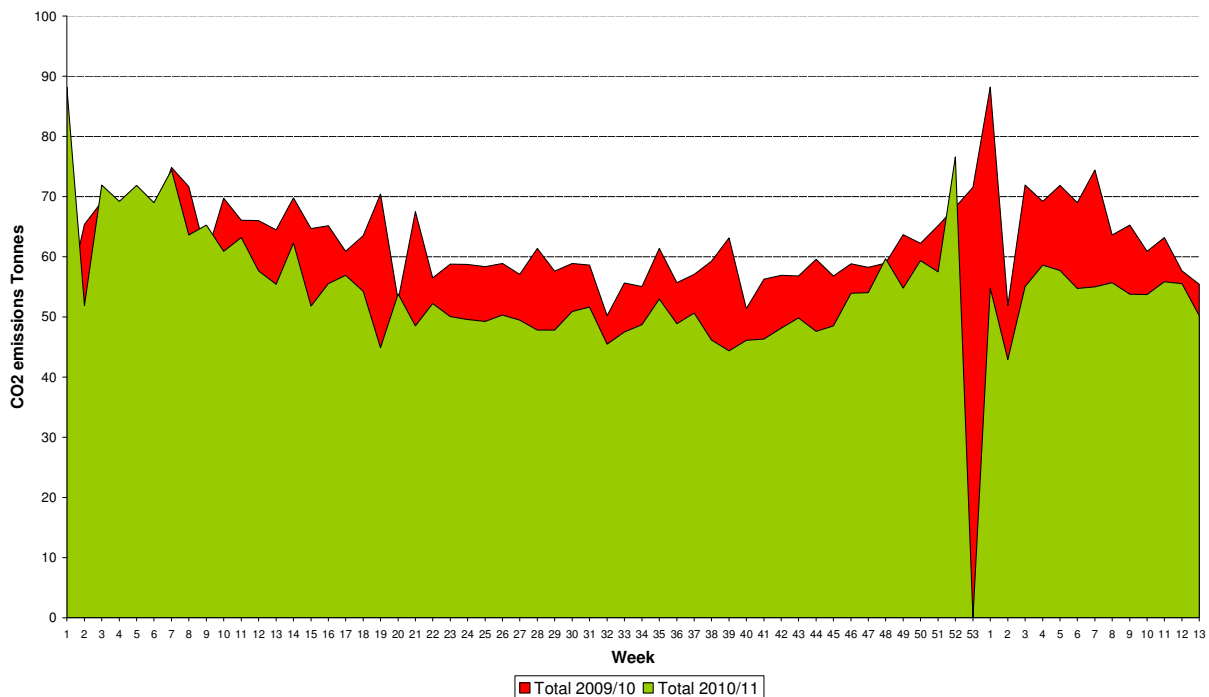


# National Library of Scotland Carbon Management Programme for smaller organisations

## Carbon Management Plan (CMP) 2010 – 2015 2010-11 Progress Report



Date: 26 September 2011

Version number: 1

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Approval route: Senior Management Team

Approval status: Approved



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## Management Summary

The National Library of Scotland (NLS) began working with the Carbon Trust on the Carbon Management Programme on 11 November 2009 and submitted its completed Carbon Management Plan (CMP) prior to the programme deadline of 27 April 2010.

The NLS committed to reduce CO<sub>2</sub> emissions from its operation by 30% by the end of financial year 2014/15 from 2008/09 levels.

NLS also participated in the 10:10 campaign, committing to reduce CO<sub>2</sub> emissions from its operation by 10% by the end of the financial year 2010/11 from 2009/10 levels. NLS significantly exceeded this commitment.

2010/11 was the first year of the plan. During this period NLS reduced CO<sub>2</sub> emissions from its operation by 623 tonnes or 18.4% from 2008/09 levels and costs were reduced by £261,523. This was achieved despite the fact that an additional 40kWh of digital storage equipment was added to the NLS infrastructure as part of NLS's ongoing work to expand digital access to its collections

Four projects have been completed to date and a further six are ongoing. Much of the success during 2010/11 was due to the dedication and energy of people working across the organisation in many different ways to reduce energy consumption. A significant capital maintenance grant from the Scottish Government for 2011/12 is being used to fund two major projects, enabling NLS to build upon the success of this first year.

Over and above these quantifiable benefits NLS's participation in the Carbon Trust Carbon Management Programme has provided an invaluable vehicle through which NLS has been able to communicate sustainability, with particular reference to energy reduction, at all levels across the organisation and also to a wider external audience.

NLS was invited to present its experiences at the Carbon Trust Carbon Management Programme graduation in September 2010, which was attended by John Swinney, Cabinet Secretary for Finance and Sustainable Growth and representatives from forty seven Scottish organisations. Later in the day John Swinney referred to the positive activity at NLS at the Transport, Infrastructure and Climate Change Committee in the Scottish Parliament.

NLS also was featured in the TUC GreenWorkplaces Project Report 2008 – 10

NLS was cited as a public sector case energy efficiency study in the Scottish Government's Conserve and Save: The Energy Efficiency Plan For Scotland Annual Report 2010-11 and will also feature in the Carbon Trust Annual Report 2010/11

## 1.0 Introduction

The National Library of Scotland (NLS) began working with the Carbon Trust on the Carbon Management Programme on 11 November 2009 and submitted its completed Carbon Management Plan prior to the programme deadline of 27 April 2010

NLS set a low carbon vision, which stated that:

NLS 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

NLS 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 poses to NLS in the medium to long term

In order to progress toward this, NLS set the following targets:

**National Library of Scotland will reduce CO<sub>2</sub> emissions from its operation by 30% by the end of financial year 2014/15 from 2008/09 levels.**

**To provide the project with a highly motivating short term target National Library of Scotland has joined 10:10 and will reduce CO<sub>2</sub> emissions from its operation by 10% by the end of financial year 2010/11 from 2009/10 levels.**

This paper sets out to report upon the progress that NLS made toward these targets during the period 2010/11 and to celebrate the significant efforts that have been made by individuals and groups to achieve this.

