Inverclyde council

AGENDA ITEM NO. 7

Report To:	**Environment and Regeneration Committee**	**Date**:	**14th January 2016**
Report By:	**Corporate Director, Environment, Regeneration and Resources**	**Report No:**	**RC/16/01/02/ SJ/RG**
Contact Officer:	**Stuart W Jamieson**	**Contact No**:	**01475 712402**
Subject:	**Carbon Management Plan 2012/17: Review of Performance to October 2015**		

1.0 PURPOSE

1.1 The purpose of this report is to present to the Committee an update to the existing Carbon Management Plan, which includes a review of performance to date. The updated Carbon Management Plan has been drafted in a more functional style and provides performance so far against the carbon reduction targets. The updated Carbon Management Plan is attached as an appendix to this report. APPENDIX

2.0 SUMMARY

2.1 The Carbon Management Plan, which was approved by the Safe, Sustainable Communities Committee in March 2012, set a target to reduce carbon emissions by 12% by 2016/17 from a 2011/12 baseline.

2.2 In accordance with the Committee recommendation, a cross-service working group, the 'Carbon Management Plan Technical Working Group', was established to discuss progress of the Plan and develop ideas and projects with which to help achieve the carbon reduction targets. The Group decided that since the final year of the Plan is approaching, an updated Plan be drafted that details the progress to date in achieving the targets set out in the Plan. The drafting of the updated Plan also provided the opportunity to improve the layout and aesthetics to make the information clearer and the Plan easier to read.

2.3 During the course of the Plan the method of calculating carbon emissions has changed, in particular the way in which carbon emissions for municipal waste sent to landfill are calculated. As a result of this the most significant observation from the updated Carbon Management Plan is that the Council's carbon emissions have increased from that of the baseline. Had the conversion factor remained the same, carbon emissions would have shown a 10.7% reduction against the baseline and, therefore, on track to achieving the 2016/17 target.

3.0 RECOMMENDATION

3.1 It is recommended the Environment and Regeneration Committee:
(a) note the performance of the Carbon Management Plan up to October 2015.
(b) approve the updated Carbon Management Plan for publication.

Stuart W. Jamieson
Head of Regeneration and Planning

4.0 BACKGROUND

4.1 In 2009, the Council launched its original Carbon Management Plan, which set a target to reduce carbon emissions from the Council's operations by 15% by 2012/13 from a 2007/8 baseline. In 2011, the Council was invited to take part in the Carbon Trust's Revisited Programme and subsequently established a new Carbon Management Plan. The new Plan, which was approved by the Safe, Sustainable Communities Committee in March 2012, set a target to reduce carbon emissions by 12% by 2016/17 from a baseline of 2011/12.

4.2 In accordance with the Committee recommendation, a cross-service working group, the 'Carbon Management Plan Technical Working Group', was established to discuss progress of the Plan and develop ideas and projects with which to help achieve the carbon reduction targets. The Group decided that, since the final year of the Plan is approaching, an updated Plan be drafted that details the progress to date in achieving the targets set out in the Plan. The drafting of the updated Plan also provided the opportunity to improve the layout and aesthetics to make the information clearer and the Plan easier to read.

4.3 The performance to date with respect to the updated Carbon Management Plan is an increase in carbon emissions from the baseline of 5.1%. The main reason for this, however, is in the way carbon emissions are calculated, which is outwith the Council's control. Municipal waste sent to landfill makes up around a third of total carbon emissions. Carbon emissions are calculated by using DEFRA/DECC greenhouse gas conversion factors, whereby, the 2015 factor for landfilled municipal waste increased significantly. This resulted in much higher carbon emissions than if the conversion factor had remained the same as previous years. Had the conversion factor remained the same, carbon emissions would have shown a 10.7% reduction against the baseline and, therefore, on track to achieving the 2016/17 target.

5.0 IMPLICATIONS

Finance

5.1 There are no direct financial implications arising from this report.

Financial implications

One off costs

Cost Centre	Budget Heading	Budget Year	Proposed Spend this Report	Virement From	Other Comments
n/a	n/a	n/a	n/a	n/a	n/a

Annually Recurring Costs/Savings

Cost Centre	Budget Heading	With Effect from	Annual Net Impact	Virement From	Other Comments
n/a	n/a	n/a	n/a	n/a	n/a

Legal

5.2 There are no direct legal implications arising from this report.

Human Resources

5.3 There are no direct human resource implications arising from this report.

Equalities

5.4 There are no direct equalities implications arising from this report.

Repopulation

5.5 There are no direct repopulation implications arising from this report.

6.0 CONSULTATIONS

6.1 The Carbon Management Plan Technical Working Group has been consulted and provided input to the information given in the updated Carbon Management Plan.

6.2 Chief Financial Officer: no requirement to comment.

6.3 Head of Legal and Property Services: no requirement to comment.

6.4 Head of Organisational Development, HR and Communications: no requirement to comment.

7.0 BACKGROUND PAPERS

7.1 **Attachments**

The updated Carbon Management Plan entitled 'Inverclyde Council Carbon Management Plan 2012/17: Review of Performance to October 2015'.

