

# National Library of Scotland Public Sector Sustainability Report 2018 - 19

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## 1.0 Introduction

In 2009 the Scottish Government set what remains, one of the most ambitious pieces of climate change legislation anywhere in the world, namely: The Climate Change (Scotland) Act 2009

The Act commits Scotland to reduce its emissions by at least 80% from 1990 levels by 2050; with an interim emissions reduction target of 42% by 2020.

Section 44 of the Act places duties on Scottish public bodies which require that, in exercising their functions, they act:

- in the way best calculated to contribute to the delivery of the Act's emission reduction targets;
- in the way best calculated to help deliver any statutory programme for adapting to the impacts of climate change; and
- In a way that it considers most sustainable.

Guidance to assist public bodies in complying with these duties is laid out in Public Bodies Climate Change Duties: Putting them into Practice

[www.scotland.gov.uk/Publications/2011/02/04093254/0](http://www.scotland.gov.uk/Publications/2011/02/04093254/0).

In accordance with the "Climate Change (Scotland) Act 2009, The Library is defined as a Major Player and is expected to do more than other public bodies, with additional actions laid out in the guidance. Below is the definition of what is expected of a Major Player:

For the purposes of the public body's climate change duties guidance<sup>1</sup>, 'Major Players' are considered to be:

- Public bodies with large estates and large numbers of staff
- Public bodies with a high impact and influence, e.g. Scottish Government, local authorities, SEPA, SNH
- Public bodies with large expenditure
- Public bodies that provide an auditing or regulatory function

In some aspects of the guidance, it is suggested that Major Players could consider doing more in comparison with other public bodies. Where this is the case, it is clearly specified throughout the guidance in the sections containing 'suggested actions', which set out those suggested actions for Major Players in bold text. However, it is up to public bodies to decide what action is appropriate for them. Further detail on the classifications of Major Players and a full list of those bodies, according to these categories, suggested to be Major Players follows below. Please note that this list is not exhaustive, nor is it a cast-iron classification, and does not restrict those bodies not suggested as Major Players from taking forward actions suggested for Major Players if they so wish.

In line with the principles and methods of reporting, laid out in the guidance, the Library is committed to demonstrating best practice by providing transparent and open reporting on the delivery of its climate change duties. To this end the report:

- has been prepared in line with the Scottish Government Public Sector Sustainability Reporting – Guidance on the preparation of Annual Sustainability Reports Financial Year 2018-19.
- shall be published on the Library's website.

## 2.0 Executive summary

### 2.1 Progress during 2018/19

The National Library of Scotland (the Library) published its first Carbon Management Plan in April 2010

In it, the Library set out its low carbon vision;

- **The Library will rise to the ambition demonstrated by the Scottish Government and play its part in the transformation of the nation into a low-carbon economy**
- **The Library will work to become a low-carbon, energy efficient organisation. In doing so it will mitigate against the challenges that climate change and energy security posed to NLS in the medium to long term**

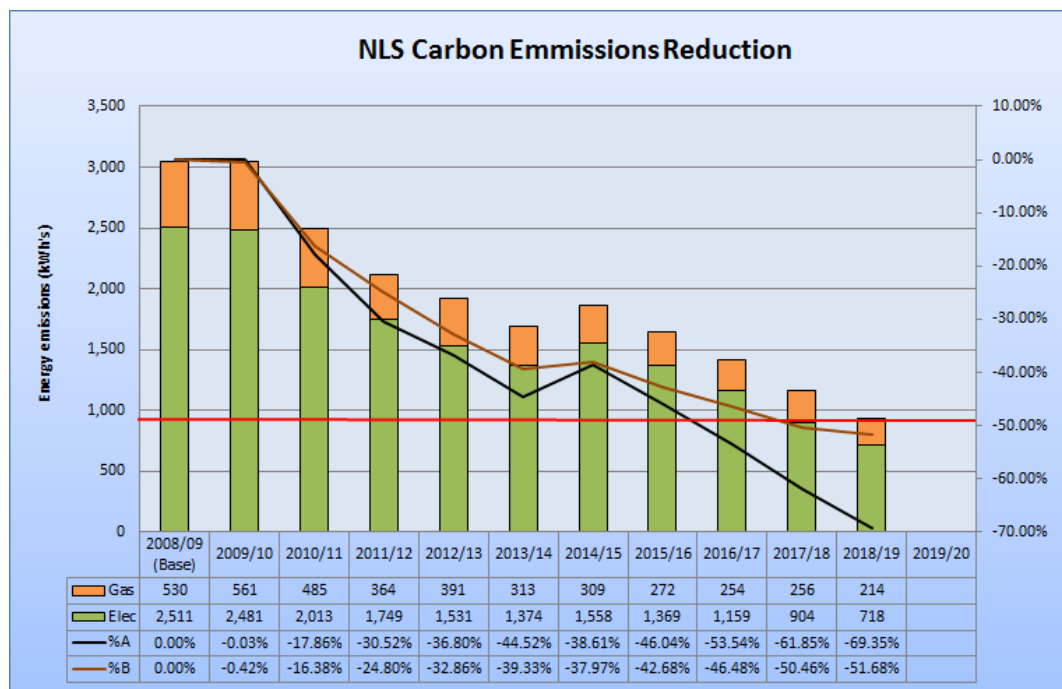
And the following revised target:

- Having now met the initial Scottish government target for 2020, the National Library of Scotland is committed to further reducing CO<sub>2</sub> its emissions from its operation by 70% by 2020 from 2008/09 levels.**

During the financial year 2018 - 19 the Library managed to further exceed its reductions against the baseline targets set in 2008/09 of GHG emissions (50%) and energy consumption (42%)

It has now achieved a reduction in its operations of :

- GHG emissions by **69.35%**
- Energy consumption by **53.60%** and
- continues to stabilise its utilities costs



A = Revised coefficient used year on year end

Base year B = base year coefficient used

## Comments on results;

### Energy Consumption & GHG Emissions

It is a particularly satisfying and rewarding achievement to have managed a further reduction in energy consumption this year. The cumulative reduction since 2008/09 now stands at a total of **53.60%**. The main factors here have been the;

- Diligent work of the FM framework provider (ECG FM) who continue to develop and implement enhanced BMS control strategy changes.
- Installation and development of a new “Open Protocol Platform” that is enabling real time consumption data to be closer monitored and analysed to achieve operational energy savings.
- Implementation of several further additional carbon initiative projects (e.g. George IV Bridge (GB) Main Reading Room LED lighting and Causewayside (CB) Air Handling Units variable speed drive motor replacements).
- Relatively mild weather through the autumn and winter months.
- Changes in the carbon conversion factors – reflecting the move towards greener forms of energy across the UK market.