## 2.0 Methodology

### 2.1 Scope

The NLS baseline includes all of the significant sources of CO<sub>2</sub> emissions from the delivery of organisation functions. It covers all NLS operations on all of its sites. NLS does not outsource any of its services off site. It relates to the utilities used in buildings, waste and transport of delivering the functions of an 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 (excluding waste from the Agency for Legal Deposit Libraries)
- water used in buildings and operations

### 2.2 Baseline data sources

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

#### Stationary sources – Electricity and Gas

This data was gathered from weekly meter readings taken at each of the NLS property assets<sup>1</sup>

#### Waste

The landfill waste data for the baseline period was compiled by converting volumetric data into tonnage equivalents, based on a waste mapping exercise conducted by Leeds Metropolitan & Bradford Council and the compaction factor of the NLS compactor.

Since October 2009 NLS has been weighing the majority of its waste on site. Data from this date onwards is therefore significantly more accurate and will provide significantly more reliable data for future carbon submissions.

The weighed waste data indicates that the conversion factors for 2008/09 are probably too high, however, due to the very low contribution of waste to the NLS carbon footprint this inaccuracy does not impact upon the overall carbon profile.

#### Water

This data was gathered from weekly meter readings taken at each of the NLS property assets

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<sup>1</sup> With the exception of the Kirkintilloch property (241m<sup>2</sup>) which is read monthly

## Transport

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

As a result of a new Travel Policy introduced in September 2010 all business travel over £50 must be booked through the Scottish Government Travel Provider. Accurate, collated data for this category of business travel therefore became available for the first time during the 2010/11 baseline return. This represents a significant improvement to the accuracy of this data.

Collection of business travel data for travel below £50 remains a laborious task and is gathered by an analysis of the spend on travel through procurement cards and expenses reimbursements. Where departure and destination information is not provided the following assumptions for a typical generic journey are made to provide the mileage :

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

All taxi journeys converted at £1 = 1 kilometer. A new Scottish Government taxi contract is now in place for which a full set of rates is known. This will mean that 2011/12 taxi use data will be more accurate.

Car mileage as recorded on expense claim forms.

Car hire data as provided by the Scottish Government vehicle hire company.

### 2.3 Baseline conversion factors

The following conversion factors were used to calculate the baseline<sup>2</sup>.

Conversion factors	Units	Conversion factor
Electricity (grid)	kg CO <sub>2</sub> /kWh gross	0.537
Natural Gas	kg CO <sub>2</sub> /kWh gross	0.185
Waste (Black stream - Domestic – Landfill)	kgCO <sub>2</sub> e/tonne	447.0
Water	kgCO <sub>2</sub> /m <sup>3</sup>	0.404
Transport : Medium/large diesel van (>1.25 ≤3.5t)	CO <sub>2</sub> factor (kg/km)	0.27
Transport : Small diesel van (≤1.25t)	CO <sub>2</sub> factor (kg/km)	0.18
Transport :Taxi – Average car (unknown fuel)	CO <sub>2</sub> factor (kg/km)	0.20
Transport : Medium diesel car, from 1.7 to 2.0 litre	CO <sub>2</sub> factor (kg/km)	0.19
Transport : Air - domestic	CO <sub>2</sub> factor (kg/km)	0.19
Transport : Air - short haul international	CO <sub>2</sub> factor (kg/km)	0.11
Transport : Air - long haul international	CO <sub>2</sub> factor (kg/km)	0.12
Transport : Rail - national rail	CO <sub>2</sub> factor (kg/km)	0.06

**Table 1 Conversion factors**

<sup>2</sup> Defra, Guidelines to Defra's GHG Conversion Factors 2008

### 3.0 Emissions Baseline 2008/09 and 2010/11 data

#### 3.1 2008/09 baseline CO<sub>2</sub> emissions

During the period 2008/09 NLS produced 3390 tonnes of CO<sub>2</sub> emissions from the delivery of organisation functions. This represents 9.3 tonnes per day

	Total	Buildings	Transport	Waste and Water
<b>Baseline CO<sub>2</sub> emissions (tonnes)</b>	3390	3228	130	33
<b>Baseline Cost (£)</b>	£ 752,557	£585,247	£ 105,264	£ 78,254

**Table 2 Summary table of emissions and value at stake for baseline year 2008/09**

#### 3.2 2010/11 CO<sub>2</sub> emissions

During the period 2010/11 NLS produced 2767 tonnes of CO<sub>2</sub> emissions from the delivery of organisation functions. This represents a reduction of 18.4% of CO<sub>2</sub> emissions or 623 tonnes

	Total	Buildings	Transport	Waste and Water
<b>Baseline CO<sub>2</sub> emissions (tonnes)</b>	2767	2715	43	10
<b>Baseline Cost (£)</b>	£ 491,034	£372,786	£40765	£ 77,483

**Table 3 Summary table of emissions and costs for the year 2010/11**

The following table shows a breakdown of the reduction in consumption during 2010/ compared to the consumption during the baseline year 2008/09

Electricity	Gas	Travel	Water	Waste <sup>3</sup>
-913,154 kWh	-240,389 kWh	- 686,646 km	- 1,932 m <sup>3</sup>	- 40 tonnes
- 18%	- 8%	- 66%	- 21%	- 47 %

**Table 4 Summary table of the reduction in consumption between years 2010/11 and 2008/09**

#### 3.3 Comparison with CMP predicted outcome

As shown in Figure 1 and 2 NLS predicted that during 2010/11 it would achieve a reduction in CO<sub>2</sub> emissions of 549 tonnes and £78,800 over the period 2010/11. NLS is therefore ahead of target.

**During the period 2010/11 National Library of Scotland reduced CO<sub>2</sub> emissions from its operation by 623 tonnes or 18.4% from 2008/09 levels and costs were reduced by £261,523. NLS significantly exceeded its commitment to the 10:10 campaign**

<sup>3</sup> NOTE: The majority of waste weights were obtained using volume to weight calculations up to October 2009. They are now predominantly obtained from directly recorded weights. Pre Oct 2009 data is therefore not totally reliable.

