

West Lothian Council

Carbon management plan

2015 - 2020



a plan to reduce carbon emissions from the council's operations

Contents

Foreword	4
Executive Summary	5
1 Introduction.....	6
1.1 Background.....	6
1.2 Drivers for Reducing Carbon Emissions.....	6
1.3 Action to Date.....	8
2 The Council's Carbon Footprint	10
2.1 Scope of Carbon Footprint	10
2.2 Organisational and Operational Boundaries	10
2.3 Data Sources	12
2.4 Carbon Footprint Baseline and Cost.....	12
2.5 Carbon Footprint Projections	17
3 Carbon Management Projects.....	20
3.1 Potential for Reducing Carbon	20
3.2 Existing and Planned Projects.....	20
3.2.1 Energy.....	22
3.2.2 Travel and Transport	22
3.2.3 Waste.....	23
3.2.4 Water	23
3.2.5 Procurement.....	24
3.3 Financing Carbon Saving Projects.....	25
3.4 Target Setting	25
4 Carbon Management and Delivery	29

4.1	Operational Roles and Responsibilities	29
4.2	Resourcing and Ownership.....	30
4.3	Data Collection and Management.....	30
4.4	Progress Reporting	30
4.5	Communication & Training	31



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Foreword

To deal effectively with climate change there are things that we can and must do. West Lothian Council is concerned with reducing carbon emissions today for the benefit of future generations for many decades to come. The implementation of this second Carbon Management Plan places the council in a good position to reduce emissions across our own estate, to lead by example, and to reach targets aligned to those set out in ambitious national policy.

The difficult financial circumstances facing the council require that we make significant efficiencies to ensure that service provision is maintained. It is, therefore, critical that energy consumption is reduced in order that the effect of future increases in energy costs and obligations under the Carbon Reduction Commitment Energy Efficiency Scheme are minimised.

We will continue to build on our excellent efforts towards reducing emissions within the council, and supporting others to do the same. This plan will assist in achieving that aim.



John McGinty
Leader of the Council



Graham Hope
Chief Executive



westlothian.gov.uk



Executive Summary

In the first Carbon Management Plan published in 2009, the council stated its aspiration to achieve a reduction target of 20% by 2014, based on a 2007/08 carbon footprint baseline. While it is difficult to make a direct comparison due to changes in the data reported, in 2013/14, our overall emissions were 61,061 tonnes – a reduction of 25.8% from the 2007/8 baseline. Achieving this target has been challenging, and has been impacted by a number of factors including the complexity of the carbon management process, demands for new skills and time from staff in the identification, planning, resourcing and tracking of carbon reduction projects and initiatives, a changing legislative and policy framework and the changing nature of estate and building use increasing energy intensiveness of the building stock.

These factors, combined with a need to set a new target to 2020/21 as indicated in the original Plan, have led to the development of this new Carbon Management Plan, including updated reduction targets to help the council move forward constructively. An overall target has been established alongside a suite of projects and initiatives to reduce the council's carbon footprint by 20% by the end of the financial year 2020/21, rebased to a 2013/14 carbon footprint baseline year.

There is significant scope to build on achievements to date in reducing carbon emissions, implementing renewable and low carbon technologies, making more efficient use of resources and realising financial savings through improved efficiency in the procurement and operation of our buildings and transport. The actions contained in this plan will help deliver carbon reductions, as well as realising financial savings for the council. They will also ensure the council is well positioned for the impact of regulatory requirements such as the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme and compliance with the Public Sector Climate Change Duties under the Climate Change (Scotland) Act 2009.

The Overall Aim

By 2020/21, West Lothian Council will have reduced its carbon emissions by 20% relative to the 2013/14 carbon footprint baseline. This equates to a footprint of 48,849 tonnes CO₂e in 2020/21.

1 Introduction

1.1 Background

In 2014 the council was selected by Resource Efficient Scotland (RES) to take part in the Exemplar Carbon Management Programme, which included the implementation of a Carbon Forecasting and Project Register tool to monitor the council's current and projected future carbon emissions. A new baseline year has been established as 2013/14, and a challenging target established based on realistic projections of growth and planned carbon reduction projects and initiatives. The outcome is this revised Carbon Management Plan, which builds on the good work already underway and details the actions required to continue reducing carbon and associated costs.

The council published its first Carbon Management Plan in 2009, which mapped out a path to a lower carbon council over a 5 year period. This plan outlines the council's programme of activity for reducing carbon emissions over the next 5 years, setting out the strategic context and vision, a revised carbon emissions scope and baseline, existing and planned projects including areas of activity and actions to reduce our emissions and the management arrangements which are in place to ensure that the target is met.

1.2 Drivers for Reducing Carbon Emissions

The strategic context and the council's vision for tackling both mitigation of, and adaptation to, climate change is set out in the Climate Change Strategy 2015-2020. The key drivers for the council in reducing carbon emissions are:

- Meeting international and national climate change targets
- Participation in the Carbon Reduction Commitment Energy Efficiency Scheme
- Rising costs of service provision associated with increasing costs of energy and fuel
- A climate of reducing financial allocations
- Rising costs of waste disposal through landfill tax charges and the Scottish Government's Zero Waste Strategy
- The principle that investments in carbon reduction are generally associated with commensurate reductions in future expenditure
- The need to conserve resources and to increase efficiency
- The council's own carbon reduction targets
- Depletion of the world's finite resources
- There are sound environmental reasons for doing so

The impact of climate change is also an area of increasing obligations. Both the UK and Scottish Governments are committed to long-term reductions in carbon emissions. The Climate Change

(Scotland) Act 2009 sets out two milestone objectives of an overall 80% reduction in total carbon emissions (relative to a 1990 baseline) by 2050, and an interim 42% reduction in total carbon emissions (relative to a 1990 baseline) by 2020.

The Scottish Government has placed an emphasis on the public sector setting a leading example. Public sector leadership will be critical to the achievement of these targets, and statutory reporting for public sector bodies will be introduced from 2015/16. The Public Bodies Climate Change Duties require that public sector bodies must, in exercising their functions, act:

- a) in the way best calculated to contribute to the delivery of the Act's (national) emissions targets;
- b) in the way best calculated to deliver any statutory adaptation programme; and
- c) in a way that it considers the most sustainable.

The Scottish Government is also committed to the promotion of renewable energy in Scotland, and set a target for 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.

A number of legislative instruments such as the Climate Change Levy (CCL) and Carbon Reduction Commitment Energy Efficiency Scheme (CRC EES) have been introduced to encourage organisations to reduce emissions, and while a review of these has been recently announced, it is anticipated that their replacement will be focused on the same goals. The CRC EES introduced carbon trading to energy intensive organisations not part of the EU Emissions Trading Scheme. The EU Energy Performance of Buildings Directive 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 recast Directive also includes provisions for 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.

While reducing the financial and legal risks posed by various legislative requirements is a significant driver behind the council'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 current financial constraints requiring reduced operating costs whilst maintaining effective service delivery. This provides a strong incentive to cut resource consumption to release this money for frontline services.

Reputational benefit: By delivery of sustained carbon reductions the council will be viewed as an exemplar, enhancing broader sustainability credentials.

Improved engagement with key stakeholders: Both council partners and the wider community are increasingly focusing on sustainability. The council's engagement and commitment will enhance the relationship with these stakeholders.

1.3 Action to Date

The council is responding to climate change as a strategic priority and has demonstrated this through a variety of commitments and policy developments over a number of years. The Climate Change Strategy is identified in the council's Corporate Plan *Delivering Better Outcomes*. The West Lothian Community Planning Partnership recognises the importance of tackling climate change as one of the priority outcomes identified in West Lothian's Single Outcome Agreement *Achieving Better Outcomes*. Details of carbon reduction progress are currently reported annually through the Scottish Climate Change Declaration, to which the council has been a signatory since 2007.