Going forward, it should be noted that if the Library is to have a real chance of meeting the **80%** reduction in GHG emissions by **2050**, then further plant and infrastructure investment will be required as well as comprehensive staff engagement programmes as savings become harder to be achieved. It should be noted that it was not possible to fully capture all utility consumption and costs figures within this report as the Kelvin Hall information was unavailable at the time of completion.

### Business Travel/Owned Transport

Business travel shows a decrease of **5.55%** in CO2 emissions from the previous year (2017/18). Air Travel (Domestic) decreased by **35.7%**, Air Travel (Short haul) by **51.4%** and Air Travel (Long haul) increased by **144.4%** to **19.432** tonnes CO2. There was a **5.7%** reduction in taxi travel. There was also a decrease in the in-house fleet costs from last year by **12.8%**.

### Waste

Waste has shown a decrease in total arisings of **37.52%**. However the percentage of waste sent to land fill increased from **8.6%** to **32.1%**. The following have been identified as reasons;

- The waste provider changed the way of measuring data for recycling and general waste from estimates of bin weights to counting the numbers of bags uplifted from site. In order to accurately quantify waste the intention is to return to the practice of weighing the waste bins. There were also some queries about how gross mixed recycling have been recorded in the waste providers figures.
- The carbon conversion factor and the metrics from Scottish Government (SG) also changed, resulting in an increase in the data for general waste.
- In 2017/18 there was a significant clear-out of old Discover magazines and pamphlets for disposal (0.855 tonnes). These had the effect of increasing the recycled figure for previous years.

It is clear that there remains some way to go to achieve the target of 5% and more focus will be placed on this area over the coming months and years.

## 2.2 Summary of Performance: Status

Area	Target	Target source	2008/09 baseline	2017/18	2018/19	% change against baseline	% change against previous year	Status
GHG emissions (Tonnes CO2 e)	Reduce GHG emissions from operations by 42% by 2020 from 2008/09 levels	CMP	3,197	1,224	994	-68.90%	-18.79%	
Total energy consumed (kWh)	Reduced its energy consumption by at least 40% by 2020	SG	7,926,595	3,820,108	3,677,626	-53.60%	-3.72%	
Total energy expenditure	Not to exceed the baseline year numbers 2008/09		£585,252	£308,917	£369,192	-36.91%	+19.51%	
Total waste arisings (Tonnes)	Departments to reduce their waste arisings by 25% by 2020, relative to 2004/2005 levels.	SOGE	128.9	35.50	22.18	-82.79%	-37.52%	
% waste recycled	Recycle 70% of all waste arisings by 2025	SG	49.3%	91.0%	66.9%	+17.6%	-24.1%	
% waste to landfill	Only 5% of all waste arisings to go to landfill by 2025	SG	50.7%	8.6%	32.1%	-18.6%	+27.3%	
Total waste expenditure after income	Not to exceed the baseline year numbers 2008/09		£14,452	£13,878	£10,230	-29.21%	-26.28%	
Water consumption (m3)	Reduce water consumption by 25% in the office and non-office estate by 2020, relative to 2004/2005	SOGE	9,124	4,912	5,816	-36.25%	+18.40%	
Water expenditure	Not to exceed the baseline year numbers 2008/09		£63,803	£55,743	£65,403	+2.50%	+17.32%	
Owned transport & business travel (Km)	Not to exceed the baseline year numbers 2008/09		1,038,859	526,937	454,958	-56.20%	-13.65%	



Achieved / on target



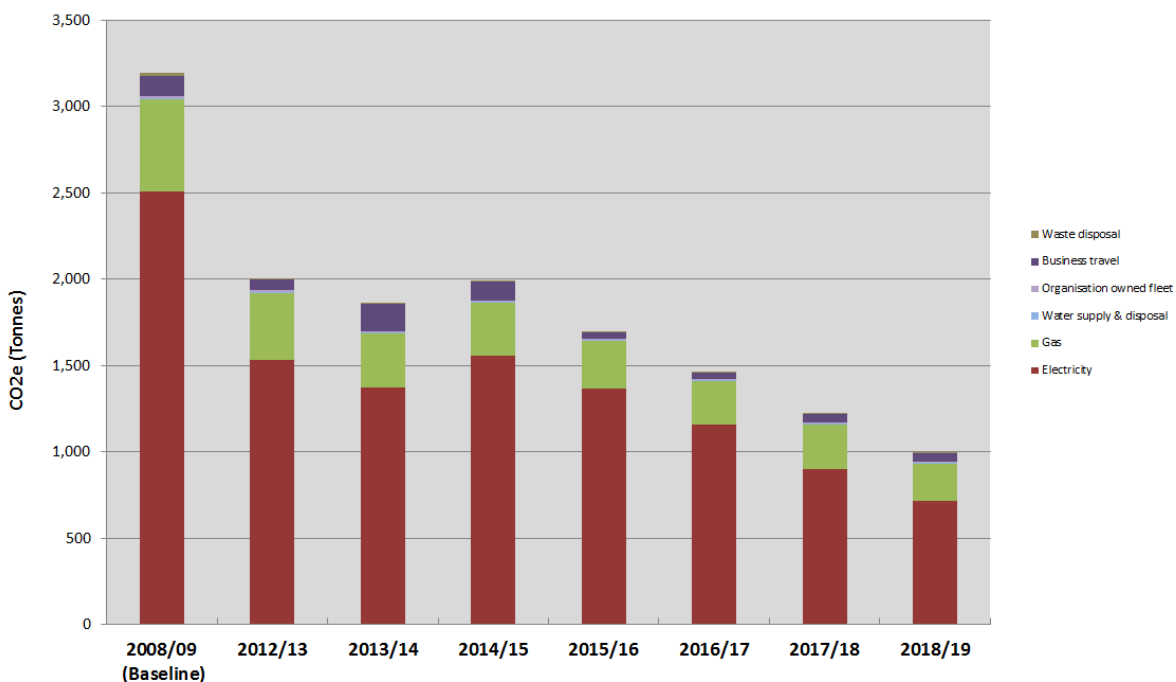
Progress not sufficient to meet target / negative progress in reporting period



