

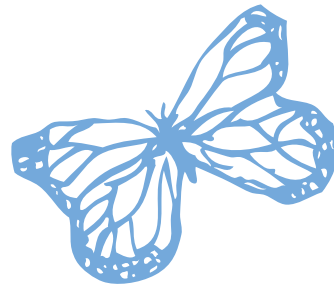
# Carbon



South Lanarkshire Council  
Carbon Management Plan

2016

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## Section 1 Introduction



# Introduction

The first South Lanarkshire Council Carbon Management Plan was published in 2008. Update reports were published in 2012 and 2014. The reports detail the drivers for reducing our carbon emissions and how our emissions have changed over the years. Our emissions were first measured in financial year 2005/06, in anticipation of signing Scotland's Climate Change Declaration in 2006.

The carbon management strategy is an integral part of the Council's Sustainable Development Strategy and is part of 'Connect', the Council's overall plan which has a vision to **Improve the life of everyone in South Lanarkshire**

One of the priority objectives of Connect is to **Develop a sustainable Council and communities**

The monitoring and reduction of our carbon emissions is important not only to improve the local environment but to lead by example and help increase awareness of how everyone can reduce their impact on the environment.

Carbon emissions can be referred to in many ways – CO<sub>2</sub>, greenhouse gas emissions (GHG), carbon footprint. Emissions from the fuel we consume when travelling, from the energy used in our houses and from the food and goods we purchase all contribute to our carbon footprint, usually measured in CO<sub>2</sub> tonnes. Once we understand our carbon footprint we can identify ways to reduce it.

The council's environmental statement which can be found at appendix 1 explains what we are aiming to achieve and how our staff can contribute. Many of the objectives are about being resource efficient and always considering the environment when making business decisions.

## Drivers for reducing carbon emissions

### Legislation

Local authorities are required to 'act in a way best calculated to contribute to the delivery' of the national targets set out in the Climate Change (Scotland) Act 2009. The Act set reduction targets in Scotland of 42 per cent by 2020 and 80 per cent by 2050.

The Scottish Government has placed emphasis on the public sector to set an example and all public bodies including local authorities are now required to submit an annual statutory climate change report which was introduced for the year 2015-16. The report focuses on six main areas, one of which is corporate emissions, and is looking for evidence that the public sector is measuring carbon emissions and making an effort to reduce them. A report for South Lanarkshire Council was submitted for 2014-15 as part of a pilot. This and future years can be found on the council website.

The Scottish Government published 'Scotland's Zero Waste Plan' (ZWP) in June 2010. The plan set out the strategic direction for waste policy in Scotland and introduced a range of targets designed to assist the Scottish Government achieve its vision of a society where 'waste is seen as a valuable resource, valuable materials are not disposed of in landfills and most waste is sorted for reprocessing, leaving limited amounts to be treated'. Various pieces of legislation, most notably the Waste (Scotland) Regulations 2012, have since been introduced to drive councils towards meeting the targets set out in the ZWP. The requirement to collect key recyclable materials (including food waste) from domestic properties was introduced to assist councils to meet the ambitious target of recycling or composting 60% of household waste by 2020 and to comply with the forthcoming ban (January 2021) on the landfilling of biodegradable waste.



## Financial implications

The Carbon Reduction Commitment Energy Efficiency Scheme (CRC) was introduced in 2010-11 and many organisations, including the public sector, are required to report on the energy used in buildings. Local authorities are also required to include the energy used for street lighting. From 2011/12 each scheme participant had to pay an allowance for each tonne of carbon emitted. The costs for South Lanarkshire Council have been and are projected to be -

- 2011/12 - £636,564
- 2012/13 - £738,960
- 2013/14 - £675,036
- 2014/15 - £1,033,204
- 2015/16 - £949,864
- 2016/17 - £1,055,883 (projected)

Future changes to the scheme are planned for 2019/20 onwards but the financial implications for burning fossil fuels is not likely to change.

The increasing energy costs and costs of landfill tax are other strong financial drivers. Landfill tax has increased from £7 per tonne in 1996 to £84.40 in 2016.

## The scope of South Lanarkshire Council's carbon footprint

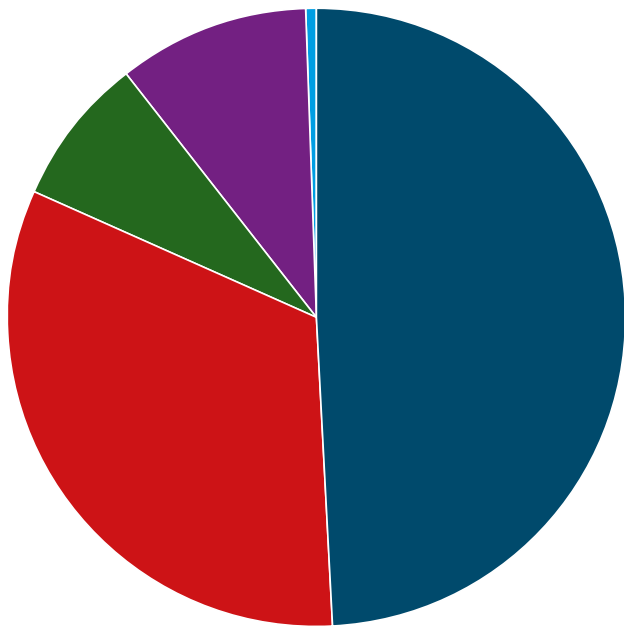
South Lanarkshire has a growing population, with currently over 316,000 residents and over 141,000 households. It covers an area of 1,772km<sup>2</sup> from Rutherglen and Cambuslang in the north down beyond Leadhills in the south. The population and geographical make up of South Lanarkshire affects our carbon footprint as we deliver our services in both urban and rural environments.

The council's carbon footprint is calculated by applying a carbon conversion factor to the energy we use. The following sources have been measured and reported since 2005/06

Source	Energy type	Units of measurement
Buildings	electricity, gas, oil	kWh
Waste	landfill waste	tonnes
Fleet	diesel and petrol	litres
Street lighting	electricity	kWh
Employee travel	miles travelled	miles



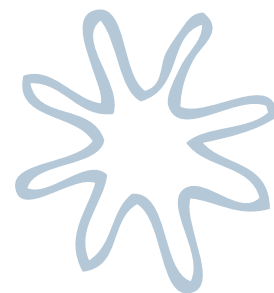
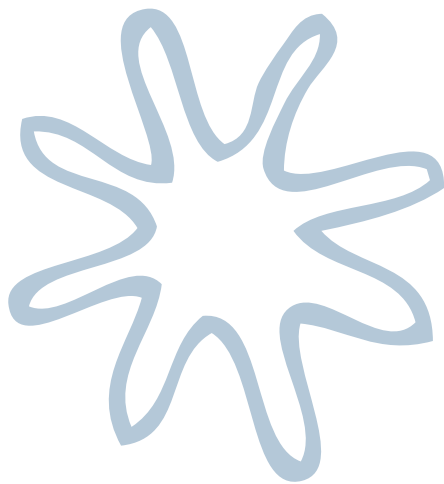
The carbon footprint for 2015/16 is broken down as follows, carbon conversion factors can be found at appendix 2.



Emissions Source	
Buildings (electricity, gas, oil)	Dark Blue
Waste	Red
Fleet	Green
Street Lighting (electricity)	Purple
Employee Travel	Light Blue

\* Source data can be found at appendix 4

Conversion factors are published each year by the Department of Energy and Climate Change (DECC). There can be significant changes each year for numerous reasons. For example, electricity will often fluctuate as it is dependent on the fuel mix consumed in UK power stations and the proportion of imported electricity into the grid. Other changes may be implemented as new methodologies are introduced or the recording of data becomes more accurate. The changes which have taken place to the published conversion factors are detailed in appendix 3.





DECC  
gas  
decreas  
progress  
Management  
Lanarkshire  
South  
Change  
baseline  
targets  
electricity  
tonnage  
Carbon  
Environment  
initiatives  
Council  
Plan