Inverclyde council

Carbon Management Plan 2012/17

Review of Performance to **October 2015**

Contents

		Page
Foreword from the Convener of the Environment and Regeneration Committee		**1**
Foreword from the Chief Executive		**1**
Management Summary		**2**
1.	Introduction	**3**
1.1	Background	**3**
1.2	Achievements 2007/8 – 2011/12	**4**
1.3	Implementing the Revised Carbon Management Plan 2012/17	**4**
2.	Carbon Management Strategy	**5**
2.1	Context and drivers for Carbon Management	**5**
2.1.1	Climate change	**5**
2.1.2	Political and legal drivers	**6**
2.1.3	Financial drivers	**7**
2.1.4	Council policy	**8**
2.2	Long term vision	**9**
2.3	Strategic themes	**9**
2.3.1	Leadership	**9**
2.3.2	Support from Services	**9**
2.3.3	Buildings management	**10**
2.3.4	Street lighting	**10**
2.3.5	Fleet Management	**11**
2.3.6	Business travel	**11**
2.3.7	Waste	**11**
2.3.8	Climate change awareness	**11**
2.3.9	Continuous improvement	**12**
3.	Emission Baselines: 2007/8 v2011/12	**12**
4.	Baseline and targets	**14**
5.	Reviewing the Carbon Management Plan	**16**
6.	Performance to date	**17**
7.	Projections for 2015/16	**19**
8.	Conclusion	**20**
Appendix		**21**

Foreword from Councillor Michael McCormick

I am delighted to present the Council's Carbon Management Plan 2012/17. The Plan outlines how the Council aims to reduce its carbon emissions during the next five years and contribute to the delivery of corporate strategies including the Single Outcome Agreement 2012/17.

Climate change is the single greatest environmental challenge facing us today. An increase in global temperatures is resulting in changing weather patterns: sea levels are rising and we are experiencing more and frequent intense weather events such as storms and high temperatures. Inverclyde Council recognises its role in taking the lead locally in tackling climate change. We took part in the Carbon Trust's *Carbon Management Programme* and in April 2009 launched our original Carbon Management Plan, setting a five year target to reduce our carbon footprint by 15% by 2012/13 from a 2007/08 baseline.

Between 2007/08 and 2011/12, we achieved a 15.8% reduction in our emissions, the equivalent of 4,882 tonnes of CO_2. I would like to thank everyone from across the Council for their input in reducing our carbon emissions. Having made good progress, however, we now need to focus on delivering further carbon reductions during the next five years. It is our duty to lead by example and encourage the wider community to join us in taking action.

Councillor Michael McCormick
Convener of the Environment and Regeneration Committee

Foreword from the Chief Executive

Almost daily, news bulletins contain items about climate change. Climate change is a reality and a serious threat to the world's population. It will affect the basic elements of life for people around the world including access to water, food production, health and the environment.

The Council recognises the seriousness of this threat and is committed to taking measures to reduce our impact on climate change. We publicly demonstrated our commitment to the environment when we became one of the first Councils to sign Scotland's Climate Change Declaration.

In 2009, the Council prepared its original Carbon Management Plan with support from the Carbon Trust. We were pleased to work with them again on their *Revisited Programme* which assisted us to produce a new five year Carbon Management Plan.

By taking the lead on carbon reduction, the Council hopes to deliver the long term vision of reducing its carbon footprint and play our part in mitigating our impact on the climate and protecting it for future generations.

John W. Mundell
Chief Executive

Management Summary

When the Council's original Carbon Management Plan was launched in 2009, it set a target of a 15% reduction in carbon dioxide (CO_2) emissions by 2012. The creation of the Plan was a step towards the Council meeting its obligations under the Scottish Climate Change Declaration. Half-way through the Plan, the Council was invited to take part in the 'Carbon Trust Revisited Programme'. This involved a review of the original Plan to take into account changes in policy and legislation, notably the Climate Change (Scotland) Act 2009. The Council's participation in the programme culminated in the devising of a new Carbon Management Plan in 2012.

The new Carbon Management Plan runs from 1 April 2012 to 31 March 2017. It set a target to reduce CO_2 by 12% from a financial year 2011/12 baseline. Moreover, it set individual targets for the various sources of carbon as follows:

- Energy use in buildings – 16%
- Street lighting – 15%
- Fleet transport – 15%
- Business travel – 10%
- Water – 15%
- Waste – 11%

The new Carbon Management Plan is now in its penultimate target year so this refreshed plan has been devised to give the current state of affairs with regards meeting the target set. Since the new Plan was devised, processes with which to monitor and reduce CO_2 emissions have been established. The most significant is the formation of the cross-Service Carbon Management Plan Technical Working Group, which leads on the Council's CO_2 reduction programme. The Group meets regularly to discuss projects and initiatives with which to achieve the targets set out in the new Carbon Management Plan.

The target stated in the original Carbon Management Plan has been exceeded. The projection, however, for the new Plan is not favourable. One of the reasons for this is the way that CO_2 is calculated. The Department of Environment, Food and Rural Affairs (DEFRA) and the Department of Energy and Climate Change (DECC) provide 'greenhouse' gas conversion factors with which to convert numerous variables, such as electricity, gas and vehicle fuel use into CO_2. The conversion factors change each year to account for the diversity in the fuel mix and improved calculation methods. One factor that has substantially changed is that for municipal waste sent to landfill, which has increased by almost 60%. Waste makes up a large proportion of the Council's CO_2 emissions leading to an increase in overall CO_2.

In 2014/15, the Council's increased its CO_2 emissions against the baseline by over 5%. Moreover, the projections for 2016/17 are an increase of almost 10% from the baseline. If the projections prove to be accurate, the Council would have to reduce its CO_2 emissions by 22% in order to achieve the target set out in the new Carbon Management Plan. This would be extremely difficult, requiring in particular major reductions in energy use and the amount of municipal landfilled waste.