Negative progress

### 3.0 Key Performance Areas

Greenhouse Gas Emissions			2008/09	2015/16	2016/17	2017/18	2018/19	
Non-financial indicators (Tonnes CO <sub>2</sub> e)	Gross emissions Scope 1	Gas	530	272	254	256	214	
		Organisation owned fleet	12	7	8	9	6	
		<b>Sub-total</b>	<b>542</b>	<b>279</b>	<b>262</b>	<b>264</b>	<b>220</b>	
	Gross emissions Scope 2	Electricity	2,511	1,369	1,159	904	718	
		<b>Sub-total</b>	<b>2,511</b>	<b>1,369</b>	<b>1,159</b>	<b>904</b>	<b>718</b>	
	Gross emissions Scope 3	Business travel	117	37	34	50	47	
		Waste disposal	18	3	2	2	2	
		Water supply & disposal	10	6	6	5	6	
		<b>Sub-total</b>	<b>144</b>	<b>46</b>	<b>41</b>	<b>57</b>	<b>56</b>	
	<b>Total Gross emissions</b>			<b>3,197</b>	<b>1,694</b>	<b>1,462</b>	<b>1,224</b>	<b>994</b>



**Figure 1 Total Greenhouse Gas emissions**

**Targets:** To reduce CO<sub>2</sub> emissions from operations by 42% by the end of financial year 2017/18 against 2008/09 levels.

The Library has exceeded this commitment; therefore the Library has now reset a target reduction of 70% greenhouse gas emissions by 2020.

**Direct impacts:** 94% per cent of the Library's emissions arise from energy consumption, of which 72% results from the consumption of electricity. The current Carbon Management Plan, (CMP), focuses on energy reduction measures as the most effective way of reducing GHG emissions. This has resulted in a 19.7% reduction in energy consumption from last year. As other sources of emissions, such as transport, only represent 4% of our greenhouse gas emissions, the focus will remain on reducing energy consumption and focusing on reducing electricity consumption in the current CMP review.

<b>3.2 Energy consumption</b>		<b>2008/09</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
<b>Non-financial indicators (kWh)</b>	Electricity non-renewable	5,061,828	2,962,882	2,812,096	2,570,820	2,536,384
	Electricity renewable	0	0	0	0	0
	Gas	2,864,767	1,477,030	1,240,041	1,249,288	1,141,242
	LPG	0	0	0	0	0
	Other	0	0	0	0	0
	<b>Total energy</b>	<b>7,926,595</b>	<b>4,439,912</b>	<b>4,052,137</b>	<b>3,820,108</b>	<b>3,677,626</b>
	Total electricity per m sq.	136	78	74	69	68
	Total gas per m sq.	77	39	33	34	31
	<b>Total energy per m sq.</b>	<b>213</b>	<b>116</b>	<b>106</b>	<b>103</b>	<b>99</b>

<b>Financial indicators</b>	Total cost elec.	£508,988	£273,920	£300,301	£278,902	£331,878
	Total cost gas	£76,264	£37,656	£29,536	£30,015	£37,314
	<b>Total cost</b>	<b>£585,252</b>	<b>£311,576</b>	<b>£329,837</b>	<b>£308,917</b>	<b>£369,192</b>
	Total cost elec. / total elec. consumption per kWh	£0.101	£0.092	£0.107	£0.108	£0.131
	Total cost gas / total gas consumption kWh	£0.027	£0.025	£0.024	£0.024	£0.033
	CRC License expenditure	£0	£0	£0	£0	£0