Since the publication of the council's first Carbon Management Plan in 2009, programmes to improve energy efficiency, reduce business mileage, implement low carbon and renewable technologies, increase recycling, and reduce the amount of waste sent to landfill have contributed to year on year reductions in our carbon emissions. Examples of council work (including work undertaken with partners) that have contributed towards these reductions include:

- The introduction of a centralised Building Management System and upgrading of heating controls leading to significant reductions in energy use and carbon emissions across 70 operational properties.
- A wide range of energy efficiency and emissions reduction projects to meet the requirements of the Carbon Reduction Commitment Energy Efficiency Scheme.
- On-going monitoring of the council's carbon footprint including emissions from waste, fleet, business travel, water consumption, external lighting and buildings.
- Increase in installed capacity of PV solar panels in operational buildings with further installations planned.
- Replacement of street lights with energy efficient LED technology.
- Secured two prestigious national awards (Green Fleet Awards 2013) for reducing CO₂ and other pollutants through procuring low emission fleet, fuel efficiency programmes, green fleet management and driver awareness training.
- Procurement of electric vehicles as part of the council's fleet and the installation of electric charging points across West Lothian.
- Completion of detailed energy audits of council owned buildings in collaboration with the Carbon Trust.
- Recruitment of a Sustainable Behaviour Assistant to embed a culture of sustainability and resource efficiency amongst council staff and partners.

- Implementation of the council's Open Space Strategy including the development of a 'climate change' park.
- One of five local authorities participating in the Resource Efficient Scotland exemplar Carbon Management Plan programme.

In addition, the Central Energy Efficiency Fund (CEEF) has contributed £570,000 towards energy efficiency measures to date. These funds have been invested in a range of measures such as the replacement of lighting with more energy efficient alternatives, insulation, voltage optimisation and contributed to measures as part of the council's Green Impact and School Switch Off programmes. This plan will continue to focus on the following areas:

Upgrade to Efficiency – continue upgrading inefficient buildings and replacing inefficient appliances.

Build Better – all new buildings should be sustainably designed and resource efficient.

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 council.

2 The Council's Carbon Footprint

2.1 Scope of Carbon Footprint

Prior to 2012/13 the scope of the council's carbon footprint included non-domestic buildings (gas and electricity consumption), external lighting, transport (fleet vehicles and business mileage), waste sent to landfill and water consumption in council owned properties. In 2013/14 the council adopted the Carbon Footprinting and Project Register Tool provided by Resource Efficient Scotland (RES). This has allowed a more comprehensive assessment of individual aspects of the council's carbon footprint, particularly for individual waste streams.

The scope of the council's carbon footprint from 2013/14 now includes energy consumption in non-domestic council owned operational buildings, water supply and treatment, different waste streams, transport, and all external lighting. It is important to note that waste data is reported in calendar years and verified annually by the Scottish Environment Protection Agency (SEPA). Consequently, the waste data included in the council's 2013/14 carbon footprint is for the 2013 calendar year, and similarly for subsequent years. This is necessary to avoid duplication of counting and delays in reporting due to the verification process.

2.2 Organisational and Operational Boundaries

The resources to be included in a carbon footprint are defined in relation to two boundaries - the organisational boundary and the operational boundary. Definition of the boundaries is determined by the extent of the council's estate, goods and services over which it has operational control, and the availability of good quality data.

The operational boundary essentially sets out the emission sources included in the council's carbon footprint and is shown in the 'emissions' column in Table 1 below. In keeping with the Greenhouse Gas Protocol (WRI 2004), the operational boundary should include all Scope 1 and Scope 2 emissions (e.g. on-site fuel combustion, council owned vehicles and purchased electricity consumption). Scope 3 emissions (e.g. waste, water, commuting and business travel) are considered discretionary but are included where data is available. No train or air miles have been included as the data is not currently available.

Staff commuting has been excluded due to indirect control and a lack of consistent and reliable data. The council's housing stock is not included as the council has little control over heating and lighting for individual properties. The council is, however, committed to maintaining and improving the energy efficiency of its housing stock via obligations outlined in the Scottish Government's Energy Efficiency Action Plan.

Table 1: West Lothian Council's carbon footprint boundaries including council owned operational buildings, external lighting, transport and waste.

Category	Function Examples	Emissions source
Buildings	Partnership centres, offices, schools, sports pavilions, resource centres, libraries, sheltered housing, care homes, village halls, public conveniences, workshops, depots.	Electricity, gas, fuel oil, water consumption and treatment, waste
External Lighting	Street lighting (inc private roads, remote footpaths, roads, signs and bollards), Christmas lighting, cathodic protection, , car parks, crossing flashers, council bus shelters, traffic signals, floodlights, leisure centres, CCTV, specialist road signs, recycling centres, stair lighting, garage sites, television amps, doors.	Electricity
Transport	Fleet (including electric vehicles), pool cars, staff travel.	Electricity, fuel (fleet diesel and fleet petrol) and business miles
Waste	Municipal waste sent to landfill, commercial and industrial waste sent to landfill, organic food and drink composting, anaerobic digestion of organic food and drink, organic garden waste composting, paper and board mixed recycling , waste electrical and electronic equipment recycling (WEEE), glass recycling, plastics recycling, metal cans and metal scrap recycling, waste to combustion and construction waste recycling.	Waste

Excluded emission sources include:

- Air mileage/train travel
- Home-to-office mileage
- Social housing
- Utility sources not directly billed (e.g. included within a service charge)

2.3 Data Sources

The data sources used in the council's carbon management programme are based on data provided by both internal and external partners. Key Performance Indicators (KPI's) have been established within the council's performance management system to collate and monitor data annually. The main streams of data (consumption and costs) input are as follows:

- Stationary Sources
 - Electricity: Systems Link Energy Management Software, historical AMR data, utility provider information and billing.
 - Gas: Systems Link Energy Management Software, historical AMR data, utility provider information and billing.
- Water
 - Systems Link Energy Management Software, Business Stream water reports.
- Waste
 - Annual waste data returns verified by SEPA.
- Transport
 - Fleet operations.
 - Business mileage expense claims.

Data is collated and converted to a CO₂e tonnage equivalent using the relevant DEFRA factors for Company Reporting. Conversion factors have been taken for Scopes 1, 2 and 3 which relate to total direct emissions. No 'Well to Tank' or 'Outside Scope' factors have been used.

2.4 Carbon Footprint Baseline and Cost

The council's revised baseline year for calculating progress against targets is 2013/14. The overall carbon footprint for the baseline year was 61,061 tonnes of carbon dioxide equivalent (tCO₂e). Figure 1a shows that grid electricity made up 43% of the council's 2013/14 footprint with natural gas (22%), municipal waste to landfill (19%) and diesel consumption (8%) representing the three next largest contributors. Categories not shown in the legend (less than 1%) include plastics, metal cans, refuse to combustion, construction waste recycling and business mileage. Grid electricity represented the highest proportion of the total cost to the council at £5.3 million (Figure 1b overleaf). Municipal waste sent to landfill cost £3.4 million and fleet diesel £2.8 million.

Currently, data for water supply and treatment is not available for 110 council owned buildings as supplies to these buildings are unmetered. The emissions data (tCO₂e) associated with water consumption and treatment is, therefore, not accurately represented in any of the figures below. The data available from the 175 buildings which are metered shows that in 2013/14 the total water consumption in these buildings (291,565 m³) made up less than 1% of the total footprint, or 297

tCO₂e. The total cost of both water supply and treatment to the council in 2013/14 is known from utility bills, and illustrated as a proportion of the total costs associated with the council's carbon footprint in Figure 1b below.