1. Introduction

Inverclyde Council is committed to minimising its impact on climate change through significantly reducing its carbon dioxide (CO_2) emissions. The Council demonstrated this by taking part in the Carbon Trust's Public Sector Carbon Management Programme. This culminated in the launch of its Carbon Management Plan in 2009.

Since the adoption of the original Carbon Management Plan, there have been significant changes to climate change legislation and policy, in particular the passing of the Climate Change (Scotland) Act 2009. To account for this and to review its practices with respect to climate change mitigation, the Council took part in the Carbon Trust Revisited Programme. The result was the launch of its revised Carbon Management Plan covering the period from 1 April 2012 to 31 March 2017.

The Council is now more than half way through the implementation of its revised Plan and this document provides a background to the Plan and a review to date of the situation concerning the Council's CO_2 emissions.

1.1 Background

The Council's original Carbon Management Plan was a step towards the Council meeting its obligations under the Scottish Climate Change Declaration 2007. It set a target to reduce CO_2 emissions by 15% by 2012/13 from 2007/8 baseline. This incorporated emissions from energy use in buildings and street lighting, fleet transport and staff business travel.

The revised Carbon Management Plan set a new target to reduce CO_2 emissions by 12% by 2016/17 from a 2011/12 baseline. The revised Plan incorporated all emissions from the sources stated in the original Plan but further included emissions from municipal waste collected by the Council and water consumption. Waste emissions are second only to that of energy use in buildings as a proportion of the Council's total CO_2.

The process in devising the revised Plan included the establishment of the 'Carbon Management Plan Technical Working Group'. The Group comprises appropriate individuals that have influence over CO_2 emissions from the various sources detailed in the Plan. The Group has been central to determining the scope and targets outlined in the Plan and in devising projects aimed at achieving the targets.

1.2 Achievements 2007/8 – 2011/12

Between the baseline year 2007/8 for the original Carbon Management Plan and the baseline year 2011/12 for the revised Plan, the Council had achieved the following:

- Reduced overall CO_2 emissions by 16%, the equivalent of 4,928 tonnes of CO_2.
- Reduced the amount of waste sent to landfill by 10,923 tonnes.
- Reduced CO_2 emissions from waste by 25%, the equivalent of 2,927 tonnes of CO_2.
- Reduced CO_2 emissions from its vehicle fleet by 21%, the equivalent of 320 tonnes of CO_2.

Furthermore, the Council had begun a large school building and refurbishment programme to incorporate energy efficiency and renewable energy and emissions levels are taken into account in the vehicle procurement process.

1.3 Implementing the Revised Carbon Management Plan 2012/17

In pursuing the objectives set out the revised Carbon Management Plan, the Council has implemented a range of initiatives, some of which are as follows:

- Building rationalisation programme to reduce the number of Council properties with a view to maximising use of space.
- Programme of new-build and refurbishment to improve the energy efficiencies of the Council's property portfolio.
- Improving accuracy of CO_2 data through improved metering and monitoring.
- Installation of more energy efficient lamps in the Council's street lighting stock.
- Training and awareness programmes to promote energy and transport fuel reduction.
- Improved recycling infrastructure and promotion of waste minimisation and recycling.

Through these and other initiatives it is hoped that not only will the CO_2 emissions reduction target be met but issues surrounding climate change and environmental sustainability will be embedded within the culture of the Council.

Note also that the CO_2 reduction target of 12% by the end of financial year 2016/17 is absolute. This means that there will be no adjustment accounting for weather conditions, changes to buildings or variations in the services provided by the Council. Such variables, however, will be considered when evaluating performance and in devising ways to counter those adversely affecting performance.

2. Carbon Management Strategy

The Council's Carbon Management Strategy is influenced by various external and internal drivers and notably its long term vision with respect to climate change. There are number of strategic themes that are key to the success of achieving the vision and the objectives set out the in the Carbon Management Plan.

2.1 Context and drivers for Carbon Management

The drivers for the Council pursuing a programme to reduce its CO_2 emissions include the following:

2.1.1 Climate change

Climate change is one of the most serious environmental issues facing the world today. In its 'Fifth Assessment Report', published in 2015, the Intergovernmental Panel on Climate Change (IPCC)[1] states that it is 'now 95% certain that humans are the main cause of current global warming'. Increases to land and ocean surface temperatures since the 1950s are unprecedented in likely more than a thousand years. These increases in temperatures have seen glaciers shrink and sea levels rise.

[1] IPCC Climate Change 2014 Synthesis Report
http://ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf

It is extremely likely that increased concentrations of 'greenhouse gases', in particular CO_2, in the Earth's atmosphere have been the main cause of this warming. The current levels of atmospheric greenhouse gases are higher than at any time since at least the last 800,000 years. It is, therefore, crucial that their levels are dramatically reduced in order to help prevent further increases in global temperatures.

Impacts attributed to climate change caused by increased greenhouse gas emissions include the following:

- Heat waves in certain parts of the world will be more frequent and last longer thereby potentially affecting crops and amounts of drinking water.
- Extremes in rainfall will occur more often and be more intense in certain areas potentially resulting in floods.
- Changes in seasonal activities and migration patterns of marine species possibly resulting in lower fish stocks in some areas.
- Increased extinction rate of various animal and plant species.

The Council must, therefore, play its role in the global effort to reduce the effects of climate change through taking measures to reduce its own emissions.

