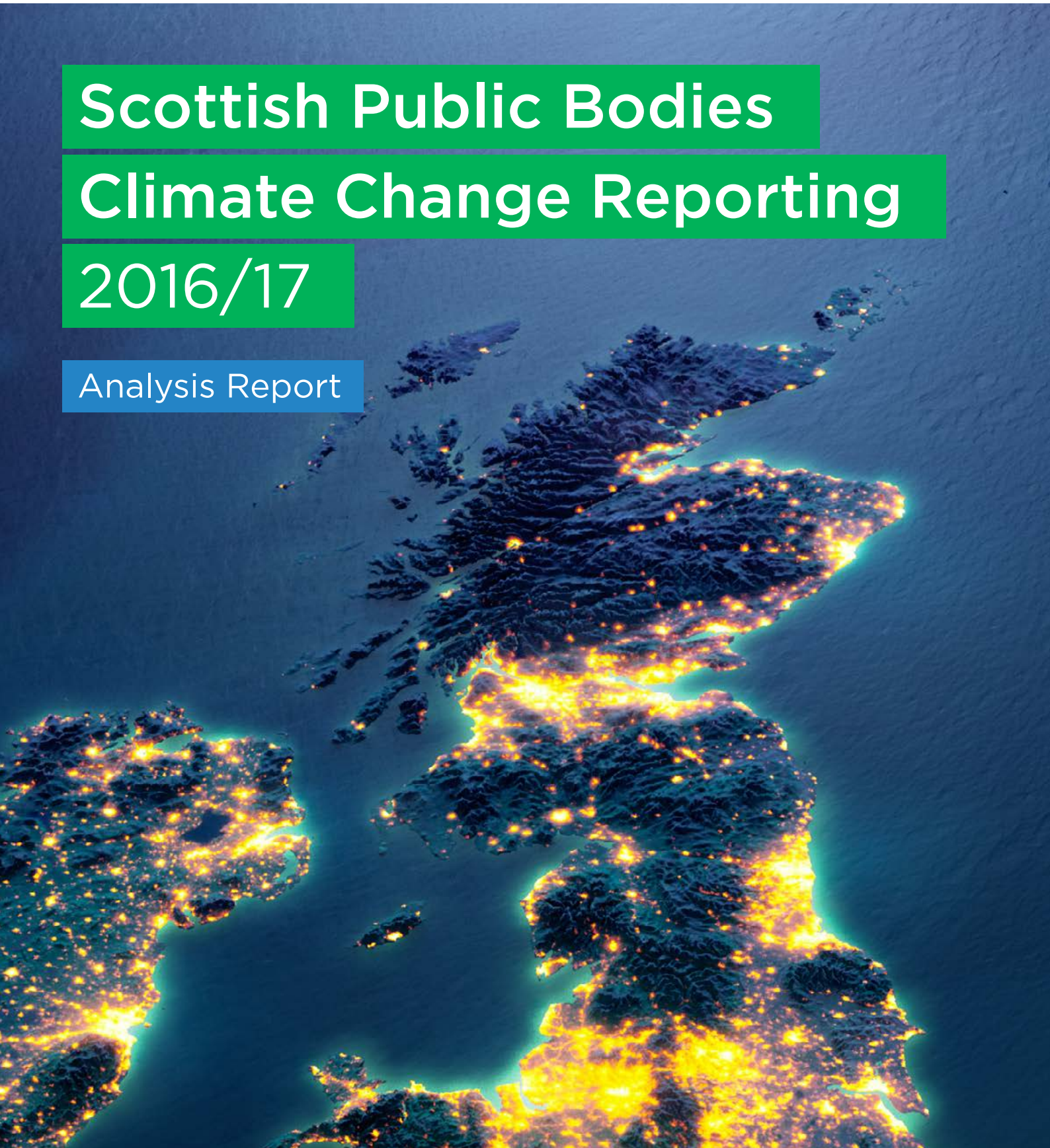
Sustainable Scotland Network

PART OF THE Keep Scotland Beautiful CHARITY

Scottish Public Bodies Climate Change Reporting 2016/17

Analysis Report



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Introduction

The Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015 requires all public bodies classified as major players to publish annual climate change reports. For the reporting year 2016/17 there were 180 public bodies classified as major players. This included the 150 public bodies involved in 2015/16 plus 30 Integration Joint Boards (IJBs) that reported for the first time.

