Carbon Management Plan (CM Plan) 2015/2022

SCOTTISH LEGAL AID BOARD

RESOURCE EFFICIENT SCOTLAND

Growth that doesn't cost the earth

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4th November 2016

A programme from ZERO WASTE SCOTLAND

natural scotland
SCOTTISH GOVERNMENT

Contents

1 Executive Summary

In the previous Carbon Management Plan (CM Plan) published in 2011, SLAB stated its aspiration to achieve a reduction target of 15%, based on the 2008 carbon footprint baseline, by 2015. A number of factors made this a challenging target including: the complexity of the carbon management process; demands for new skills within, and time from, existing staff in the identification, planning, resourcing and tracking of carbon reduction projects/initiatives; a changing legislative and policy framework, and the changing nature of estate and building use increasing energy intensiveness of the building stock.

In early 2015 SLAB relocated its headquarters from Drumsheugh Gardens to Thistle House, 91 Haymarket Terrace, Edinburgh. Our office in Drumsheugh Gardens closed in April 2015 thereby ending the CMP for that building.

By 2015, SLAB reduced its carbon emissions by 48% on a baseline of 2008. This equates to a figure of 259 tonnes CO_2e in 2014-15

These factors combined to suggest that a review and revision of the original CM Plan, including reduction targets, would help SLAB move forward constructively. A new baseline year of April 2015 to March 2016 was therefore set to measure the performance of our new building at Thistle House.

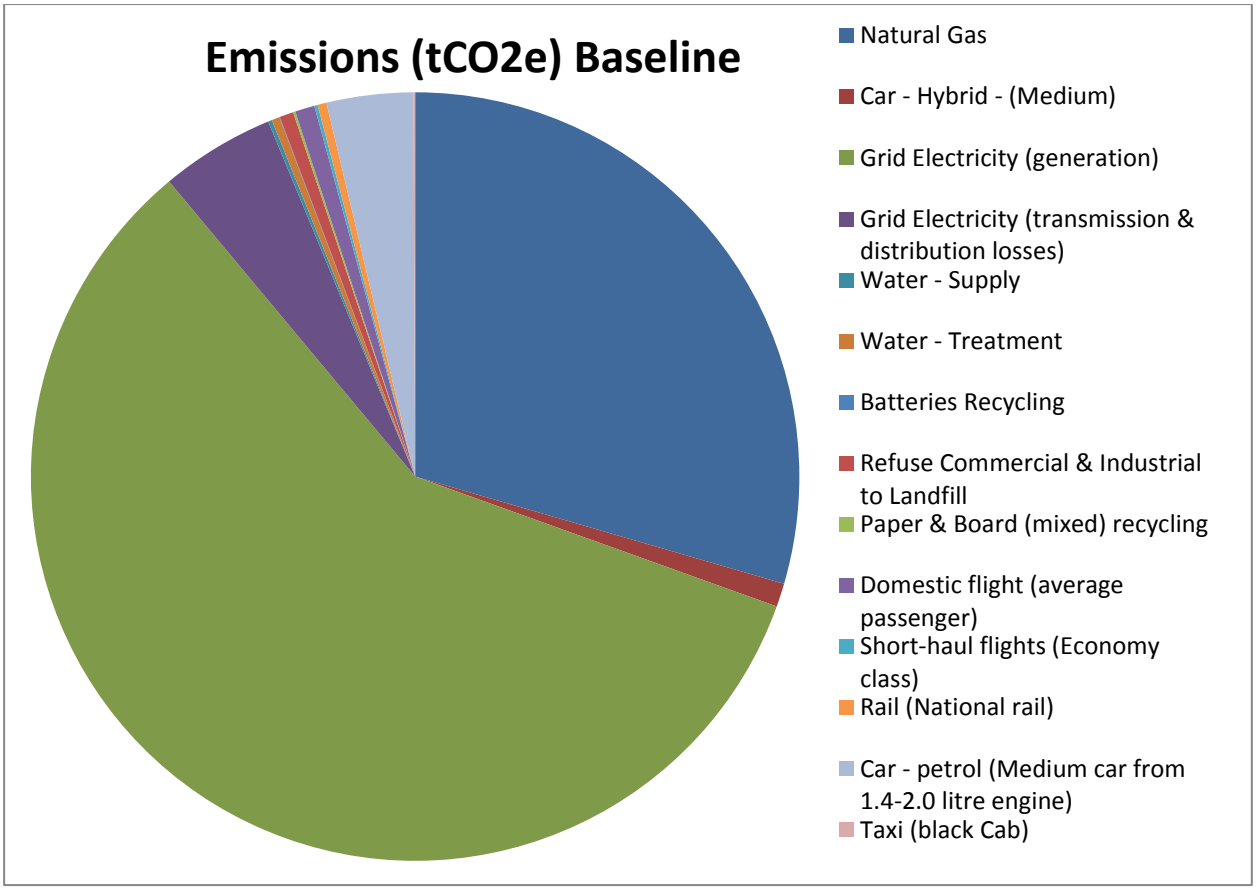
This CM Plan sets out our ambitions for SLAB and a roadmap for progress. Reducing carbon emissions is not just about our commitment to the environment. The same processes we use to identify carbon emissions reduction will also identify and realise financial savings through improved efficiency in the procurement and operation of our buildings and transport. The actions outlined within this Plan form part of our efficiency plan to reduce consumption and provide value for money.

The 2015-16 carbon footprint was calculated to be 425.9 tonnes of carbon dioxide equivalent (tCO_2e) and covered electricity, gas and gas oil consumption, transport, water and wastewater consumption, and waste disposal.

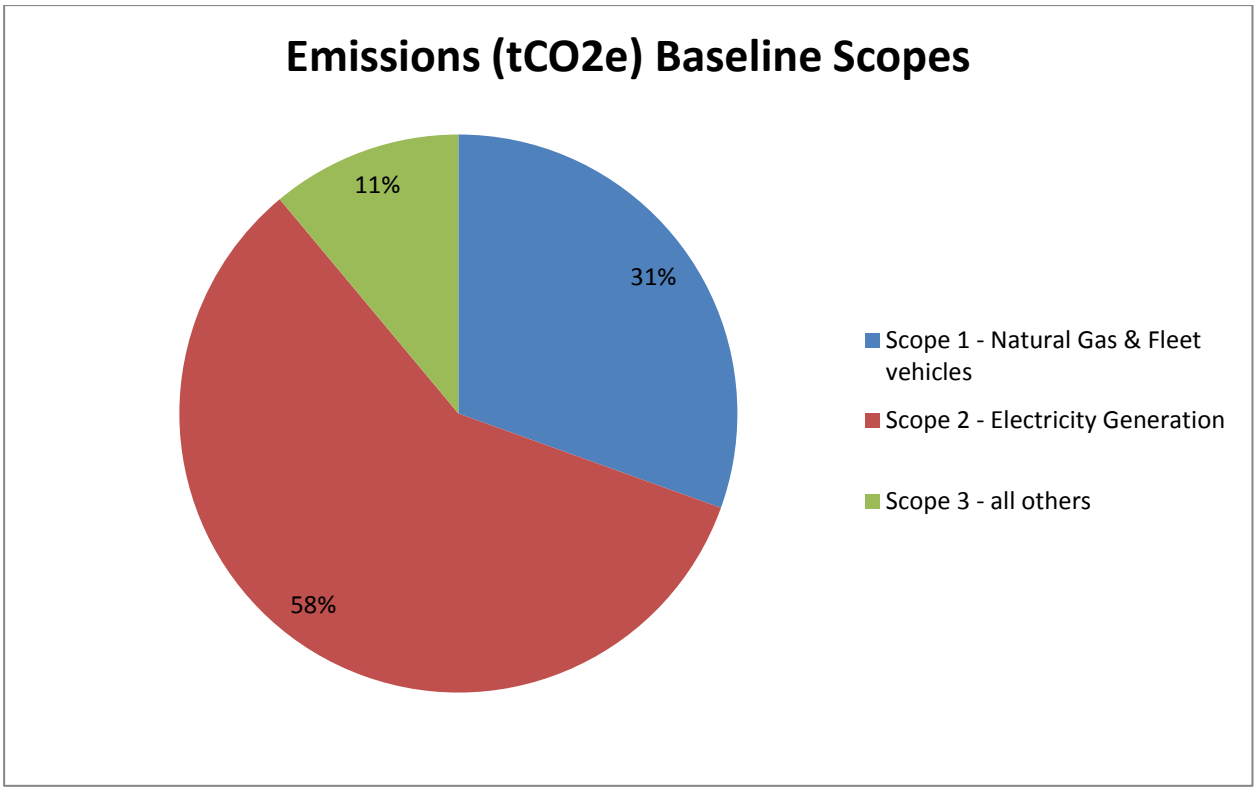
SLAB has therefore decided to set a target to reduce its total annual carbon footprint by 42.6 tCO_2e by the end of financial year 2022; this aspiration of a 10% reduction is based upon the 2015 footprint and to be delivered by 2022.

By 2022, SLAB will have reduced its carbon emissions by 10% on a baseline of 2015. This equates to a figure of 42.6 tonnes CO_2e in 2015

The following graphs detail SLAB's 2015/16 baseline carbon footprint by scope:



Graph 1 showing SLAB 2015-16 baseline Carbon footprint



Graph 2 showing SLAB 2015-16 baseline Carbon footprint scopes

Reductions will be achieved through a range of projects including energy, fleet and awareness raising initiatives. SLAB currently has no capital funding approved by the Finance Department for carbon management projects.