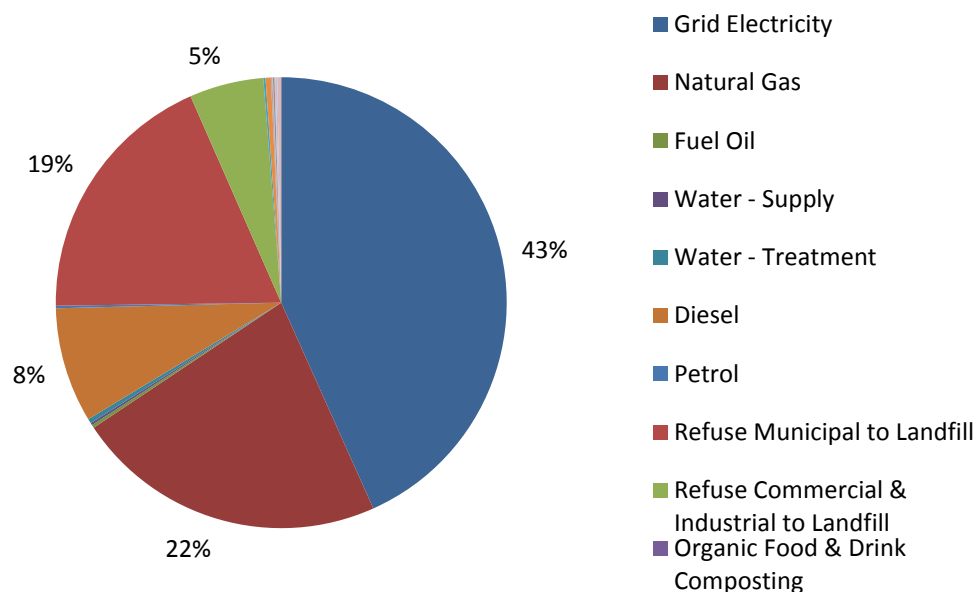


Figure 1a: West Lothian Council's carbon footprint for 2013/14 split by emissions type (tCO₂e). The highest emissions were generated by grid electricity which made up 43% of the total footprint and natural gas which made up 22% (25,966 tCO₂e and 13,398 t CO₂e respectively). Municipal waste sent to landfill made up 19% (11,170 tCO₂e) and fleet diesel 8% (4,944 tCO₂e). Water supply and treatment are not accurately represented as not all council buildings are currently metered.

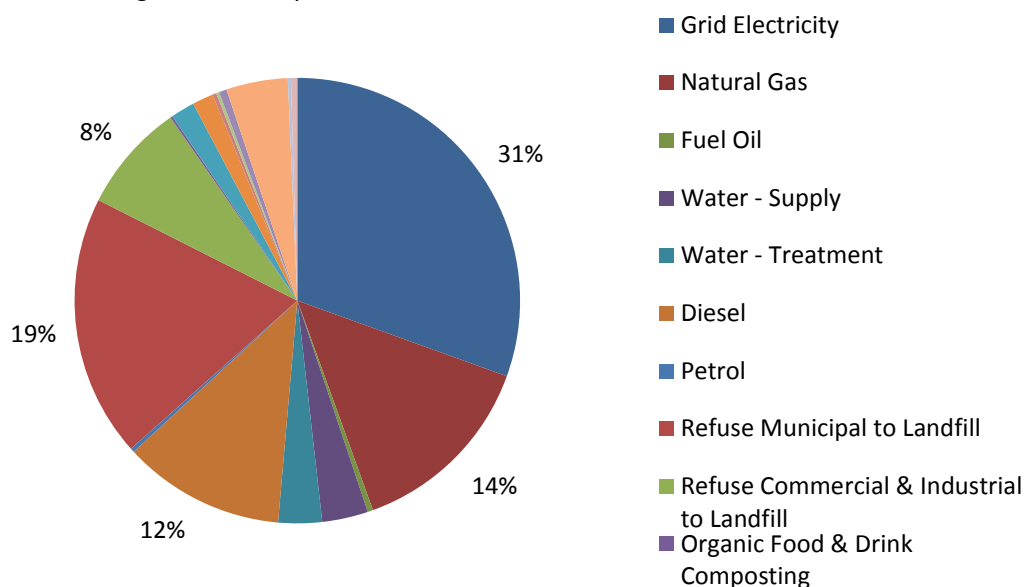


Figure 1b: Costs (£) associated with West Lothian Council's carbon footprint for 2013/14 split by emissions type. The highest costs were for grid electricity which made up 31% of the total (£5.3 million) and municipal waste sent to landfill which made up 19% (£3.3 million). Natural gas made up 14% (£2.4 million) and transport diesel 12% (£2 million). Water supply and treatment together made up 6% of the total cost (£1.1 million for 285 council owned buildings).

Due to changes in the methodology for carbon accounting, data collected prior to 2012/13 is not wholly comparable as some of the information now included in the council's overall carbon footprint isn't available for earlier years (principally different waste streams). However, it has been possible to calculate the carbon footprint for the previous year using the same data sources for comparative purposes. This demonstrated that between 2012/13 and 2013/14 there was a 5.7% reduction in the council's emissions from 64,703 tCO₂e to 61,061 tCO₂e. The reduction can be attributed to a number of initiatives, including ongoing rationalisation of the council's building stock, increased investment in renewable technologies, and a range of other energy efficiency measures.

The split between stationary emission sources (non-domestic buildings and external lighting), water, waste and transport for the 2013/14 carbon footprint baseline year (tCO₂e) is shown in Figure 2 below. The costs (£) associated with the footprint, including obligations under the CRC EES, are shown in Figures 3a and 3b. From 2015 the scope of the CRC EES has been extended to include unmetered supplies (including all external lighting) as well as buildings. In 2014/15 CRC EES expenditure was £622,970.

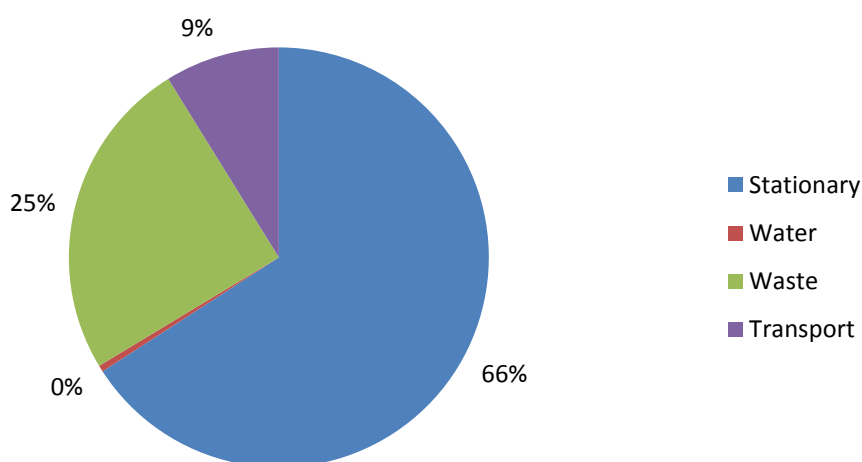


Figure 2: West Lothian Council's carbon footprint for 2013/14 split by source (tCO₂e). Stationary sources (electricity, gas and fuel oil consumed in buildings and electricity for external lighting) generated the highest level of emissions at 66% of the total footprint (36,496 tCO₂e), followed by waste at 25% (14,878 tCO₂e) and transport at 9% (5,296 tCO₂e). Due to a lack of data for unmetered buildings it has not been possible to show an accurate proportion of emissions for water. Buildings currently metered (175 in total) equate to less than 1% of the total footprint (297 tCO₂e).

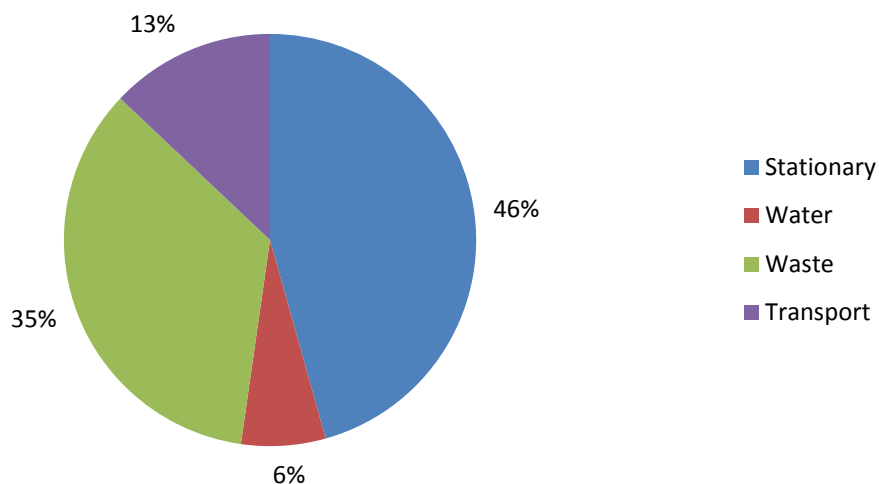


Figure 3a: Costs (£) associated with West Lothian Council's carbon footprint for 2013/14 split by source. Stationary sources (electricity, gas and fuel oil consumed in buildings and electricity for external lighting) accounted for the highest proportion at 46% of the total cost, waste accounted for 35%, transport fleet and business mileage 13% and water supply and treatment accounted for the remaining 6%.