The climate change reports provide information on the action being taken by Scotland's public bodies to reduce greenhouse gas emissions, adapt to a changing climate and promote sustainable development. Reports include information on:

- Profile of the public body
- Governance, management and strategy
- Corporate emissions
- Adaptation
- Procurement
- Validation

It is recommended that public bodies also voluntarily report their 'wider influence' on climate change and other notable activity relating to sustainable development.

All climate change reports are published online in the Sustainable Scotland Network section of the Keep Scotland Beautiful website.

This analysis report focuses on the quantitative information on the corporate emissions reported by the public bodies. Since IJBs do not have operational control of the services provided by their NHS and local authority partners, no emissions data has been reported directly by IJBs. All emissions data relating to integrated health and social care services is captured and reported within the NHS and local authority reports. Therefore, all information on emissions in this analysis report is taken from the 150 non-IJB reports, and reference to IJBs is not included in the graphs and tables.

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Overview

All 180 major player public bodies submitted climate change reports for 2016/17. In addition to the 100% reporting of mandatory information, 89 public bodies voluntarily provided information on their wider influence activities on climate change and sustainable development[1].

Key facts and figures

180
climate change reports submitted out of 180

485,027
staff employed

3,022,885 tCO_2e
total reported emissions for 2016/17

8%
reduction in reported emissions compared to 2015/16

80,000 tCO_2e
saved due to renewable projects, a 20% rise from 2015/16

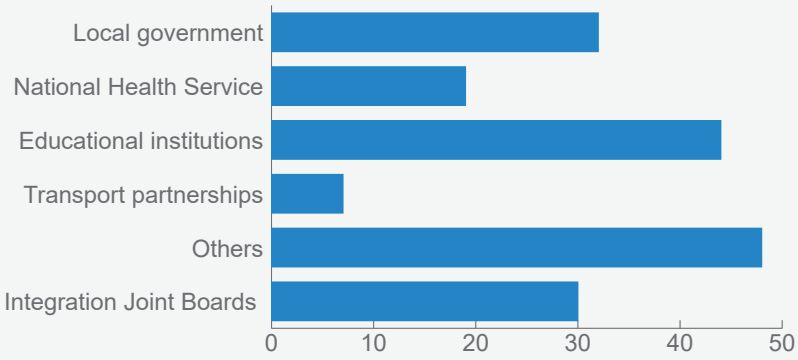
109,000 tCO_2e
saved due to carbon reduction projects, a 20% rise from 2015/16

Spotlight

The Registers of Scotland's **move to new offices at St Vincent Plaza, Glasgow** has been a catalyst for positive environmental change throughout the organisation. The move has generated substantial energy and carbon savings, with energy consumption dropping from over 734,000 kWh to 157,000 kWh and carbon emissions reduced by 75%.

[1] These were 29 local government, 27 educational institutes, 4 NHS, 6 transport partnerships, and 23 others.

Number of reports, split by sector



*National and regional public bodies

Insights

The 8% reduction in emissions from 2015/16 to 2016/17 reflects a positive direction of travel by the public bodies. It is important to understand the variables that influenced this overall reduction.

- Emissions have reduced due to electricity being less carbon intensive (the grid is now 'cleaner' due to increased renewable electricity generation across the UK).
- 2016/17 was a milder year than 2015/16, so emissions from heating should have been lower.

Taking these variables into account, it is estimated that out of the 8% reduction in emissions, between 2% and 3% of this is due to actual climate change action by public bodies.

This is a positive outcome that remains in step with national reduction targets.

Corporate emissions breakdown

Public bodies report on their corporate greenhouse gas (GHG) emissions[2]. Corporate emissions are emissions that relate to the activities of the public bodies, including emissions from their estate, owned assets and service activities.