If all identifiable carbon saving projects were to be implemented, the potential cumulative **financial savings** (avoided costs) to the organisation are in the region of **£54,000** over the period 2016 to 2022, on utilities alone. This is based on an average reduction of 5% across the period with the annual saving in 2021-22 being over £9,000 per annum.

The Project Sponsor for this CM Plan is the Director of Corporate Services and Accounts, who will be assisted in its delivery by 2022. SLAB successfully introduced Green Champions to enhance communication and awareness-raising during our previous CM Plan. This ensured we actively promoted and monitored environmental projects both locally and among wider stakeholders.

This CM Plan is viewed as a 'live' document and it is envisaged that there may be changes on an annual basis as SLAB's estate changes and planning assumptions become a reality. To ensure that it remains 'fit for purpose' to deliver targeted carbon savings, this document will be reviewed on an annual basis. This process will be overseen and co-ordinated by the Facilities Manager.

2 Foreword from the Project Sponsor

The Scottish Legal Aid Board is committed to applying the principles of responsible environmental management in all aspects of its business operations. Specifically, it is our policy to:

- Continually improve the energy efficiency of our premises, so as to reduce both energy consumption and emissions.
- Focus on waste minimisation by introducing techniques to recover and re-use office materials.
- Work with suppliers to eliminate packaging, materials and components which generate waste.
- Manage the disposal of waste to minimise environmental harm.
- Inform and educate all our employees on environmental issues relevant to SLAB.
- Continually improve our environmental standards, by setting objectives and targets and reviewing them annually.
- Allocate environmental responsibility at Director and Management level.

It is the responsibility of all personnel of SLAB to work in partnership to maintain and improve our environment.

It is the responsibility of Directors, Managers, Supervisors and Team Leaders to ensure that the contents of this policy document are carried out by themselves and their staff. They are also to ensure that all environmental arrangements within their areas of responsibility are up to date and reflect the procedures which are to be followed within SLAB.

3 Foreword from Resource Efficient Scotland

Resource Efficient Scotland are pleased that SLAB have committed to improving their resource efficiency throughout their operations demonstrated in this Carbon Management Plan. There is an opportunity to save energy, water and money, increase recycling and use fewer resources. Resource Efficient Scotland will be able to provide assistance to implement and deliver on these improved resource efficiency measures through technical support and guidance.

4 Introduction

4.1 General

SLAB began their first Carbon Management Programme in 2008. A review undertaken indicates that the following were reasonably well established: the original carbon footprint; the process for managing carbon emissions, and project list to achieve carbon savings. However, the review also acknowledged that strengthening of progress tracking and further project opportunity development would support ongoing efforts. Relocation from a traditional cellular Georgian office to modern premises also indicated that new measures and targets were required.

SLAB therefore recognises that it has reached a point in its carbon management maturity where the decisions it makes in this current plan period with respect to future funding of carbon management reduction measures will have a significant impact on the organisation's ability to meet its stated reduction targets.

4.2 Background to the Organisation

The Scottish Legal Aid Board manages the legal aid system in Scotland within the scope of our governing legislation and advises Scottish Ministers.

SLAB HQ is located at Thistle House, 91 Haymarket Terrace, Edinburgh. SLAB manages the whole building, although we only occupy around 63% of the premises. The carbon footprint measured includes 100% of the utilities used and waste produced. Aspects such as travel only measure the SLAB content.

The building has a NIA of 3,575 m2. Other organisations within the premises in 2015 included the Mental Welfare Commission (MWC), Commission for Ethical Standards in Public Life in Scotland (CESPLS), Judicial Appointments Board for Scotland (JABS), Scottish Boundaries Commission (Boundaries), British-Irish Council (BIC) and a Scottish Government hot desking area (SG).

SLAB also has a number of small remote offices within its estate. Although these have not been measured in the new carbon footprint baseline, it is our intention to measure these during the course of the plan. Data pertaining to energy consumption became available to the Facilities Department from April 2016. Given the varied nature of this estate and the likely changes that are expected to occur to it by 2022 we may consider creating a separate plan for these locations once a baseline year has been established.

4.3 SLAB's Performance on Carbon Management

Although SLAB began its Carbon Management Programme in 2011, we have been implementing energy saving measures since the mid 1990's. There is already a reasonably well established process for measuring and monitoring carbon emissions to achieve carbon savings.

The key issues facing the organisation comprise the changes to the built estate, staff/tenant/service user/etc. throughput and increasing energy consuming equipment and facilities, all of which will have significant impacts on future carbon emissions. SLAB's Facilities Manager will continue to take measures to adapt the CM Plan to any potentially significant impacts on achieving the CM Plan targets.

One of the key issues in setting a reduction target is the ability to forecast future footprints to enable the setting of a target which is both realistic and achievable. As an example, a 10% reduction on a year 1 footprint of 10,000 tonnes of carbon dioxide equivalent (tCO_2e) (1,000 tCO_2e saved to achieve the target figure of 9,000 tCO_2) is equivalent to a 25% reduction on a year 5 footprint of 12,000 tCO_2e (3,000 tCO_2e saved to achieve the target figure of 9,000 tCO_2e).

As noted, any future footprint forecast needs to reflect anticipated changes in the estate itself (e.g. increases in energy consumption due to refurbished offices) and its use. This Business As Usual (BAU) scenario then provides a clearer picture to allow forecast of a realistic target figure (and hence target) that is achievable, based on a practical project list. Misinterpretation of the BAU case can mask the savings achieved as savings are hidden by an increasing footprint. An example of BAU assumptions will include the tenanted areas of Thistle House which account for 37% of the office, but are less densely populated than the SLAB areas. Any deviation from the BAU model such as vacant floors or increased density will impact the footprint achieved.

The organisation, including senior management, staff and other occupants, recognises the true value of the carbon management process and hence the development of an accurate BAU and annual carbon footprints that reveal the true savings being achieved and how these are mitigating against a constant flux.

In the previous CM Plan published in 2011, the organisation set a reduction target of 15% based on a 2008 carbon footprint baseline of 502 tCO_2e; this equated to a target footprint of 427 tCO_2e. The 2008 footprint included emissions from: electricity, gas and oil consumption; transport (fleet and business, including air travel); waste to landfill, and water consumption.

In the final year of this CM Plan our carbon footprint was 242 tCO_2e, which represented over a 50% reduction on the baseline established in 2008.

A number of factors made this a challenging target. In common with our peers and many other public sector organisations at that time, the complexities associated with delivering a comprehensive carbon management programme were new and not fully understood. Despite the organisation's good history of implementing energy efficiency measures, the increasing demands on staff associated with the identification, planning, resourcing and tracking of carbon reduction projects/initiatives have meant that they were effectively developing new skills sets and increasing their knowledge base whilst still continuing to perform existing duties.

Furthermore, the changing legislative and policy framework has meant that the drive to meet the stated CM Plan carbon reduction target has often been overshadowed. Finally, energy intensiveness within buildings is increasing, estate is changing and there is a constant drive to increase service delivery.

These factors have combined to suggest that a review and revision of the original Carbon Management Plan, including targets, would help the organisation move forward constructively.

4.4 Plan Structure

This Carbon Management Plan details SLAB's strategy for reducing carbon emissions over the next seven years and sets out a clear timetable as well as identifying the responsibilities and internal resources required to deliver the programme. The main objectives of the plan are:

- To continue to take a whole business approach so that carbon management is adopted as a key objective. Key stakeholders will continue to be appointed to ensure that carbon reduction is fully integrated into the organisation's culture.
- To adopt revised targets for the measurable reduction of carbon emissions and to deliver these reductions.

In order to ensure that there is effective and ongoing ownership of the programme, it is important to define a governance structure. The Director of Corporate Services and Accounts, as Project Sponsor, will be responsible for implementation of the plan and reporting to the Chief Executive. The CM Plan will be regularly reviewed and updated, and

information on the organisation's environmental performance will be published on an annual basis.

This Plan contains the following Sections:

The **Carbon Management Strategy** sets out the context and drivers for carbon management in SLAB, including the organisation's own vision and strategic themes.

Emissions Baseline and Projections discusses the results from the revised carbon footprint baseline and includes clear definition on the organisation and operational boundaries applied, and data sources and availability.

Carbon Management Projects outlines the carbon reduction projects currently planned, and evaluates likely success in achieving the targets set out.

Carbon Management Plan Financing describes the financial support available for carbon management within the organisation whilst **Management and Delivery of the CM Plan** defines the management structure in place to ensure the plan's success.

The final chapter on **Progress Reporting** outlines how the carbon management progress will be monitored measured and communicated both internally and externally.

5 Carbon Management Strategy

5.1 Context and Drivers for Carbon Management

The organisation faces a complex set of drivers which set the context for carbon management. Crucially, the organisation recognises that these cannot and should not be viewed in isolation from each other or the principle goal of continuously minimising its environmental impact whilst maximising its contribution to society and the economy.

Ultimately, a strong performance with respect to carbon emission reduction should deliver financial benefits to the organisation by mitigating the risks associated with e.g. increases in energy tariffs.

The following represent the key carbon drivers for SLAB:

- Scottish Government targets
- UK & European targets
- Climate of reducing financial allocations
- Rising energy costs
- Principle that investments in carbon reduction are generally associated with commensurate reductions in future expenditure
- The need to eliminate waste of resources and to increase efficiency
- The organisation's own carbon management targets
- Depletion of the world's finite resources
- It's the right thing to do

5.1.1 Climate Change

Man-made carbon dioxide (CO_2) and other greenhouse gas emissions, also referred to as carbon emissions, are believed by the UK government and the majority of the scientific community to be a major cause of the increase in average global temperatures since the Industrial Revolution. Although some scepticism remains the evidence is very strong and the Precautionary Principle has persuaded successive governments to commit to reducing emissions.

