



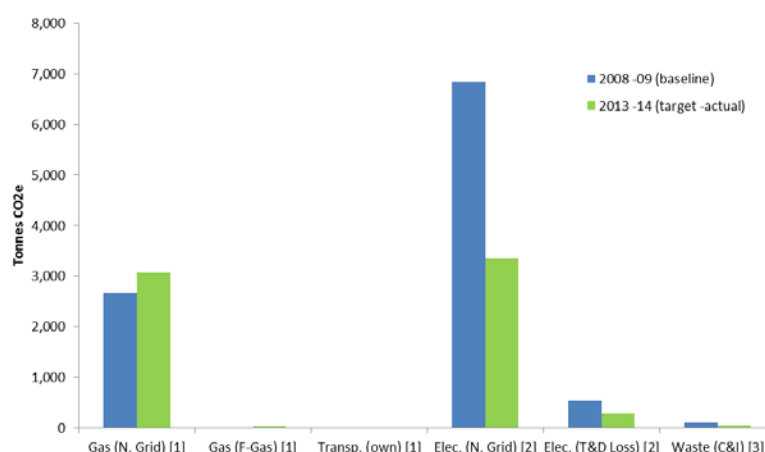
## Carbon Footprint Report: 2013-2014 & 2014-2015

25 November 2015

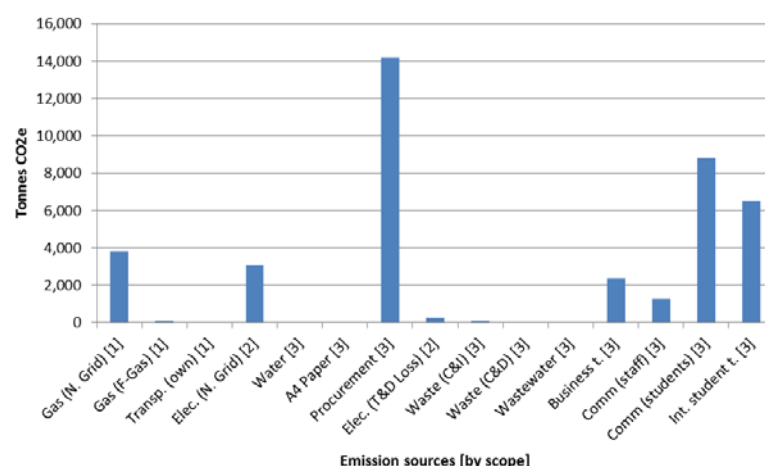
## Executive Summary

This report estimates GCU's emissions for 2013-2014 and 2014-2015 and evaluates how they compare with the baseline emissions (2008-2009) reported in [Carbon Footprint Report: 2012-2013](#).

GCU's carbon emissions in 2013-2014 were 33% lower than those reported in 2008-2009, confirming that GCU exceeded its 20% carbon reduction target (as illustrated below).



To enable the University to move towards full carbon reporting, emissions associated with procurement activity have been added (as illustrated below). This report will also help the University report its carbon emissions to internal and external stakeholders (e.g. as part of the Universities and Colleges Climate Commitment for Scotland and to the Scottish Government).



Where comparable data is available, emissions are also compared to those reported for 2012-2013 and in this case reductions are not evident across for all emissions categories.

Whilst the inclusion of emissions associated with procurement activity result in an increase in overall reported emissions, it is noted that emissions need to be compared on a like-for-like basis. The broader inventory should therefore be seen as providing a platform for a University-wide conversation to identify further carbon reducing opportunities and setting a new target.

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### Introduction

In 2010 the Carbon Trust calculated Glasgow Caledonian University's (GCU) first carbon footprint and developed a [Carbon Management Plan](#) (CMP) that identified a number of carbon reduction opportunities to deliver a 20% reduction in emissions by 2014 (from a 2008-2009 baseline).

Due to delays in compiling the necessary data, emissions for 2013-2014 and 2014-2015 are reported jointly and compared with GCU's 2008-2009 baseline (as reported in [Carbon Footprint Report: 2012-2013](#)). To help the University move towards full carbon reporting, a new dataset (not previously available) of emissions associated with procurement activity has been included for both 2013-2014 and 2014-2015.