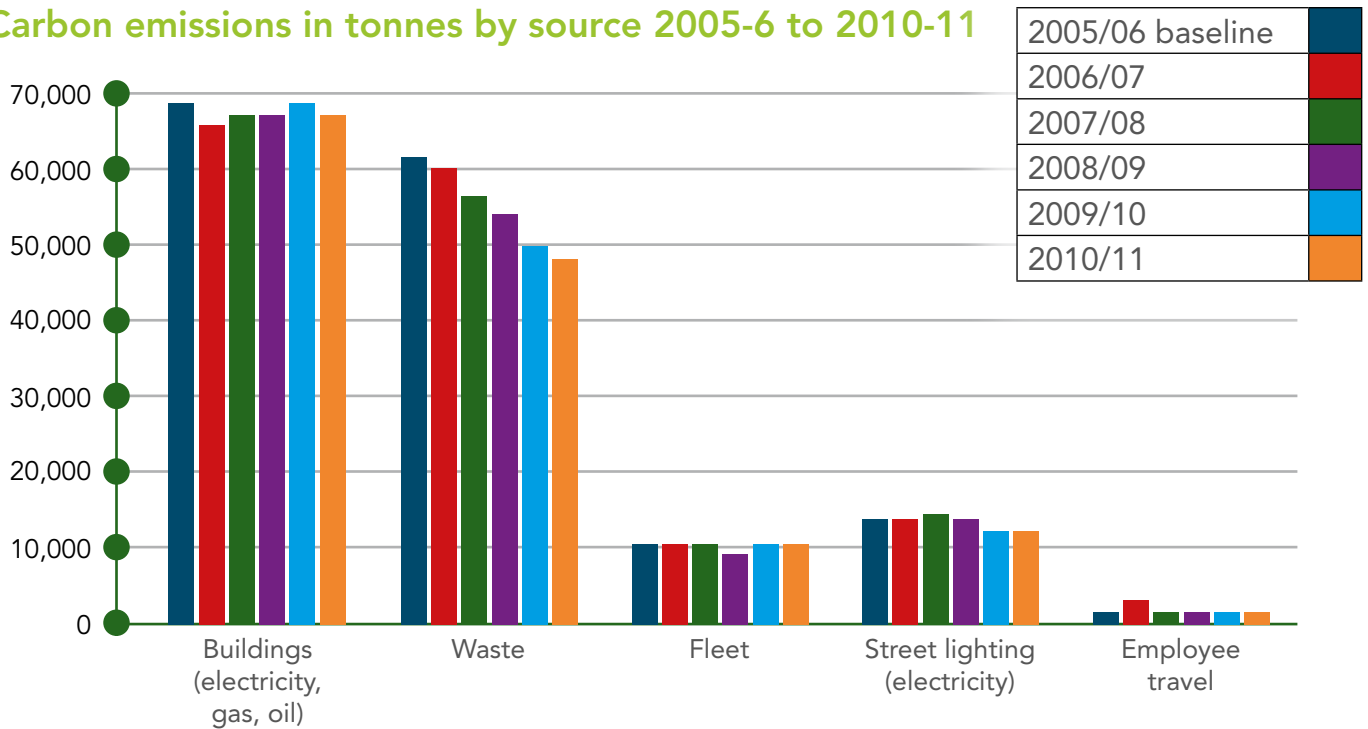
## Section 2 Targets and progress



# Targets

The first carbon management target was to reduce emissions by 5% between 2005 and 2011. This was achieved in 2009 and by 2011 our emissions had reduced by 9.4%. In order to accurately measure how effective our efforts have been we opted to use the same conversion factor throughout the period. However calculations have also been made using updated conversion factors each year.

## Carbon emissions in tonnes by source 2005-6 to 2010-11

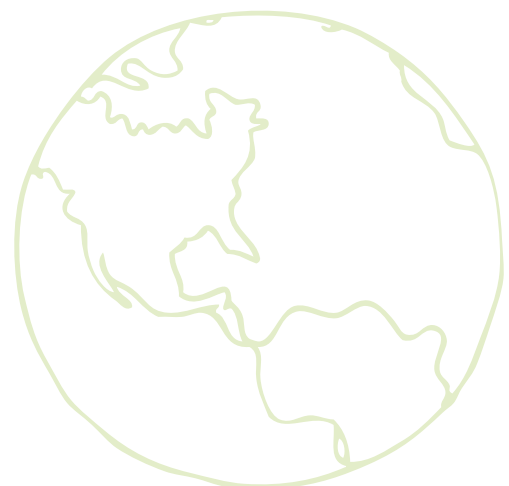


\* Source data can be found at appendix 5

The sources which reduced by the largest percentages were waste and employee travel.

The reduction in waste was due to new and improved recycling facilities in our households. The previous annual growth in the tonnage of waste collected was reversed which also contributed to the reduced level of landfill. This was thought to be due to the fragile economy, a reduction in packaging and a general increase in public awareness for the need to divert waste from landfill.

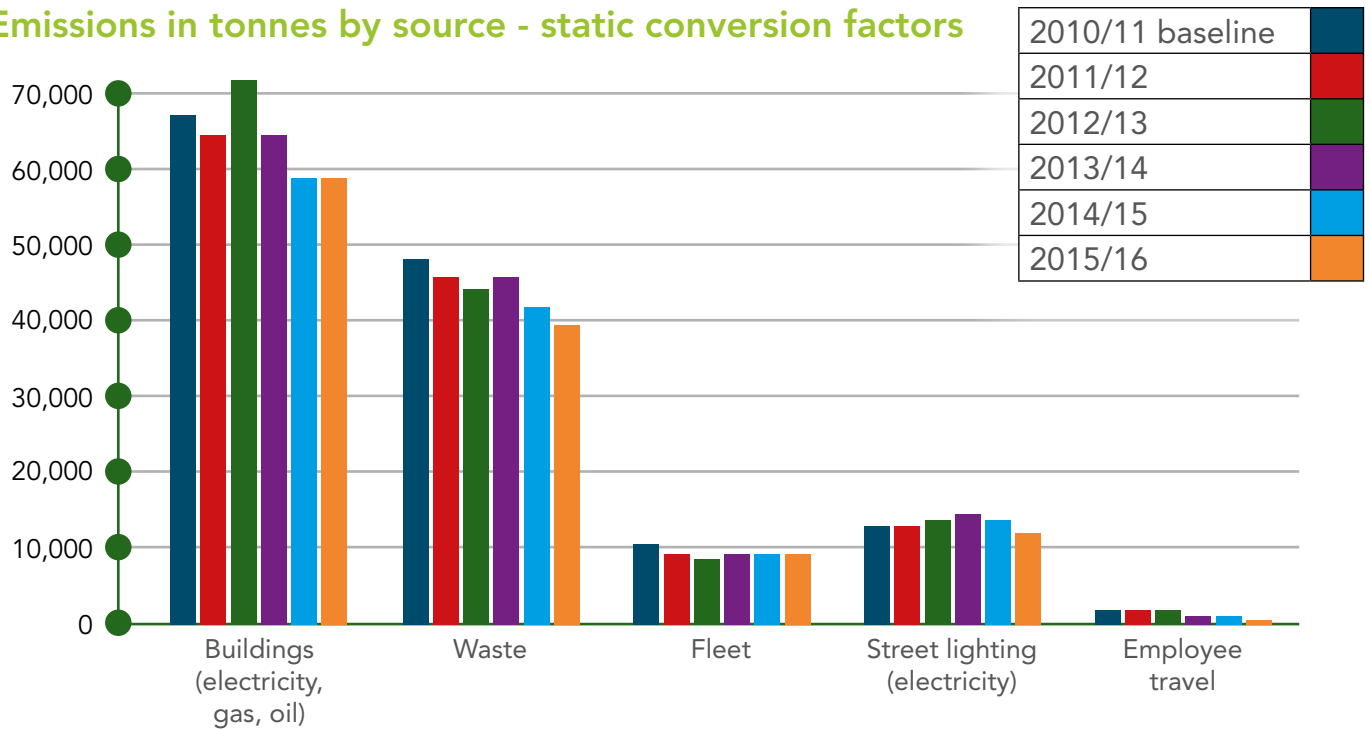
The reductions in employee travel were due to a general reduction in mileage claims and the introduction of the pool car scheme.





The next target was set in 2011, and aimed to reduce carbon emissions each year by 2%. This was achieved in 2012 with a 4.25% reduction compared with the previous year. 2013 seen an increase of 3.1% compared with the previous year but further reductions were achieved in 2014 and 2015. By 2016 emissions had reduced by 14.9% when compared with 2010-11.

### Emissions in tonnes by source - static conversion factors



\* Source data can be found at appendix 6

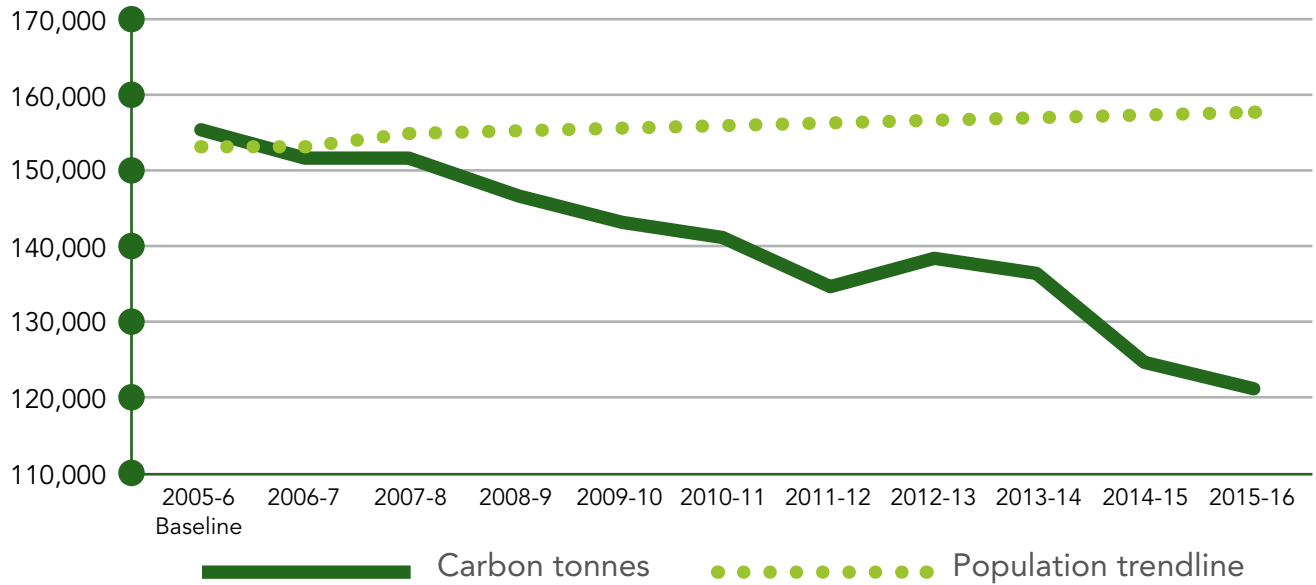
The increase in 2013 was mainly due to the increased use of energy for heating. Cooler temperatures were experienced throughout the year, and so emissions increased in line with most other local authorities who also reported that the weather had resulted in an increase in energy usage.

The reductions in 2012, 2014, 2015 and 2016 were mainly due to reduced energy usage in our buildings and reductions in land filled waste.



The carbon footprint has continued to reduce despite a growing population in South Lanarkshire with an increased number of households. The following graph shows how the carbon footprint has performed alongside a trend line for population.