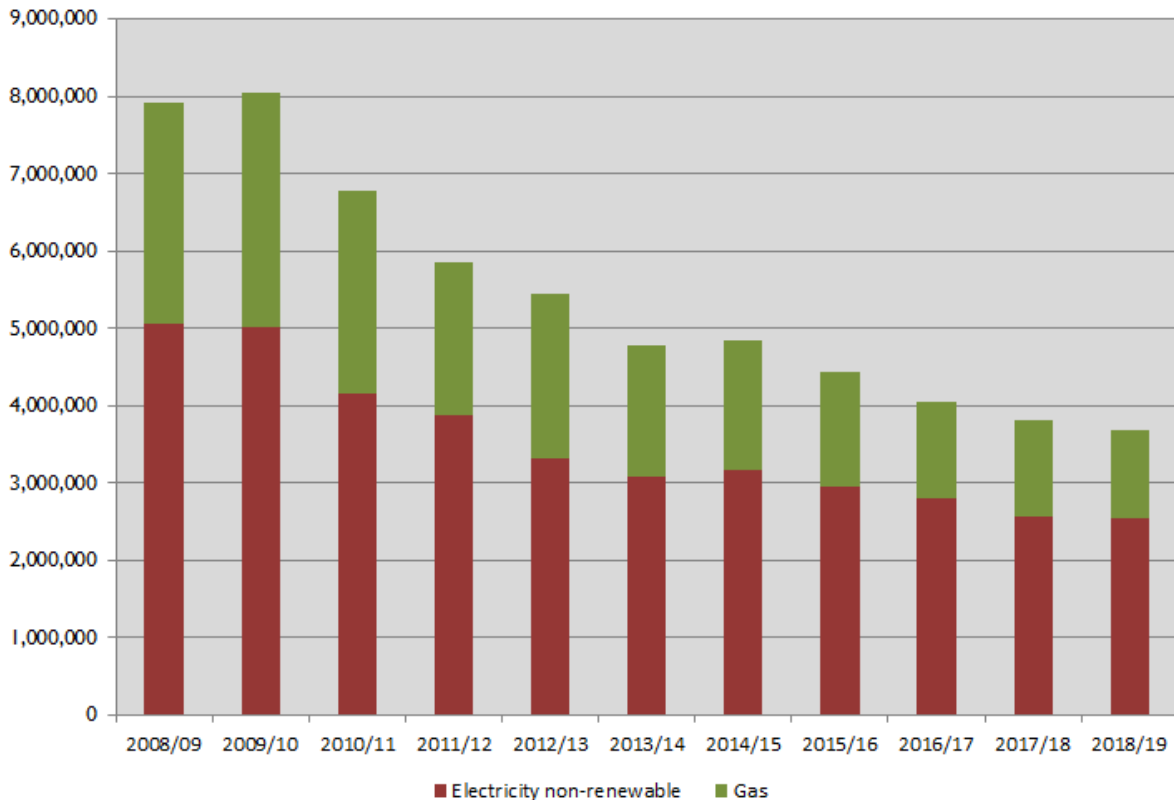
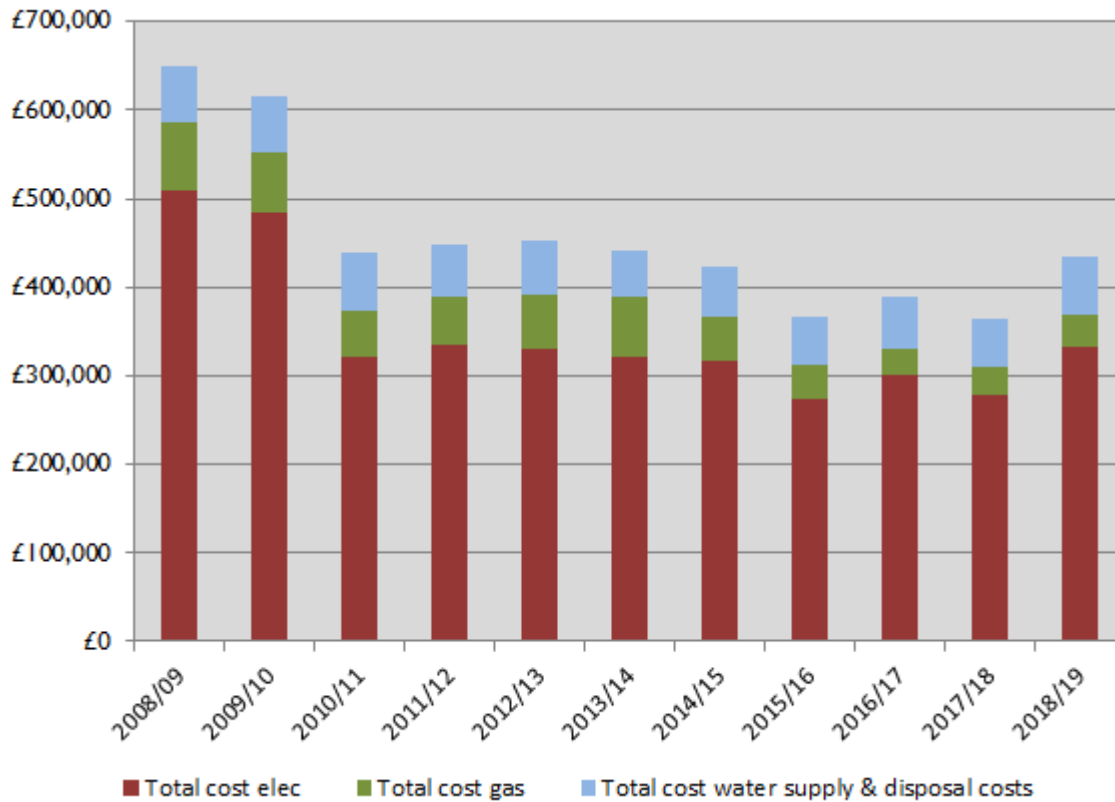


Figure 2 Total energy consumption (kWh)





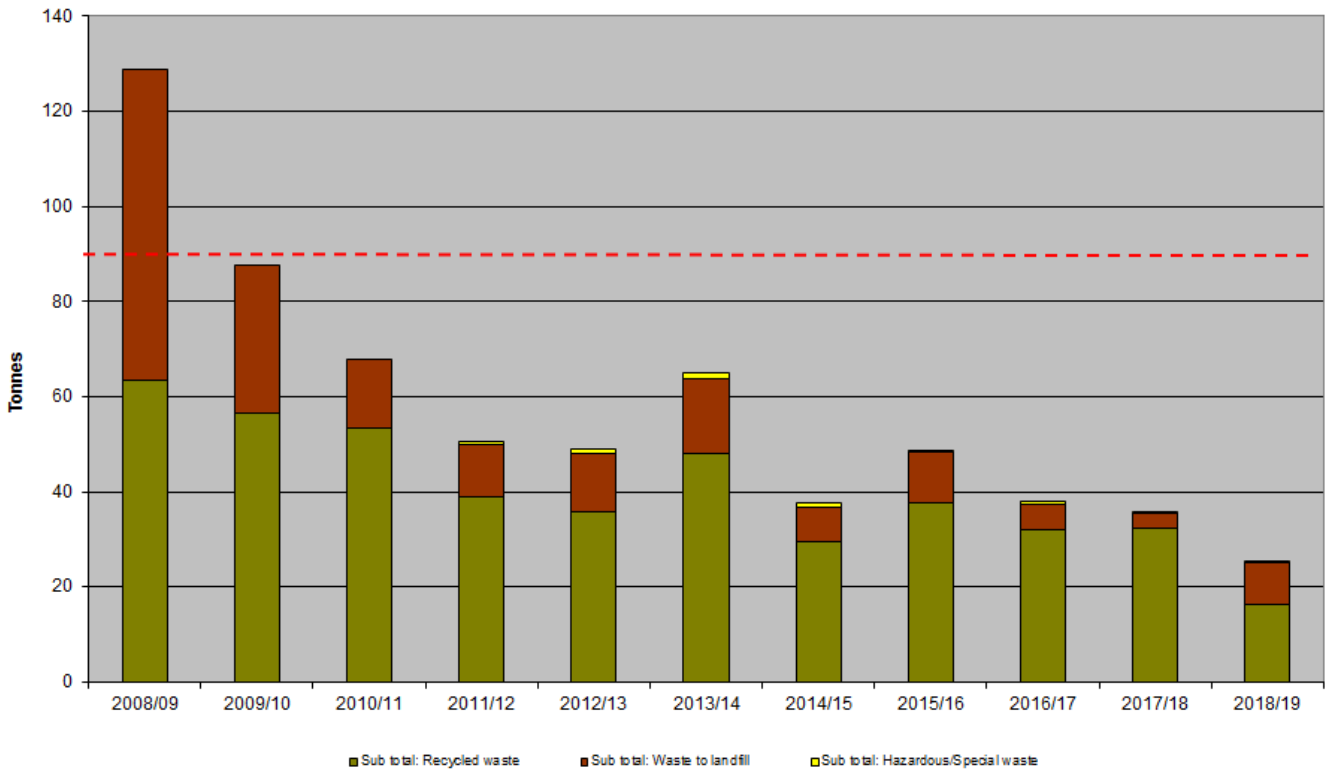
**Figure 3 Total utility costs**

**Targets:** The Library has reduced its energy consumption by **53.60%** since 2008/09.

This has exceeded the Scottish Government target to reduce energy consumption by at least **40%** by 2020. A Library has set a target of maintaining this **53.60%** reduction in energy consumption for 2020.