This report will allow the University to report its carbon emissions internally (e.g. as part of EcoCampus' cycle for continual improvement) and externally (e.g. Scottish Funding Council and the Higher Education Statistics Authority). The broader emissions inventory will also enable GCU to demonstrate progress under the Universities and Colleges Climate Commitment for Scotland<sup>1</sup> (UCCCFs) and comply with the Scottish Government's proposals for public bodies to report carbon emissions annually<sup>2</sup>.

In addition to helping GCU fulfil its reporting obligations, the use of a broader emission inventory provides a platform for University-wide conversation to identify and explore further carbon reduction opportunities and set a new target to support the Scottish Governments' target for an 80% reduction in Scotland's emissions by 2050.

### Data & Methodology

This carbon footprint report draws on two sets of data to estimate GCU's emissions for the 2013-2014 and 2014-2015 reporting periods: the first is based on primary data collected by GCU or its suppliers (the primary dataset), whilst the second was derived from procurement expenditure (the secondary dataset).

Emissions derived from the first dataset were determined following the methodology detailed in GCU's [Carbon Footprint Report: 2012-2013](#) with emission factors updated for 2014, whilst for the second dataset they were derived using Higher Education Supply-Chain Emissions Tool (V1.0) (HESCET).

Where emissions data was available from both datasets, the primary data was used. As a result, emissions from the following categories were removed from the secondary data set (HESCET):

- Estates & Buildings: Waste and Refuse Disposal (Proc. HE code WQ and WS)
- Utilities: Electricity supply and services, gas supply and services and water and sewerage services (Proc. HE codes JA, JB and JE respectively).

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<sup>1</sup> [Universities and Colleges Climate Commitment for Scotland](#)

<sup>2</sup> [Consultation on Proposed draft Climate Change \(Reporting on Climate Change Duties\) \(Scotland\) Order 2015](#)

Due to limitations in data availability, the HESCET dataset for 2014-2015 uses 2013-2014 emissions factors and may be subject to a future update.

This report also provided the opportunity to amend incorrectly used emission factors in the [Carbon Footprint Report: 2012-2013](#), which resulted in minor (insignificant) over estimates in emissions for domestic waste landfilled (from Caledonian Court) and staff commuting (use of motorbikes).

Table 2 (towards the end of this report) lists the broader emission categories reported by GCU whilst original datasets will be available from the [sustainability section](#)<sup>3</sup> of University's website.

## Results & Discussion – GCU's Carbon Footprint

This section assesses progress towards the 20% carbon reduction target for 2014 and evaluates how a broader emission inventory (for the reporting periods spanning 2013-2014 and 2014-2015) could be used to establish a new baseline and develop a new target to help deliver an 80% reduction in Scotland's emissions by 2050.

### 33% Reduction in Carbon Emissions

GCU's first carbon footprint, calculated by the Carbon Trust in 2010, used a limited set of emissions categories to determine GCU's baseline emissions for 2008-2009 and set a 20% reduction target by 2014.

Figure 1 shows the extent of reductions achieved as a result of implementing the University's [Carbon Management Plan](#) and the installation of a new Energy Centre. These two initiatives were responsible for delivering a 33% reduction across the emissions categories used in GCU's first carbon footprint and surpass the 20% reduction target for 2014 (Table 1).