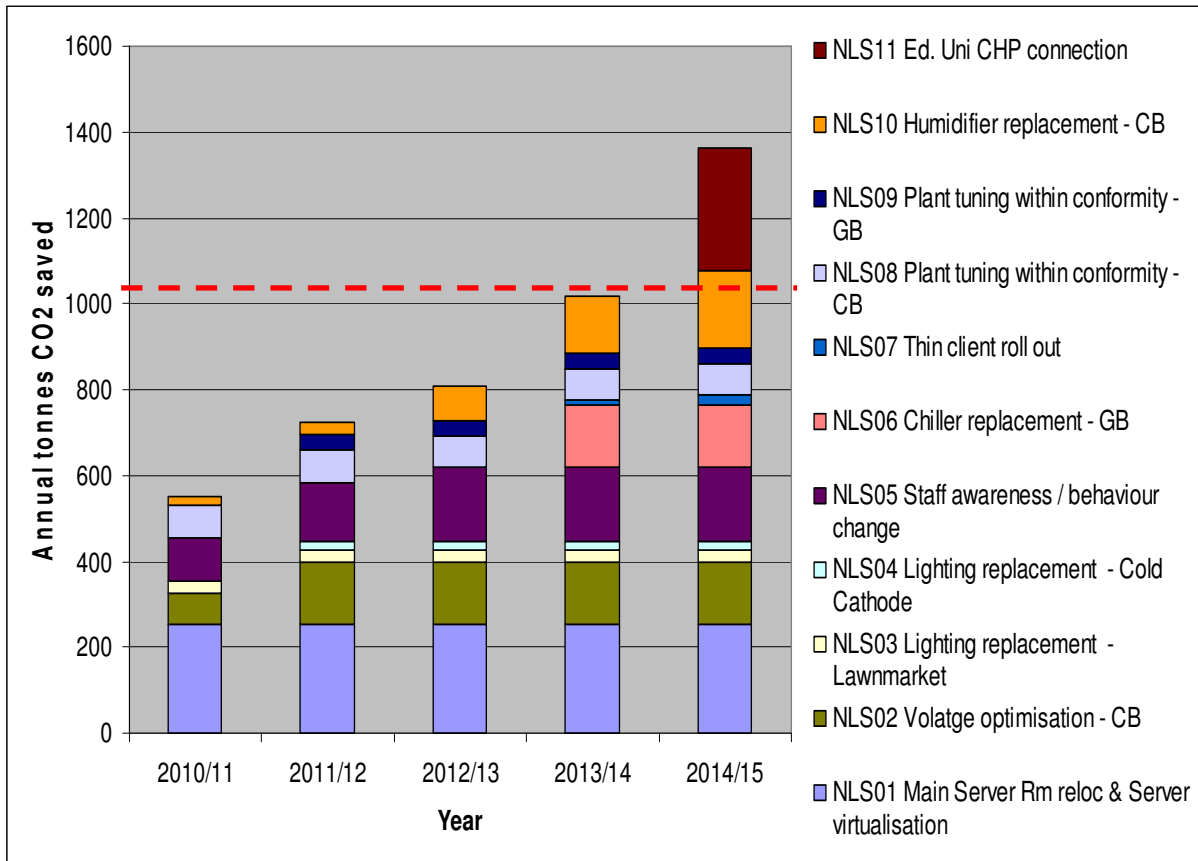


Figure 1 Original predicted annual carbon savings by project over the CMP

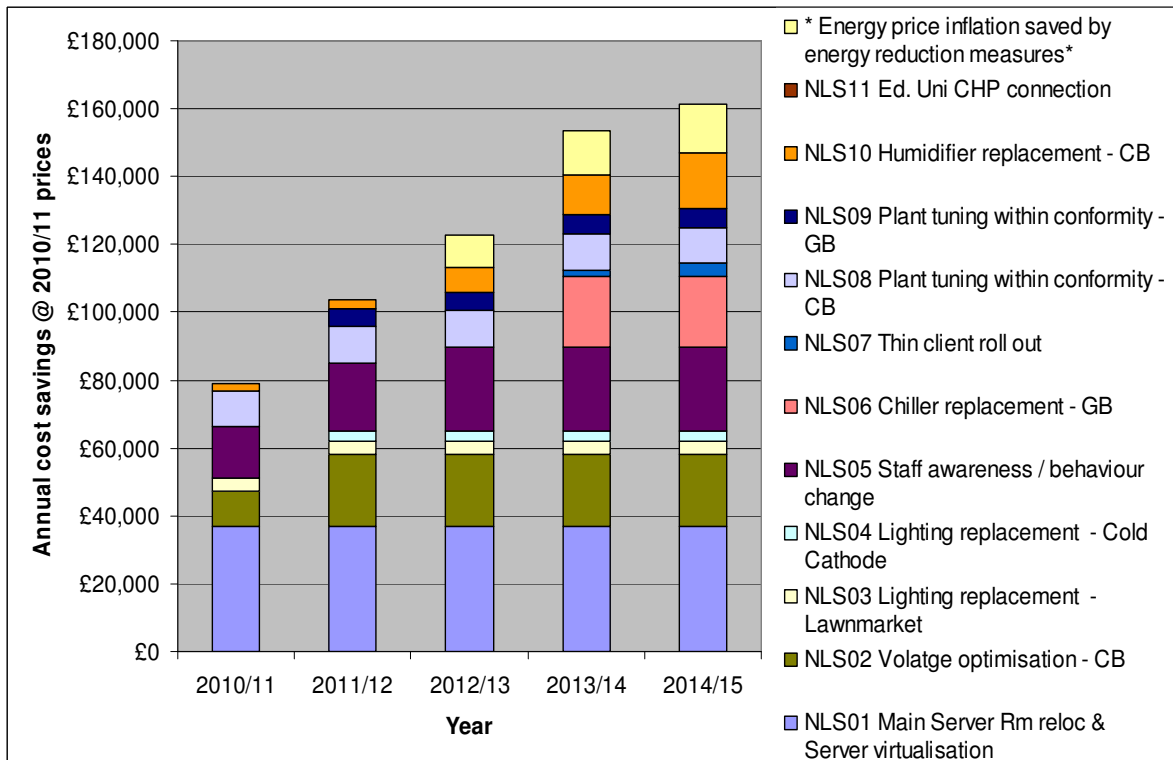
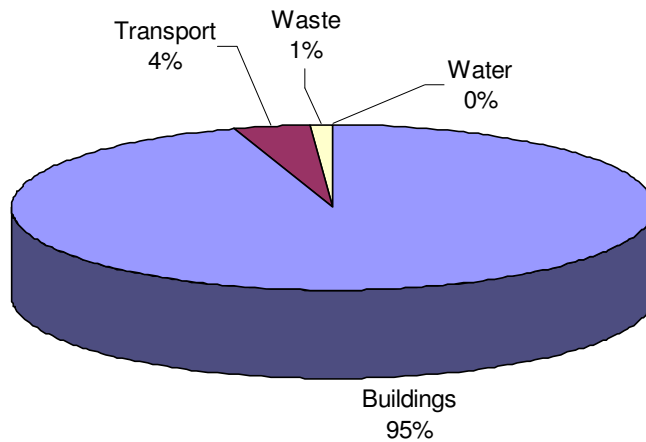