**Direct impacts:** The average cost of electricity for 18/19 increased by approximately **19%** and the average cost of gas increased again by approximately **24%**. The overall cost of energy for gas and electricity was increased by **£60,275** due to tariff increases and, despite energy consumption being reduced overall, the reduction was insufficient to off-set the increased unit cost. The work being done in continuing to reduce energy consumption, year on year, has resulted in the Library avoiding the full financial impact of the tariff increases.

<b>3.3 Waste (Excluding construction)</b>		<b>2008/09</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
<b>Hazardous / special waste (Tonnes)</b>	Hazardous waste	0.16	0.00	0.38	0.00	0.00
	Clinical waste		0.22	0.16	0.16	0.22
	<b>Subtotal: Hazardous/Special waste</b>		<b>0.22</b>	<b>0.53</b>	<b>0.17</b>	<b>0.22</b>
<b>Non-Hazardous: Re-used / Recycled / Composted (Tonnes)</b>	Aluminium & steel cans	0.04				
	Cardboard	3.09	1.44	1.26	1.24	1.82
	Plastic bottles	0.02		0.01	0.19	0.32
	Paper - General	10.09		0.33	1.48	2.66
	Mixed recycling	14.66	18.93	19.28	10.19	1.30
	Timber		0.00	0.00	0.00	0.01
	Paper - Confidential	26.61	3.47	3.26	2.14	1.75
	Metal	3.62	4.95	0.00	3.92	0.00
	Glass	1.61	0.31	0.23	0.29	0.64
	WEEE	3.52	0.92	0.74	2.22	0.33
	Print cartridges	0.27				
	Box board		0.00	0.00	0.00	0.00
	Food waste (Composted)		6.98	4.82	2.49	0.51
	Sundries (Furniture etc.)		0.80	2.00	8.14	5.50
	<b>Subtotal: Recycled waste</b>	<b>63.54</b>	<b>37.81</b>	<b>31.93</b>	<b>32.30</b>	<b>14.84</b>
<b>Non-Hazardous: Landfill (Tonnes)</b>	Solid waste to landfill (bins)	54.31	3.67	2.57	3.04	5.11
	Solid waste to landfill (skips)	11.05	6.96	2.92	0.00	2.00
	<b>Subtotal: Waste to landfill</b>	<b>65.36</b>	<b>10.63</b>	<b>5.49</b>	<b>3.04</b>	<b>7.11</b>
<b>Non-financial indicators (Tonnes)</b>	<b>Total waste arisings</b>	<b>128.90</b>	<b>48.66</b>	<b>37.95</b>	<b>35.50</b>	<b>22.18</b>
	<b>% Waste recycled (SG &amp; SOGE)</b>	<b>49.3%</b>	<b>77.7%</b>	<b>84.1%</b>	<b>91.0%</b>	<b>66.9%</b>
	<b>% Waste to landfill (SG &amp; SOGE)</b>	<b>50.7%</b>	<b>21.9%</b>	<b>14.5%</b>	<b>8.6%</b>	<b>32.1%</b>
<b>Financial indicators</b>	<b>Total waste disposal cost</b>	<b>£14,452</b>	<b>£13,044</b>	<b>£19,409</b>	<b>£14,434</b>	<b>£10,230</b>
	<b>Total waste income</b>	<b>£0</b>	<b>£308</b>	<b>£0</b>	<b>£557</b>	<b>£0</b>
	<b>Balance disposal cost</b>	<b>£14,452</b>	<b>£12,736</b>	<b>£19,409</b>	<b>£13,878</b>	<b>£10,230</b>



**Figure 4 Total waste recycled / sent to landfill**

**Target:** To recycle **70%** of all waste arisings by 2025 with only **5%** of all waste arisings to go to landfill by 2025.

The Library’s waste metrics changed from SG resulting in a decrease in total arisings of **37.5%** with waste to landfill increasing by **27.3%** from 2017/18 totals, now sitting at **32.1%**. However, there is some way to go to achieve the target of **5%**.

With the recent restructuring of the Health and Safety committee to include Sustainability we are hoping that greater staff engagement and increased awareness of the consequence of unused promotional material will result in better waste management throughout the estate

**Direct impacts:** A new waste management contract was awarded in May 2015. With a more robust waste management structure in place it was hoped that this would provide greater clarity in understanding present waste statistics. Whilst better statistics are now being provided, confidential waste and waste to landfill still appear very difficult to reduce.

3.4 Water - Finite Resource Consumption		2008/09	2015/16	2016/17	2017/18	2018/19
Non-financial indicators (m3)	Supplied m3	9,124	5,300	5,271	4,912	5,816
	Disposed m3	8,668	5,035	5,007	4,666	5,525
Non-financial indicators (kg CO <sub>2</sub> e)	Sub-total	9,604	5,579	5,548	5,170	6,121

Financial indicators	Water supply & disposal costs	£63,803	£54,999	£59,201	£55,743	£65,403
		Total cost water / total water consumption m3	£6.993	£10.377	£11.231	£11.348