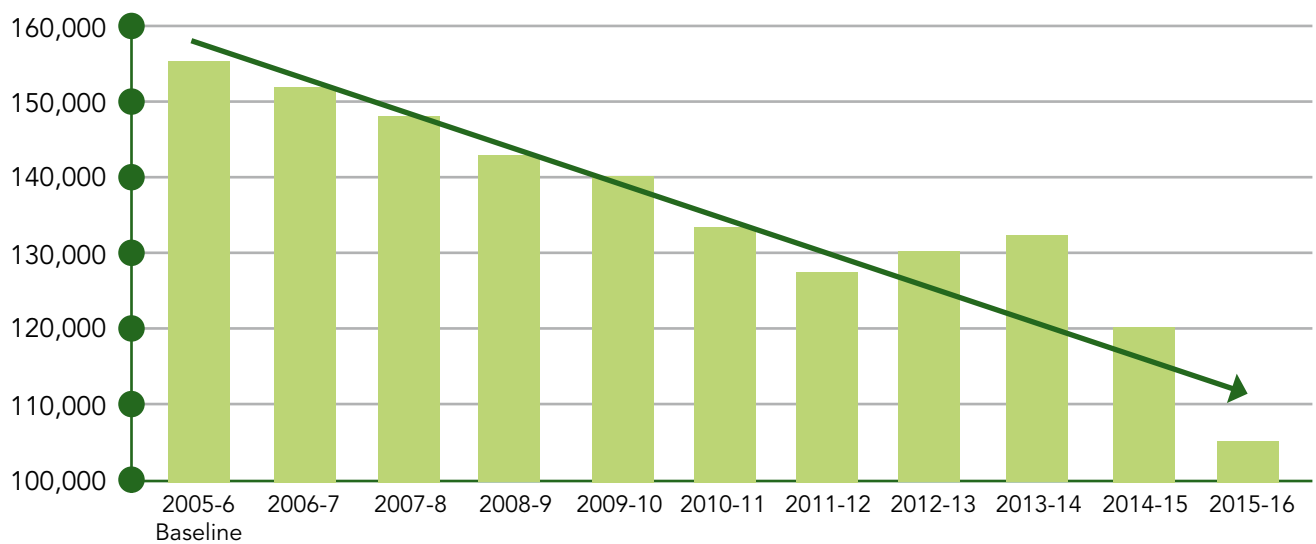
### Carbon footprint



\* Source data can be found at appendix 7

The following graph shows how the overall carbon footprint would look if the conversion factors were updated each year. The patterns are similar but the increases and reductions are partly due to the fluctuations in the factors.

### Emissions trend (updated factors)



\* Source data can be found at appendix 8





# Section 3

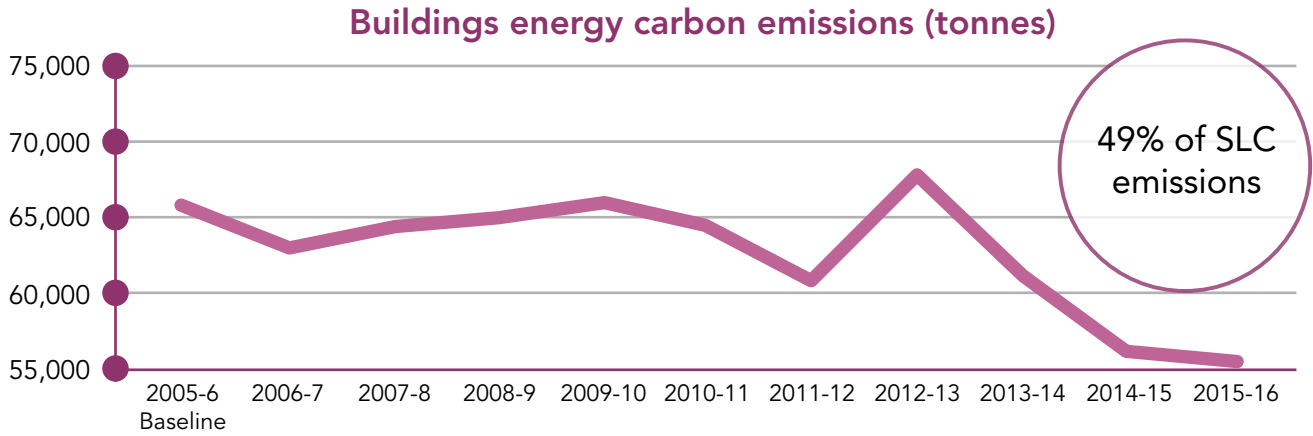
## Sources of our emissions



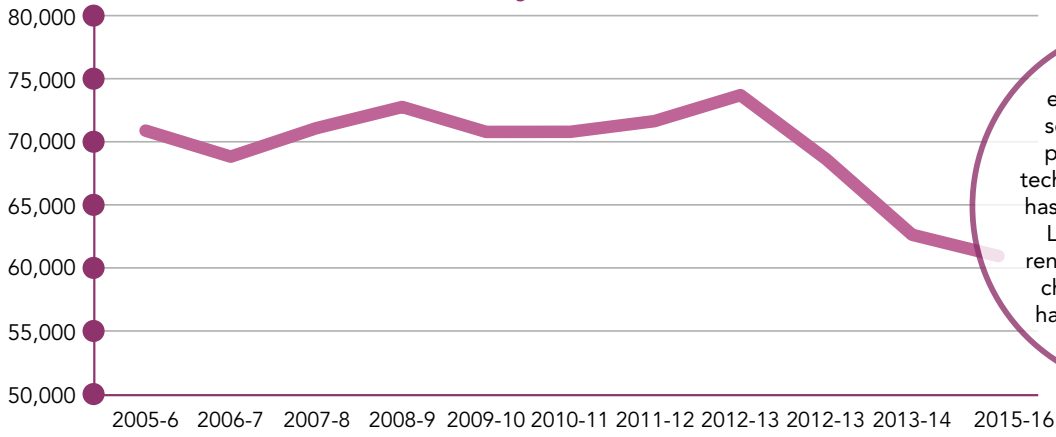
# Buildings

Carbon emissions from our buildings are calculated by measuring the amount of gas, electricity, oil and other fuel types we use for heat, light and powering our appliances.

Our buildings estate includes 20 secondary schools, 125 primary schools, 55 offices, 14 depots, 24 leisure centres, 83 halls, 24 libraries and many more buildings used for a wide range of activities with varying operating hours.

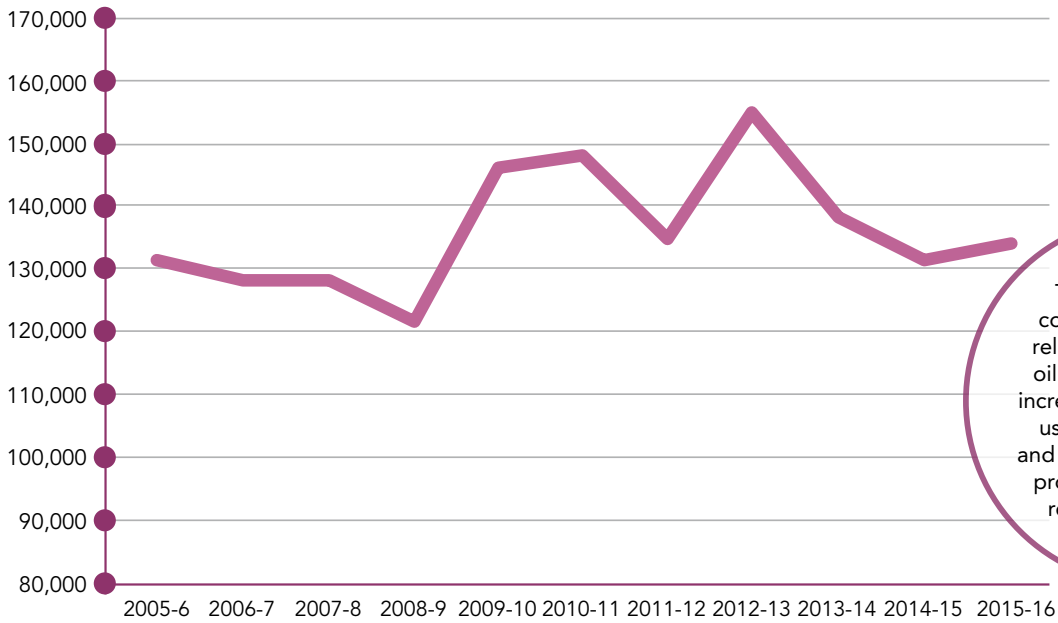


## Electricity MWh



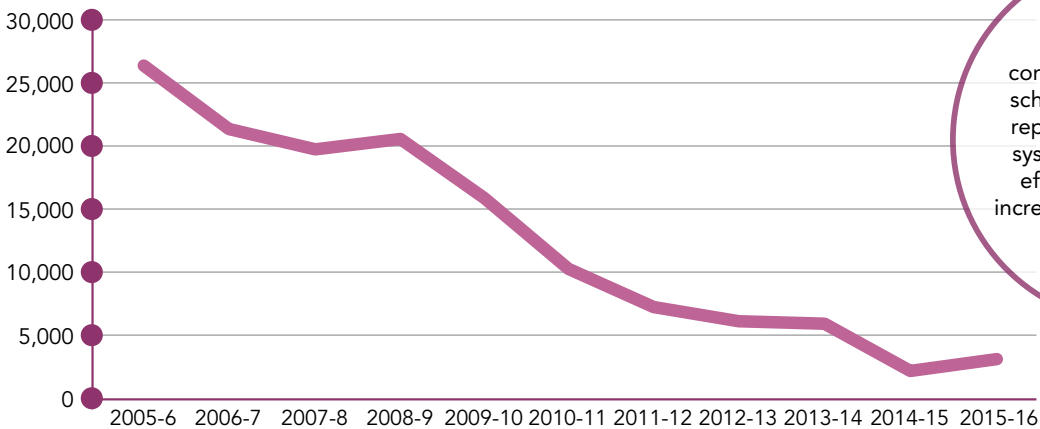
Changes in our estate, specifically the schools modernisation programme with more technically enabled schools has affected consumption. Local generation from renewable and the energy champions programme has helped minimise the increases