Scotland's net emissions of carbon dioxide in 2005 were over 54 million tonnes, approximately 0.2% of the world's carbon dioxide emissions. Scotland has 0.08% of the world's population and therefore proportionately produces higher carbon emissions per capita.

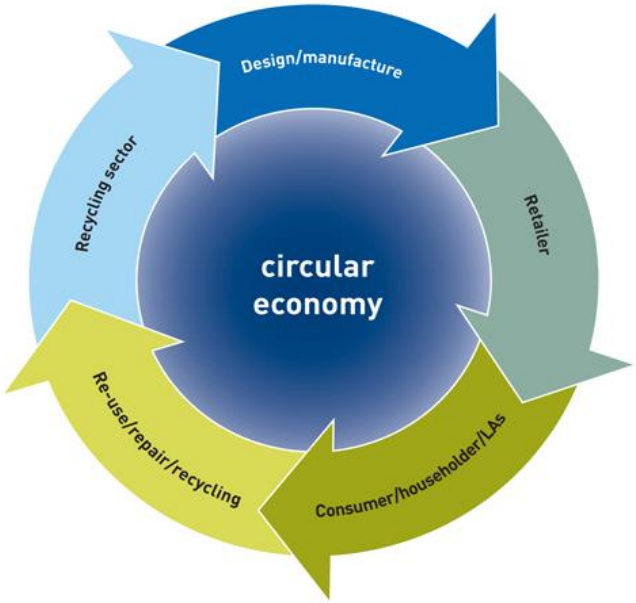
The Scottish Government has sought to address this in the Climate Change (Scotland) Act 2009, setting out a mandatory target to reduce greenhouse gas emissions by 80% by 2050. In the Climate Change Act (2008), the UK Government also committed to similar carbon reduction targets. Significant carbon savings will be required across all sectors in the UK, including from Higher Education Institutions.

5.1.2 Resources

With material scarcity and energy security becoming increasingly important priorities, a circular economy is an alternative to a traditional linear economy of make, use and dispose. In a circular economy we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life. This model; however, is not simple to achieve - it requires product life-cycle thinking across supply chains, production processes and consumers. But by turning the challenges identified into opportunities and then actions, a circular economy can be developed that delivers significant cost and environmental savings.

The most significant circular economic outcomes in each Product Loop involve:

- Keeping products in use for longer (through design for longer life, re-deployment, re-conditioning etc.);
- Ensuring that unwanted products are returned to the economy for re-use; and
- Developing opportunities for closed-loop recycling of materials for high value applications.



5.1.3 Legislative Drivers for Carbon Management

Over the past 20 years there have been many pieces of legislation enacted at an increasing rate in the UK and Scottish Parliaments which aim to address the issue of climate change, carbon dioxide and greenhouse gas emissions, and sustainability. Many of these stem from European Union Directives which in turn were developed in order to meet the obligations of the Kyoto Protocol, adopted in December 1997 and enforced in 2005. Under Kyoto, ratifying countries agreed to commit to reductions in their carbon emissions by, on average, 5.2% below 1990 levels by 2008-12.

The Agreement was supported in the UK by the findings of the Stern Review[1] on the Economics of Climate Change, published in October 2006, which provides compelling economic reasons to address climate change.

The UK share of the collective Kyoto target assumed by the European Union under the Protocol is a 12.5% reduction in emissions below 1990 levels by 2012. Subsequently, the UK Climate Change Programme (launched in 2000) set a target of 20% reduction by 2010 and 60% reduction by 2050. The Climate Change (Scotland) Act 2009 pledges to reduce Scotland's greenhouse gas (GHG) emissions by 42% by the year 2020 and by 80% by the year 2050. Scottish Ministers are also committed to the promotion of renewable energy in Scotland. They set a target that 80% of the electricity generated in Scotland (as a proportion of gross consumption) should come from renewable sources by 2020, with an interim target of 31% by 2011.

The UK Government has placed an emphasis on the public sector setting a leading example. Public sector leadership will be critical to the achievement of the Government's climate change objectives.

[1] Stern Review Report on the Economics of Climate Change. N Stern, 2006. HM Treasury, London.

In addition to the EU's Emissions Trading System (EU ETS), a number of legislative instruments such as the Climate Change Levy (CCL) and Carbon Reduction Commitment – Energy Efficiency Scheme (CRC EES) have been introduced by the UK Government, designed to encourage organisations to reduce emissions. The CRC EES introduces carbon trading to energy intensive organisations not part of the EU ETS. The EU Energy Performance of Buildings Directive (EPBD) was transposed into Scottish law in 2008 and has placed an obligation to evaluate energy usage for inclusion in Energy Performance Certificates to be displayed in all public buildings meeting certain criteria. The 2010 re-cast Directive also includes provisions including nearly zero energy requirements for new public buildings within 8 years or less while Scottish and UK Sustainable Construction strategies aim for zero energy buildings in the same time frame. This, allied to recent changes in Buildings Regulations, will require the organisation to be proactive in terms of building design, construction and use.

Legislative drivers for carbon management can take the form of targets (e.g. from UK or Scottish Government), incentive systems, charging schemes, or regulatory compliance requirements.

This present strategy document will aid the delivery of key sustainability and estate management programmes in a carbon efficient and sustainable manner.

Some of the main legislative drivers affecting the organisation are set out in Appendix A; however, the list is not definitive.

5.1.4 Other Drivers for Carbon Management

While reducing the financial and legal risks posed by various legislative requirements is a significant driver behind SLAB's carbon management programme, there are other factors supporting the need for improving energy efficiency and reducing carbon emissions.

Cost saving: the case for carbon reduction is strengthened by the financial constraints facing all organisations. Funding cuts provide significant incentive to reduce resource consumption and therefore carbon emissions. A sensitive world economy, limitations on energy supply and a more challenging regime in terms of carbon taxation will drive energy prices above general inflation for the foreseeable future. This is particularly significant given the large proportion of SLAB's carbon emissions (93%) that are derived from gas and electricity usage.

Reputational benefit: reducing SLAB's carbon emissions will demonstrate its commitment to good carbon management and sustainability and will enable the organisation to act as an exemplar to encourage others. In addition, a commitment to sustainability is increasingly linked to an organisation's reputation with better sustainability credentials and good carbon management enhancing the organisation's reputation.

Improved staff satisfaction: a number of studies have identified a correlation between a focus on sustainability and staff satisfaction (particularly where staff are fully involved) and this can lead to improved 'productivity' or morale.

Improved engagement with key stakeholders: the organisation's key stakeholders, including staff, tenants and the local community, are increasingly focusing on sustainability. The organisation's engagement and enhanced commitment and leadership with this agenda will improve its relationship with these stakeholders. SLAB will seek to become an exemplar of good practice and so engage others in making a positive contribution to sustainable development.

5.2 SLAB's Low Carbon Vision

SLAB began its commitment to sustainability in the mid-1990's when the Energy Office was set up.

The organisation developed a comprehensive Carbon Management Plan with targets and timetables for substantially reducing greenhouse gas emissions and improving its impact on the environment. The core themes within the CM Plan include:

- Upgrade to Efficiency – continuing upgrading inefficient buildings and replacing inefficient appliances.
- Move to clean power – purchase or generation of electricity from renewable sources.
- Expand Transportation Alternatives – making it easy to get around with less fuel.
- Implement Green Purchasing – procurement of products that use less energy, last longer and are good for the environment.
- Institutional Conservation – create a culture of conservation awareness across the organisation.

The objectives listed create a number of opportunities and challenges. Critical to the success of the Carbon Management Plan is the understanding and buy-in of staff across the organisation. An effective communication plan will facilitate this, and is important to maintaining the profile of the CMP throughout the seven year lifecycle. The following objectives have been set for this strategy:

- To raise awareness of the CM Plan.
- To obtain buy-in to the plan from stakeholders.
- To inform staff of progress and key milestones.
- To ensure there is an opportunity to contribute to the project through consultation and feedback.
- To champion a low carbon approach to the wider community by publicising successes.

A range of communication channels have been defined and will be used as appropriate for the audience/message. The channels used and overall effectiveness of the communications strategy will be reviewed regularly during the project to determine whether the objectives are being attained; the current strategy is outlined in Section 9.7.

To further enhance communication and awareness-raising, the organisation has introduced Green Champions who will actively promote and monitor environmental projects both locally and across the wider community.

5.3 Strategic Themes

There are two primary objectives of the CM Plan: to achieve a reduction in carbon emissions and to embed carbon management within the culture of the organisation. In order to achieve these objectives, SLAB will continue to build on the key themes identified in the 2011 Plan. The organisation's strategy and implementation plan will therefore need to address the following specific areas.

5.3.1 Energy

Energy use in buildings is by far the most significant source for carbon emissions, contributing 93% of the organisation's total footprint, as calculated. Rising fuel costs and legislative drivers combine to make this a priority area for action.

SLAB will continue to focus on increasing the energy efficiency of the estate by installing up-to-date technologies, including renewables where practicable, and engaging with staff and other stakeholders.

Strategic Target:

- To reduce energy consumption by 11% by 2022.

5.3.2 Travel/Transport

The organisation continues to strive to reduce carbon emissions arising from transport and travel.

Strategic Targets:

- Reduce the % of business miles by private cars 25% by 2022.
- Increase the use of video conferencing by 10% by 2022.
- Reduce the CO2e associated with fleet vehicles by 10% by 2022.
- Reduce the % of staff travelling by private car by 25% as their main mode of travel by 2022.