2.1.2 Political and legal drivers

In 2009, Climate Change (Scotland) Act was passed unanimously by the Scottish Parliament. The Act set a target to reduce greenhouse gas emissions in Scotland by 80% by 2050 with an interim target of 42% by 2020. Moreover, Part 4 of the Act entitled 'Duties of Public Bodies Relating to Climate Change', places a legal obligation on public bodies, such as the Council, to carry out their operations in a way that best helps meet the targets set out in the Act. The Council must therefore embed CO_2 reduction in all aspects of its business.

In June 2013, the Scottish Government published the report 'Low Carbon Scotland: Meeting our Emissions Reduction Targets 2013-2027 – The Second Report on Proposals and Policies (RPP2)'. The report gives proposals on how Scotland can meet its greenhouse gas emissions reductions targets and emphasises the key role local authorities have to play. Local authorities are expected to act as leaders on climate change mitigation.

In 2007, the Council along with all other local authorities in Scotland signed up to Scotland's Climate Change Declaration. In so doing, the Council committed to taking action to reduce its greenhouse gas emissions and adapting to predicted climate change and reporting annually on progress. The Scottish Government has now introduced a statutory climate change reporting requirement for the public sector, which comes into effect in 2016. This requires the whole of the public sector to annually report their CO_2 emissions and actions taken with respect to climate change.

In June 2010, the Scottish Government launched Scotland's first 'Zero Waste Plan' to move Scotland to being a zero waste society. It has set targets to recycle 70% of waste and have a maximum of 5% of waste sent to landfill by 2025. The Zero Waste Plan includes measuring the carbon impacts of waste to prioritise the recycling of materials that will have the lowest impacts on climate change. Moreover, there will be landfill bans for specific types of waste with a view to reducing greenhouse gas emissions from landfill sites.

2.1.3 Financial drivers

The Council has a responsibility to ensure prudent use of funds raised from taxation and from central government. This is now particularly the case given the current economic climate resulting in a strain on public sector budgets. Reducing CO_2 emissions entails reducing consumption of utilities and fuel and the amount of waste sent to landfill, thereby, reducing costs. This requires maximising operational efficiency and avoiding waste.

In financial year 2011/12, the baseline year of the Council's revised Carbon Management Plan, the Council spent just under £5 million on all CO_2 sources, split as follows:

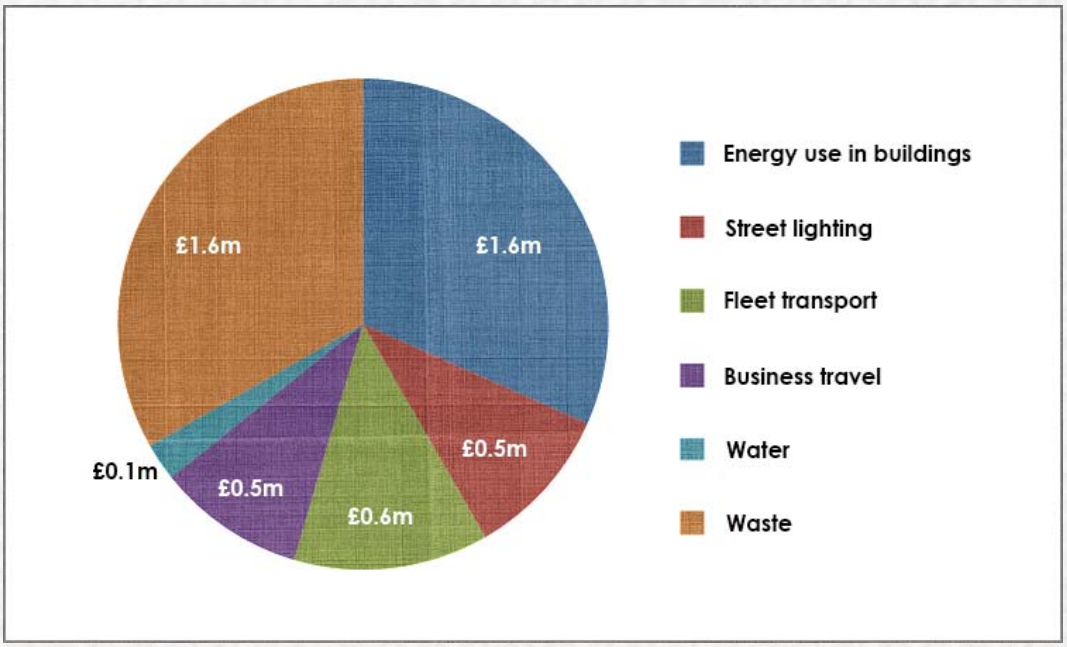

Figure 2.1: Costs per source of CO_2

2.1.4 Council policy

In 2009, the Council launched its flagship environmental policy 'Green Charter'. The policy aimed to reduce energy and waste and promote the sustainable use of resources within the Council and across the whole community of Inverclyde. Through Green Charter, the Council promised to reduce its carbon footprint and minimise the impacts of its actions on the environment.

In August 2014, the Council adopted the Inverclyde Local Development Plan. The Local Development Plan (LDP) sets out where development should and should not take place and provides the framework upon which all planning applications can be determined. Sustainable development is a key theme running throughout the LDP with the mitigation of and adaptation to climate change seen as a core responsibility of the Council with respect to its duties as a planning authority. It incorporates the nature of land use, energy efficiency of buildings and the adoption of renewable/low carbon energy, sustainable transport and identifies criteria against which proposals for waste management facilities will be considered.

One of the Council's Key Performance Indicators (KPIs) is on sustainable development. Within this the Council's own CO_2 emissions must be reported annually. In addition a narrative must be provided explaining any changes in overall emissions and the emissions for the individual sources of CO_2.