## Gas MWh



The increase in gas consumption is largely related to a decrease in oil heating systems and increase in CHP plant. The use of biomass boilers and the energy champions programme has helped reduce consumption

## Oil MWh

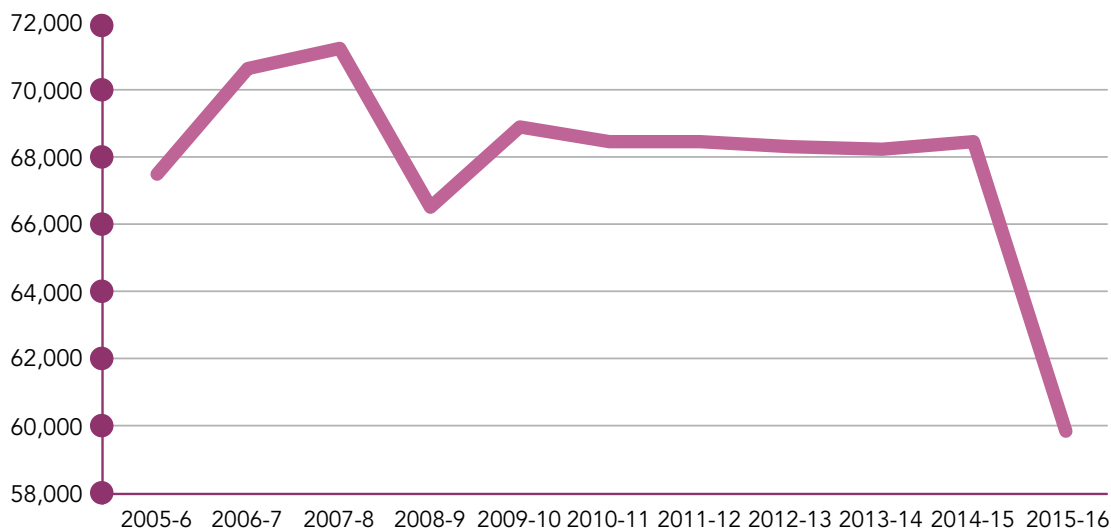


Reductions in oil consumption are due to a scheduled programme to replace oil based heating systems with other, more efficient systems. Slight increase in 15/16 was due to cooler weather



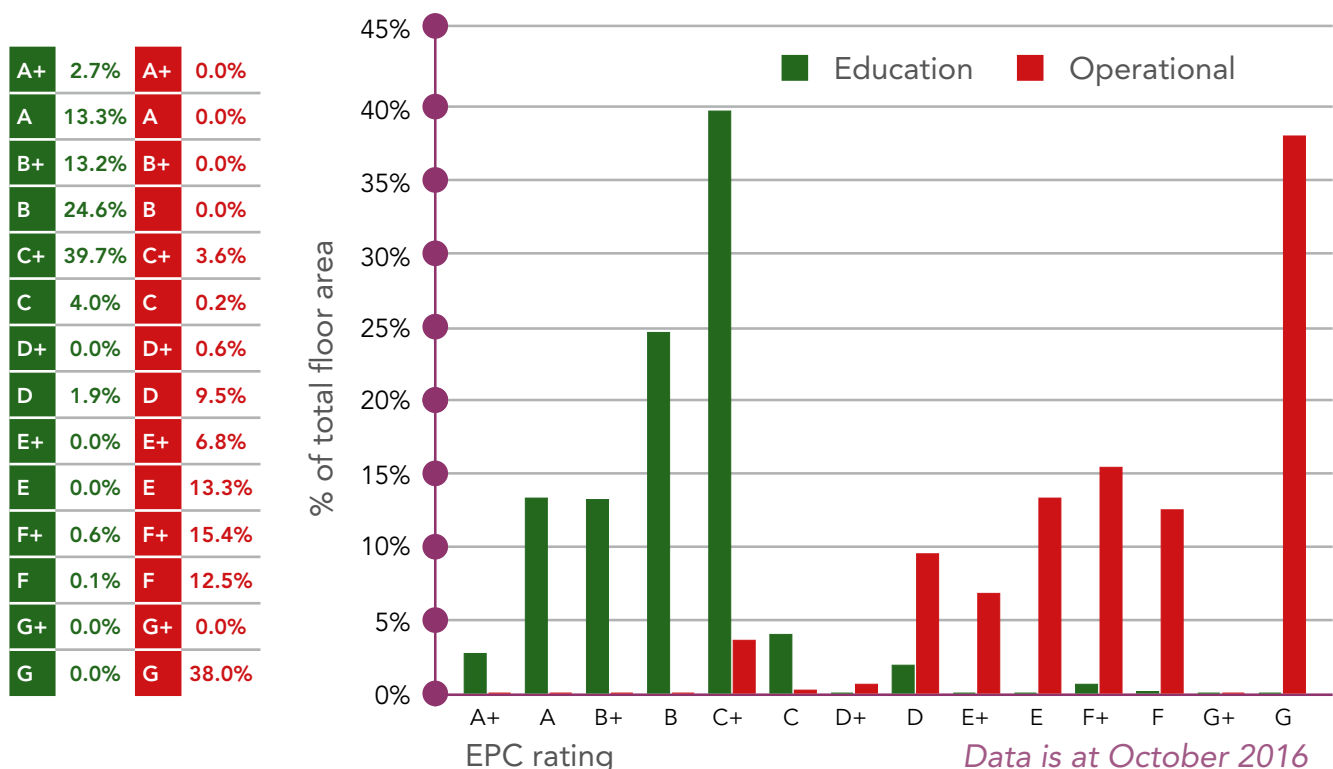
Buildings emissions have increased and decreased over the years due partly to the weather but also due to the targeted investment in improving our properties. Since 2012 we have used weather corrected data to better understand the effects of our projects and initiatives without the varying effects of the weather. We have also been able to use weather correcting information to retrospectively calculate weather corrected carbon data back to the baseline of 2005-06. Good progress is displayed in the graph below.

### Weather corrected data - buildings energy



Significant changes have been made to our building stock due to the schools modernisation programme. The new schools are more thermal efficient but are often bigger with more technologies requiring increased electricity usage. To date 133 new schools have been built or refurbished and the remaining 12 will be complete by 2018

The following graph demonstrates the current EPC ratings for all our buildings, with the best ratings being achieved in our new schools.



Energy Performance Certificates (EPCs) are used to gauge and rate a building's energy efficiency with an A rate indicating very efficient and G not so efficient. The better the EPC rating, the more energy efficient the building's design and construction is, and the lower its carbon emissions and energy costs are likely to be.

The green columns relate to the new schools constructed over the past 10 years or so and all meet Building Standards Section 6 and 7 (Silver Sustainability Label). The red columns relate to the remainder of our current but ageing operational stock, constructed when carbon inefficiency was not fully understood to be as damaging as it now is.

Scottish government has encouraged and continues to offer incentives to Local Authorities to invest in buildings to make them more energy efficient. The Central Energy Efficiency Fund (CEEF) has been used since the first carbon management plan and over £3m has been invested in energy saving measures and technologies resulting in investment lifetime savings of £17.3m and lifetime carbon savings of over 103,000 tonnes of carbon. The fund which was established with a one off grant of £800,000, self replenishes through payback of energy savings over a number of years.

To date there have been a number of projects completed using a range of technologies.....

### **Voltage optimisers -**

to date we have installed 36 voltage optimisers which are saving electricity and carbon in many of our corporate offices, leisure centres and secondary schools. The technology optimises the incoming site voltage to a level such that electrical equipment runs more efficiently and consumes less energy.

### **Building Energy Management Systems (BEMS) –**

there are 139 BEMS enabled sites remotely connected to a central BEMS computer. There are daily checks and periodic adjustments made to ensure that energy is being used as efficiently as possible. Most of our BEMS systems are in our primary school estate and our specialist BEMS Engineer and Maintenance Team use the opportunity for early intervention when plant performance reduces.

### **LED energy efficient lighting –**

to date there have been 20 lighting replacement projects. Up to 90% savings can be achieved by replacing standard lighting with LED with no reduction in performance. Maintenance requirements are reduced as LED bulbs last markedly longer than their halogen counterparts thereby saving on re-lamping costs.

### **Boiler optimisers –**

there have been 13 installations of boiler optimisers. The technology works with existing boiler controls by using self learning intelligence that can determine if and when a boiler should fire and for how long.



## **Combined heat and power units (CHP) –**

There are 11 CHP units in operation in council properties. The units use natural gas which drives an electrical generator. The “waste” heat from the CHP is piped into the building’s boiler system so that the boilers do not have to fire as often to maintain the same temperatures. Additionally the electricity produced by the electrical generator is cabled directly into the buildings electrical system thereby reducing electricity bought in from the national grid.

## **Biomass boilers –**

we currently have 49 sites with biomass boilers which burn naturally grown wood for heating and hot water systems. Because wood is considered a renewable fuel it helps achieve carbon reduction targets but is only installed after consultation with planning colleagues and taking air quality into consideration.

## **PV and Solar arrays -**

we currently have 21 solar PV arrays fitted on council buildings. Solar photovoltaic (PV) cells generate electricity from sunlight using a silicon semi-conductor material. Solar PV systems are most viable on any flat roof or southwest, south or southeast facing pitched roof provided that the roof structure can withstand the additional weight of the solar panels.

## **Ground source heat pumps (GSHP) –**

there are 8 GSHPs in operation in council properties. The heat pump performs the same role as a boiler but uses ambient heat from the ground rather than burning fuel to generate heat. The pump needs electricity to run, but uses less electrical energy than the heat it produces.

Funding opportunities from Scottish government include the new Scottish Energy Efficiency Programme (SEEP). In 2016/17 South Lanarkshire Council was awarded over £420,000 to carry out external wall insulation in 48 domestic properties and install LED lighting replacements throughout Council Headquarters. A further £98,000 was awarded to our NHS partners to carry out energy efficiency measures in 3 NHS buildings in the vicinity of council headquarters.