5.3.3 Waste

The organisation continues its commitment to reducing the quantity of waste going to landfill. At Thistle House paper, cardboard and glass collection facilities are available for the diversion of these materials from landfill into the recycling stream. Facilities Management have a responsibility for promoting utilisation of the available recycling facilities.

Strategic Targets:

- To comply with the Scottish Government's targets for recycling and waste reduction strategies.
- To increase our overall figure for waste diverted from landfill to 60% by 2022.
- To achieve 90% paper recycling by 2022.
- To comply with Wrap recycled contents and waste minimisation targets in construction projects.
- To move from bottled drinking water to plumbed in dispensing systems by 2016.

5.3.4 Water

In addition to Planned Preventive Maintenance which ensures water loss from infrastructure is minimised, the organisation continues to invest in water conservation measures which reduce both consumption and waste water production.

Strategic Target:

- To reduce water use by 10% by 2022.

5.3.5 Procurement

The prudent use of natural resources is still a cornerstone of carbon management in the organisation. 63% of the organisation's carbon footprint is as a result of electricity consumption, whereas in Drumsheugh Gardens this power was drawn from its utility suppliers Green Source renewable energy; this is not the case in Thistle House. The supply to Thistle House is a standard energy mix. In October 2016 we approached our supplier who informed us that they were in discussions with Scottish Procurement to provide a renewable price option from Renewable Guarantees of Origin (REGO) backed power. We have been added to the list of customers who are interested in this option.

Resource efficiency is further supported by the SHEFC requirements for all new builds and refurbishment projects to meet BREEAM 'excellent' and 'very good' standards respectively.

On the wider procurement front, the SLAB Purchasing Department is a member of Scottish Procurement and accesses contracts negotiated by Procurement Scotland[2] and other external bodies for a wide range of goods and services procured on a collaborative basis. All of these bodies have sustainability as a central focus of their procurement process, and increasingly environmental factors are featuring within the evaluation criteria applied in awarding contracts.

"One off" purchases for equipment and tangible goods always takes account of the whole life cost of the goods which ensure a healthy evaluation weighting is given to long warranty and maintenance contracts, ongoing running costs and the use of consumables.

[2] http://www.scotland.gov.uk/Resource/Doc/256155/0076031.pdf

Strategic Targets:

- To procure 100% of our electricity supplies from green sources (current uptake is 0%).

5.3.6 Carbon Data Management

Good data recording and data management enable the monitoring of progress against targets. Energy management software is used to collect and collate data for monitoring and targeting in relation to energy and water consumption, and provides analysis and reporting facilities. It is proposed to use this as a single platform for handling all energy and water data such as utility invoices, manual reads and smart meters.

In addition, Standard Operating Procedures (SOPs) are being developed to provide a standardised and formalised process for the collection, analyses and reporting of carbon emissions data.

5.3.7 Communication

A Carbon Management Awareness Campaign (CMAC) will be designed to drive awareness of the benefits of carbon reduction; with the objective of changing the behaviour of all staff. This will be launched in January 2017. The campaign will use print and electronic media to promote the message across the organisation. It is anticipated that the CMAC will contribute by addressing the following:

- Awareness-raising amongst staff in relation to basic energy saving practices in daily life.
- Use of equipment in a sustainable way, preserving the lifespan of our current facilities, reducing our expenditure.
- Concurrent financial benefits of energy saving; financial benefits will further allow improvement of facilities, enhancing the organisation's reputation.
- Creation of an enduring culture change such that good practice will be easily adopted by all new staff.
- Promote staff feedback about energy saving to widen the debate around carbon management.

Key to the delivery of the carbon management programme is the development of the 'Green Champion' network that will ensure that efforts to reduce carbon emissions will be ongoing.

5.4 Carbon Reduction: Targets and Objectives

The crux of the review process is the setting of a carbon reduction target for the lifespan of this CM Plan.

SLAB will reduce its calculated 2015 baseline carbon footprint by 42.6 tonnes of carbon dioxide equivalent by the end of 2022.

This represents a reduction of 10% based on the total carbon footprint of 425.9 tCO_2e emissions for the year 2015. This 2015 carbon footprint baseline covers electricity, gas and gas oil consumption, transport (fleet), water and waste water consumption and waste disposal to landfill. The 10% target will be based on a range of projects including energy, fleet and awareness raising initiatives.

6 Emissions Baseline and Projections

The first step in developing a Carbon Management Plan is to determine the organisation's current emissions or carbon footprint, facilitating the setting of a realistic reduction target.

The resources to be included in the footprint must be decided (Section 6.1: Scope and Section 6.2: Boundaries) at the outset. The Scope and Boundaries of the carbon footprint will be determined by the extent of the estate, goods and services over which the organisation has operational control, and the availability of good quality data.

Once the scope has been set, a baseline year can be selected and the baseline footprint determined (Section 6.3: Data sources and Section 6.4: Baseline).

The next stage in setting carbon reduction targets is the estimation of projected emissions/ costs if no action were taken (known as Business As Usual or BAU) in conjunction with determination of potential savings with the implementation of carbon management projects identified as achievable and fundable.

Projections for a range of future scenarios can be evaluated. The "gap" between the future BAU emissions and the projected emissions with carbon management projects implemented is known as the Value at Stake.

6.1 Scope

6.1.1 Emissions sources

The GHG Protocol[3] categorises carbon emissions as scope 1, 2 or 3 emissions, as defined below and shown in Figure 1.

Scope 1 Emissions: direct GHG emissions occur from sources that are owned or controlled by the organisation; for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.

Scope 2 Emissions: electricity indirect GHG emissions arise from the generation of purchased electricity consumed by the organisation.

Scope 3 Emissions: an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the organisation, but occur from sources not owned or controlled by the company. Examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services. Scope 3 also includes the Transmission and Distribution (T&D) losses for purchased electricity supplied through the Grid.

[3] The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard Revised Edition, Worlds Resources Institute; World Business Council for Sustainable Development, 2004.

Three Scopes of Emissions

CO_2 SF_6	CH_4 N_2O	HFCs PFCs
Scope 1: Direct	**Scope 2: Energy Indirect**	**Scope 3: Other Indirect**
Fuels Combustion (direct emissions): e.g. gas, oil burnt in boilers, furnaces or turbines	**Purchased Electricity (generation):** purchased direct from generating suppliers	**Purchased Electricity (T&D losses):** purchased direct from generating suppliers
Owned Transport: e.g. cars, vans, trains, ships	**Purchased Heat, Steam and Cooling:** e.g. CHP; purchased direct from suppliers	**Fuel Combustion Well-to-tank (WTT) Emissions**
Physical or Chemical Processing: e.g. from organisation's own production or on-site waste disposal	**Scottish Public Sector Reporting Requirements - Key:** Minimum reporting Best Practice	**Business Travel (including delivery and distribution):** via transport not owned by the organisation
		Waste Disposal
Fugitive Emissions: e.g. air con & refrigeration emissions, methane leaks from pipelines		**Use of Purchased Materials & Consumables:** e.g. water, aggregates, metals, wood, paper
		Use of Owned & Leased Assets; Contracted-out Activity

Figure 1: Sources of carbon emissions[4]

6.2 Boundaries

Carbon footprints are generally defined in relation to two boundaries: the organisational boundary and the operational boundary

[4] Source: Adapted from Scottish Government's Public sector Sustainability reporting Guidance July 2013; in line with 2014 Defra/DECC

6.2.1 Organisational Boundary

The **organisational boundary** sets out which assets are to be included in the footprint and how any shared assets will be accounted for. The organisational boundaries used for the production of the carbon footprint outlined below are shown in Figure 2. Emission sources within the Estate section include all consumption relating to Thistle House, which includes that consumption relating to other occupants. Emission sources within All fleet and All staff business travel relate only to SLAB.