2.2 Long term vision

The Council's long term vision with respect to climate change is:

to aim to embed carbon management across all aspects of the Council's business.

to continue to reduce its CO_2 emissions beyond 2017

The Council aims to realise this vision through:

- developing policies that promote CO_2 reduction.
- implementing projects that reduce CO_2.
- instilling a culture of awareness with respect to climate change impacts.

2.3 Strategic themes

The Council's strategic approach to carbon management incorporates the following themes:

2.3.1 Leadership

In March 2012, the revised Carbon Management Plan was approved by the Council's Safe, Sustainable Communities Committee. It was further approved by the Corporate Management Team. Both agreed to receive annual updates on progress against targets set out in the Plan.

2.3.2 Support from Services

In October 2012, the Carbon Management Technical Working Group was formed. The Group is made up of representatives from Legal & Property Services, ICT, Finance and Environmental and Commercial Services. Meetings of the Group are held approximately every six weeks to discuss CO_2 saving projects, generate ideas and decide further action.

In May 2011, the Council established its Energy Group to look at ways to reduce costs from utilities. Integral to discussions of the group is the reduction in consumption of energy and water. Progress of the Carbon Management Plan is also reported at this group.

2.3.3 Buildings management

Buildings are the largest source of CO_2 emissions for the Council, accounting for nearly half its baseline emissions. The Council continuously reviews its building stock to determine opportunities for rationalising. This is with a view to ensure operations are carried out from a required number of energy efficient buildings. The Council has undertaken a large School Estate Management Programme involving removing old schools and building new, energy efficient schools. It is also in the process of implementing a large refurbishment programme for schools to improve quality and energy efficiency.

The Council has invested in Buildings Energy Management Systems software and arranged implementation of automatic meter reading equipment. Data from these is monitored frequently to identify anomalies in energy and water consumption. This aids in investigation of energy and water waste.

2.3.4 Street lighting

The Council is currently implementing a programme to replace existing street lamps with Light Emitting Diode (LED) lamps. LED lamps use much less electricity and provide a better quality of light output. The Council has also reduced the length of operation time for some street and floodlighting and dimmed lamps where appropriate.

2.3.5 Fleet Management

The Council refreshes its vehicles every five years to ensure they are operational and fuel efficient. It has purchased a number of electric vehicles and is inputting electric vehicle charging points throughout Inverclyde. A driver training programme has been established which incorporates fuel efficient driving. The Council has invested in vehicle tracking software to improve management of routes and determine vehicles that may be surplus to requirements. The Council is currently in the process of implementing a Fleet Data Management System, which will provide a range of data on its vehicle fleet.

2.3.6 Business travel

The Council is looking at ways to promote green travel options for staff to carry out their work duties. This includes promoting cycling through the cycle to work scheme and use of public transport. The Council is further looking at budgets with regards grey mileage claims to dis-incentivise car use.

2.3.7 Waste

Waste is the second largest source of CO_2 for the Council, accounting for about a third of its emissions. The Council has implemented a large waste minimisation and recycling programme in terms of both infrastructure and promotion. The programme included kerbside recycling for numerous types of waste, education on how to recycle and reduce waste and generating energy from waste. The Council continues to develop ways to further divert waste from landfill.

2.3.8 Climate change awareness

Incorporated in the Green Charter policy is the education of staff on issues concerning climate change. The issues are communicated through a variety of media such as the staff intranet and training software. A number of workshops have been provided to staff on measures they can take to conserve energy and water. Energy and climate change lessons are provided to school pupils to inform them about climate change issues and encourage them to minimise their impacts on climate change.

2.3.9 Continuous improvement

The Carbon Management Plan is a working document whereby the Council will continue to develop programmes with which to reduce its CO_2 emissions. In meetings of the Carbon Management Plan Technical Working Group, existing projects are evaluated and new projects proposed. CO_2 education and awareness programmes are ongoing and will be refined. The Council regularly attends events concerning CO_2 and utilities with public sector colleagues and is a member of the Scotland Sustainable Network. It also works with Resource Efficient Scotland and the Energy Saving Trust on ways to improve CO_2 monitoring and reduction.

3. Emission Baselines: 2007/8 v2011/12

From the baseline of the original Carbon Management Plan to the baseline of the revised Plan, the Council's CO_2 emissions fell by 16%. The following chart compares CO_2 by source for the two baselines (see appendix for tables of figures):