Future funding opportunities are expected to come from SEEP and the Non Domestic Energy Efficiency (NDEE) Framework which was launched in 2016. The NDEE can support a range of Energy Performance Contracts to best fit increased energy efficiency investment in the council’s operational stock.

## **Asset management**

We continue to review our assets on an ongoing basis to ensure that services are delivered through energy efficient properties which are effectively and efficiently utilised. This is achieved in part through a matrix of corporate and departmental Asset Management Plans which detail the condition, utilisation and energy efficiency of the property. This helps us ensure we make optimum use of our assets.

## **New builds and refurbishments**

All projects for new builds and refurbishments meet Building Standards Section 6 in respect of energy consumption and CO2 emissions with recent new builds achieving EPC ratings of B. The target for future builds is to meet Building Standards Sections 6 and 7 (Silver Sustainability Label). Our current designs incorporate enhanced levels of thermal insulation, use of natural light, solar energy microgeneration, triple glazing and mechanical ventilation with heat recovery and LED lighting.





All renewable technologies are considered when projects are in the early stages of design development. The solution selected is that which is appropriate for the project/site circumstances in respect of fuel availability, access, space, etc while also taking into account the Council's wider sustainability considerations i.e. air-quality management, and availability of renewable energy incentives. To date renewable technologies implemented for new builds and refurbishments include biomass, ground source heat pumps, air source heat pumps and photo-voltaics.

## Planned Maintenance

We have recognised that to deliver effective energy and carbon management, it is necessary not only to invest in efficient buildings and technologies but also to ensure that they are well maintained. To achieve this, a model of planned maintenance has been implemented across all operational properties to ensure the performance of plant and equipment is at its optimum. Spend in 2015/16 on planned maintenance was around £4.7m which will rise to £4.85m in 2016/17.

The maintenance team responds to adverse consumption recorded in the water Automatic Meter Readers (AMRs) which allows early repair interventions to be made. The 139 BEMs enabled sites also allows the maintenance team to operate the remote heating and ventilation systems to make the sites as energy efficient as possible.

## Energy Framework

An energy framework was set up in 2012 with the following key aims and objectives

- Improve energy efficiency of properties
- Deliver new builds to a high standard of energy efficiency
- Ensure building projects use sustainable materials and dispose of waste responsibly

The framework considers strategy papers prepared by the energy manager, which set out option appraisals on council investment choices, as well as making the framework group aware of new government energy and carbon policies and their funding opportunities.

There are 3 main areas that the group consider as part of any options appraisal.

- Energy efficiency
- Carbon outputs
- Fuel poverty

The group discuss a range of pressing and developing subjects and issues such as heating types and renewables (below). Examples are the renewable projects for domestic properties detailed below. Some initiatives are considered but aren't taken forward. The successfulness of projects, pilots, capital/revenue programmes and projects are reviewed, measured, evaluated and reported, consultation and analysis.

## Energy Champions

A team of energy champions operate throughout the council and take responsibility for monitoring quarterly consumption reports and encouraging building users to be energy aware. Good progress has been achieved but the energy champions programme needs to be constantly brought to building users attention so that the good progress continues. A communications strategy has been created based on guidance from Resource Efficient Scotland which will allow the programme to get the message to differing audiences in a variety of formats.

The council has also partnered with Home Energy Scotland (HES) and the staff unions to present staff with information on how energy and money can be saved at home and for good practice to be taken to the workplace. Further energy savings are anticipated.



## Renewables

We have installed a growing number of renewable and low carbon technologies in our buildings as detailed above. We have also installed over 1,300 Air Source Heat Pumps (ASHP) and 40 solar photovoltaic (PV) installations in our domestic housing stock.

During 2015/16 we commissioned a detailed specialist study regarding the potential for retrofitted renewables and low carbon technology deployment in both our domestic and non domestic buildings stock. This study has appraised the potential for district heating, solar photovoltaic and wind turbine generators. The outcomes from this report and the financial implications are being considered by senior council management.

## Water

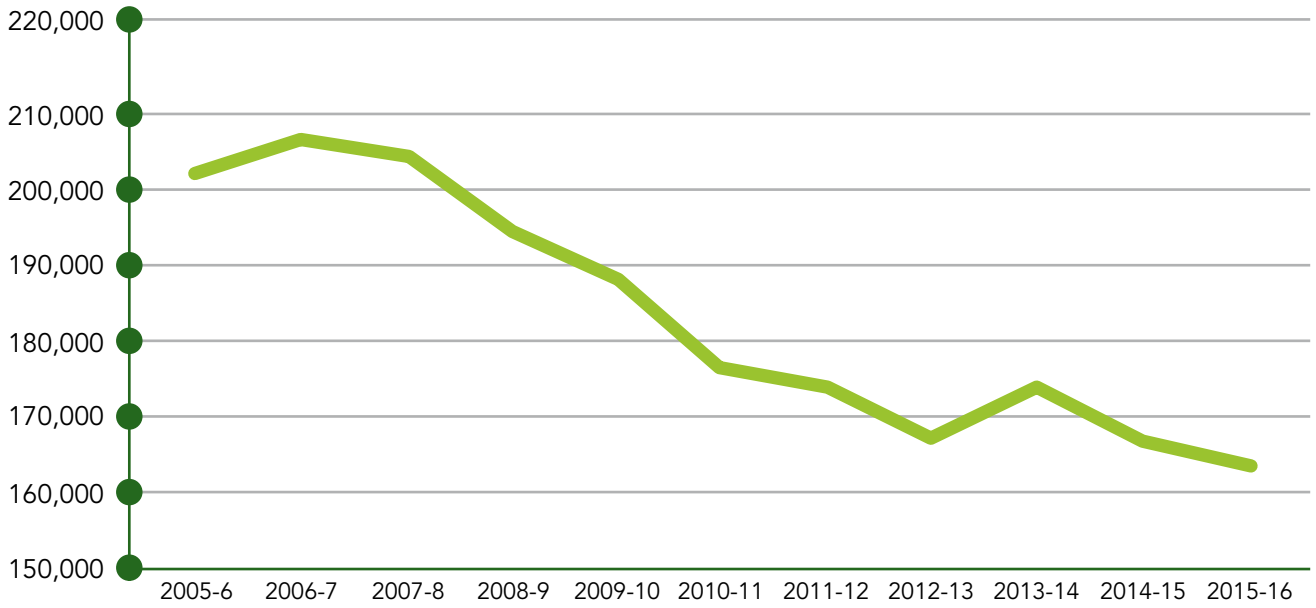
All of our water meters have been surveyed to record their location and serial number. A manual reading is taken and submitted as a customer read to our water suppliers. A further reading has been taken approximately 12 months later to form the "base year" consumption for the site. Concurrently an increasing number of our water meters are being fitted with automatic meter readers (AMRs) which automatically read the water meter that they are attached to and texts the water company's billing section the current water meter reading. These greatly reduce uncertainties caused by prolonged periods of estimated bills and therefore provide a viable basis on which to gauge progress in reducing water consumption waste

Emissions arising from water use were excluded from the original base line because of the poor quality data available at that time. We are progressing towards the development of a system to establish baseline figures and measure and reduce water use. Currently around 52 AMRs are in operation on our water meters.

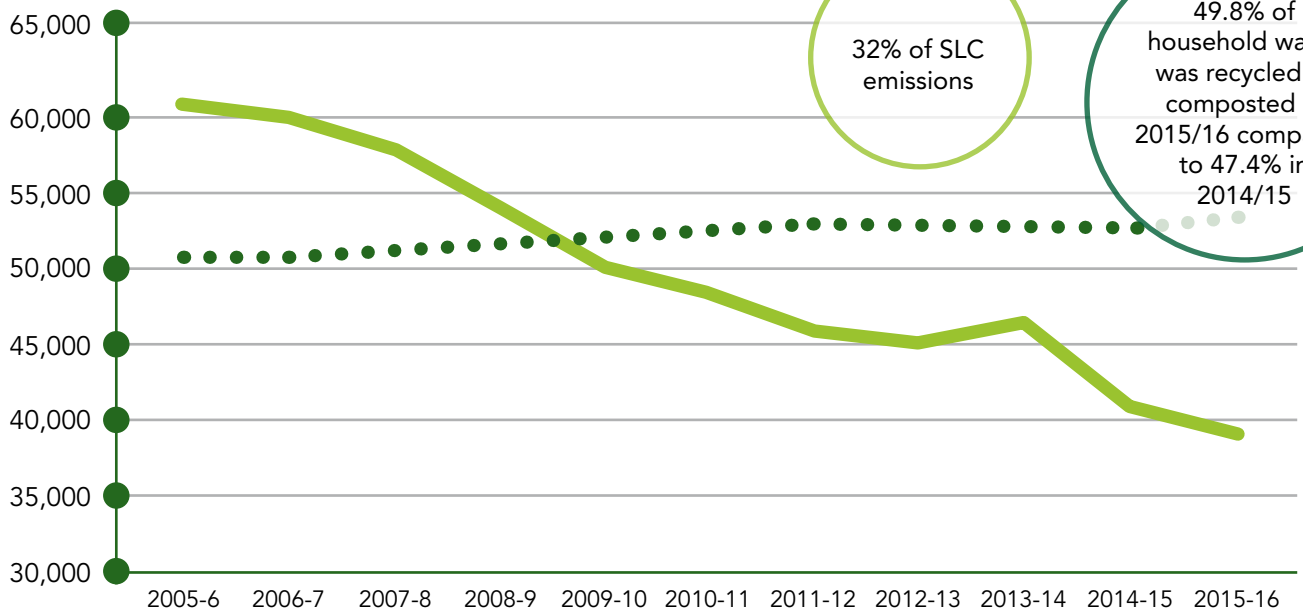


# Waste

## Total waste (tonnes)



## Waste carbon emissions (tonnes)



●●●●●●●●●● Population trendline    ——— Waste carbon tonnes



We report carbon emissions from our waste by measuring the amount of waste we send to landfill. There are many ways to calculate the amount of carbon emitted by each type of waste stream but for the purposes of managing our carbon footprint we use a static conversion factor which was set by DECC in our baseline year of 2005/06. We measure the landfilled 'municipal' waste which is a term used by SEPA to describe household and commercial waste. SEPA changed the reporting requirements in 2013 to reflect the targets contained within the ZWP and now councils are required to report on household waste only. For consistency purposes we have continued to include municipal waste in our carbon footprint.