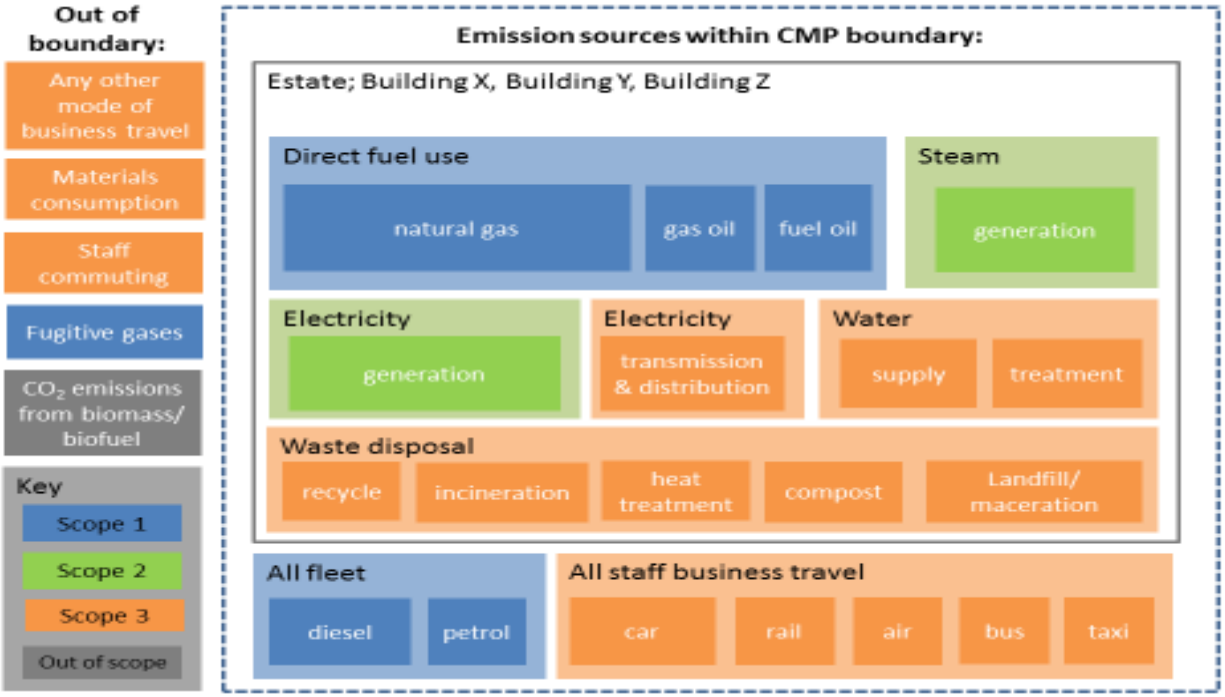


Figure 2: Organisational boundary for SLAB's carbon footprint 2015

The **operational boundary** essentially sets out the emission sources included in the footprint. In keeping with good practice and, in particular, the WRI Guidance for Public Sector Organisations, this should include all Scope 1 and Scope 2 emissions (e.g. on-site fuel combustion, company owned vehicles and purchased electricity consumption). As noted above, Scope 3 emissions (e.g. waste, water, commuting and business travel) are considered discretionary but the following are recommended for inclusion by the above noted guidance:

Transport: specifically transport in non-owned vehicles, such as employee business travel, commuting or transportation of purchased materials/goods and waste. Travel by air, ferry, bus, rail and in employees own vehicles are all classed as Scope 3.

Waste: unless waste is treated on-site, waste management falls under Scope 3. This may cover the treatment of waste generated in the delivery of organisational services or disposal of waste generated in the production of purchased materials and fuels. Waste treatment activities can include disposal in landfill, incineration and composting. Emission factors for recycling are generally negative as a result of emission savings through lower energy requirements and avoided extraction of virgin materials. However; WRI guidance on Scope 3 emissions recommends that 'avoided emissions' associated with recycling should not be included in, or deducted from, the Scope 3 inventory, but should instead be reported separately.

Water: Defra reports different emission factors associated with water supply and wastewater treatment, therefore it is recommended that both are reported.

Other: this may include emissions associated with the procurement of goods and services purchased by the organisation. This category includes all upstream (i.e., well to tank) emissions from the production of products purchased or acquired by the reporting company in the reporting year. Products include both goods (tangible products) and services (intangible products).

The categories included and excluded from the 2015 carbon footprint baseline for the organisation are shown below in Table 1.

Table 1: Scopes included in SLAB's carbon footprint 2015

Scope	Included in **SLAB**'s carbon footprint	Excluded from **SLAB**'s carbon footprint
One (direct)	▪ Fuel combustion - natural gas consumption in buildings (Thistle House only) ▪ Fleet transport – owned vehicles	▪ Fugitive emissions - refrigerant gas
Two (indirect)	▪ Purchased electricity (generation) – energy consumption in buildings (Thistle House only)	
Three (indirect)	▪ Purchased electricity (T&D losses) – energy consumption in buildings (Thistle House only) ▪ Waste to landfill ▪ Water & wastewater ▪ Business travel in staff-owned vehicles & public transport ▪ Waste to recycling	▪ Staff commuting

6.3 Data Sources

Data required for estimation of the organisation's carbon footprint comprises, in effect, an inventory of the consumption of goods and services outlined in Table 1 above. This information can generally be obtained from the organisation's own records. These data are then converted to tonnes carbon dioxide equivalent (tCO_2e) by the application of emission factors (EFs) which allocate an emissions output per unit of goods/service.

6.3.1 Organisational Data Sources

Like all public sector bodies, SLAB routinely collects data for and reports performance via a number of mechanisms, both mandatory and voluntary.

To calculate the total carbon footprint for SLAB, data for the financial year 2015-16 was assembled. The data sources used in the calculation of the carbon footprint are detailed in Table 2 below.

Table 2: Data sources for SLAB's carbon footprint 2015

Category	Subcategory	Main Source/s	Supplementary source/s
Buildings Energy Use	Electricity Natural Gas	Utility bills	Fuel PI Excel spreadsheet
Travel/Transport	Fleet, Own cars, Buses, trains, trams and Air travel	Expenses claims & Invoices	Reception records & Carbon Management spreadsheet
Waste	Landfill and Recycling	Invoices	Reception records & Carbon Management spreadsheet
Water	Supply	Utility bills	Fuel PI Excel spreadsheet
Waste water	Treatment	Utility bills	Fuel PI Excel spreadsheet

The following challenges were experienced with the collection of data for the emission sources included in the 2015-16 footprint. There was some difficulty in obtaining complete data sets for the same time period for all categories as detailed below.

Energy: electricity and gas data is collated on a monthly basis. Data is collected through the authorisation channel for Thistle House and as Facilities now authorise all premises utility bills from April 2016 we will in future years be able to capture the Energy data outwith Thistle House.

Travel/Transport: all SLAB expenses claims for 2015-16 were examined to capture expenditure relating to travel/transport. As this is currently a paper based system it required every claim to be interrogated. Other data was captured via invoices; examples include taxi bills and bus ticket receipts.

Waste: waste data was collated based on regular uplifts and ad hoc services provided by selected contractors. Data is captured via sampling, invoices and contractors worksheets.

Water: water data was collated on a monthly basis from paper bills and the electronic portal provided by the incumbent supplier. The supplier changed in April 2016 after Scottish Procurement re-tendered the contract.

6.3.2 Emission Factor Sources

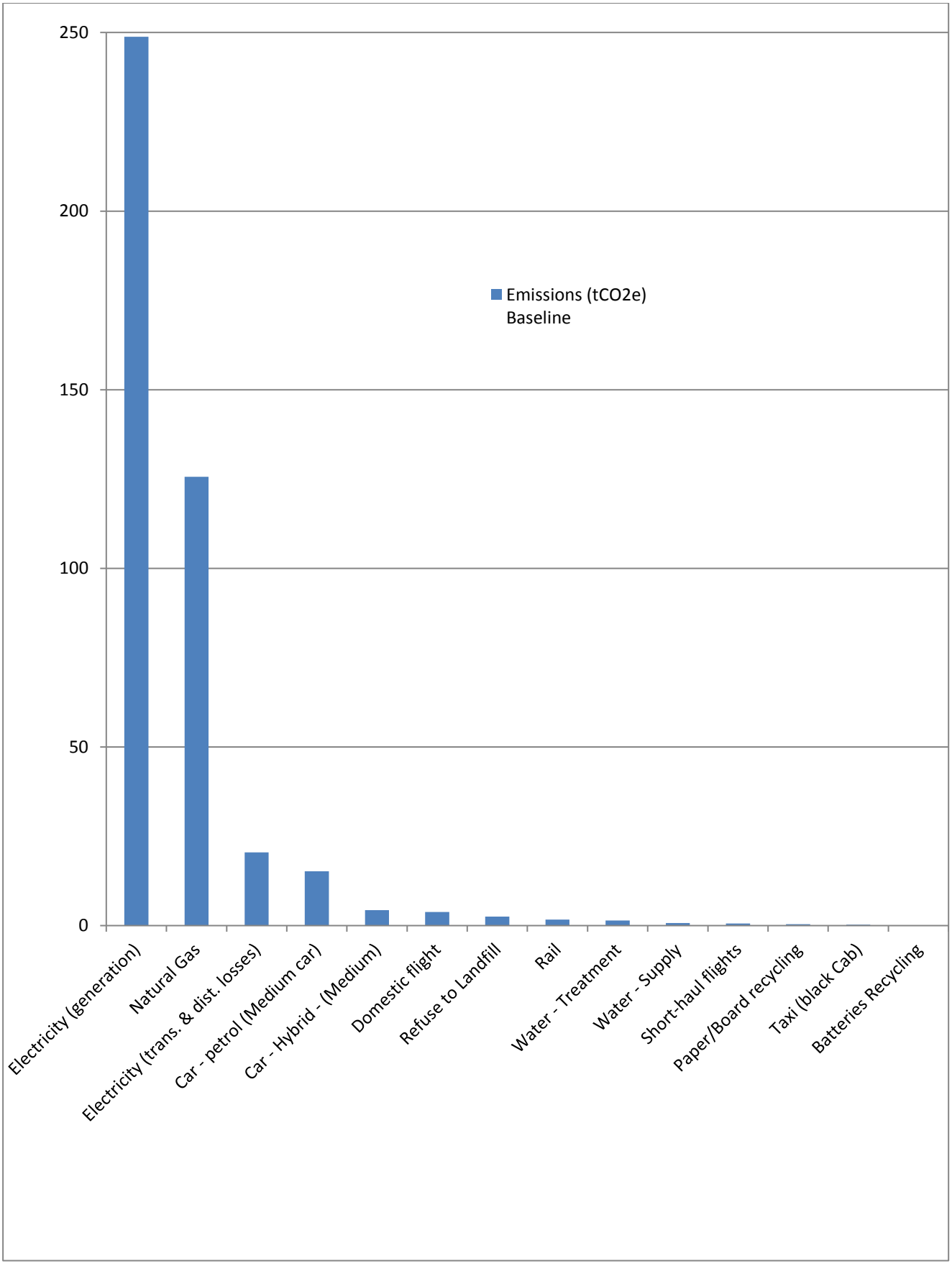
Data on energy use, travel and transport, water supply, wastewater treatment and waste to landfill have been converted into carbon emissions using emission factors provided by Keep Scotland Beautiful - Sustainable Scotland Network Guidelines for 2015 Climate Change Reporting.