Figure 2 Original predicted annual cost savings by project over the CMP

## 4.0 2010/11 Strategy

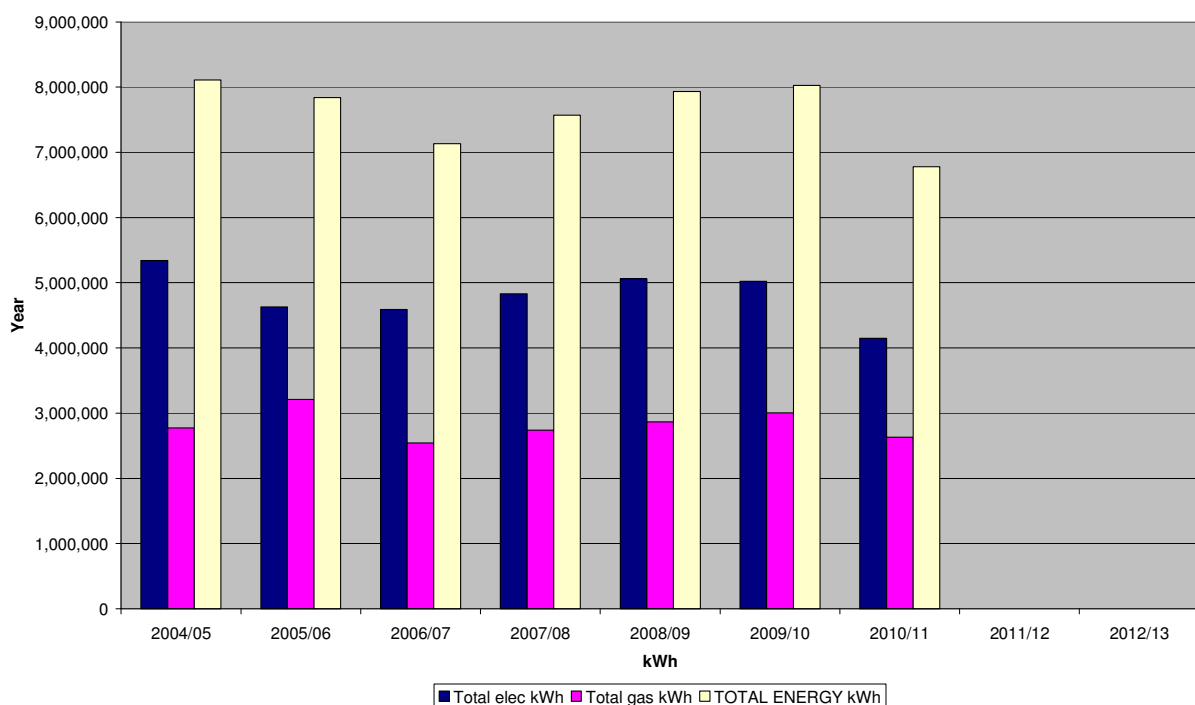


**Figure 3 Summary of carbon emissions (tonnes) for baseline year 2008/09**

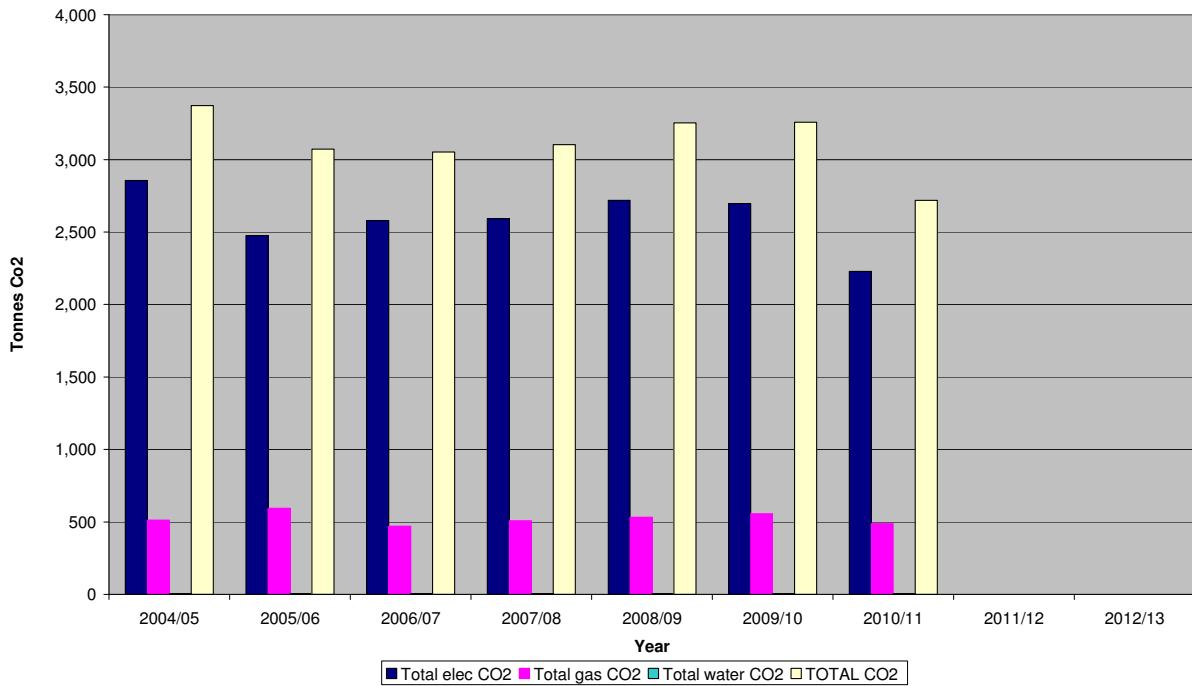
During 2008/09 ninety-five percent of the NLS carbon emissions were due to electricity and gas consumption within the NLS buildings.