The most recent census data shows 316,230 residents living in South Lanarkshire. This figure has steadily risen over the term of the carbon management plan. The households we uplift waste from consist of both urban and rural properties each with a specific recycling service appropriate to their location.

The first graph above demonstrates that waste tonnages have reduced steadily over the term of the carbon management plan. Increased recycling facilities for our households has diverted much of the waste which would previously been sent to landfill. The Council's network of Household Waste and Recycling Centres also allow for better segregation of household waste. The carbon emissions associated with the landfill waste is demonstrated in the second graph.

## Household waste

Many initiatives have been implemented in order to offer better kerbside recycling services to our households. Glass, garden and mixed recycling (plastics, metal and paper) has been available to most households for many years. More recently these recycling opportunities have been extended to multi occupancy and tenemental properties. We worked with Zero Waste Scotland to consider alternative methods of collecting recyclable material from, properties with limitations on space and/or access.

From May 2015 onwards, households with gardens were provided with a new co-mingled food and garden waste collection. In addition, flats and some terraced properties were provided with a weekly food only collection service. The roll out of these new services will be complete by the end of 2016. A comprehensive communications plan was developed and is being used to engage with residents and encourage participation in the new service. As a result, presentation levels are high and contamination rates are low, which has led to an increase in the amount of biodegradable waste being diverted from landfill.

External factors are also thought to play a part in reducing landfill waste such as increased awareness, reduction in packaging, the fragile economy and reduced consumer spending. However we aim to work with households as much as possible to maximise reusing and recycling opportunities.



## Waste contract

The current arrangements for the disposal of residual waste have been in operation since 2014. The contract requirement to extract recyclable material from the residual waste stream has resulted in increased household recycling rates and a decrease in the waste sent to landfill.

The new residual waste treatment contract will commence in April 2017 and will mean that from 2018, we will divert 95% of our residual waste from landfill. The waste will instead undergo thermal treatment which will result in the production of heat and energy. New calculations will be used at this time to understand the carbon emissions from this new process.

## Internal waste

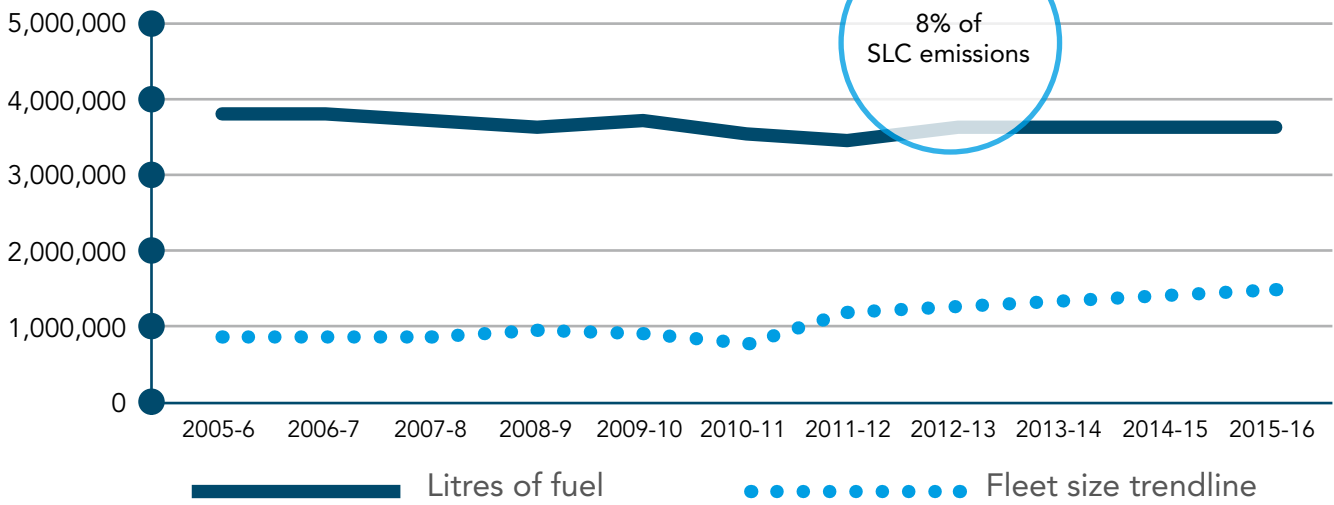
The waste from council buildings is collected by a third party contractor. The contractor collects this waste along with other commercial waste which makes it difficult to measure our internal waste arisings. However we have introduced various recycling initiatives in our buildings which reduce the amount of residual waste which ultimately goes to landfill.

Our internal 'don't bin it box it' campaign ensures that as much recyclable waste is disposed of properly from our office buildings. Food waste collections operate in all council buildings generating more than 5kg of food waste each week. An external bin verification exercise was carried out in our schools to ensure the appropriate combination of bins and frequency of uplifts is in operation to ensure as much recyclable waste as possible is separated from residual waste.



# Fleet

## Fleet carbon emissions (excluding pool cars)



The carbon emissions from our fleet are calculated by measuring the amount of fuel used to run our vehicles and plant equipment. Our fleet currently consists of 650 small cars and vans, 290 large vans, 190 tippers, 79 passenger buses, 49 heavy refuse and gritting vehicles, 37 sweepers, 22 electric cars and another 100+ specialised vehicles, including platform lift trucks, 4x4 all terrain vehicles, refrigeration vans and library vehicles.

The number of road going vehicles fluctuate each year dependant on the needs of the services, which is demonstrated in the graph above. However the carbon emissions associated with the fleet has continued to reduce. There are a number of reasons for this as many fuel efficiency measures have been introduced over a number of years.

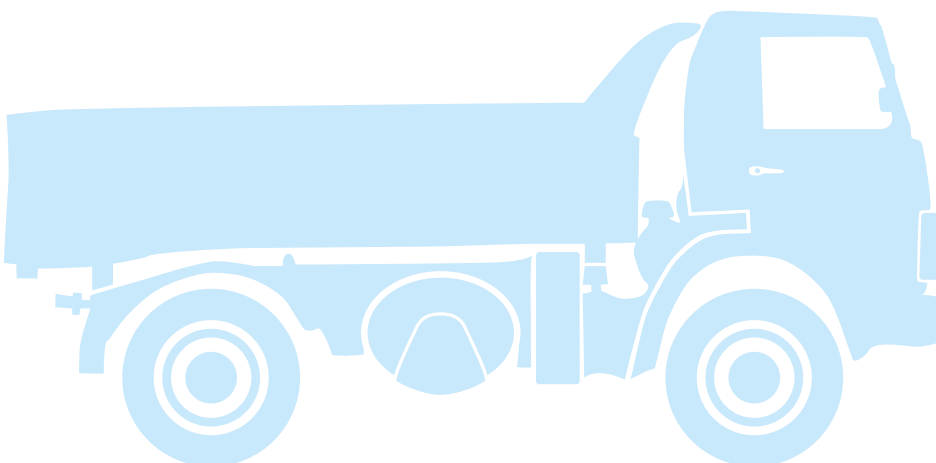
Speed limiters have been installed in many of our vehicles and a programme of fuel efficient driver training has helped reduce fuel consumption. Intelligent procurement ensuring the most efficient vehicle is allocated to services also contributes to our reductions. The installation of telematics and the use of the associated reports has ensured that managers are able to monitor the efficient use, driving patterns and routing of drivers and journeys. This enables them to maximise the effectiveness of their fleet.

The 'Fleet' category within our carbon footprint historically included all vehicles owned, leased or hired by Fleet Services. When pool cars were introduced in 2011/12 we made the decision to strip out pool car fuel usage from fleet and instead include it with staff mileage claims which reduced considerably as more staff journeys were being made in pool cars. In the graph above the fuel associated with the pool cars has been excluded.



The fleet of vehicles we operate is considered to be as fuel efficient as possible so future plans to further reduce fuel consumption includes setting targets for individual services to reduce fuel usage where possible. Robust data from the telematics system will be provided in order for services to determine where reductions can be made.

The electric charging infrastructure in South Lanarkshire has expanded with 40 electric vehicle posts (98 outlets/bays) in operation. They are available to charge council vehicles and for public use, mainly situated in public car parks.