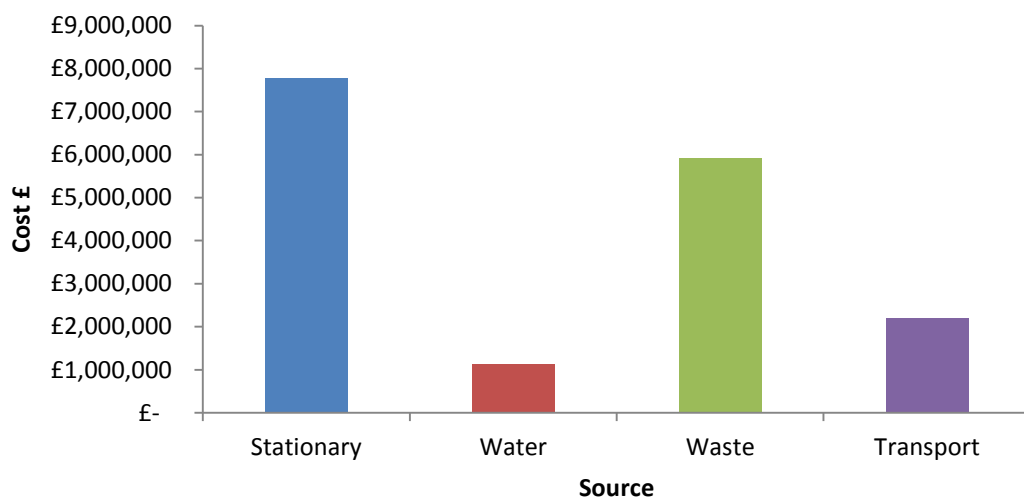


Figure 3b: Costs (£) associated with West Lothian Council's carbon footprint for 2013/14 split by source. Stationary sources (electricity, gas and fuel oil consumed in buildings and electricity for external lighting) generated the highest financial costs at £7.8 million. Waste expenditure was £5.9 million, transport £2.2 million and water supply and treatment (both metered and unmetered buildings) £1.1 million.

The council's non-domestic operational buildings and external lighting (stationary sources) were the largest component of the council's carbon footprint in 2013/14 and generated emissions equivalent to 39,496 tCO₂e, which equates to 66% of the overall total (see Figure 2). Council owned non-domestic buildings made up 49% of this total and generated emissions equivalent to 29,213 tCO₂e. Schools collectively were the biggest contributor to council building emissions at 29% of the

buildings total, with partnership centres making up 6% and community centres / community education centres 2%. External lighting made up the remaining 17% of stationary source emissions and generated the equivalent of 10,283 tCO₂e. The total cost to the council for buildings (electricity, gas and fuel oil) was £5.6 million. The total cost of external lighting (including streetlighting and lighting relating to the council's housing stock, such as vennels and stairways), was £2.0 million.

Emissions from waste were the second largest contributor (based on 2013 calendar year data) generating the equivalent of 14,878 tCO₂e, or 25% of the overall total. The total amount of waste generated was 119,282 tonnes. Of this, 54,549 tonnes was sent to landfill, 47,945 tonnes was recycled or prepared for reuse and 663 tonnes was incinerated. The amount of food and drink composted, and therefore diverted from landfill, was 777 tonnes. This figure is expected to increase to 4,288 tonnes by 2020/21. The total expenditure for the council on waste in 2013 was £5.9 million. Glass, metal cans and scrap metal recycling generated an income which was deducted from the total cost.

Transport generated 5,296 tCO₂e which equates to 8% of the total footprint. Of the emissions generated by transport, 5,053 tCO₂e is attributed to fleet vehicles (of which 518 tCO₂e was from pool cars) and 5,053 tCO₂e is business travel. The total expenditure on transport in 2013/14 was £2.2 million.

It has not been possible to calculate the emissions generated by water consumption and treatment due to a lack of accurate data. However, water supply in metered buildings (175 in total) was 291,565 m³ which generated the equivalent of 297 tCO₂e (less than 1% of the overall footprint). The cost of both water supply and treatment to the council in 2013/14 is known from utility bills, and the total expenditure in 2013/14 was £1.1 million.

Figure 4 shows a detailed breakdown of the costs associated with the council's overall carbon footprint for 2013/14 split by emissions type. The highest costs to the council were grid electricity and natural gas (£5.3 million and £2.4 million respectively), municipal waste sent to landfill (£3.3 million), transport diesel (£2 million), commercial and industrial waste sent to landfill (£1.4 million) and construction waste recycling (£0.7 million). The combined cost of water treatment and water consumption for the council was £1.1 million.

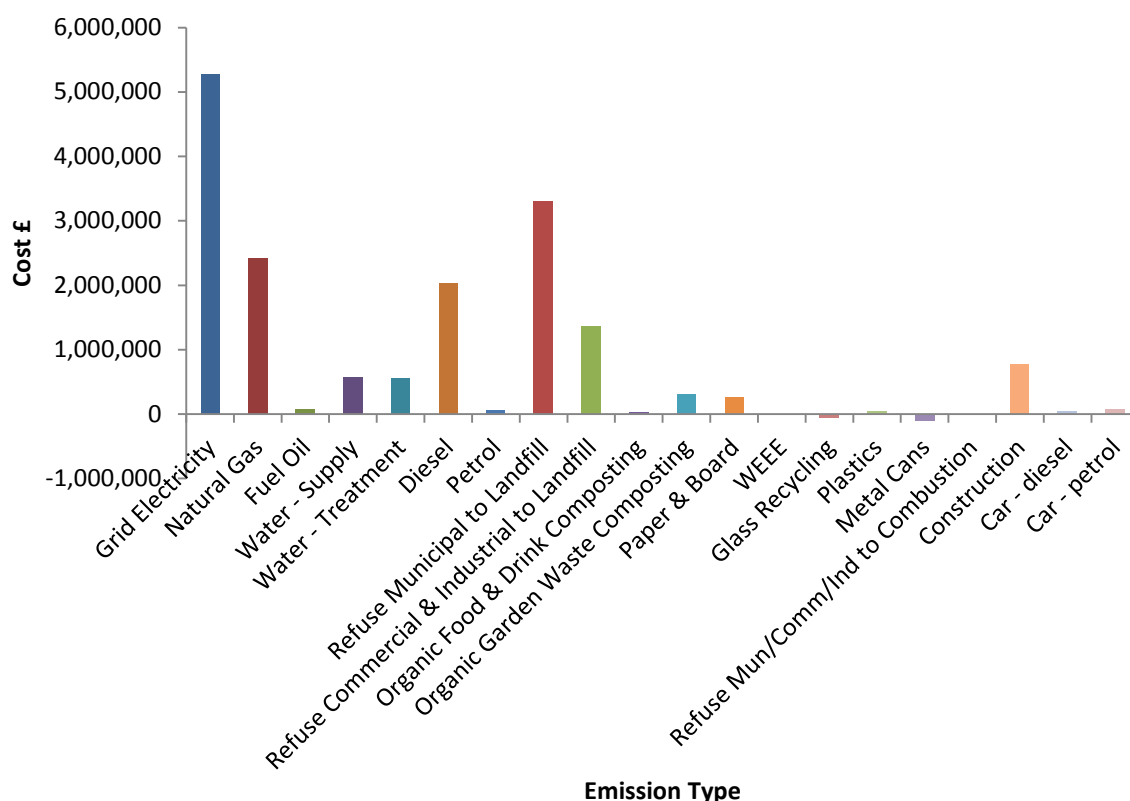


Figure 4: Costs (£) associated West Lothian Council's carbon footprint for 2013/14 split by emissions type.

2.5 Carbon Footprint Projections

Analysis of projected emissions and the expected impact of Business as Usual (BAU) allows an evaluation of how the council's carbon emissions and costs will change over time. The results of the BAU analysis help to explain what is happening in the short and long term, what is happening to different component parts of the footprint (e.g. gas and electricity) and the current importance of the grid emission factor forecast, including the level of uncertainty in relation to this beyond a certain point.