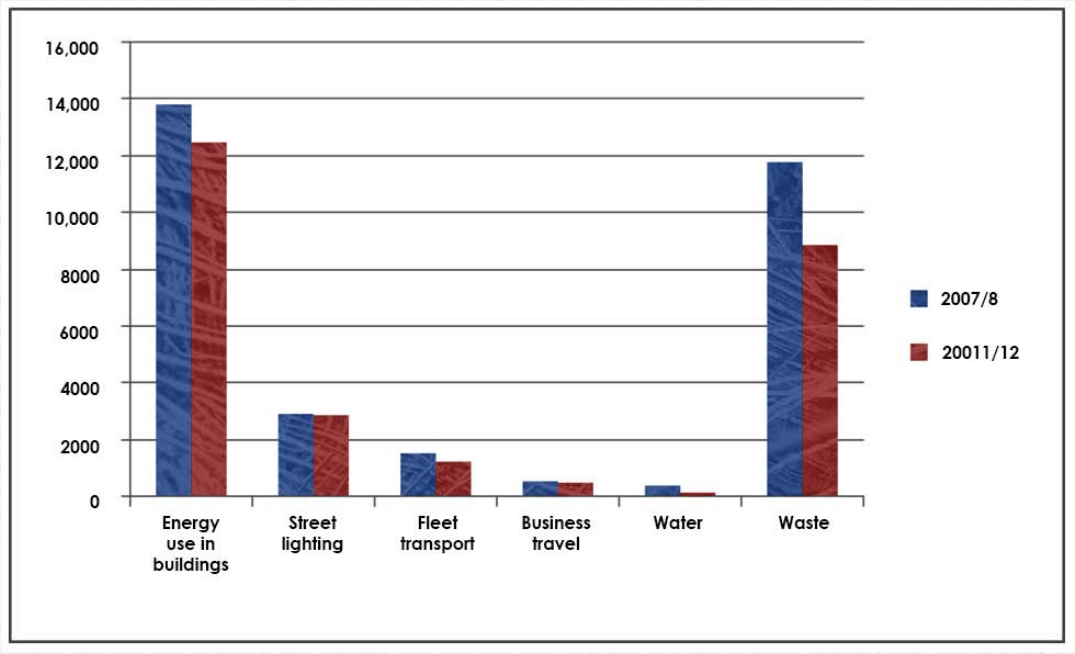

Figure 3.1: 2007/8 v 2011/12 CO_2 by source

Water, waste and heating oil were not included in the original list of emission sources. Since the original Plan was devised, however, the Council's understanding of carbon management has improved, complemented by enhancements in data collection and management. These developments have enabled us to include water, waste and heating oil in the 2011/12 baseline figures. To allow comparison on a like-for-like basis, we have therefore retrospectively added water, waste and heating oil to our original 2007/8 baseline.

The above emissions sources are those with which the Council has direct control. Staff commuting has not been included since the Council has no control over this and it is difficult to measure. The Council does, however, promote sustainable forms of commuting such as its car share programme and Cycle to Work scheme.

4. Baseline and targets

The Council has set a CO_2 reduction target of 12% by the end of financial year 2016/17 from a baseline of financial year 2011/12. The Council's baseline is made up as follows:

Source	CO_2 (tonnes)
Energy use in buildings	12,467
Street lighting	2,853
Fleet transport	1,212
Business travel	472
Water	163
Waste	8,826
Total	**25,993**

Table 4.1: Baseline CO_2 emissions

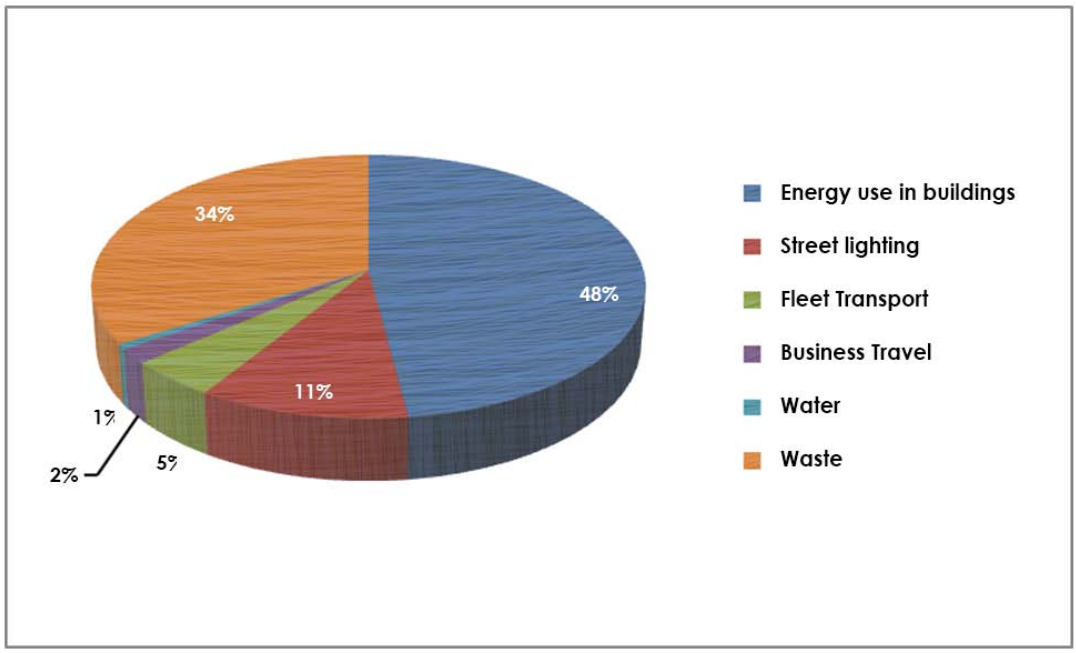

Figure 4.1: Breakdown of CO_2 emissions

The Council has broken down the overall target into source reduction targets as follows:

Source	%	CO_2 (tonnes)
Energy use in buildings	16	1,995
Street lighting	15	428
Fleet transport	15	182
Business travel	10	47
Water	15	25
Waste	11	971

Table 4.2: Target CO_2 emissions reduction by source

The Council has further established year-on-year reduction targets as follows:

Source	%	CO_2 (tonnes)
Energy use in buildings	3.2	399
Street lighting	3	86
Fleet transport	3	36
Business travel	2	9
Water	3	5
Waste	2.2	194

Table 4.3: Annual target CO_2 emissions reduction by source

5. Reviewing the Carbon Management Plan

Progress against the targets detailed in the Plan will be reported annually to the Carbon Management Plan Technical Working Group, the Corporate Management Team and the Environment and Regeneration Committee. The governance structure for the Plan is as follows:

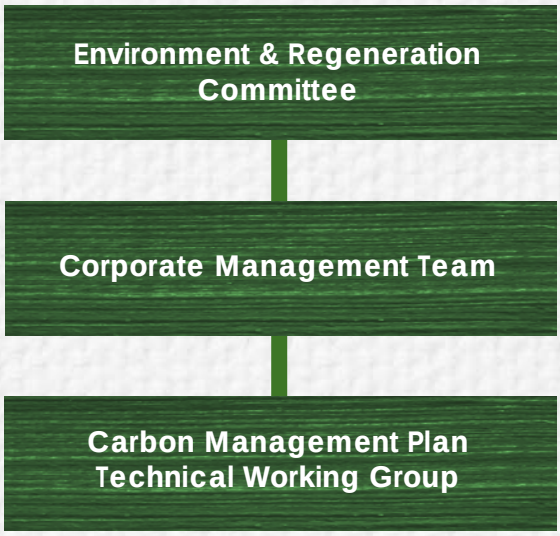

Figure 5.1: Governance of Carbon Management Plan

The Head of Regeneration and Planning is the Project Sponsor for the Carbon Management Plan. The Carbon Management Plan Technical Working Group comprises staff from across Council Services. The group is tasked with the implementation, monitoring, evaluation and reporting of the Plan. It meets on approximately a six week basis to discuss progress of projects and CO_2 reduction against targets.

6. Performance to date

The latest full year data on performance against the targets set out in the Carbon Management Plan is 2014/15. This is two years from the target year of the Plan. The CO_2 emissions for 2014/15 are as follows:

Source	CO_2 (tonnes)
Energy use in buildings	11,629
Street lighting	2,641
Fleet transport	1,124
Business travel	378
Water	159
Waste	11,381
Total	**27,312**

Table 6.1: 2014/15 CO_2 emissions

The total 2014/15 emissions are a 5.1% increase on the baseline. This, however, is mainly a result of changes to the way CO_2 is calculated for municipal waste sent to landfill. CO_2 is calculated using the Department of Environment, Food and Rural Affairs (DEFRA) and Department of Energy and Climate Change (DECC) greenhouse gas conversion factors. CO_2 emissions for 2014/15 are calculated using the 2015 factors which for municipal waste sent to landfill increased by 58%. Performances in terms of the individual sources of CO_2 since the baseline year are as follows:

Source	Performance against baseline year	Final year (2016/17) target
Energy use in buildings	-6.7%	-16%
Street lighting	-7.4%	-15%
Fleet transport	-7.3%	-15%
Business travel	-19.9%	-10%
Water	-2.5%	-15%
Waste	+28.9%	-11%
Total	**+5.1%**	**-12%**

Table 6.2: Performance to date against baseline

A graphic illustration of performance to date per source of CO_2 is as follows:

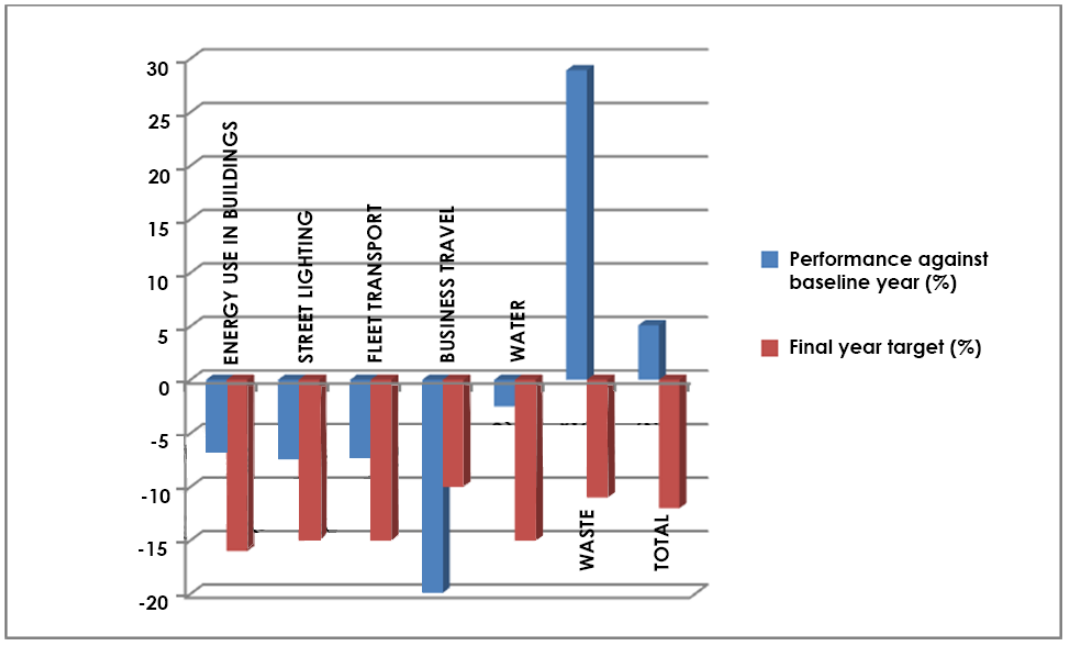

Figure 6.1: Performance to date against baseline

Energy use in buildings and waste combined make up over 80% of the total baseline CO_2. The increase in CO_2 for waste caused by the changes to the conversion factors means the Council must reduce its CO_2 by 17% over the next two years in order to achieve its target.