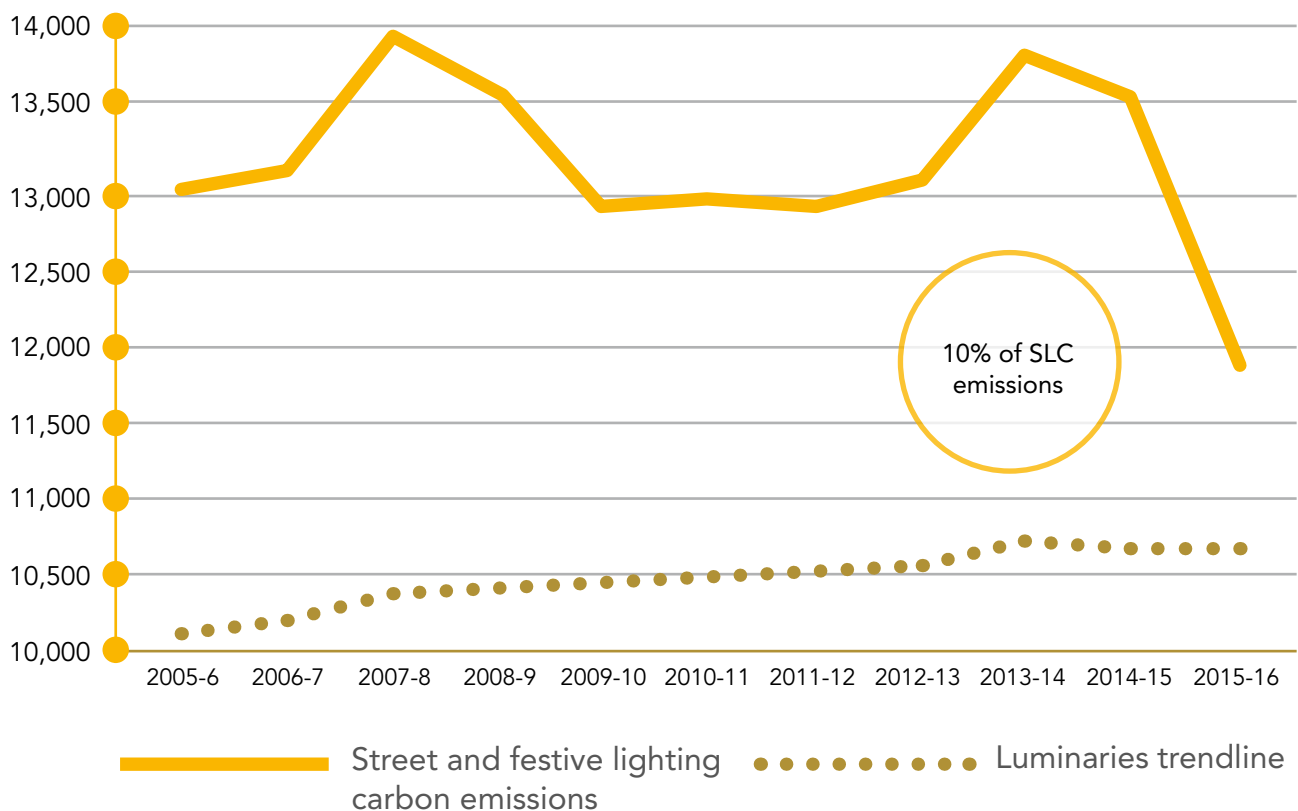
## Street lighting

The carbon emissions from street lighting are calculated by measuring the electricity used to power our street lanterns, road sign lights and festive lighting displays.

In South Lanarkshire there are many new housing and other developments each year which require street lighting. There are currently 64,000 council owned street lights and road sign lights, 210 traffic signals and 25 festive lighting displays. The numbers increase each year.

Street lighting energy consumption has increased over the years. The graph below demonstrates the carbon emissions against a trendline showing the number of luminaries (lanterns) in operation each year but has shown good reductions in 2015/16 due to the LED street lighting replacement programme.

### Street and festive lighting carbon emissions



Developers are obliged to install LEDs in any new developments so this will have kept increases from additional lanterns to a minimum. LED is thought to use at least 50% less energy and requires much less maintenance.

The fitting of photocells and a photocell array which adjust switch on and off times and a new dimming regime has further reduced the carbon emissions.

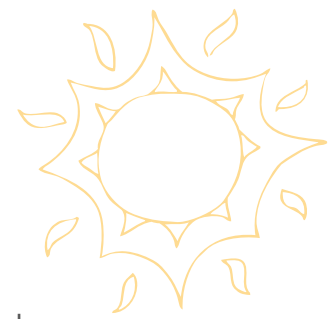
Many trials and upgrades using LED technology has taken place over a number of years to prepare for the LED street lighting replacement programme which

began in 2015. The £20m programme is scheduled to replace all street lanterns over a 3 year period, with savings being reinvested to replace a number of our older columns. Initial savings have been promising with a reduction of 12% in the first year.

The old columns and lanterns are being recycled by re fitting old lanterns with LED which are then being used to maintain existing faulty and failed lanterns.



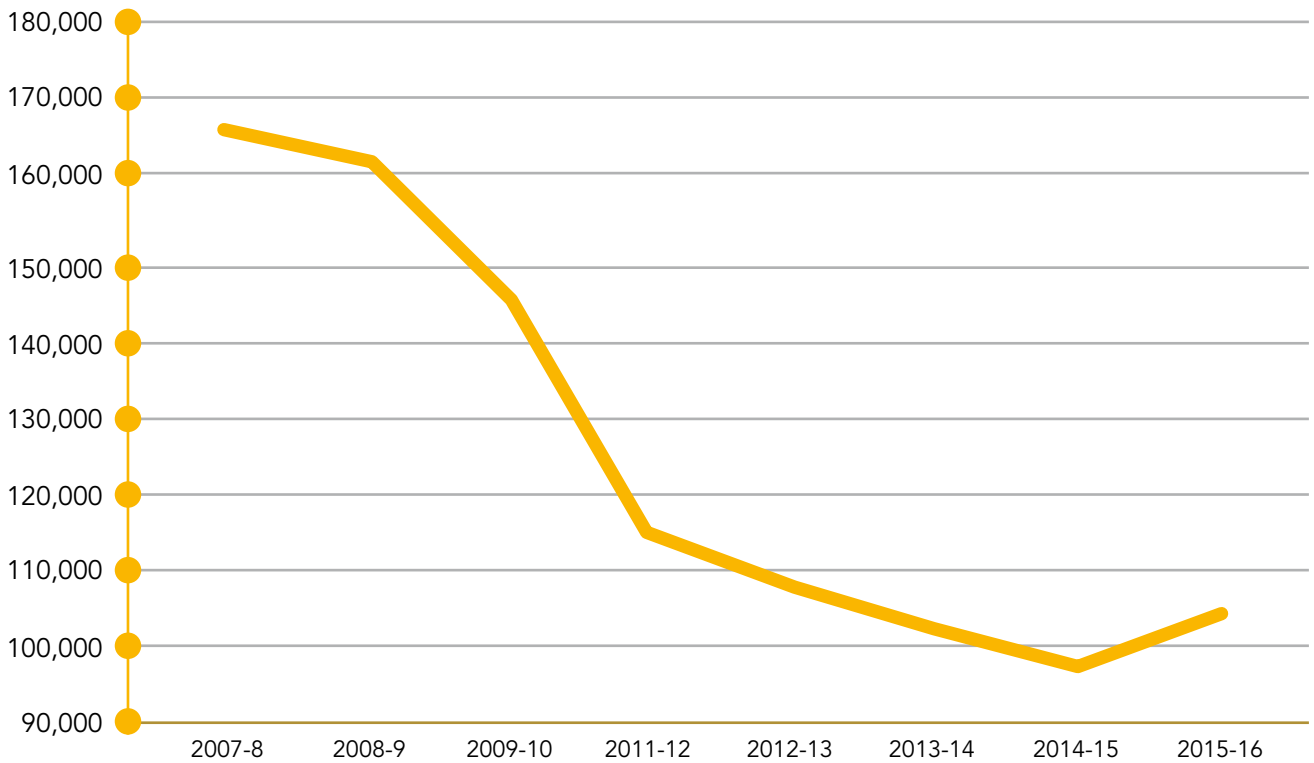




## Festive lighting

Since 2007 a festive light LED replacement programme has been in operation with more than half of our festive lighting displays using this low carbon technology. The following graph demonstrates the savings achieved.

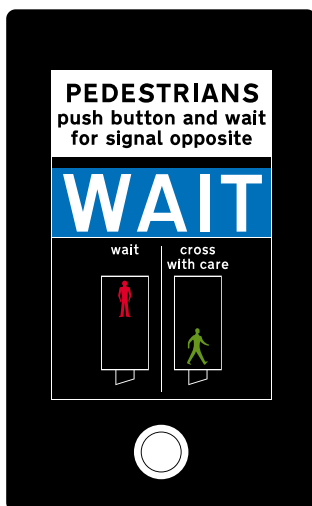
### Festive lighting kWh



## Traffic signals and road signs

Almost half of our traffic signals have been fitted with LED, and any new signals are fitted using LED. The voltage is also reduced within the controller which also contributes to energy savings.

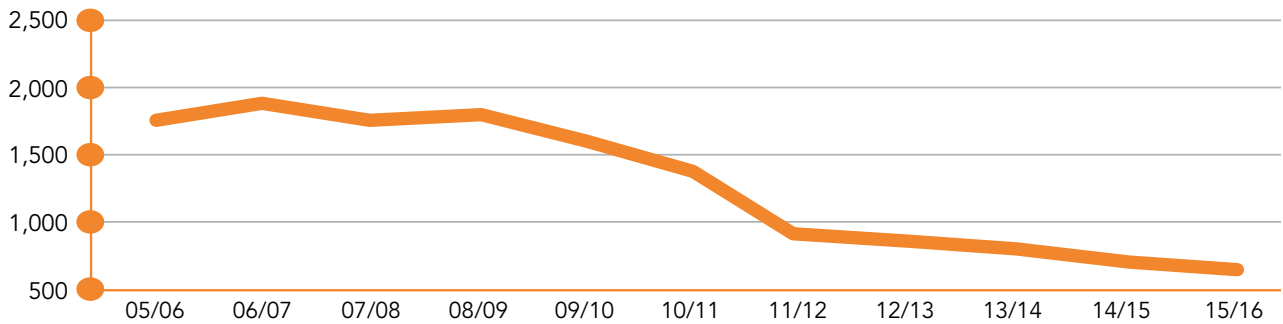
Solar and/or wind power is used to illuminate over 300 of our vehicle activated road signs. Not all signs are appropriate for renewable energy but where possible it is installed.