Each public body determines what it includes in its reporting boundary. While there is some variability, the vast majority include emissions from their own fuel use and electricity consumption. The inclusion of emissions from other activities such as waste, non-fleet business travel and procurement is much more varied. Approximately half of local government include household waste in the waste figures they report.

Reported emissions, split by sector

Body type	2015/16 emissions (tCO_2e)	2016/17 emissions (tCO_2e)	% change
Local government	1,580,335	1,463,298	-7%
National Health Service	583,252	541,381	-7%
Educational institutions	453,632	432,079	-5%
Transport partnerships	8,892	7,345	-17%
Others	642,481	578,780	-10%
Total	**3,268,592**	**3,022,885**	**-8%**

Insights

- Local government represent the biggest share (48%) of emissions. This is consistent with 2015/16.
- All sectors have reported a decrease in emissions when compared to 2015/16. This reduction is generally in the 5%-10% range except for the smallest sector, transport partnerships, who have reported a 17% reduction in emissions since 2015/16.

Spotlight

Audit Scotland estimates new **business travel policies** on domestic flights, car travel and place of work will save over 50 tCO_2e and £50,000 annually by being flexible about where and when staff work, increasing tele/video conferencing and substituting rail for air miles.

[2] Reported as carbon dioxide equivalent, tCO_2e.

Corporate emissions, split by source

Source	2015/16 emissions (tCO_2e)	2016/17 emissions (tCO_2e)	2016/17 % share of emissions
Electricity	1,550,894	1,360,690	45.0%
Natural gas	843,615	804,047	26.6%
Other heating fuel	133,536	145,319	4.8%
Process	47,772	48,048	1.6%
Refrigerants	620	1,129	0.0%
Waste	314,737	283,657	9.4%
Water and sewerage	13,655	17,345	0.6%
Travel	136,532	140,587	4.7%
Transport fuel	207,559	196,272	6.5%
Commuting	18,193	13,295	0.2%
Procurement	-	5,000	0.4%
Other*	647	4,391	0.1%
Renewables	832	3,105	0.1%
Total	**3,268,592**	**3,022,885**	

*Emissions that were unable to be allocated into any listed category or emissions where no information was given on source.

Insights

- As expected, electricity and gas (essentially heating and lighting of premises) make up over 70% of overall reported emissions in the public sector.
- Reduction in electricity emissions is attributable to the cleaner electricity grid as well as a 2.2% drop in consumption.
- Reduction in natural gas emissions relates to an almost 5% reduction in consumption when compared to reports submitted in 2015/16. This may, in part, relate to 2016/17 being a milder year, taking account of degree-day adjustment.
- Despite changes to the emission factor for waste to landfill over the last year, there was a 6.5% reduction in tonnage sent to landfill from 2015/16 to 2016/17.

Emission reduction projects

Emission reduction projects are those activities that reduce the emission of greenhouse gases (GHGs) within the reporting year. Reductions in emissions are presented as tonnes of carbon dioxide equivalent (tCO_2e). The range of projects reported include those that aim to reduce demand for energy (for example, energy efficiency projects) as well as those that reduce emissions from the supply of energy (for example, renewable energy projects).

Emission reductions from projects, split by sector

Sector	2015/16 emissions saved (tCO_2e)	% of sectoral emissions	2016/17 emissions saved (tCO_2e)	% of sectoral emissions
Local government	48,066	3.04%	45,918	3.14%
National Health Service	7,563	1.30%	26,595	4.91%
Educational institutions	24,315	5.36%	24,611	5.70%
Transport partnerships	442	4.97%	-	0.00%
Others	10,711	1.64%	11,811	2.04%
Total	**91,097**		**108,935**	

Spotlight

Cavity and loft insulation has been fitted at seven sites in South Lanarkshire Council's estate. This cost £24,000 and should see annual carbon savings of 138 tCO_2e and reduce energy costs by £4,000 per year.

The reported emission reduction projects had an impact on a range of emission sources.