Carbon factors, particularly the factor for electricity, change over time and this can have a significant impact on the carbon footprint calculation. More details on the emission factors applied are contained in Appendix B.

For future reporting, procedures are being developed to formalise the carbon footprinting calculation process and provide signposting to key sources for current carbon emission factors.

6.4 Baseline

The baseline year for this CMP is the 2015-16 financial year. Based on the scope outlined above, SLAB's total carbon footprint, or carbon footprint baseline, for 2015-16 was 425.9 tCO_2e. The graphs below illustrate the components of that footprint in terms of carbon emissions. Carbon emission figures for each category are also shown in Table 3.


250
200
150
100
50
0
Emissions (tCO2e)
Baseline
Electricity (generation)
Natural Gas
Electricity (trans. & dist. losses)
Car - petrol (Medium car)
Car - Hybrid - (Medium)
Domestic flight
Refuse to Landfill
Rail
Water - Treatment
Water - Supply
Short-haul flights
Paper/Board recycling
Taxi (black Cab)
Batteries Recycling

SLAB Baseline 2015-16

Emission Source	Scope	Emissions (tCO2e) Baseline
Electricity (generation)	2	248.8
Natural Gas	1	125.6
Electricity (trans. & dist. losses)	3	20.5
Car - petrol (Medium car)	3	15.2
Car - Hybrid - (Medium)	1	4.3
Domestic flight	3	3.8
Refuse to Landfill	3	2.5
Rail	3	1.7
Water - Treatment	3	1.4
Water - Supply	3	0.7
Short-haul flights	3	0.6
Paper/Board recycling	3	0.4
Taxi (black Cab)	3	0.3
Batteries Recycling	3	0.1
	TOTAL	**425.9**

Table 3: Breakdown of SLAB's baseline carbon footprint by carbon emission sources

Table 3 shows that by far the greatest contributor to the organisation's carbon footprint is electricity which accounts for 63% of the footprint; this is followed by natural gas which contributes 30%. Emissions of energy from all others, including fleet transport, waste to landfill and water consumption together account for less than 7% of the total footprint. Therefore, reducing energy consumption in buildings should be seen as a priority area for action. However; reductions achieved in all categories will contribute to an overall decrease in SLAB's total carbon footprint.

Expressing emissions on a cost basis (Table 4) demonstrates the cost of carbon emissions to the organisation across each of the energy sources. It also demonstrates the relative importance of water which account for 23% of the cost of carbon emissions, but only 0.5% of the carbon footprint. Therefore, in the context of current costs, reducing emissions from water will have a greater impact on cost reduction than on carbon reduction. Further analysis will be carried out to examine costs associated with the other aspects of our baseline.

Table 4: Comparison of Energy footprint and financial cost

Category	**2015** Baseline carbon footprint (tCO_2e)	**2015** Baseline cost	**2015 Baseline cost per** tCO_2e
Electricity	269.3 (63%)	£67,728	£251 per tCO_2e
Gas	125.6 (30%)	£23,492	£187 per tCO_2e
Water	2.1 (0.5%)	£27,824	£13,250 per tCO_2e
TOTAL	**397 (93.5%)**	**£119,044**	

6.3.3 Carbon and Waste: the Carbon Metric

The carbon footprint in this CM Plan has been produced using the inventory or territorial methodology for calculating the direct carbon emissions associated with the organisation's activities as recommended in the 2015-16 Defra/DECC guidelines.

The carbon footprint in this CM Plan has been calculated using a consumption-based approach. This is the method used in the Scottish Government's Carbon Metric. Based on life cycle analysis or life cycle thinking, this assigns all the life cycle emissions associated with a product to its consumer, regardless of where those emissions arise

This approach allows organisations to make informed decisions about their waste management options based on the wider carbon impact of different disposal routes.

Whilst there is currently no mandatory requirement for measuring the carbon impact of waste, the Scottish Government has stated that it "expects that a number of exemplar organisations will be early adopters of the metric as a way of better understanding and reporting the impact of their waste management practices."[5] SLAB measures its waste which goes to landfill or recycling.

In order to examine the impact of waste that is diverted from landfill to recycling we calculated the impact if we had not recycled paper, batteries, plastic and other materials. This demonstrates that the 25 tonnes of waste that was recycled had emissions of 0.5 tCO_2e, whereas the impact going to landfill would have been 2.3 tCO_2e.

The results are outlined in Table 5 below:

Table 5: Carbon Metric: carbon impacts of waste management

Overall carbon impact of waste		
Headline category	**Tonnage**	**Impact (tCO_2e)**
Impact from landfill	27	2.5
Impact from recycling	25	0.5
Impact from prevention	25	2.3

6.3.4 Future Carbon Footprinting: Organisational Processes

SLAB aims to expand the operational boundary of the carbon footprint in the future to include emission sources currently excluded such as utilities and waste used in other leased premises. This will increase the accuracy of the calculated footprint and enable better measurement of progress in emission reduction. Currently, any progress made by the organisation in reducing emissions from excluded sources will not be reflected in a reduced carbon footprint.

SLAB believes that one of the keys to the successful attainment of its carbon reduction target is recognition of the different drivers and needs that impact on the component parts of the organisation's carbon footprint. Transparency of responsibility and accountability at a

[5] Public Sector Sustainability Reporting Guidance on the Preparation of Annual Sustainability Reports 2012-13 Annex B

departmental level for the ongoing delivery and monitoring of core activities and carbon reduction projects will be necessary to deliver the targets within this CM Plan.

The organisation will introduce procedures to ensure that progress monitoring will be both streamlined and consistent, with key responsibilities for data reporting clearly defined; where required, corrective actions will be implemented in a timely manner.

7 Carbon Management Projects

7.1 Introduction

In order to continue achieving emissions reductions and avoiding financial exposure, SLAB is committed to identifying and implementing carbon saving projects. To achieve its emission reduction target, it will need to achieve an absolute reduction of 42.6 tCO_2e against its 2015 baseline carbon footprint.

SLAB recognises that successful attainment of its carbon reduction targets is contingent upon the following key elements being in place:

- An organisational framework within the organisation that is sufficiently robust to support the financing, delivery and monitoring of carbon reduction projects.
- Clearly identified responsibility and accountability for delivery against carbon reduction targets from the CM Plan outset.
- Identification of a realistic suite of carbon reduction projects across a range of areas relevant to the carbon footprint; this list must be regularly reviewed and flexible to adapt to emerging needs and opportunities for funding.
- A data collection and collation system that is integrated sufficiently to inform both an annual progress update on the CM Plan and other government and associated returns.

- In this Section, the term "activities" is applied to the full range of interventions that contribute to emissions reductions. These may include traditional 'projects' such as the installation of voltage optimisation units or low energy lighting. For projects of this nature it is generally easier to predict and subsequently quantify the carbon savings that will be/have been achieved. However, activities may also include interventions such as staff energy awareness training where carbon savings are much harder to predict and subsequently quantify accurately.

7.2 Existing Projects

The following initiatives and projects have already been completed or implemented since the organisation's initial baseline carbon footprint was calculated. The carbon emission savings achieved by these schemes will therefore have already contributed towards SLAB's initial reduction target and corresponding savings are therefore included in the baseline carbon footprint for 2015.

7.2.1 Energy

- Heating/Ventilation/Cooling systems – fully repaired & maintained to an acceptable standard.
- Good housekeeping and targeted maintenance across the building.
- Use of the Building Management System (BMS) to maintain comfortable conditions for occupants.
- Lighting - fully repaired & maintained to an acceptable standard.
- Regular monitoring of consumption.

7.2.2 Travel/Transport

- Use of a hybrid pool car for business usage.
- Development of an e-expenses system to accurately appraise business travel.

7.2.3 Waste

- Improved recycling.

- Good housekeeping and targeted re-use/recycling once no longer required.

7.2.4 Water

- Good housekeeping and targeted maintenance across the estate.
- A Building Maintenance defect reporting system for all of Thistle House.
- Regular monitoring of consumption.

7.3 Planned Future Projects

The projects identified below are a sample of those that have been selected for implementation within the financial year 2016-17 because they either generally provide the largest proportion of target figures or were already planned for delivery in that year as part of an ongoing programme of works.

7.3.1 Energy

- Heating/Ventilation/Cooling systems – bedding in repairs, maintenance and control.
- BMS – using the system to monitor and address building needs prior to issues arising to ensure building efficiency is being achieved.
- Reducing lighting levels through straight replacement of lower wattage bulbs.
- Improving lighting management system efficiency and expanding its range/efficiency.
- Full inventory of lighting in place throughout the building to identify all styles/power factors.

7.3.2 Travel/Transport

- Further development of an e-expenses system to accurately appraise business travel and analysis of available data to address inconsistencies in travel.
- Encouraging use of public transport

7.3.3 Waste

- Continued awareness raising and provision of facilities for recyclable materials.
- Examination of waste.

7.3.4 Water

- Implementation of water conservation measures identified through monitoring and targeting.
- Maintenance of facilities and timely repairs. Use of energy saving devices such as cisternmisers and hippos.

In addition, there are some "enabling" projects which, while not directly leading to carbon savings, will "enable" further savings to be achieved through subsequent outcomes/actions. These will also require funding to be identified and allocated.