The BAU projections take account of expected changes to buildings (extensions, new buildings and building closures) and projected increases and/or efficiencies in external lighting, transport (fleet including council pool cars) and waste. Within the lifetime of the plan there will be some significant changes due to partial or complete closures of a number of buildings and the opening of new buildings (and extensions), including new depots and schools. Figures 5a and 5b show the expected BAU (carbon and costs) from 2013/14 increasing to 2020/21 (against the ongoing target reduction of 20%). The increase in the carbon footprint (tCO₂) between 2013/14 and 2014/15 is primarily due to the increase in the emissions factors for grid electricity natural gas and construction recycling. There are also some expected increases to the council's estate which have a small effect.

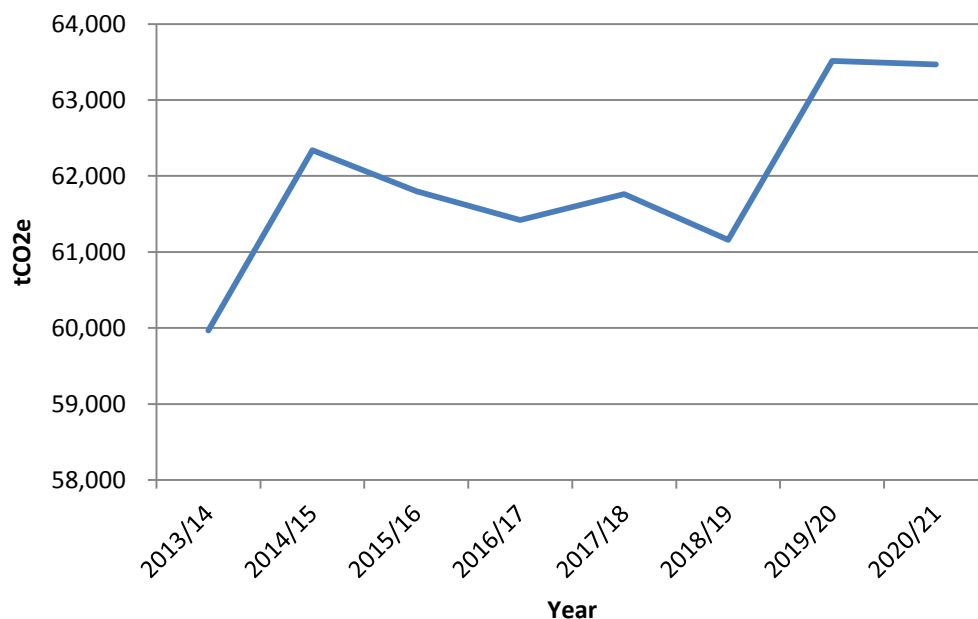


Figure 5a: Expected BAU carbon footprint in tonnes of CO₂e for West Lothian Council from 2013/14 to 2020/21. Reductions are expected from 2014/15 to 2018/19 primarily due to the council's programme of building rationalisation. Projected future increases beyond 2018/19 are mainly due to the expansion of the council's estate (e.g. new schools and partnership centres).

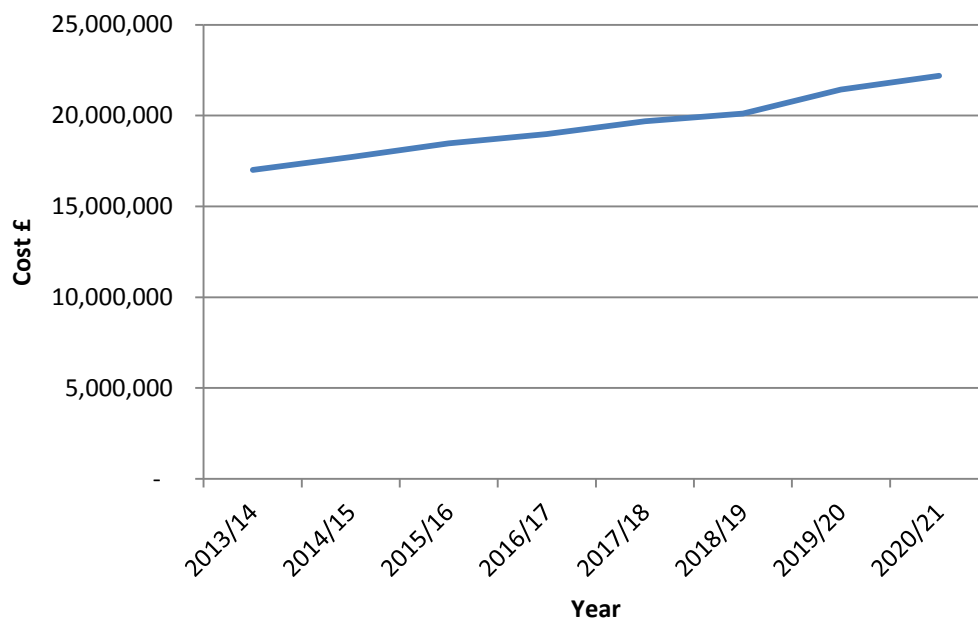


Figure 5b: Expected BAU carbon footprint costs (£) for West Lothian Council from 2013/14 to 2020/21. BAU costs are expected to increase from £17 million in 2013/14 to £22.2 million by 2020/21.

Figures 6a and 6b below show the council's projected BAU carbon footprint (tCO₂e) and costs (£) from 2013/14 to 2020/21 split by emissions source. The greatest increase in emissions is expected to be from stationary sources (electricity, gas and fuel oil consumed in buildings and electricity for external lighting) from the equivalent of 39,496 tCO₂e in 2013/14 to 43,150 tCO₂e in 2020/21, which equates to an increase in costs from £11.5 million in 2013/14 to £17.4 million in 2020/21.

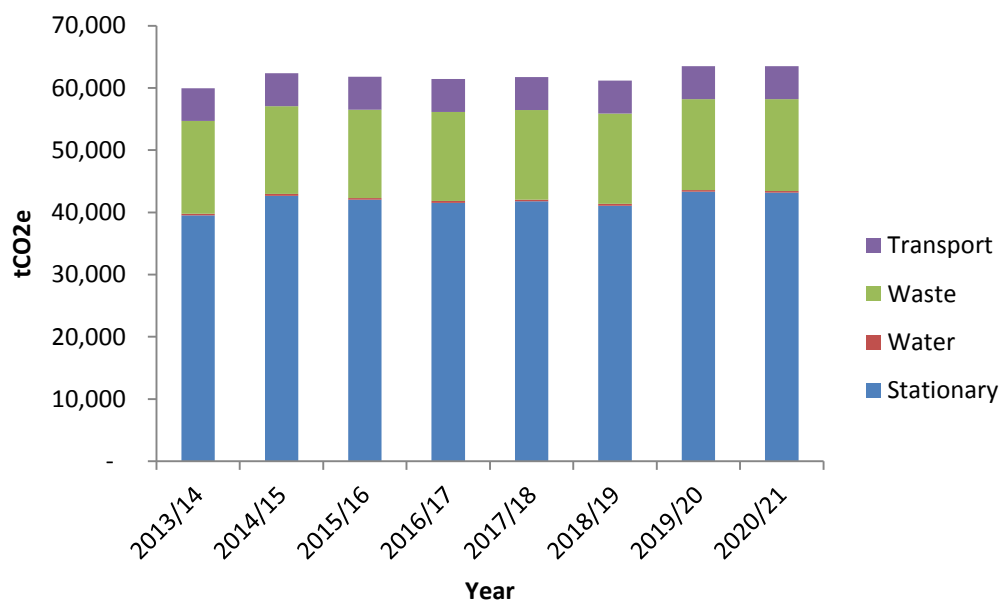


Figure 6a: Projected BAU carbon footprint in tonnes CO₂e for West Lothian Council from 2013/14 to 2020/21 split by emissions source (stationary sources, water, waste and transport).