Emission reductions from projects, split by emission source

Source	2015/16 emissions saved (tCO_2e)	2016/17 emissions saved (tCO_2e)
Electricity	42,054	66,337
Waste	19,136	23,188
Natural gas	16,112	3,993
Other heating fuels	5,983	10,257
Fleet transport	4,670	403
Water and sewerage	2,442	1,166
Business travel	323	2,739
Other	377	852
Total	**91,097**	**108,935**

Insights

- Reported emission reduction projects implemented in 2016/17 have resulted in carbon savings of approximately 109,000 tCO_2e in the reporting year. This is an increase of 20% compared to 2015/16.
- Over 60% of reported projected savings come from projects that reduce electricity emissions, with waste projects being the second biggest contributor (21%).
- As the largest source of emissions in the public sector, local government are reporting the largest reduction in emissions through projects, particularly from reducing electricity, gas and waste.
- As a percentage of total sub-sector emissions, it is the educational institutions that are performing the best, reporting savings of almost 6% of their overall sectoral carbon footprint in 2016/17.
- The National Health Service has improved significantly in this area since 2015/16, increasing their reported emissions reduction from projects from 7,000 tCO_2e to 26,000 tCO_2e.
- There was a drop in the amount of emissions saved through water, gas and fleet transport projects (compared to 2015/16). This may be attributed to previously implemented projects in these areas being completed.

Common types of emission reduction projects being reported in 2016/17

	Electricity	■ LED lighting ■ Lighting – internal, external and street lighting ■ Photovoltaic (PV) panels ■ Building Management Systems, including server virtualisation and upgrades, control upgrades, variable speed drives and energy monitoring
	Waste	■ Diversion of waste to landfill through increased garden and food waste collections, installation of hand driers and furniture reuse projects ■ Reduced printing projects
	Natural gas	■ Boiler upgrade or replacement ■ Building insulation and upgrades (roof, walls, pipes and windows etc) ■ Heating system replacements
	Other heating fuel	■ Replacement fuel boilers (oil to gas or oil to biomass)
	Fleet transport	■ Fleet replacement, including hydrogen and electric vehicles ■ Existing fleet improvement, including speed limiters and telematics ■ Driver training
	Water and sewerage	■ Water upgrades and hot water restriction ■ Water efficiency audits
	Travel	■ Car clubs ■ Increased pool vehicles (including more electric vehicles) ■ More EV charge points ■ Business travel policies - including car and air travel mileage ■ Video conferencing projects and smart/flexible working facilities ■ Active travel infrastructure

Renewable energy initiatives

Renewable energy initiatives provide effective means to reduce emissions from public bodies. Activity on renewables was reported by 57% of public bodies with all sectors reporting at least one renewable energy initiative[3].

Solar panels and biomass boilers are by far the most widely reported renewable technology being used. Other renewables reported include heat pumps, solar thermal, wind and hydro.

Renewable energy generation

Sector	Electricity generation (GWh)	Heat generation (GWh)
Local government	35.51	92.60
National Health Service	1.17	45.48
Educational institutions	0.80	17.82
Transport partnerships	0.02	-
Others	65.93	21.48
Total	**103**	**177**

Insights

- Reported renewables generated 103 GWh of renewable electricity and 177 GWh of renewable heat in 2016/17. This equates to an abatement of around 80,000 tCO_2e.
- The 'others' sector is generating most of the renewable electricity (largely due to Scottish Water), however local government are performing well here also.
- It seems that for the National Health Service and educational institutions, renewable heat appears to be a more viable option than renewable electricity.

Spotlight

NHS National Services Scotland **purchased three pool cars (electric and hybrid)** to reduce grey fleet mileage. The estimated annual savings from reduced business travel costs from staff using their own vehicles or hire cars is c.£16,800 with carbon savings of 3.3 tCO_2e/annum.

[3] As noted earlier, IJBs are not included.