7.4 Project Register

The Project Register is a tool used to support SLAB with the recording of carbon reduction project data, calculation, and the analysis and reporting of progress against the carbon reduction target.

The tool was populated with SLAB's 2015 footprint figure, reduction target and project information in order to identify whether the organisation will meet its reduction targets and, where applicable, the quantity of additional emission savings required to enable reduction targets to be met.

The project register is a 'live' tool for the organisation to retain ownership of and continue to update regularly to allow tracking of progress of carbon emission reductions.

7.5 Developing Targets

Our analysis and experience shows that, with the current projects in place, carbon emissions will decrease throughout the duration of the CM Plan. The target of 42.6 tCO_2e (10%) reduction will be achieved as the CM Plan currently stands.

If we include the other SLAB leased properties when a baseline can be created, namely at the end of 2016-17, then these will represent potential major estate changes. These will impact on the organisation's ability to achieve its current carbon reduction target. However, the strategy going forward is to develop a long term plan for SLAB's infrastructure, including heating, cooling, power and water, which focus on a centralised approach with Facilities controlling and monitoring these aspects of work. The prudent approach is to measure our carbon footprint as one organisation, but to split the target into Thistle House/non-Thistle House accommodation.

It is expected that costs will continue to increase. Although the organisation has no control over utility, petrol, waste and water costs (limited through procurement choices), it can control the amount of each used. In order to reduce costs, SLAB must reduce the amount of carbon emissions.

8 Carbon Management Plan Financing

8.1 Introduction

The cost of financing the planned Carbon Management Plan over the next seven years (2015 to 2022 inclusive) is expected to be funded from Accommodation costs covering Thistle House. In particular, budget from the following account codes in Cost Centre H98 will be used:-

20001 Water Rates
20003 Heat & Light
20004 Office Consumables
20005 Property Maintenance
20051 Property Repairs
20059 Recycling Costs
25054 Water Vendor
27051 Miscellaneous
30007 Furniture
30008 Others

This method of finance was used successfully in Drumsheugh Gardens to reduce our carbon footprint. If Capital expenditure is required it will be applied for in conjunction with the Finance team.

8.2 Benefits and Savings

As well as improving efficiency and reducing utility costs, implementation of the CM Plan reduces the legal and financial risks associated with the various national and international regulatory regimes relating to the organisation's activities and, in particular, the Scottish Government's and Sustainability & Energy Efficiency agendas.

In addition to quantified benefits, the successful implementation of the identified projects will offer the organisation further benefits including:

- The creation of an improved, more comfortable and more energy efficient built environment for visitors and staff.
- Enhanced reputation from reducing the organisation's carbon footprint.
- Improved platform for providing a lead in carbon management and sustainability to other stakeholders and organisations.
- Meeting of government and other targets.

8.3 Financial Costs, Sources of Funding and Opportunities

The projects included in this CM Plan do not require capital expenditure.

8.3.1 Potential Funding Sources

Internal funding for carbon management will come predominantly from the Facilities Accommodation costs budget.

Awareness raising campaigns are being funded through the Facilities/Communications controlled budgets.

Any other potential funding will be sought as appropriate.

8.3.2 Additional Resources

The identified projects are predominantly of a built environment/engineering nature. The delivery of these will be the responsibility of the Facilities Department. However, responsibility will extend to other departments, where appropriate, e.g. Communications for awareness, Finance for fleet rationalisation and HR and Audit for travel procedures.

The Green Champions will be a lynchpin in delivering the awareness raising campaigns to encourage behavioural change.

Carbon Management is an integral part of the everyday functioning of the Facilities Department. It is anticipated that Facilities will utilise existing resources to carry out these project duties and/or employ the services of specialist engineering consultants to design the projects where appropriate.

9 Management and Delivery of the Carbon Management Plan

9.1 Introduction

In order to ensure that there is effective and ongoing ownership of the Carbon Management Plan, it is important to have a fully defined governance structure. SLAB will continue to adopt the following structure for management accountability.

9.2 Operational Roles and Responsibilities

Carbon Management Plan/Project Sponsor

The Director of Corporate Services and Accounts will champion the project and have ultimate responsibility for strategic direction and for agreeing budgets outside those already available to Facilities.

Facilities Manager

The Facilities Manager will oversee the strategic implementation plan, have strategic input into its development, and review progress.

The Facilities Manager will coordinate the implementation of the CM Plan and report on its progress to the Project Sponsor. Responsibilities of the Facilities Manager will also include the incorporation of progress into the organisation's existing sustainable development governance.

Carbon Management Team

The Facilities Team, including Building Services, Reception, Security and Senior Facilities Officer – Health & Safety will work closely with the Facilities Manager co-ordinating the technical aspects of projects. The Facilities Manager/Senior Facilities Officer (Health & Safety) will be responsible for data collection and reporting.

Green Champions

The Green Champions, who will primarily be Facilities staff, will work closely with the Facilities Manager to collect and collate carbon data, raise awareness and engage staff to promote more environmentally conscious behaviour.

9.3 Resourcing and Ownership

The CM Plan and carbon saving target will be approved by SLAB's Executive Team, providing endorsement and a clear commitment at the highest level, reinforcing the need for action across the organisation. The specific objectives of the CM Plan will be included in the organisation's strategic plan and other high level plans. Executive Team approval will continue to provide long-term organisational momentum for embedding the plan and carbon savings across the organisation. This will primarily be delivered through the governance structure for carbon management described in this Section.

Key stakeholders at all levels of management will provide overall support for promoting a culture of carbon reduction throughout facilities and buildings.

The CM Plan will be published online, and in pdf format, with a limited number of printed copies available for key stakeholders, thus leading by example and saving paper and distribution costs.

The key to success of this updated CM Plan is effective engagement with staff and the local communities. Everyone has a role to play in the delivering the CM Plan and collaborative working is essential to deliver the desired carbon savings.

The key stakeholders in the organisation who will continue to shape and change culture and awareness are:

- Executive Team
- Senior Management
- Heads of Services and officers, including Finance, Communications, Facilities and Purchasing
- All staff (key staff including maintenance and security)

Knowledge transfer is a key performance indicator for the organisation, and the sector has a very important role to play in spreading the sustainability message to the wider community.

SLAB will lead by example and make public the high standards it sets in sustainability and carbon management, influencing the local community, Edinburgh and contributing to the Scottish economy.

9.4 The Internal Delivery Model

Green Champions have been appointed by the Facilities Manager and will form the members of the Carbon Management Committee (CMC). Their task is to encourage good environmental practices amongst colleagues by setting an example in their own work places. They will receive training so that they can answer basic questions about issues such as climate change, energy efficiency and building performance.

Green Champions implement energy saving activities within their area, from educating and encouraging staff to monitoring and evaluating energy usage and identifying opportunities for reduction. The scope covers carbon reduction, energy saving, recycling, travel reduction, and climate impacts. These key staff will be given a printed copy of the updated Carbon Management Plan, to serve as their roadmap towards achieving tangible carbon savings across the organisation.

9.5 Partnership Working Opportunities

SLAB is working, and will continue to work, with a number of partners to deliver the CM Plan, including: The Sustainable Scotland Network; Keep Scotland Beautiful; The Carbon Trust; Zero Waste Scotland; Scottish Procurement; Zero Waste Scotland; BIFM and Scottish Government.

9.6 Data Collection and Management

SLAB's present data collection system affords reasonable data analyses using the BMS software and spreadsheets developed by the Facilities Manager. These are used to monitor all energy costs and consumption from invoice data, actual reads, providers' e-portals and the potential use of building electricity sub-meters. We intend to continue to use smart metering facilities where these are available.

Performance data will be communicated to staff to raise their awareness of the implications of their energy use to their unit. This will be done regularly through the Green Champions.

Energy budget performance is reported on a monthly basis. Exception reports are produced when required and follow up action taken if necessary.

9.7 Communication and Training

The expansion of Green Champions must be associated with the provision of management information on carbon consumption at departmental level. This management information would be important to ensuring that the Green Champion role was given sufficient status within the Facilities Department. The CMC has approved the following future actions:

- To re-launch and train the number of Green Champions.

- To embed environmental responsibilities in their day to day roles and to include the success of this in the performance appraisal system.

The Communications team have developed a planned approach to raising carbon reduction awareness through the development of a robust communications and awareness strategy. The Carbon Management Team, based in Facilities, and the network of Green Champions, will provide support in delivering the low carbon message.

There are many avenues of communication available and these will be fully utilised in promoting the carbon reduction message to all staff and visitors. Effective communication and engagement is the key to success. It is recognised that substantial cultural change will take time to deliver.

Initiatives for building awareness include:

- Publishing the Carbon Management Plan and ensuring it is accessible and available to all staff, visitors and external stakeholders.
- High profile energy and carbon awareness campaigns, on a rolling basis.
- Regular communication and reporting through the staff website.
- Featuring the low carbon culture of the organisation in external news releases wherever possible.
- Promoting the low carbon culture of the organisation to new staff during staff induction, including providing them with written guidelines.
- Training for existing staff – including specific groups such as security staff, cleaners and support staff.
- Specific training for Green Champions.
- Incorporation of carbon-mitigating targets into staff objectives and discussing progress during annual performance & development reviews.
- Consider publishing league tables of departments, or occupants, or specific groups.
- Encouraging staff participation and suggestions.

The Carbon Management Team will regularly monitor progress and will report, ensuring that all major stakeholders are kept informed.