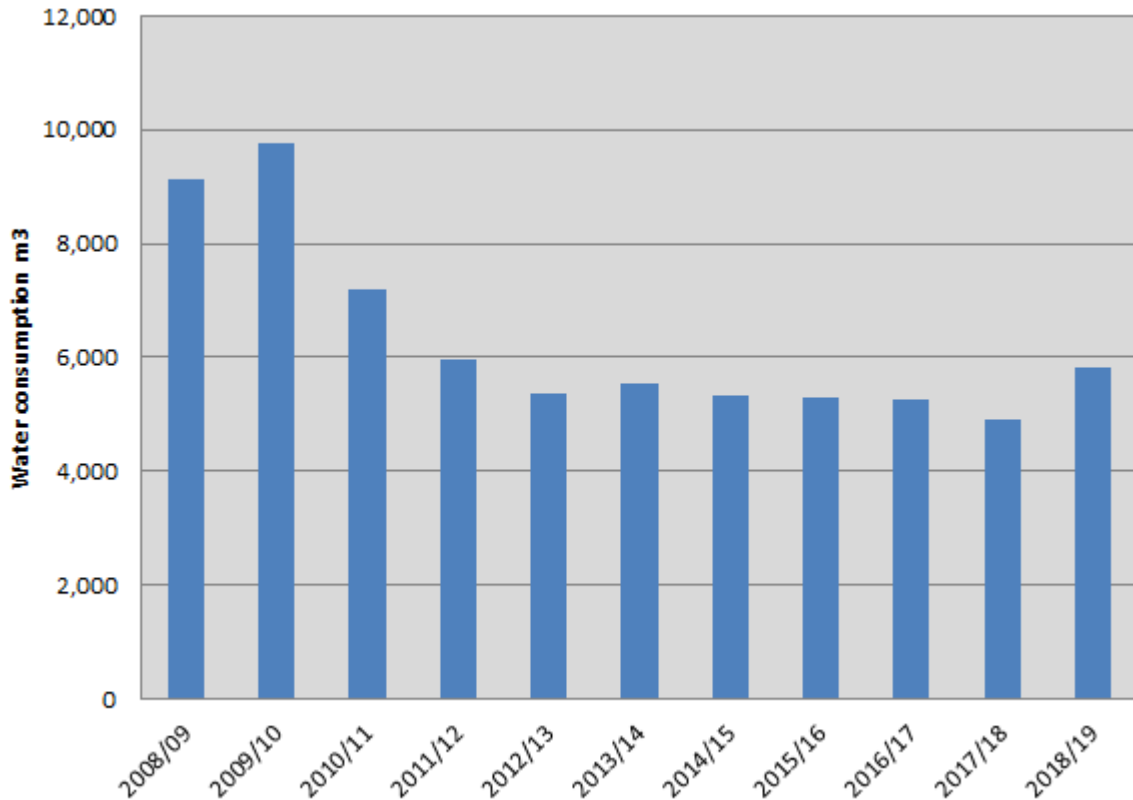


Figure 5 Total water consumption

**Target:** Reduce water consumption by **25%** in the office and non-office estate by 2020, relative to 2004/2005.

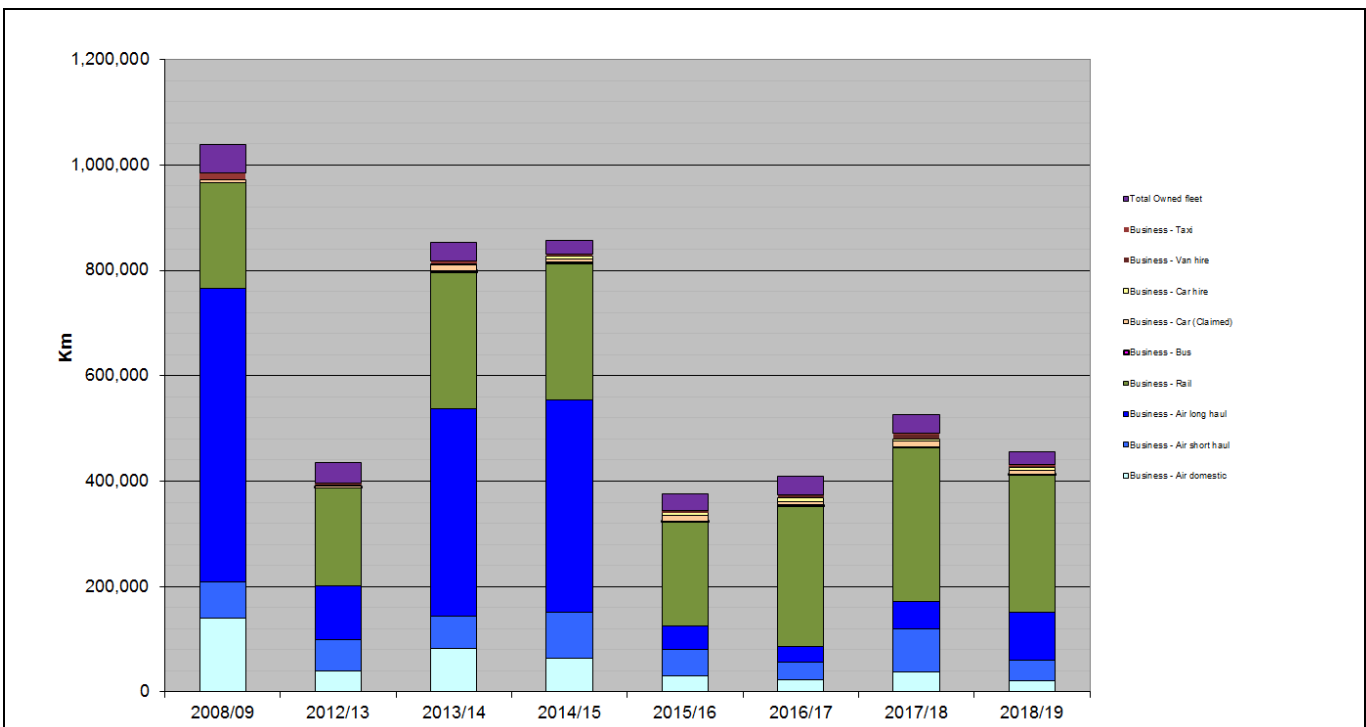
The Library has exceeded this target and will therefore set a new meaningful target for water consumption within the revised Carbon Management Plan

**Direct impacts:** Water consumption has been stabilised over the past number of years. As **67%** of all water consumption occurs in George IV Bridge, the Library's main public building, all future water saving initiatives will therefore be focused in this area.