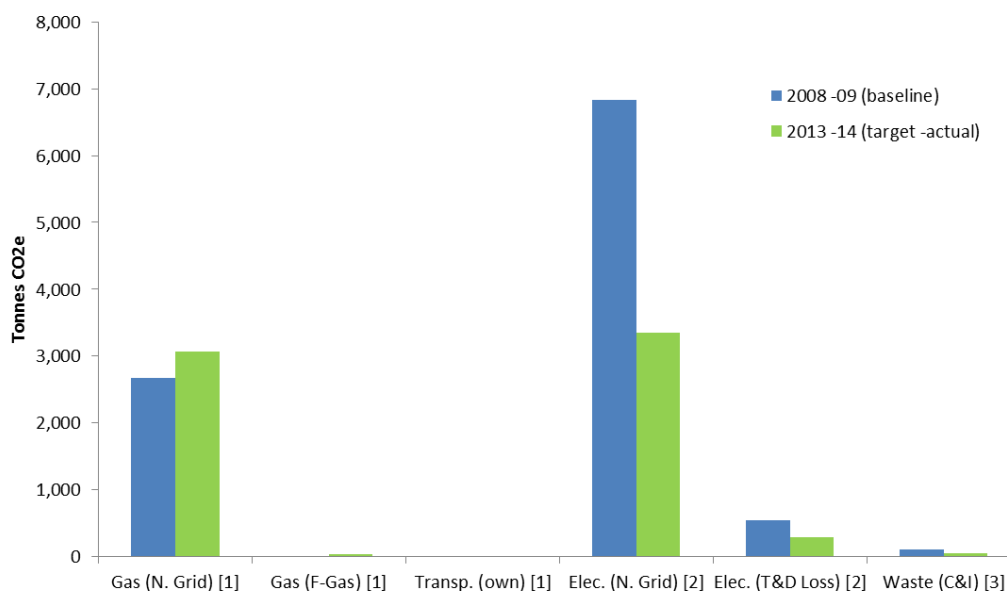


Figure 1 Comparison of GCU's emissions for 2008-2009 (baseline) and 2013-2014 (target year), based on emission boundaries set in GCU's first carbon footprint (numbers in square brackets indicate emission scope).

<sup>3</sup> [gcu.ac.uk/sustainability](http://gcu.ac.uk/sustainability)

## Carbon Footprint Report: 2013-2014 & 2014-2015

Whilst GCU surpassed the 20% carbon reduction target for 2014, emissions for 2014-2015 suggest that the full 33% reduction achieved in 2013-2014 may not be permanent: emissions in 2014-2015 were 7% higher than in 2013-2014 and 28% lower than in 2008-2009 (see Table 1). Gas consumption (from the National Grid) appears to be main contributor to this increase and may be a result of the University's high electricity demand.

Emission Source	Scope	Tonnes CO <sub>2</sub> e			
		2008-09	2012-13	2013-14	2014-15
Gas (Nat. Grid)	1	2,676	2,572	3,075	3,810
Gas (Refrigerants)	1	N/A	152	36	61
Transport (Own)	1	12	11	10	10
Electricity (National Grid)	2	6,828	5,087	3,356	3,103
Electricity - Trans. & Dist. Losses (T&D)	3	541	435	293	256
General Waste & Recycling	3	107	52	46	66
<b>Total</b>		<b>10,164</b>	<b>8,309</b>	<b>6,816</b>	<b>7,306</b>
<b>% Reduction (from 2008-09)</b>			<b>18%</b>	<b>33%</b>	<b>28%</b>

Table 1 Reported emissions for 2013-2014 show a 33% reduction compared to the 2008-2009 baseline.

Having exceeded its carbon reduction target for 2014, it is appropriate for the University to review its current emissions inventory, both direct and indirect (i.e. those sources that we do not control but which we can influence), and determine how it may contribute to the Scottish Government's 80% carbon reduction target for 2050.

### Baseline for Future Reductions

Such a review of GCU's emissions should build on the experience of implementing University's first [Carbon Management Plan](#) and include an assessment of how everyday decisions and choices contribute to the University's carbon footprint.

To help start this process, as well as aligning GCU's emissions' reporting with current standards and requirements, a broader emission inventory was used in [Carbon Footprint Report: 2012-2013](#) than in GCU's first carbon footprint and [Carbon Management Plan](#). Emissions from procurement activity are included in the inventories for 2013-2014 and 2014-2015.

GCU's emissions for 2014-2015 are detailed in Figure 2, whilst comparable emissions for previous reporting periods are provided in Table 2.