Of this ninety five percent Figure 4 shows that almost twice as much electricity was consumed compared to gas, however as shown in Fig 5, the CO<sub>2</sub> emissions which resulted from this electricity consumption were 5.8 time greater that those emitted as a result of gas consumption. In addition, as can be seen from Figure 6 the cost to NLS for the electricity consumed was 6.6 times greater than that for gas.

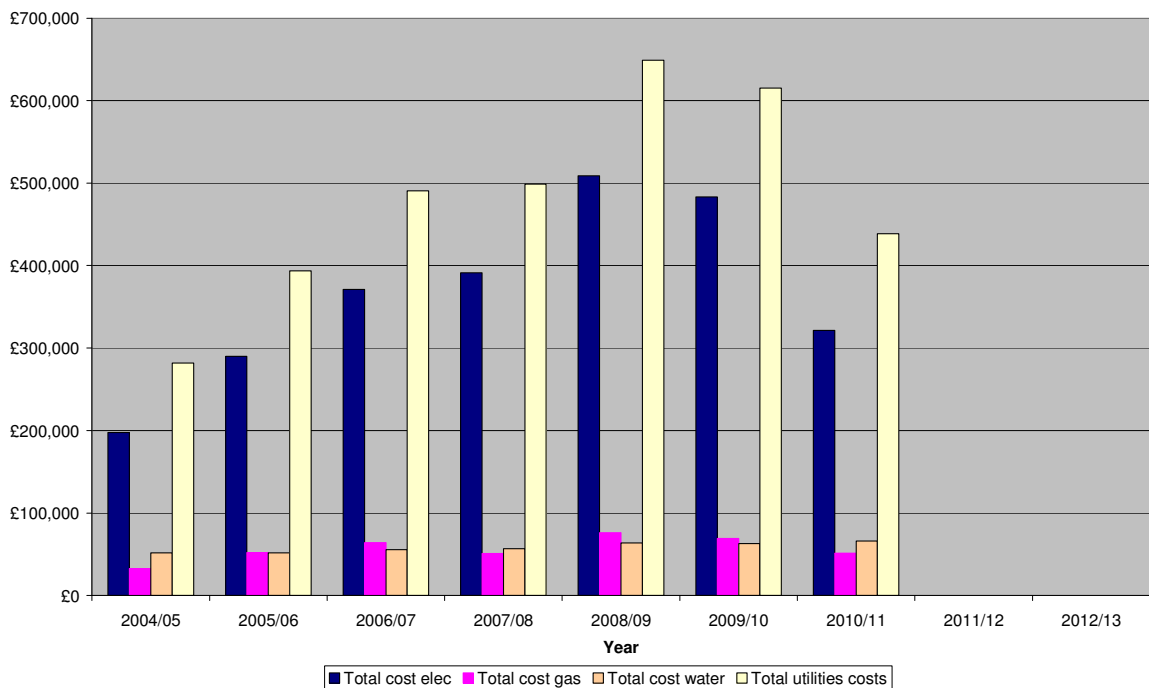
NLS therefore targeted electricity consumption during 2010/11 as this had the potential to have the most significant impact in reducing both carbon emissions and cost.



**Figure 4 Energy consumption profile by fuel**



**Figure 5 Total NLS carbon emissions profile of fuel / water**



**Figure 6 NLS utility costs (Nett) - actual and forecast<sup>4</sup>**

<sup>4</sup> 2009/10 costs are predicted outturn figures. 2010/11 are budget figures.

## 5.0 Carbon Management Projects – Progress to date

### 5.1 Projects scheduled for completion during 2010/11

Ref	Project	Capital		Cost savings		CO2 savings		Year planned	Status
		Predicted	Actual	Predicted	Actual	Predicted	Actual		
NLS01	Main Server Rm reloc / Server virtualisation	£138k	£41,500 to date	£36,700	See NLS01 Note	253	See NLS01 Note	2010/11	Complete / 66% complete
NLS 02	Voltage optimisation - CB	£50k	£46,329	£21,500	Projected to be £17,770 See NLS02 Note	147	Projected to be 110 See NLS02 Note	2010/11	Complete
NLS03	Lighting replacement - Lawnmarket	£50k	£26,454	£3,900	See NLS03 note	27	See NLS03 note	2010/11	Complete

#### NLS01

The new Main Server room is operational and is sub metered so that energy performance can be monitored. Server virtualisation was delayed until the later part of 2010/2011. To date 40 servers out of a potential total of 60 have been virtualised.