Emission savings from renewables, 2016/17 compared to 2015/16

Sector	2015/16		2016/17	
	Estimated annual carbon saving from renewable electricity (tCO_2e)	Estimated annual carbon saving from renewable heat (tCO_2e)	Estimated annual carbon saving from renewable electricity (tCO_2e)	Estimated annual carbon saving from renewable heat (tCO_2e)
Local government	10,710	15,675	14,154	19,375
National Health Service	113	7,355	482	9,622
Educational institutions	316	2,233	285	3,772
Transport partnerships	8	-	7	-
Others	26,455	3,111	27,167	4,545
Total	**37,602**	**28,373**	**42,095**	**37,315**

Insights

- There has been a 12% increase in reported carbon savings from renewable electricity generation and a 32% increase in reported carbon savings from renewable heat generation.
- This equates to a 20% increase in reported carbon savings from all renewable generation compared to 2015/16.

Spotlight

Image credit: Energy4All

City of Edinburgh Council has partnered with the **Edinburgh Community Solar Cooperative** to install solar panels on 24 properties, including 18 schools. The initiative is due to save over 300 tCO_2e in 2017/18. Estimated capital costs of £1.4m, raised through community shares, will be offset by annual savings of over £80,000. Co-op profits will be invested in educational and energy efficiency projects at each building for the first five years of operation.

Targets

Public bodies have set a range of targets to help direct climate change action and emissions reduction. These targets can be overall emission reduction targets (percentage or absolute) as well as policy specific targets relating to emission sources or business activities.

- Targets applied to overall emissions, as well as building energy use, are the most commonly applied by public bodies.
- Targets relating to the transport sector are least reported on.
- Over 75% of bodies have reported at least one target as part of their carbon management plan.
- Reports do not currently enable assessment of whether public bodies are on track to meet their targets or not.

Spotlight

Strathclyde University **student residences are competing to save energy and recycle**. The hall which saves the most energy gets free Ben & Jerry's ice cream! Carbon savings of 34 tCO_2e/annum are expected from capital costs of £4,000 plus £1,000 annual operational costs.

Spotlight

The Scottish Funding Council has implemented an **'agile working scheme'**, replacing desktops with 110 laptops at a cost of around £74,000. The scheme is estimated to reduce emissions by 35 tCO_2e and achieve savings of £10,000 annually from reduced electricity costs.

Spotlight

Based on heat loss evidence from thermal imaging studies, West Lothian College completed a two-year programme to **install cavity insulation to all college buildings** in 2016/17. The capital cost of £40,000 is estimated to save £15,000 and 120 tCO_2e per annum.

Spotlight

NHS Lanarkshire installed 38 Sabien M2G **boiler optimisation controls** across a range of properties in 2017 resulting in significant cost savings estimated at over £300,000 and emission reductions of over 5,000 tCO_2e per annum.

Conclusion

This year was the second year of mandatory climate change reporting for public bodies. Analysis indicates positive developments.

100% of public bodies classified as major player submitted climate change reports in line with the Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015.

The direction of travel on emissions reduction is positive. While it is too early to comment on trends, and acknowledging the influence of factors such as a cleaner electricity grid, the overall movement within the public sector is in the right direction.

Projects and renewables have both achieved an increase of 20% reduction in emissions compared to 2015/16.

The quality of climate change reports appears to be improving year on year, with fewer quality assurance checks needing to be addressed and an apparent improvement in the quality and quantity of data reported, especially on projects and renewables.

Next steps

Further analysis of the climate change reports will be undertaken via SSN member events, organised on a sector basis. These events will enable further analysis of corporate emissions and other aspects of the climate change reports, including management, governance and strategy, and the public bodies' wider influence on emissions. The events will also allow the sharing of experience among SSN members.

SSN will continue to support climate change reporting, with 2017/18 reports due on 30th November 2018.

SSN would like to thank all SSN members involved in completing and submitting the 2016/17 climate change reports.

Keep Scotland Beautiful is the charity that enables action on sustainable development by working with organisations and communities to change behaviour to reduce carbon emissions and environmental impact. It's part of our work to make Scotland clean, green and more sustainable.

Keep Scotland Beautiful

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