10 Progress Reporting

10.1 Yearly Updates to the Carbon Management Plan

The Carbon Management Plan is viewed as a 'live' document and it is envisaged this will change on an annual basis as the organisation's estate changes and planning assumptions become reality. To ensure that the CM Plan remains 'fit for purpose' to deliver targeted carbon savings, the document will be reviewed on an annual basis. This process will be overseen by the CMC and co-ordinated by the Facilities Manager.

Specifically, the following areas of the CM Plan will be subject to annual review:

- Progress towards overall carbon reduction target including CO2e savings against target and quantifiable benefits.
- Progress with identified carbon reduction projects (this will also be reported separately to the CMC on a quarterly basis).
- Financial savings achieved as a result of carbon reduction projects.
- Costs of the programme.
- Wider benefits.
- Stakeholder engagement.
- Risk Register.

The annual progress review will be placed on the intranet.

10.2 Data Collection and Management

Data measuring the progress of the CM Plan will be collected monthly/quarterly/annually and presented to the various relevant levels of governance.

The data collected will include:

- Progress on specific projects.
- Details of the performance of the variables contributing to the emissions in the quarter such as utilities, water, fuel, waste generated.

As noted above, an Annual Carbon Management Plan Review will be completed.

10.3 Standard Operating Procedures

To ensure the approach to reporting progress with the CM Plan is clear, consistent and embedded across the organisation, Standard Operating Procedures (SOPs) have been developed in the following areas:

(i) Annual calculation of SLAB's carbon footprint and subsequent reporting as an ongoing requirement of this CM Plan.

(ii) Ongoing recording and monitoring of SLAB's carbon reduction projects developed as part of this CM Plan.

The SOPs will require to be endorsed by the Facilities Manager and will be reviewed on an annual basis. For ease of reference, the SOPs will be located on the Facilities drive.

10.4 Other Reporting Requirements

SLAB will continue to fulfil requirements to report on environmental performance through a range of other mechanisms.

10.5 Annual Improvement Action Plan

Following each Annual Review, an Annual Improvement Action Plan (AIAP) will be compiled in response ensuring that Carbon Management remains on track. This document will

highlight the priorities for the forthcoming year and will become a formal addendum to the CM Plan.

Subsequent Annual Reviews will thereafter require assessing of progress against both the original CM Plan and the AIAP.

10.6 Risk Register

Appendix D contains a Risk Register that identifies potential risks to the successful implementation/delivery of the CM Plan. This will also be updated annually.

Appendix A

CARBON MANAGEMENT DRIVERS

1. Scottish Government Targets

2. EU Emissions Trading Scheme (EU-ETS)

3. CRC Energy Efficiency System

4. Zero Waste Plan

- Key Policy Drivers - the Waste (Scotland) Regulations and the Safeguarding Scotland's Resources Action Plan.
- Reduce the carbon impact of waste by 3MtCO2eq.

The key points outlined in the new Waste (Scotland) Regulations are as follows:

- All businesses and organisations to present key recyclable material for collection from 1 January 2014 - paper, card, glass, plastic, and metals.
- Food waste businesses producing over 50kg of food waste per week to present it for separate collection from 1 January 2014.
- Food waste businesses producing over 5kg of food waste per week to present it for separate collection from 1 January 2016.
- A ban on the use of macerators to discharge food waste into the public sewer from 1 January 2016.
- Local authorities to provide a basic recycling service to all households by 1 January 2014.
- Local Authorities to offer a food waste recycling service in non-rural areas from 1 January 2016.
- A ban on material collected for recycling going to landfill or incineration.
- A ban on municipal biodegradable waste going to landfill by 1 January 2021.

Carbon Metric:

- Scotland is the first country to measure the carbon impact of its waste in this way. By giving decision makers a more complete understanding of the impacts of waste, we have a better chance of reducing these impacts.
- The Zero Waste Scotland tool allows organisations to calculate the carbon impact of their waste in a way that is compatible with the national carbon metric approach by entering data on the waste they produce and how this is managed. The results show the overall carbon impact of their waste and highlights which materials are contributing the most to this. Organisations can use the results to plan how to reduce their carbon impacts from preventing and more sustainable management of waste.
- Uptake of the carbon metric is encouraged (though not mandatory) within the Public Sector Sustainability Reporting guidelines - 'early adopters' = best practice/leaders as applied to internal waste.

Appendix B

CARBON EMISSION FACTOR USED

The following Emission Factors from Keep Scotland Beautiful - Sustainable Scotland Network Guidelines for 2015 Climate Change Reporting were applied in the modeling of the 2015-16 baseline footprint for SLAB.

Sources: http://www.keepscotlandbeautiful.org/sustainability-climate-change/sustainable-scotland-network/resources/climate-change-reporting-2015-16/completing-the-report/section-three-emissions-targets-and-projects/

https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

Table 6: KSB emission factors used in the calculation of the 2015/16 baseline carbon footprint

Category	Emission Factor
Electricity (Generation)	0.46219 $kgCO_2/kWh$
Natural Gas	0.18445 $kgCO_2/kWh$
Electricity (trans. & dist. losses)	0.03816 $kgCO_2/kWh$
Car - Petrol (Medium car)	0.19931 $kgCO_2/km$
Car - Hybrid - (Medium)	0.111770 $kgCO_2/km$
Domestic Flight	0.29795 $kgCO_2/km$
Refuse to Landfill	93.000 $kgCO_2/tonnes$
Rail	0.04506 kgCO2/km
Water - Treatment	0.70800 kgCO2/m3
Water - Supply	0.34400 kgCO2/m3
Short-haul flights	0.16972 kgCO2/km
Paper/Board recycling	21.000 $kgCO_2/tonnes$
Taxi (black Cab)	0.21872 kgCO2/km
Batteries Recycling	65.000 $kgCO_2/tonnes$

Appendix C

SUMMARY OF PROJECTS FROM THE PROJECT REGISTER

- Heating/Ventilation/Cooling Systems:
  - Bedding in repairs to bring the system to an acceptable standard
  - Maintaining the system
  - Monitoring, controlling and improving the efficiency of the system
- Building Management System (BMS) – using the system to monitor and address building needs prior to issues arising to ensure building efficiency is being achieved.
- Reducing the wattage of lighting available and in use in the building through:
  - Straight replacement of lower wattage bulbs/tubes
  - LED panels
  - LED bulbs
  - Low energy bulbs/lamps
  - Improving the lighting management system efficiency and expanding its range / effectiveness
- Carry out a full inventory of lighting in place throughout the building to identify all styles/power factors in place.
- Improve monitoring and action in building closure procedures to ensure non-essential equipment is switched off outside office hours.
- Improve reporting system to catch all non-standard events involving Building Services and Security staff.
- Further development of an e-expenses system to:
  - Accurately appraise business travel
  - Analyse its use and identify inconsistencies
  - Provide ready data for analysis
- Encouraging use of public transport, including available bus tickets and public transport information.
- To examine the use of electrical vehicles in conjunction with the taxi company.
- Continued awareness raising and provision of facilities for recyclable materials.
- To examine our waste and target areas where it can be diverted away from landfill.
- To examine alternative disposal options for surplus furniture and equipment, including recycling firms, charities and other agencies.
- Implementation of water conservation measures identified through monitoring and targeting.
- Maintenance of facilities and timely repairs.
- Use of energy saving devices such as cisternmisers and hippos.
- To publish and promote defect reporting through the staff intranet.
- To publish and promote defect reporting to other building users.

- To encourage, participate and monitor the reduction in use of paper correspondence.

Appendix D

RISK REGISTER

	Description	Impact	Probability	Mitigating actions
1	***Timing*** If the CM Plan is not completed on time and is not sustainable in its implementation and long term goals then projected carbon savings will not accrue within the expected timescale and could lead to failure of entire exercise.	H	L	**Liaise with Project Sponsor to ensure sufficient time and resource available**
2	***Negative Financial Implications*** If finance is not made available as required and there is resistance to the implementation of major schemes then the expected scope for carbon reduction will be greatly minimised.	H	M	**Ensure projects identified are approved by Finance and the Carbon Management Committee**
3	***Resistance to Cultural change*** Whilst many staff appear to embrace the general "sustainability" agenda the need to change behaviours with regard to energy efficiency in the workplace needs to be embraced. If behaviours do not change then the overall reduction in CO_2e will be impacted.	H	M	**Liaise/lobby staff, colleagues and tenants.** **Awareness Campaign**
4	***Legislative Changes*** Forthcoming legislative changes are likely to enhance opportunities both for investment and also technical improvement of buildings and related energy efficiency. If this is delayed or shelved, there may be less leverage with certain departments to ensure change.	H	L	**Ensure that legal ramifications of regulatory changes are fed through early in any communication and are understood by all participants**
5	***Development Team Interfaces*** If the Facilities Team fail to incorporate exemplar design business decisions into Works Programmes the Carbon Plan savings will be compromised.	M	L	**Ensure Facilities Management embedded the Energy and Carbon management brief into all design for new build and major refurbishments**

	Description	Impact	Probability	Mitigating actions
6	***Continuity of Project Managers*** If the CM Plan is to be delivered effectively the key personnel involved must be fully engaged and retained on the Project. The most important personnel are the Carbon Management Team and Project Sponsor.	M	M	**Ensure succession planning is in place** **Ensure PDPs/Objectives reflect the CMT needs**
7	***Carbon Plan Loses Priority*** There is a risk that the CM Plan may not always have the level of priority currently assigned to it within the organisation. This will be impacted upon changing national policies and governance. If the Plan is considered low priority this will affect the ability to deliver the savings.	L	L	**Communicate aims and objectives in sound business terms to gain maximum response in all areas to delivery of the Plan**