<b>3.5 Transport &amp; travel</b>		<b>2008/09</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
<b>Non-financial indicators (Km )</b>	Owned fleet	54,247	31,446	35,016	35,838	23,944
	Business - Air domestic	140,000	29,945	23,934	37,292	21,479
	Business - Air short haul	68,952	51,475	32,394	81,708	38,681
	Business - Air long haul	556,692	44,519	30,137	52,576	91,417
	Business - Rail	200,540	196,503	266,342	291,545	260,585
	Business - Taxi	12,230	2,341	2,436	2,118	1,991
	Business - Car (Claimed)	6,198	10,376	6,922	10,726	7,056
	Business - Van hire	0	2,686	3,745	8,492	3,008
	Business - Car hire	0	5,097	7,165	5,018	5,515
	Business - Bus	0	1,978	1,683	1,623	1,282
	<b>Total travel Km</b>	<b>1,038,859</b>	<b>376,367</b>	<b>409,773</b>	<b>526,937</b>	<b>454,958</b>

<b>Financial indicators</b>	Total cost - Fleet maintenance & repairs	£4,768	£20,518	£28,866	£3,713	£1,540
	Total cost - Fleet insurance	£2,886	£3,604	£3,232	£3,058	£2,463
	Total cost - Fleet fuel	£5,184	£4,816	£5,095	£4,267	£3,575
	Total cost - Vehicle rental	£3,370	£2,417	£1,836	£1,312	£1,124
	Total - Taxi contract	£89,056	£3,510	£2,546	£3,659	£3,007
	Total - T & S		£121,267	£143,107	£171,031	£151,345
	<b>Total cost</b>	<b>£105,264</b>	<b>£156,132</b>	<b>£184,681</b>	<b>£187,040</b>	<b>£163,054</b>

<b>Non-financial indicators (Kg CO2)</b>	<b>Total Owned fleet</b>	<b>11,865</b>	<b>6,766</b>	<b>8,439</b>	<b>8,511</b>	<b>6,222</b>
	Business - Air domestic	26,751	8,922	6,670	9,973	6,408
	Business - Air short haul	7,388	8,562	5,348	12,947	6,280
	Business - Air long haul	67,111	6,756	4,423	7,949	19,432
	Business - Rail	12,073	8,854	13,011	13,638	11,528
	Business - Taxi	2,300	512	533	452	426
	Business - Car (Claimed)	1,266	1,822	1,228	1,864	1,225
	Business - Van hire	0	613	910	1,998	706
	Business - Car hire	0	895	1,271	872	957
	Business - Bus	0	215	202	167	129
	<b>Total Business travel</b>	<b>116,889</b>	<b>37,152</b>	<b>33,595</b>	<b>49,861</b>	<b>47,091</b>
<b>Total travel Kg CO2e</b>	<b>128,754</b>	<b>43,918</b>	<b>42,034</b>	<b>58,372</b>	<b>53,313</b>	



**Figure 6 Total transport and travel**

**Targets:** The Library does not have any specific travel targets, however green travel principles are embedded in the Library’s Business Travel and Expenses Policy 2015, which provides guidance in the order of preference for mode of travel, i.e. walking/cycling; bus; rail; shared taxi; shared car; single occupancy taxi/car; air.

**Direct impacts:** Data collection continues to be very laborious and it is still not possible to separately identify travel costs from subsistence costs. (We now calculate the average travel miles in bus trips, car hire, car personal, air and rail journeys. In general the number of journeys by Library staff is known, but the travel distance is based on an average, calculated from the previous year’s mileage.

#### 4.0 Biodiversity Conservation Measures

The Library estate is located entirely on sites within city centres or satellite industrial estates. There are no activities discharged by the Library that have a direct connection to either the protection or the promotion of Biodiversity.

The Library therefore does not currently have a formal approach to meeting its duties as a public sector body to further the conservation of biodiversity when performing its functions, as required under the Nature Conservation (Scotland) Act 2004.

Biodiversity considerations only arise when the Library procures third party products and services. Any tests required to assure compliance follow the processes covered under the umbrella of Sustainable Procurement.

Although the nature of its estate and functions results in a limited opportunity to have a direct impact, this is currently under review.

#### 5.0 Sustainable Procurement

In accordance with the Library’s published procurement strategy:-

For each and every “Regulated” procurement consideration is given to, how in conducting the procurement process the Library can:-

- improve the economic, social and environmental well-being of the local and wider environment

- facilitate the involvement of small and medium enterprises, third sector bodies and supported business in the process
- promote innovation

In addition, consideration is given to including, where proportionate and relevant, a clause addressing Fair Work Practises, including the Living Wage.

Management Information in including but not exclusive to the list below is captured quarterly and will be made available in the procurement annual report to be published summer 2019; MI covering the period 1 April 2018 – 31 March 2019.

- direct expenditure with SMEs
- indirect spend with SMEs i.e. through the supply chain for Regulated procurements
- expenditure with Supported Businesses
- community benefits achieved through Regulated procurements

## 6.0 Sustainable Construction

The Library does not currently have a system in place for the management of construction waste; however quality evaluation of waste management performance are included at PQQ and ITT stage for major construction projects. The Library aims to report construction waste separately for these projects.

The Library is actively trying to improve the sustainability of its estate by incorporating energy saving measures in all new projects. The Library is in the process of obtaining BREEAM in Use assessments for its George IV Bridge and Causewayside properties, in order that it can evaluate the impact of these measures over time, following completion of the external refurbishment projects which are currently being undertaken.

## 7.0 Environmental Management System

In 2017 the Library through Zero Waste Scotland, became an Ambassador for Resource Efficiency in Scotland.

As an ambassador, the Library now forms part of a network of organisations recognised across Scotland for their passion and commitment to reducing resource use and protecting Scotland's environment and economy.

As part of the duties the Library promote the benefits of resource efficiency throughout Scotland, adopting a leadership position within our communities and encourage others to take action and play a key role in bringing resource efficiency messages to a wider audience.

The Library has also committed to take part in the ZWS Resource Efficiency Pledge scheme, the Library is presently working towards the Platinum award standard having achieved the bronze, silver and gold award standards.

## Annex A: Methodology

### A.1 Targets

The Library aims to act in a way which supports the progress of Scottish Government toward its National Outcomes. The Library targets are therefore based on targets set by Scottish Government where relevant. These targets are:

#### **The Climate Change (Scotland) Act 2009**

The Act commits Scotland to reduce its emissions by at least 80% from 1990 levels by 2050; with an interim emissions reduction target of at least 42% by 2020.

The Library's Carbon Management Plan sets five year targets, based on a portfolio of achievable projects with the objective of helping the organisation toward the 2050 target.

Note: The Library's baseline is 2008/09, not 1990, due to the fact that there is insufficient data to create a meaningful 1990 baseline.