The new server room accommodates a large number of additional servers and data storage devices, compared to 2008/09, including the Digital Library Servers (DLS) which we have received from the British Library. The total additional load of this equipment is 40kWh. The energy consumption of old server room was 16kWh, therefore if no energy saving measures had been undertaken the new server room should consume 56kW. Sub meter readings show that electricity consumption is very consistent and averaged 32kWh during August 2011. This indicates that the work undertaken under the project has delivered savings of 24kWh. Once server virtualisation work is complete this saving will rise to 36kWh, which together with other measures have been undertaken, such as replacement of the core switches in three properties, means that NLS will have offset the additional energy consumption, used to significantly expand the amount of digital information that it can store, but will not have achieved the savings anticipated in the CMP

#### NLS02

The voltage optimiser was successfully installed within 159 Causewayside and is delivering a reduction in electricity consumption at the property of approximately 10%, as predicted. Projected savings are lower than predicted in the CMP because the 10% optimisation is being applied to a much lower overall electricity consumption at the property, which has resulted from better than predicted performance from other projects

#### NLS03

Lighting replacement within 312 – 320 Lawnmarket has been completed. Energy consumption within this property has reduced from an average of 7000kWh per week to 2435 kWh per week, of which 2690 can be accounted for by the relocation of the server room and approx 240kWh due to voltage optimisation. This means that approx 1635 kWh of energy savings per week are due to lighting replacement and staff behaviour. The project predicted 1000kWh reduction per week, therefore it is reasonable to conclude that this predicted savings have been achieved.

## 5.2 Projects scheduled to start during 2010/11

Ref	Project	Capital		Cost savings		CO2 savings		Year planned	Status
		Predicted	Actual	Predicted	Actual	Predicted	Actual		
NLS05	Staff awareness / behaviour change	£0	£100	£24,600	Projected to be £62,880 See NLS05, 08 & 09 note	170	Projected to be 393 See NLS05, 08 & 09 note	2010 - 2014	Ongoing
NLS08	Chiller plant tuning within conformity - CB	£0	£0	£10,800		74		2010 - 2014	Ongoing
NLS09	Chiller plant tuning within conformity - GB	£0	£0	£5,400		37		2011-2014	Ongoing

### NLS05

NLS undertook two main staff awareness initiatives during the year, set within the context of a range of activity such as Green newsletters, and engagement with the Bike Station in order to promote better ways to travel to work, all supporting the long term objective of making NLS a more sustainable organisation.

### Energy Saver of the Week

For a period of 18 weeks over the summer, staff were invited by the Green NLS team to tell them about ways in which they were helping to reduce electricity consumption. Each week an Energy Saver of the Week was chosen and an e-mail was released describing what the individual or group was doing and the potential CO2 and cost savings which would result if they continued over a year. The individual or group received an Energy Saver of the Week certificate signed by the National Librarian and Chief Executive and either a 10:10 tag or a 10:10 cake.



**Figure 7 Plant Operation and Maintenance staff receiving their Energy Saver of the Week certificate**

### Sustainability Training

A half hour sustainability training session was included within the annual staff health and safety refresher training. These sessions were delivered to all staff over the course of six months

### NLS08 & NLS09

The Plant Operations and Maintenance Contractors, ECG have worked closely with NLS and have initiated a significant number of initiatives to improve the efficient management and operation of the plant.

**NLS05, 08 & 09** all achieve energy reduction through human activity. Of the 513 tonnes of CO2 emissions from electricity and gas consumption, which were saved during 2010/11

approximately 120 tonnes can be accounted for by physical improvements to the NLS infrastructure i.e lighting replacement. This means that approximately 393 tonnes of savings were due to through the creativity, dedication and effort of staff (both directly and indirectly employed).

### 5.3 Near term projects

Ref	Project	Capital		Cost savings		CO2 savings		Year planned	Status
		Predicted	Actual	Predicted	Actual	Predicted	Actual		
NLS04	Lighting replacement - Cold Cathode	£30.5k		£3,120		21.5		2011	Delayed
NLS06	Chiller replacement - George IV Bridge	£350K		£21,000		145		2013	Out to tender
NLS07	Thin client roll out upon routine PC replacement	Cost neutral		£3,475		23.9		2012 –2014	Planned
NLS10	Humidifier replacement - CB	£180K		£26,500		181		2012–2014	Cancelled

#### NLS04

The cold cathode lighting replacement project has been delayed until such time as it can be combined with another requirement to erect scaffolding within the George IV Bridge main entrance.

#### NLS07

The thin client roll out is programmed for the later part of the CMP programme

#### NLS10

Following further technical investigations this project has been abandoned due to issues relating to the compatibility of this form of humidification with the type of air conditioning employed within the Causewayside property.

### 5.4 Medium to long term projects not planned in detail and requiring further work

Ref	Project	Capital		Cost savings		CO2 savings		Year planned	Status
		Predicted	Actual	Predicted	Actual	Predicted	Actual		
NLS11	GB- Ed. Uni CHP connection	To be quantified		£0		285		2014	Cancelled
NLS12	Low energy collection storage - CB	To be quantified		To be quantified		To be quantified		2010-2014	Ongoing

#### NLS11

Due to the current economic climate Edinburgh University has decided not to extend its district combined heat and power district system. This project will therefore not go ahead

## NLS12

NLS has been working actively with the International Federation of Museum Facilities Administrators (IAMFA) to develop a consensus on a new approach to environmental conditions for collection storage, which reflects current research in the fields of both conservation and low energy collection storage.

NLS commented upon PAS198:2011 – Specification for Environmental Conditions for Cultural Collections. The PAS is intended to act as a response to the significant changes in thinking which have developed, which mean that BS5454 is widely regarded as being not fit for purpose with regard to environmental conditions for cultural collections. The PAS will be replaced by a new British, European or International Standard in time.

In light of the above and under the advise of the NLS preservation specialists, NLS now maintains conditions within its environmentally controlled collection storage areas at 15 – 20 deg C and 40 – 60% humidity

NLS is currently engaged in the process of appointing consultants to develop a scheme for the replacement of the entire Causewayside external envelope, which has failed. The brief for the project emphasises the requirement for the external envelope to support the NLS objective to use Causewayside for low energy collection storage and includes requirements such as an air leakage rate of one and developing the scheme alongside a bespoke BREEAM assessment.