Year-on-year performance for each source of CO_2 has, as expected, varied during the life of the Carbon Management Plan. The performance figures are as follows:

Source	2012/13 performance	2013/14 performance	2014/15 performance
Energy use in buildings	+7.7%	-0.5%	-13%
Street lighting	-5.2%	+8.9%	-10.3%
Fleet transport	+2.7%	+1.6%	-11.1%
Business travel	-19.9%	+0.3%	-0.3%
Water	+0.6%	+32.3%	-26.7%
Waste	-14.2%	+0.5%	+49.6%
Total	**-1.9%**	**+1.1%**	**+5.9%**

Table 6.3: Year-on-year performance

Excluding waste, all sources have shown significant CO_2 reductions in the most recent year, 2014/15. This is encouraging since it indicates that CO_2 reduction measures are beginning to bear fruit. It is hoped this pattern will continue for the final two years of the Carbon Management Plan.

7. Projections for 2015/16

In terms of making projections of CO_2 emissions for 2015/16, the Council has made projections for electricity, gas and water use. These make up almost 50% of total emissions for the Council so give some estimate of what the 2015/16 CO_2 might be. Assuming emissions from the other sources remain the same, the projected breakdown of CO_2 for 2015/16 is as follows:

Source	CO_2 (tonnes)
Energy use in buildings	12,852
Street lighting	2,641
Fleet transport	1,124
Business travel	378
Water	121
Waste	11,381
Total	**28,497**

The projection is a 9.6% increase from the baseline. If the projections are accurate then the Council would have to reduce its CO_2 emissions by 22% in order to meet the target. This would require a major reduction in energy use and waste in particular since these account for the largest proportion of the Council's CO_2.

8. Conclusion

In order to mitigate the effects of climate change, there must be a major reduction in global CO_2 emissions. This is particularly relevant given the United Nations Conference on Climate Change taking place in Paris this year. The Council, along with the whole of the public sector, has a significant role to play in terms of leading by example. This entails taking steps to reduce CO_2 emissions from its own operations.

The Council has shown a commitment to reducing its impacts on climate change through being a signatory to the Scottish Climate Change Declaration and producing its original and revised Carbon Management Plans. The Carbon Management Plans stipulate overall reduction targets for CO_2 and targets for each source of CO_2. Moreover, the Council has established a carbon management group with which to steer the objectives set out in the Carbon Management Plan.

Since the original Carbon Management Plan was devised, the Council has made great strides in reducing its CO_2 emissions. This has been achieved through a range of initiatives, notably the building rationalisation programme and improvements in waste infrastructure to increase rates of recycling. Moreover, to embed a culture of responsibility with respect to climate change and environmental sustainability, the Council has run a number of training and awareness programmes.

In assessing its performance to date, the Council had, in its revised Carbon Management Plan, set an ambitious target of a 12% reduction in CO_2 by 2016/17 from a 2011/12 baseline. The CO_2 figures for 2014/15 and projections for 2016/17 show an increase in CO_2 from the baseline meaning the Council must achieve a major reduction in the final year of the plan in order to meet the target. This, however, can be heavily caveated by the way CO_2 is calculated using the DEFRA/DECC greenhouse gas conversion factors. The multiplier for municipal waste sent to landfill increased by almost 60%. With waste making up 34% of the Council's total CO_2, such an increase would significantly adversely affect CO_2 performance.

Appendix

Emissions Baselines: 2007/8 v 2011/12

	2007/08 baseline in original Carbon Management Plan			
Source	**Unit of Consumption**	**Consumption**	**CO_2 Tonnes**	**% Total CO_2**
Energy use in buildings (1)	Electricity (kWh)	10,013,153	5,367	17.38
	Gas (kWh)	24,457,235	4,525	14.66
	Oil (litres)	1,530,302	3,912	12.67
Street lighting	Electricity (kWh)	5,468,727	2,931	9.49
Fleet transport (2)	Diesel (litres)	581,856	1,531	5
Business travel	Miles	1,574,116	526	1.7
Water	M^3	133,846	141	0.46
Waste	Tonnes to landfill	40,526	11,753	38.1
	Tonnes recycled	8,102	170	0.55
	Tonnes composted	3,244	19	0.06
Total			**30,875**	**100**

	2011/12 baseline in revised Carbon Management Plan			
Source	**Unit of Consumption**	**Consumption**	**CO_2 Tonnes**	**% Total CO_2**
Energy use in buildings	Electricity (kWh)	11,014,171	5,731	22.05
	Gas (kWh)	27,876,667	5,163	19.86
	Oil (litres)	618,201	1,573	6.05
Street lighting	Electricity (kWh)	5,482,518	2,853	10.98
Fleet transport (1)	Diesel (litres)	468,966	1,212	4.66
Business travel	Miles	1,253,228	472	1.82
Water	M^3	154,937	163	0.63
Waste	Tonnes to landfill	29,603	8,585	33.03
	Tonnes recycled	11,192	214	0.82
	Tonnes composted	4,434	27	0.1
Total			**25,993**	**100**

Note: The CO_2 emission conversion factors used in the above calculations are sourced from the latest guidance from the Department of Energy and Climate Change (DECC) and Department for Environment Food and Rural Affairs (DEFRA). With regards fleet transport, the DEFRA/DECC factors are based on amount of fuel used. The Council's vehicle fleet has equipment that provides actual carbon emissions figures. For consistency and in keeping with standing report methods, emissions figures will, however, be derived using DEFRA/DECC CO_2 conversion factors.

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