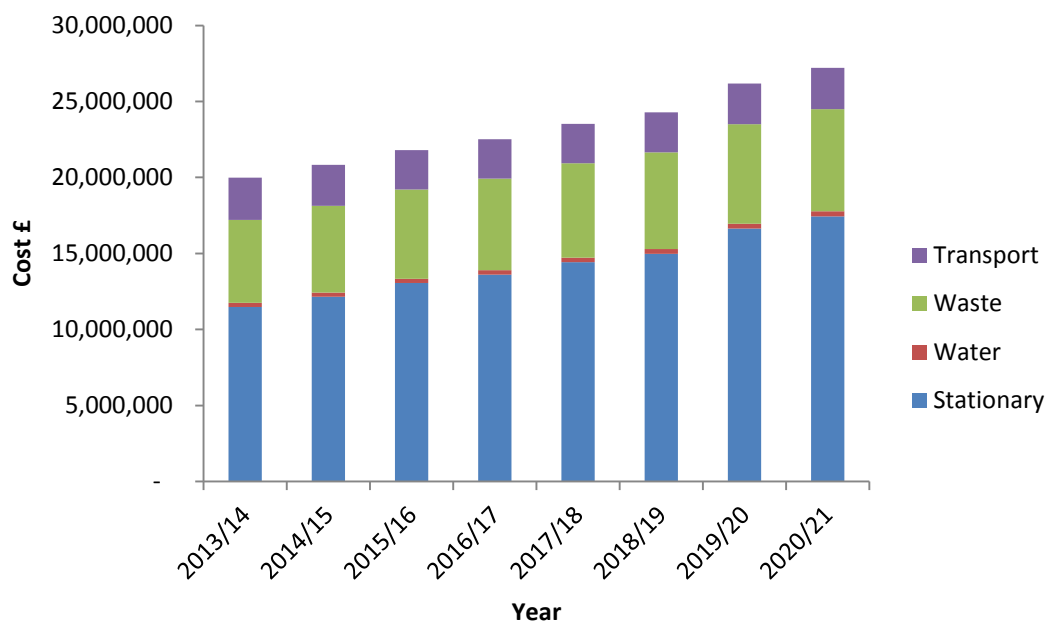


Figure 6b: Projected BAU carbon footprint costs (£) for West Lothian Council from 2013/14 to 2020/21 split by emissions source (stationary sources, water, waste and transport).

3 Carbon Management Projects

3.1 Potential for Reducing Carbon

In order to continue achieving emissions reductions and to avoid financial exposure, the council is committed to identifying and implementing carbon reduction projects. The council recognises that achieving carbon reduction targets is contingent upon the following key elements being in place:

- An organisational framework within the council 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 Carbon Management 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 implementation of the Carbon Management Plan and statutory and non-statutory reporting requirements.

The potential for reducing carbon emissions across the council will vary. Much has already been achieved in relation to waste, with levels of recycling at 47,971 tonnes in 2013/14 and levels of food and drink diverted from landfill expected to increase to 4288 tonnes by 2020/21. The largest potential for emissions reductions is within the council's building stock. There have been a number of successful projects to reduce the carbon footprint of buildings, such as voltage optimisation, the installation of smart meters, cavity wall insulation, the replacement of lighting with low energy equivalents and the installation of renewable technologies. Detailed energy audits have identified further opportunities for improvement.

3.2 Existing and Planned Projects

The following initiatives and projects have already been completed or implemented since the publication of the council's first Carbon Management Plan in 2009. The carbon emission savings achieved by these schemes have therefore already contributed towards the council's carbon reductions and any corresponding savings included in the baseline carbon footprint for 2013/14.

- Building Management Systems (BMS) have been installed at 88 council owned operational buildings.
- Electricity meters have been upgraded to AMR Smart Meters to allow the council to more accurately record and monitor consumption data.

- Detailed energy audits were undertaken for council owned buildings and recommendations have been progressed through Capital Asset Management Programme including voltage optimisation, lighting replacement and draught proofing.
- A programme was implemented to fit streetlights with energy efficient replacements;
- Solar photovoltaic (PV) systems were installed at the Sutherland Building, West Lothian Civic Centre, Whitburn Academy and Springfield Primary School, and systems in place in 2013/14 generated 22,202 kWh of electricity.
- A ground source heat pump was installed at Woodmuir Primary School.
- A number of buildings were closed and staff relocated to partnership centres as part of the on-going programme of rationalising the number of council buildings.
- Power Management Software was rolled out to all council PC's.
- A print policy was implemented to reduce unnecessary printing and a print management system introduced to allow accurate recording of print volumes and promotion of best practice.
- Targets were established for reductions in general fleet mileage including the optimisation of routine journeys of council fleet vehicles.
- Driver awareness training was rolled out to council staff.
- Green transport guidance was prepared for all council employees and elected members.
- Waste audits were undertaken in nurseries, primary schools and colleges as part of the council's Waste Education Programme and at the West Lothian Civic Centre as part of the Green Impact initiative.
- Waste minimisation and recycling resources were provided for nurseries and primary and secondary schools.
- Waste Smart training (approved by CIWM) was made available for teachers, staff and facilities management.
- Glass recycling was rolled out to an additional 200 sites across West Lothian.
- The Green Impact and School Switch Off initiatives were launched for the West Lothian Civic Centre and secondary schools.
- Training was given to all new council staff through the council's Corporate Induction on energy awareness, climate change, travel and transport and sustainability.
- A Sustainable Behaviour Assistant was recruited to embed a culture of sustainability and resource efficiency amongst council staff and partners.
- Individual, Social and Material (ISM) workshops were undertaken with West Lothian Civic Centre staff and partners, and with secondary schools.
- The Everest Challenge campaign was launched with Healthy Working Lives to improve health and reduce energy consumption.
- The Sustainable Procurement Project Plan was reviewed and updated.

The planned new projects set out below are a sample of those that have been selected for implementation within the period 2014/15 to 2020/21, because they either generally provide the largest proportion of savings, or were already planned for delivery as part of an ongoing programme of works. In relation to projects that have had their associated potential carbon savings quantified, the sum predicted to be saved over the five year lifespan of the Carbon Management Plan amounts to 11,993 tonnes of CO₂e.

3.2.1 Energy

- Achieve an interim target of reducing overall energy consumption by 10% by 2018 and establish a target for an additional reduction by 2020/21.
- Prepare and implement a Corporate Temperature Policy for council owned non-domestic buildings.
- Continue implementing the energy efficiency measures identified in energy audits through the Capital Asset Management Programme, including the replacement of lighting with more energy efficient alternatives, condensing boiler installations and the replacement of windows.
- Closure of inefficient depots and move to more efficient premises (Archive Store, Deans Fleet and Cleansing Depot, Guildyhaugh Depot, Whitehill House, Whitehill Building Services Depot).
- Continue to install solar PV systems in council owned buildings. Installations will be carried out by the council's own in house MCS accredited team and will include Meldrum Primary School, Ogilvie Campus, Woodmuir Primary School, Boghall Primary School and Lister Road Depot.
- Small scale biomass heating to be installed at council owned buildings including Strathbrock Partnership Centre, West Lothian Civic Centre, St. Kentigerns Academy, James Young High School, Inveralmond Community High School and Westfield Primary School.
- Explore the potential for further renewable and low carbon energy technologies on council owned land.
- Continue implementing the council's Delivering Better Outcomes programme to drive forward the delivery of energy efficiency, carbon and cost saving projects.

3.2.2 Travel and Transport

- Achieve interim target of reducing general council fleet mileage by 33% by the end of the financial year 2018 and establish a target for an additional reduction by 2020/21.
- Implement the Green Transport Guidance, the Policy on Driving at Work and the Policy on Business Travel and Subsistence for all council employees and elected members.
- Promote the use of the West Lothian Council Drivers Handbook and efficient driver training for council employees.

- Promote the council's travel hierarchy to reduce staff business travel and encourage walking and cycling where possible.
- Prepare business mileage reduction plans for each service across the council including use of own cars for site visits on the way to and/or from work and promote the use of Google Maps to replace site visits where feasible.
- Continue to promote flexible and mobile working including the council's Worksmart scheme to reduce miles travelled by council employees.
- Develop and implement travel plans for primary and secondary schools, and for council buildings with large numbers of staff including partnership centres.
- Promote the uptake of cycling through <http://westlothian.cyclestreets.net>, the introduction of a staff pool bicycle scheme and Bike User Groups, Bike buddies, free basic cycle training at for all staff who register to use a bike, and the promotion of claims for cycle mileage in expenses.
- Optimise routine journeys of council fleet vehicles where possible to reduce mileage.
- Continue to adopt new engine and low emission technologies in council fleet vehicles.
- Expand the use of vehicle telematics to reduce fuel use and vehicle emissions.
- Continue to undertake vehicles emissions testing in conjunction with other councils.
- Replace existing fleet vehicles with low carbon vehicles where feasible and investigate opportunities for funding electric vehicles.