#### **The Conserve and Save: Energy Efficiency Action Plan 2010**

The Energy Efficiency Action Plan requires that by 2020:

- The public sector will have reduced its energy consumption by at least 12% (already achieved);
- Individual public bodies will all have set, and be monitoring, their own ambitious annual energy efficiency targets (original target set in the 2010 carbon management plan of 30% reduction by 2015 – already achieved);

#### **Scotland's Zero Waste Plan 2010**

The plan sets a long term target for 2025 of recycling 70% of all Scotland's waste, and only 5% of the remaining waste going to landfill.

#### **Non Scottish Government targets**

Where Scottish Government targets do not exist, the Library has adopted other UK targets, such as the SOGE targets.

### A.2 Scope

The baseline includes all of the significant sources of CO<sub>2</sub> emissions from the delivery of organisation functions at all of its sites. The Library does not outsource any of its services off site. The baseline relates to the utilities used in its buildings, waste, and transport to deliver the functions of the organisation, but not the embedded emissions in the goods procured by the organisation. The baseline is made up of CO<sub>2</sub> emissions from:

- owned buildings energy use
- owned/Leased Fleet Fuel Use
- business travel
- waste produced by buildings and operations<sup>1</sup>
- water used in buildings and operations

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<sup>1</sup> Excluding waste from the Agency for Legal Deposit Libraries



### A.3 Baseline conversion factors

The data the DEFRA UK Government Conversion Factors for Company Reporting.

<http://www.ukconversionfactorscarbonsmart.co.uk/>

NOTE: DEFRA issues annual revision of historic conversion factors. In line with DEFRA guidance the Library recalculates all of its emissions using the revised factors.

The conversion factors, used to calculate the green house gas emissions within the report are provided in the table below.

DEFRA UK Government Conversion Factors for Company Reporting	2008/09	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Elec kg <sub>e</sub> /CO <sub>2</sub> per kWh	0.49608	0.44548	0.49023	0.46219	0.41205	0.35156	0.28307
Gas kg <sub>e</sub> /CO <sub>2</sub> per kWh	0.18500	0.18404	0.18455	0.18445	0.20444	0.20463	0.18746
Water kg <sub>e</sub> /CO <sub>2</sub> per m <sup>3</sup>	1.05000	1.05260	1.05260	1.05260	1.05260	1.05260	1.05260

Waste (kg CO <sub>2</sub> e per tonne)	Hazardous / special waste	Hazardous waste						
		Clinical waste						
Non-Hazardous: Re-used Recycled Composted	Aluminium & steel cans							
	Cardboard							
	Plastic bottles							
	Paper - General							
	Mixed recycling							
	Timber							
	Paper - Confidential		21	21	21	21	21	21
	Metal							
	Glass							
	WEEE							
	Print cartridges							
	Box board							
	Food waste							
Sundries (Furniture etc.)								
Non-Hazardous: Landfill	Solid waste to landfill (bins) - Mixed municipal	290	290	290	290	290	290	290
	Solid waste to landfill (skips) - Mixed industrial	199	199	199	199	199	199	199

Transport & travel (Kg CO <sub>2</sub> e per v Km)	Medium diesel car 1.7 to 2.0 ltr	0.18095						
	Diesel van Class I up to 1.305t	0.15678	0.15350	0.15346	0.14447	0.15438	0.14958	0.14918
	Diesel van Class III 1.74t - 3.5t	0.27011	0.26880	0.26881	0.26774	0.28453	0.27565	0.27491
	Car: Average unknown fuel	0.20459	0.17475	0.17720	0.17561	0.17741	0.1738	0.17353
	Taxi: Black cab	0.24329	0.15294	0.21877	0.21872	0.21884	0.21337	0.2142
	Air: Domestic	0.16484	0.32662	0.29316	0.29795	0.27867	0.26744	0.29832
	Air: Short haul	0.09229	0.18340	0.15835	0.16634	0.16508	0.15845	0.16236
	Air: Long haul	0.08137	0.26458	0.15054	0.15175	0.14678	0.15119	0.21256
	Rail	0.05649	0.04904	0.04738	0.04505	0.04885	0.04678	0.04424
	Bus	0.03064	0.01116	0.10946	0.10883	0.11986	0.10259	0.10097

## A.4 Baseline data sources

The baseline data was taken for the financial year 2008/09.

### Stationary sources – Electricity and Gas

Energy consumption data is gathered from weekly meter readings taken at each of the Library's property assets.

### Waste

The waste data for the baseline period was compiled by converting volumetric data into tonnage equivalents, based on a waste mapping exercise conducted by Changeworks Recycling and the Library calculation of waste recycled and disposed.

From October 2009 the Library started to weigh the majority of its waste on site and data from this source is therefore significantly more accurate. The practice of weighing waste ceased at the commencement of the CB refurbishment project in January 2014 due to access difficulties.

During 2018/19 there were problems with a backlog of general waste therefore those uplifts increased from 1 uplift per week of 2 bins to 2 uplifts per week of 3 bins. This meant that data from the waste provider increased. In addition, skips of construction waste increased during 2018/19 due to SB Roof project in general waste data.

### Water

Water consumption data is gathered from weekly meter readings taken at each of the Library property assets.

### Transport

Fleet travel data is compiled from mileage log sheets for each fleet vehicle.

Business travel data prior to 2010/11 was taken from business expense claim forms and procurement card log sheets. Where departure and destination information was not provided the following assumptions for a typical generic journey were made to calculate the mileage:

- Train £3 - £20 = Edinburgh to Glasgow return
- Train £21 - £50 = Edinburgh to Dundee return

From 2010/11 Business travel data for journeys over £50 is as provided by the Scottish Government travel management service. Travel data below £50 continues to be collated from business expense claim forms and procurement card log sheets. Due to the introduction of new claim forms which capture travel information, journeys where the departure and arrival details cannot be identified have reduced.

Business travel costs continue to be inclusive of subsistence due to difficulties in separating the information. Separate cost codes are required to resolve this problem.

Taxi data prior to 2011/12 was calculated by using a conversion factor of £1 = 1 kilometer.

Taxi data for 2011/12 is as provided by the Scottish Government taxi provider.

Claimed car mileage is as recorded on expense claim forms.

Car hire data is as provided by the Scottish Government vehicle hire provider.