## 5.5 Additional projects not included in the original CMP submission

Ref	Project	Capital		Cost savings		CO2 savings		Year planned	Status
		Predicted	Actual	Predicted	Actual	Predicted	Actual		
NLS13	CB lighting conversion from T8 to T5	£40K	£40,867	£6,300		44			2011-12 33% complete
NLS14	CB condenser pump replacement	£50K		£47,800		329			2011 – 12 Finance obtained
NLS15	LB Voltage Optimiser	£10K	£9,867	£940		6.4	6.4		2011-12 complete

## NLS13

NLS is converting all of the stack floor lighting within the Causewayside building to take T5 fluorescent battens. This will halve the energy consumption, with the additional benefit of reducing the heat generated by the lighting and thus the cooling load within these areas. Two Levels of the building have been completed and the remainder of the work will be carried out during the course of the financial year

## NLS14

This project will increase the efficiency of the condenser pumps within the Causewayside building by approximately one third. The work is due to be completed by the end of the 2011/12 financial year

## **NLS15**

A voltage optimiser has been installed in the Lawnmarket property and is delivering the predicted 10% reduction in energy consumption.

### 5.6 Transport

NLS experienced a 66% reduction in CO<sub>2</sub> emissions from travel during 2010/11 compared to the baseline year 2008/09, despite the fact that this was not an area which was targeted by the CMP. Figure 8 provides an in depth comparison of the transport usage at NLS between the baseline year and 2010/11.

Fleet use reduced modestly and is predominantly due to the fact that NLS disposed of the fleet car and meets occasional requirements using hire vehicles.

The dramatic reductions in CO<sub>2</sub> emissions were due to significant reductions in business travel, especially international and domestic flights. This has been encouraged by a new Travel Policy which promotes the use of trains for domestic travel, however it that primarily been driven through reductions in travel budgets and increased provision of video conferencing facilities.

**Figure 8 Comparison of travel data between 2008/09 and 2010/11**

ID	Site or Group	Transport Type (by distance or fuel)	Units	2008/09		2010/11	
				Distance travelled	CO <sub>2</sub> emission (kg)	Distance travelled	CO <sub>2</sub> emission (kg)
1	SG07 ZYD	Medium/large diesel van (>1.25 ≤3.5t)	km	5,427	1,485	-	-
2	SN58 BWP	Medium/large diesel van (>1.25 ≤3.5t)	km	1,976	541	12,037	3,295
3	Y813 BSC	Medium/large diesel van (>1.25 ≤3.5t)	km	8,391	2,297	2,624	718
4	SN54 DNJ	Medium/large diesel van (>1.25 ≤3.5t)	km	10,634	2,911	7,683	2,103
5	SN54 DTK	Small diesel van (≤1.25t)	km	12,707	2,261	13,987	2,489
6	S63 BSC	Medium diesel car, from 1.7 to 2.0 litre	km	15,122	2,844	-	-
7	Car Mileage	Average car (unknown fuel)	km	6,198	1,266	1,770	361
8	Taxi use	Medium diesel car, from 1.7 to 2.0 litre	km	12,230	2,300	4,000	752
9	Air flight	Air - domestic	Passenger km	140,000	26,751	29,162	5,572
9	Air flight	Air - short haul international	Passenger km	68,952	7,388	38,677	4,144
9	Air flight	Air - long haul international	Passenger km	556,692	67,111	129,181	15,573
10	Train travel	Rail - national rail	Passenger km	200,540	12,073	108,518	6,533
11	SG Hire Contract	Average petrol car	km			3,302	684
12	SG Hire Contract	Medium/large diesel van (>1.25 ≤3.5t)	km			1,282	351
<b>Total CO<sub>2</sub> emissions</b>					<b>129,229</b>		<b>42,576</b>