3.2.3 Waste

- Achieve target of 60% increase in recycling and preparation for reuse by 2020/21.
- Expand domestic food waste recycling to an additional 52,000 households across West Lothian from 2014/15.
- Work towards zero waste targets through the implementation of the Resource and Recycling Strategy and the Education and Awareness Strategy.
- Expand recycling facilities through the creation of additional segregated glass bank sites.
- Establish new recycling services including food waste recycling and Recycle on the Go.
- Expand the materials accepted within existing recycling services e.g. dry mixed recyclate in blue bins.
- Provide commercial recycling services for dry mixed recyclate, segregated glass and food waste.
- Continue expanding the provision of domestic food waste recycling service to households across West Lothian.
- Roll out new recycling services e.g. food waste, Recycle on the Go.
- Continue to provide waste minimisation and recycling support for nurseries, schools and colleges.
- Adopt re-use schemes including WARP-IT.

3.2.4 Water

- Install water metering systems in unmetered council owned buildings and establish a target for reducing overall water consumption by 2020/21 in council owned non-domestic buildings.
- Promote a culture of water efficiency amongst staff through the council's Green Impact initiative.
- Explore the potential for utilising rainwater harvesting systems for fleet vehicle washing.
- Ensure that new toilets or replacement toilets and urinals have low flush volumes.
- Explore the potential for reducing unnecessary water use from taps, such as identifying and fixing leaking taps or fitting with sprays. Spray taps can save around 80 per cent of the water and energy used for hand washing.

3.2.5 Procurement

- Achieve Level 3 of the Flexible Framework.
- Adopt energy efficiency and emissions standards as criteria to be used in the procurement of goods and services.
- Explore options for incorporating scope 3 (indirect) emissions from the procurement of goods and services into the council's carbon footprint.
- Prepare and implement a sustainable procurement policy.

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

- Prepare and implement a Sustainable Construction Policy for the council with standards for resource efficiency, including energy, waste and water.
- Promote the interactive online Carbon Trust Empower energy awareness tool which has been developed specifically for West Lothian Council employees. The use of the tool will be monitored by the Sustainable Behaviour Assistant.
- Continue to undertake behavioural change ISM workshops with secondary schools involving Facilities Management, Depute Head Teachers, teaching staff, catering staff and pupils.
- Progress active travel projects across West Lothian following the highly successful bid to the Sustrans Community Links fund.
- Develop and implement online resources and e-learning modules on energy awareness, climate change and sustainability for all council staff, including through the Corporate Induction for new staff.

- Work with Sustrans and partners to achieve an increase in people cycling to work and a reduction in the number of car trips to work.
- Work with Sustrans to develop an Active Travel Plan for West Lothian.

3.3 Financing Carbon Saving Projects

The council's approved Capital Programme in 2015/16 has £42.4 million funding that will, through the modernisation of assets, contribute to the reduction of energy/fuel consumption and costs. For example, approximately £5m is being spent within property on minor works, planned improvements and statutory compliance. A number of these projects will contribute to the delivery of carbon reductions through greater levels of thermal efficiency, reduced resource consumption and greater utilisation of assets. The exact level of these cannot be determined due to the combined nature of these works.

Funds have been allocated in 2015/16 for the continued replacement of street lighting with energy efficient LED, the installation solar PV across the school estate and operational buildings, biomass heating installations and energy efficiency measures. It is assumed that similar levels of capital funding will be provided from the Capital Programme in future years for carbon reduction projects across property assets, roads and related assets, open space, ICT, fleet and housing. Opportunities will also be taken to maximise any other funding streams from the Scottish Government and other sources for Invest to Save initiatives.

3.4 Target Setting

The analysis shows that, with the current projects in place (to 2018/19) and the anticipated BAU, carbon emissions will decrease throughout the lifetime of the Carbon Management Plan to reach 52,186 tCO₂e tCO₂e. Based on this analysis, the council therefore commits to a target of 11,993 tCO₂e (20%) reduction on the 2013/14 carbon footprint by 2020/21, which equates to a carbon footprint of 47,974 tCO₂e in 2020/21. This target is considered to be achievable in the context of a growing population and projected expansion of the council's services, including significant investment in schools and infrastructure. It is the council's contribution to meeting the national target of 42% by 2020 (compared to a 1990/1995 baseline) set out in the Climate Change (Scotland) Act 2009.

The 20% reduction target is an overall target and will not be divided equally amongst the component parts of the council's carbon footprint. This is due to the difference in the potential to reduce emissions within each of these areas. The targets for specific areas are listed in Table 2 below.

Table 2: Targets for the component parts of West Lothian Council's carbon footprint.

Area	Performance 2013/14 (baseline figure)	Target
Stationary buildings and external lighting (electricity, gas and fuel oil)	Buildings (total) 29,213 tCO ₂ e	10% overall reduction in energy consumption by 2018/19
	Buildings (grid electricity) 15,683 tCO ₂ e	
	Buildings (natural gas) 13,398 tCO ₂ e	
	Buildings (fuel oil) 132 tCO ₂ e	
	External lighting (including street lighting) 10,283 tCO ₂ e	
Water (supply and treatment)	Metered buildings (175) 296 tCO ₂ e	Overall reduction in water consumption by 2020/21 (exact target to be agreed)
Transport (fleet including pool cars and business mileage)	Total 5,296 tCO ₂ e	33% reduction in general mileage by 2018/19 (to 1,667 tCO ₂ e)
	Fleet diesel / petrol (excluding pool cars) 4,535 tCO ₂ e	
	Fleet diesel (pool cars) 518 tCO ₂ e	
	Business mileage (excluding rail and air) 242 tCO ₂ e	
Waste (total recycling and preparation for reuse) and therefore diverted from landfill	Paper and board, WEEE, glass, plastics, metal cans, scrap metal and construction waste 412 tCO ₂ e (47,945 tonnes)	60% increase in recycling and preparation for reuse by 2020

An interim overall target to reduce emissions to 54,827 tCO₂ has been set for 2016/17 (an 8.6% reduction on the 2013/14 carbon emissions baseline figure). In addition to carbon savings, achieving the 20% reduction in emissions by 2020/21 (relative to the 20013/14 footprint baseline) will also generate financial savings relating to:

- Reduced utility costs and associated exposure to price inflation;
- Reduced transport fuel costs, and associated exposure to price inflation;
- Reduced costs of landfill; and
- Reduced liability for the cost per tonne of carbon to be paid under the CRC Energy Efficiency Scheme for energy consumption in buildings and street lighting.

Figure 8a and 8b show the total project savings (carbon and costs) that will be achieved if projects currently identified within the project register are implemented. Taken together these projects are expected to generate a total carbon saving of 54,187 tCO₂e by 2020/21. The projects will also be supported by 'non-quantifiable' measures which will facilitate additional savings (see Section 3).

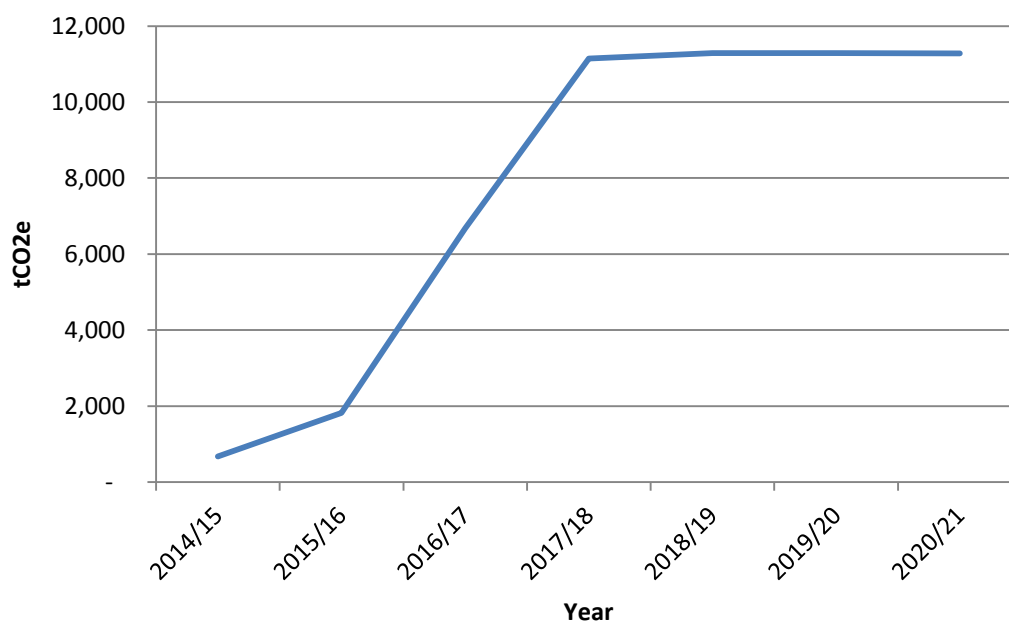


Figure 8a: Total project carbon savings (tCO₂e) to 2020/21.