## Carbon Footprint Report: 2013-2014 & 2014-2015

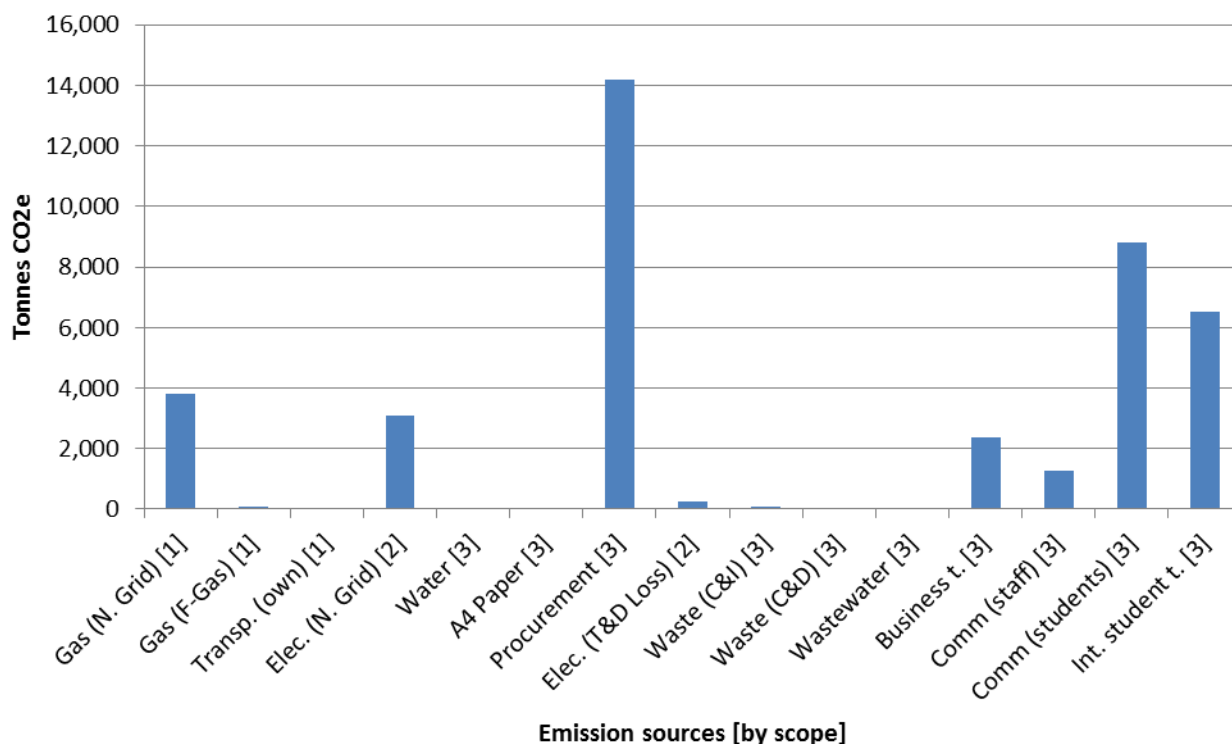


Figure 2 GCU's comprehensive emission inventory for 2014-2015 includes emissions from student and staff commuting, international student travel and procurement.

The broader emissions inventory provides an insight into the contribution different aspects of the University's activities make to its carbon footprint and will be useful in informing the development of a future University-wide carbon reduction strategy.

Developing a better understanding of our emissions has already enabled us to take effective action, for example:

- Our first [Carbon Management Plan](#), which delivered the 33% reduction in our emissions (primarily in our scope 1 and 2 emissions);
- By changing how we manage waste in our premises and working with the waste industry to find alternatives to landfill for a significant proportion of the waste we produce; and
- Introducing a number of initiatives to encourage students and staff to adopt more active and sustainable modes of travel when commuting to the University

This emissions report provides the basis from which to build on these achievements and ensure that our environmental performance contributes to vision of being the University for the Common Good.