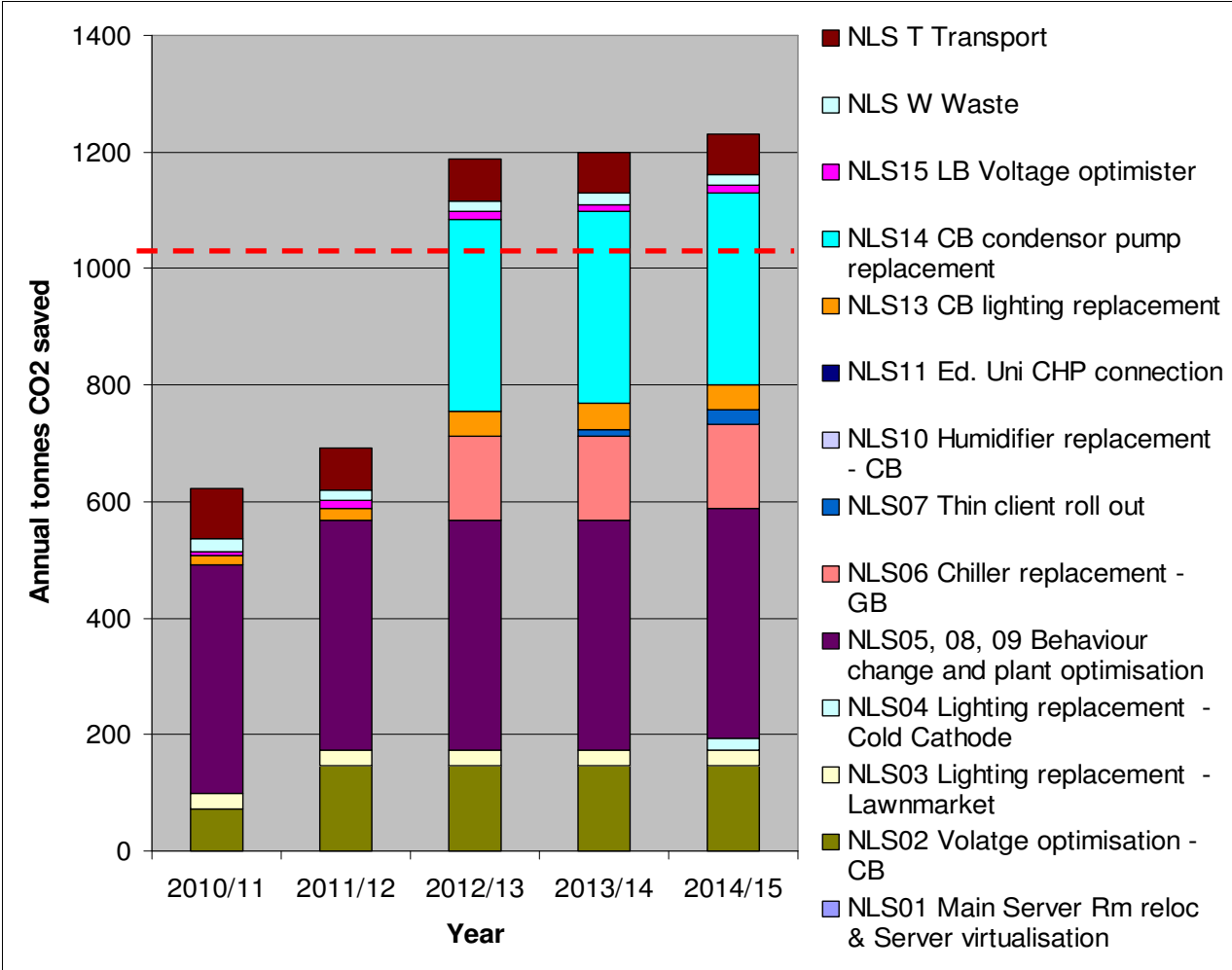


Figure 9 Revised predicted annual carbon savings by project

## 6.0 Benefits

### 6.1 Financial benefits – CMP assumptions

The financial calculations within the CMP were based on the following assumptions:

- The unit price of electricity during 2010/11 will be £0.078 per kWh<sup>5</sup>
- The unit price of electricity will not fall below this figure
- There will be no increase in energy costs in 2011/12
- Energy inflation from 2012/13 will be a minimum of 8.4% p.a.
- NLS will remain outside the CRC threshold at which it will be required to pay for carbon allowances
- Project costs are provided at 2010/11 levels. No allowance for inflation has been added. Project costs for projects toward the end of the CMP must therefore be updated as they are developed.

### 6.2 Financial benefits – 2010/11 actuals

During 2010/11 the following occurred:

- The unit price of electricity during 2010/11 was £0.078 per kWh
- The unit price for gas during 2010/11 rose in July from £0.016 per kWh to £0.021 per kWh, a 31% increase.
- NLS remained outside the CRC threshold at which it will be required to pay for carbon allowances

### 6.3 Financial benefits – revised prediction

The revised assumptions used for financial predictions are:

- The unit price of electricity during 2011/12 has risen to £0.086 per kWh
- The unit price for gas during 2011/has risen to £0.035 per kWh
- Energy price inflation figures for 2012/13 are not currently readily available
- Cost savings from travel will be maintained at no less than £50k per annum
- Spend on waste and water will remain static
- NLS will continue to remain outside the CRC threshold at which it will be required to pay for carbon allowances

Note future energy cost savings are calculated on the basis of costs annual energy reduction x the unit price of the energy, i.e. the cost saved by not consuming the energy, rather than the cost reduction compared to the base line year.

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<sup>5</sup> Unit costs quoted include all pass through charges

## 6.4 Quantified benefits

The following tables provide the original CMP predictions; actual 2010/11 outturn compared to the baseline year and revised prediction.

	2010/11	2011/12	2012/13	2013/14	2014/15
<b>Annual cost saving</b>	<b>£78.8k</b>	<b>£103.8k</b>	<b>£122.8k</b>	<b>£153.5k</b>	<b>£161.5k</b>
<b>Annual CO<sub>2</sub> saving</b>	<b>549</b>	<b>725</b>	<b>809</b>	<b>1016</b>	<b>1363</b>
<b>% of target achieved</b>	<b>54%</b>	<b>71%</b>	<b>79%</b>	<b>100%</b>	<b>134%</b>
<b>Actual / Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>

**Table 5 Quantified benefits – CMP prediction**

	2010/11*	2011/12	2012/13	2013/14	2014/15
<b>Annual cost saving</b>	<b>£261.5k</b>	<b>£</b>	<b>£</b>	<b>£</b>	<b>£</b>
<b>Annual CO<sub>2</sub> saving</b>	<b>623</b>	<b>691</b>	<b>1187</b>	<b>1199</b>	<b>1232</b>
<b>% of target achieved</b>	<b>61%</b>	<b>69%</b>	<b>116%</b>	<b>117%</b>	<b>121%</b>
<b>Actual / Estimate</b>	<b>Actual</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>

**Table 6 Quantified benefits – actual during 2010/11 and revised prediction**

## 6.5 Un Quantified benefits

Participation in the Carbon Trust Carbon Management Programme has provided an invaluable vehicle through which NLS has been able to communicate sustainability, with particular reference to energy reduction, at all levels within the organisation and also to a wider external audience.

NLS was invited to present its experiences at the Carbon Trust Carbon Management Programme graduation in September 2010, which was attended by John Swinney, Cabinet Secretary for Finance and Sustainable Growth and representatives from forty seven Scottish organisations. Later in the day John Swinney referred to the positive activity at NLS at the Transport, Infrastructure and Climate Change Committee in the Scottish Parliament.

NLS also was featured in the TUC GreenWorkplaces Project Report 2008 – 10.

NLS was cited as a public sector case energy efficiency study in the Scottish Government's Conserve and Save: The Energy Efficiency Plan For Scotland Annual Report 2010-11 and will also feature in the Carbon Trust Annual Report 2010/11