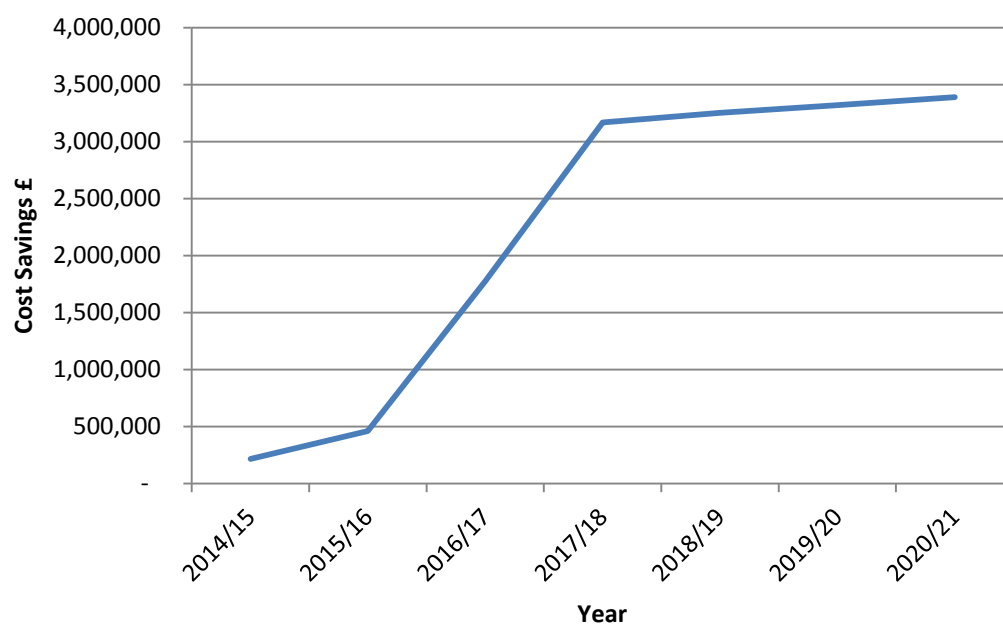


Figure 8b: Total project cost (£) savings expected for West Lothian Council to 2020/21.

4 Carbon Management and Delivery

4.1 Operational Roles and Responsibilities

The overall management structure for climate change reporting is currently under review, and will be updated once agreed.

Progress on individual projects and targets will be monitored by the CCSWG which meets quarterly. The CCSWG plays a critical part in driving and co-ordinating the work of the council to meet its objectives under the Climate Change (Scotland) Act 2009, and ensure compliance with the Public Bodies Climate Change Duties. Key areas of work are:

- Setting, monitoring and reviewing the actions and interim targets for mitigation of, and adaptation to, climate change.
- Reporting the activities of the CCSWG to service areas including through management and team meetings.
- Ensuring that climate change and sustainability understanding and action is embedded in all core corporate and business planning processes across the council.
- Prioritising the implementation of climate change actions and projects and removing obstacles to successful implementation.
- Reviewing and championing plans for the financial provision of climate change projects.
- Promoting a culture of low carbon and sustainable behaviour within the council as a whole and amongst staff at all levels.
- Supporting the council's budget strategy through reducing the cost and impact of the council's use of resources, including energy.

The CCSWG has responsibility for the strategic direction and implementation of the Climate Change Strategy and Carbon Management Plan. The Terms of Reference for the group sets out the key areas of responsibility, including progress monitoring on the six priority outcomes identified in the Climate Change Strategy. Outcome 1 of the strategy seeks to reduce the council's own carbon footprint. The group reports to the Capital Asset Management Board, elected members through the Environment Policy and Development Scrutiny Panel and Council Executive at least annually, but more frequently as necessary.

The CCSWG also functions as a Community Planning Partnership (CPP) thematic forum for the environment and all performance indicators (PI's) under the environment outcome in the SOA are governed through the CCSWG, including a suite of PI's for carbon management. Performance is reviewed at meetings, and reported back to the CPP Steering Group by the lead officer. Minutes of all meetings are also submitted to the CPP Steering Group.

4.2 Resourcing and Ownership

The Carbon Management Plan and carbon saving target has been scrutinised the Environment Policy Development and Scrutiny Panel and approved by Council Executive, providing endorsement and a clear commitment at the highest level, and reinforcing the need for action across the council. The specific objectives of the Carbon Management Plan will be included in the council's Corporate Plan and other high level strategies and management plans.

Key stakeholders at all levels of management will provide overall support for promoting a culture of carbon reduction throughout service areas and buildings. The Carbon Management Plan will be published online, and progress on targets reported to key partners through the Community Planning Steering Group and Board. The key to success of this revised Carbon Management Plan is effective engagement with staff and local communities. Everyone has a role to play in embedding and delivering the plan, and collaborative working is essential to deliver the desired carbon savings.

Green Champions have an important role in leading energy saving activities within their area, from educating and encouraging staff to monitoring and evaluating energy usage and identifying opportunities for reduction. The scope includes energy saving, and reducing waste and recycling, printing volumes, water consumption and travel mileage.

4.3 Data Collection and Management

The council's present data collection system affords reasonable data analysis using Systems Link Energy Management Software. This is used to monitor all energy and water costs and consumption from invoice data and Smart Meters. The council's investment in smart metering has greatly improved data collection, and created the opportunity to carry out more detailed monitoring of building energy performance and the identification of carbon saving projects.

Performance data will be communicated to staff to raise their awareness of the implications of their energy use to their unit. The council's energy management software also has the facility to provide information for KPI's, generate energy management reports, invoice management (missing invoices), external reports and internal reports providing feedback to users and Green Champions. Energy performance is reported on a monthly basis through the Reducing Energy Use Workstream Board. Exception reports are produced when required and follow up action taken if necessary.

4.4 Progress Reporting

The Carbon Management Plan's Project Register (contained in the Carbon Footprinting and Project Register tool) is viewed as 'live', and it is envisaged this will change on an annual basis as the council's estate changes and planning assumptions become reality. To ensure that the Carbon

Management Plan remains 'fit for purpose' to deliver targeted carbon savings it will be reviewed on an annual basis.

Specifically, the following areas of the 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;
- Financial savings achieved as a result of carbon reduction projects;
- Costs of the programme;
- Wider benefits;
- Stakeholder engagement, and
- Risk Register.

The council also has a mandatory requirement to submit fossil fuel energy consumption to the CRC EES Registry by the end of July each year. This requires the collation of invoices from all sites for which the council is the bill payer. This data is currently collected using Systems Link Energy Management software.

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

4.5 Communication and Training

The council, in collaboration with the Corporate Communications team has developed a planned approach to raising carbon reduction awareness through the implementation of a robust communications and awareness strategy. There are many avenues of communication available and these will be fully utilised in promoting the carbon reduction message to all staff and visitors. It is recognised that substantial cultural change across all service areas will take time to deliver, and effective communication and engagement is the key to success. Initiatives for raising awareness include:

- Development of the Corporate Induction training materials covering energy, waste and water awareness, climate change, transport and the council's travel hierarchy.
- Preparation of e-learning modules
- Promotion of the council's Empower tool on the council's intranet home page
- Development of an online hub for collating training and awareness raising materials

The council has developed an online workbook as part of the Green Impact initiative which engages staff in low carbon behaviours. An e-learning module is also being developed with Sustainable Scotland Network (SSN) to ensure compliance with the Public Bodies Climate Change Duties. West Lothian Council will be piloting the module, which has an emphasis on staff behaviour change in the workplace.

West Lothian Council

Carbon Management Plan 2015-2020

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November 2015

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