## Carbon Footprint Report: 2013-2014 & 2014-2015

Emission Category	Scope	Emission Activity	Tonnes CO <sub>2</sub> e				Trend	Notes & Commentary
			2008 -09	2012-13	2013 -14	2014-15		
Organisation's buildings	1	Gas consumption	2,676	2,572	3,075	3,810	↑	The Energy Centre resulted in a small increase in gas.
	1	Refrigerant Gases	N/A	152	36	61	↓	Speculate that change might be associated with decommissioning older refrigeration equipment.
Organisation's vehicles	1	Business travel (own fleet)	12	11	10	10	⇒	Change not significant.
Purchased electricity	2	Electricity (Nat. Grid) Total	6,828	5,087	3,356	3,103	↓	Reduction attributed to the CMP and Energy Centre. 2014-15 includes savings associated with the closure of the old refectory (part of the Heart of Campus redevelopment).
Purchased Goods & Services	3	Water	14	18	16	17	⇒	Change not significant.
	3	Paper (80 gsm A4)	N/A	71	78	40	↓	Reason unknown.
	3	Other Procurement (HESCET dataset)	N/A	N/A	11,781	14,169	↑	New dataset (HESCET). Emissions determined from expenditure and therefore likely to be impacted by inflation/deflation and procurement agreements. 2014-15 emissions use 2013-14 emission factors (i.e. likely to change when emission factors are updated by HESCET).
Other fuel & energy related activities	3	Electricity (transmission & distribution losses)	541	435	293	256	↓	Reduction directly associated with the reduction in electricity purchased from the National Grid and lower emission factor.
Waste Generated in Operations	3	General Waste & Recycling	107	52	46	66 [P]	↓	Increase attributed to with higher emission factor for waste landfilled (from Caledonian Court).
	3	Con. & dem. waste	N/A	1.4	0	0.4	⇒	Majority of construction waste either re-used on-site or recycled.
	3	Waste water	28	36	32	34	⇒	Change not significant.
Business travel	3	Travel (business – not owned)	623 [P]	1,298	1,804	2,386	↑	Increases driven by higher number of flights, particularly international.
Employee commuting	3	Travel (commuting – staff)	1,120	1,273	1,138	1,273	⇒	Changes (not significant) associated with fluctuations in staff numbers.
	3	Travel (commuting – students)	N/A	8,884	8,735	8,797	⇒	Changes (not significant) associated with fluctuations in student numbers.
	3	Travel (int. students to Glasgow)	N/A	5,957	6,196	6,537	↑	Changes associated with int. staff numbers and journeys to the UK.



## Carbon Footprint Report: 2013-2014 & 2014-2015

Emission Category	Scope	Emission Activity	Tonnes CO <sub>2</sub> e				Trend	Notes & Commentary
			2008 -09	2012-13	2013 -14	2014-15		
Scope 1 Total		Direct combustion of fuels or release of certain gases (e.g. refrigerants).	2,688	2,735	3,121	3,881	↑	Reduction the result of the successful implementation of CMP.
Scope 2 Total		Electricity purchased from the National Grid (exc. Transmission)	6,828	5,087	3,356	3,103	↓	Reduction the result of the successful implementation of CMP and Energy Centre coming online.
Scope 3 Total		Activities outwith GCU's direct operational control.	2,433 [P]	18,025	30,119	33,575 [P]	↑	Increase reflects the use of a broader emissions inventory (i.e. more accurate, transparent accounting).

Table 2 Summary of emissions by reporting period. 2013-2014 and 2014-2015 represent the most comprehensive emissions dataset ([P] indicates partial data)

### Next Steps

The University has demonstrated its commitment to fighting climate change by surpassing its 20% carbon reduction target for 2014 and by becoming a signatory to the UCCCfS<sup>4</sup>, which reflects the higher education sector's commitment to achieving the Scottish Government's vision for an 80% reduction in Scotland's carbon emissions by 2050<sup>5</sup>.

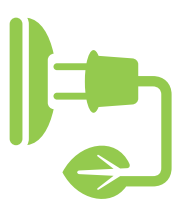
Supporting the delivery of this vision will be extremely challenging and all functions across the University will need to contribute, not only by using less energy (the basis of our original target and carbon management plan), but also producing less waste, recycling more, travelling more sustainably and using purchased resources more efficiently.

The broader emissions inventory used in this report will help GCU develop a better understanding of its emissions and provides a new baseline from which to start an internal discussion about what further carbon reduction opportunities might be available to us.

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<sup>4</sup> [Universities and Colleges Climate Commitment for Scotland](#)

<sup>5</sup> [Climate Change \(Scotland\) Act 2009](#)



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