## Employee travel

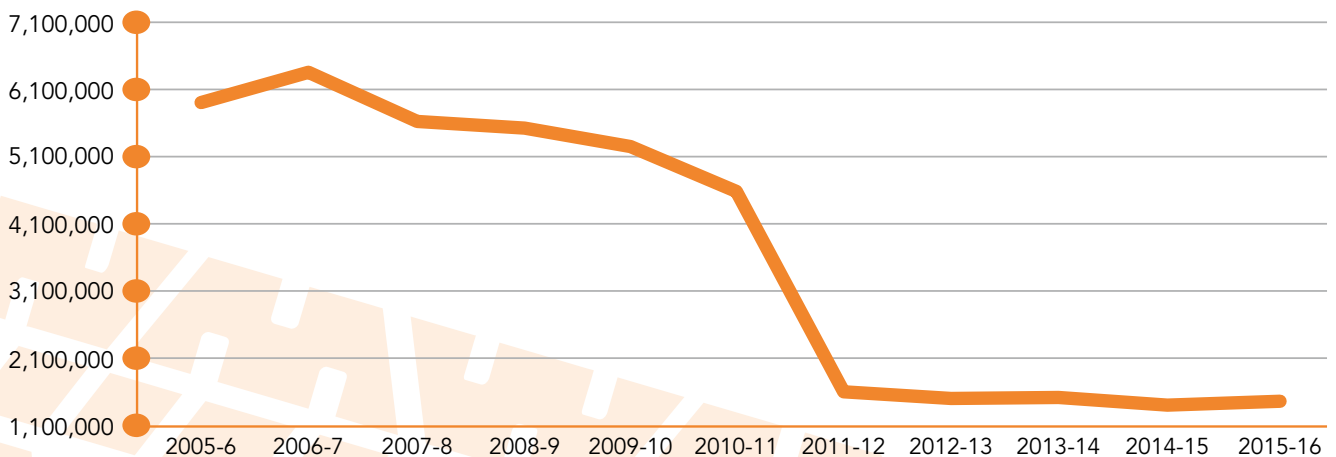
We have over 14,000 staff with many travelling throughout the working day on council business. Most of the miles travelled are in council fleet vehicles (detailed in the previous section) but some journeys will be made in council pool cars and in staff's own vehicles. The carbon emissions from employee travel has reduced significantly since 2005/06 as demonstrated in the graph below.

### Employee travel carbon emissions



### Staff miles claimed

The number of staff using their own vehicles has greatly reduced since the introduction of pool cars however, some miles are still being travelled in this way and is demonstrated in the graph below.



The pool car scheme was set up in 2011 and currently has 129 vehicles. These vehicles have been right sized for their purpose and are as fuel and cost efficient as possible.

The same fuel efficiency measures used in our fleet apply to our pool cars. Speed limiters and telematics ensure drivers are encouraged to be fuel efficient. The electric pool cars enable many journeys to be made in a low carbon way.

More training courses are being delivered on line which means the travel to and from training courses has been greatly reduced. The few courses which are delivered face to face are delivered on a more local basis.

The council was awarded a cycle friendly employer award in 2016. This means we have demonstrated that we are encouraging and enabling staff to cycle more. The annual Cycle2Work Scheme, which has been running since 2012, has enabled more than 400 staff to gain access to a bike which can be used for cycling to work and using for leisure. External funding has been granted which has enabled a number of projects to be implemented, such as the installation of lockers and cycle shelters, the purchase of umbrellas to encourage walking between offices and 3 visits from 'Dr Bike' carrying out health checks on staff's own bikes.

Agile working has been introduced to enable staff to work from home or to work from local area offices to reduce the number of commuting miles. This scheme is not available to all staff and is not appropriate in all circumstances but will still help reduce staff travel.



# I cycle because...

it makes  
me **feel**  
**good**

Cycling is **economical**,  
**healthy** and **green**

Get out and  
**give it a go**



For more information visit  
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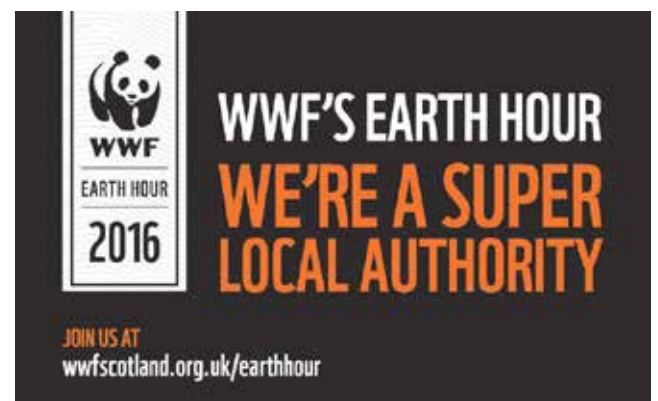
## Staff engagement

There are many ways in which staff are encouraged to help us achieve our targets. The Works magazine has a regular article 'Carbon Corner' which features information covering a range of subjects. Staff are encouraged to comment and request further information. On line courses are available for staff who are keen to learn more or would benefit from the modules within the scope of their post.



The 'Sustainable South Lanarkshire' flash is displayed on a variety of publications which help staff understand the variety of topics which affect our environmental performance and carbon footprint. The council's environmental statement is promoted to staff with information on exactly how they can contribute to the commitments.

Many national campaigns are regularly promoted and supported such as WWF's Earth Hour, Zero Waste Scotland's Recycle Week, Greener Scotland's Climate Change campaign, Energy Saving Scotland's Home Energy Scotland campaign. These are promoted with staff and schools as well as to the general public via social media.



**News**

## Carbon Corner

**Cycle to work**  
This year's cycle to work scheme has been more popular than ever with more than 100 applications being received from staff who have opted to lease a bike over the next year. This means that more than 400 bikes have been made available to staff for cycling to work and using for leisure.  
One applicant has said: "It has encouraged my husband to purchase a bike so that we can now cycle as a family, not just around our local area, but to look for new areas to explore."

**Spring step challenge**  
In the last edition of Carbon Corner we promoted the 'Spring Step Challenge' which was supported by 14 teams from South Lanarkshire Council.  
The challenge, which is coordinated by Paths For All, was the biggest and best yet with 869 teams made up of over 4000 employees from a wide range of workplaces across Scotland taking part.  
Pedometers and apps were used to record steps over eight weeks and the final total was an impressive 2.1 billion steps.  
Many participants reported that they had enjoyed the increased opportunities for social interaction with workmates through lunchtime walks.  
Other comments had been about the challenge making them healthier, both physically and mentally, as well as how their eyes had been opened to the advantages of ditching the car and going for boots or trainers instead. Families of participants also commented that they benefited by joining in with all the new outdoor pursuits.  
The overall winners were from NHS Ayrshire and Arran with almost 7 million steps recorded.  
The winning team from South Lanarkshire Council were 'The Jay Walkers' from Roads and Transportation Services (led by Nicola Bell with Alex Tolson, Ian O'Lang, Sharon O'Leary and Eleanor Gibson). They managed to clock up over 3.6 million steps – the equivalent to almost 2000 miles.  
The total for the 14 teams from SLC was over 34 million steps which emphasises the level of commitment from the participants. Well done to all who took part.  
For those of us who work in office-based roles, the challenge can really highlight how little we move throughout the working day. It can act as a great motivator to help us sit less and move more. It also encourages us to think about walking rather than driving, either to work or at home.  
The good news is that there is another challenge being planned for later in the year. There is a prize draw at the end and throughout the challenge and participants are encouraged to share their experience and enter competitions.  
A couple of participants from SLC were successful in winning prizes for this challenge – one shopper won 2 free entries to the local Moonwalk and another won a £25 voucher for an outdoor store. More details of the new step challenge will be available around September.  
For more information or if you have any comments or ideas for what you'd like to see featured in Carbon Corner please contact: [save\\_carbon@southlanarkshire.gov.uk](mailto:save_carbon@southlanarkshire.gov.uk)

**Contact**  
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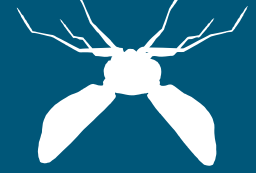
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Emission  
accountability  
management  
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## Appendices



# Appendix 1 Environmental Statement

## Sustainable Development

South Lanarkshire Council has broad ranging responsibilities spanning economic, social and environmental issues. It is important that we find a balance between all three issues to safeguard the wellbeing of future generations both locally and globally; this balancing is referred to as sustainable development.

Sustainable development, which is a priority for the council, is about

achieving economic and social development in a way that also enables us to protect and enhance our environment both now and for the future.

Our Sustainable Development Strategy focuses on the environmental aspects of sustainable development to complement our other strategies for social and economic development.

## Our Environmental Commitment

This 'Environmental Statement' sets out the council's environmental commitments as detailed in the sustainable development strategy.

## Environmental Statement

### Communication

- We will communicate openly the council's environmental policies, plans and performance and involve local communities in decisions impacting on their local environment.
- We will ensure that our employees and elected members are familiar with this environmental statement and will enlist their support in improving our environmental performance.



- We will continue to educate our young people about the local environment in which they live and encourage them to reduce the impacts they have on it.



### Energy

- We will reduce our consumption of fossil fuels by conserving energy and promote the use of renewable energy sources.



### Education

- We will promote the importance of our environment to our young people through the Curriculum for Excellence and help them learn the skills they will need in a low carbon economy.

### Waste

- We will reduce the amount of waste we produce and encourage the re-use and recycling of material.



## Procurement

- We will aim to buy our goods and services in a sustainable manner and encourage our suppliers to adopt similar environmental principles.



- We will work with communities to provide access to well managed, good quality greenspace and opportunities for access to the countryside.
- We will support and develop opportunities for environmental volunteering.

## Travel

- We will promote sustainable travel through the efficient use of our own fleet and promote greater use of the public transport network, car sharing, cycling and walking as alternative means of travel. We will support the introduction of low carbon vehicles.



## Climate Change

- We will work in partnership in response to the national targets to reduce the council's greenhouse gas emissions and those for the South Lanarkshire area and prepare for a future where the climate is changing.



## Protect the physical environment, biodiversity and greenspace

- We will protect the public from environmental hazards, take action to improve the quality of local environments and promote the potential of the environment to improve health and wellbeing.
- We will work to protect biodiversity and safeguard ecosystem services in accordance with national and international legislation, policies and guidelines.



## Delivering our statutory requirements

- We will comply with relevant legislation and contribute to national targets in relation to the environment.

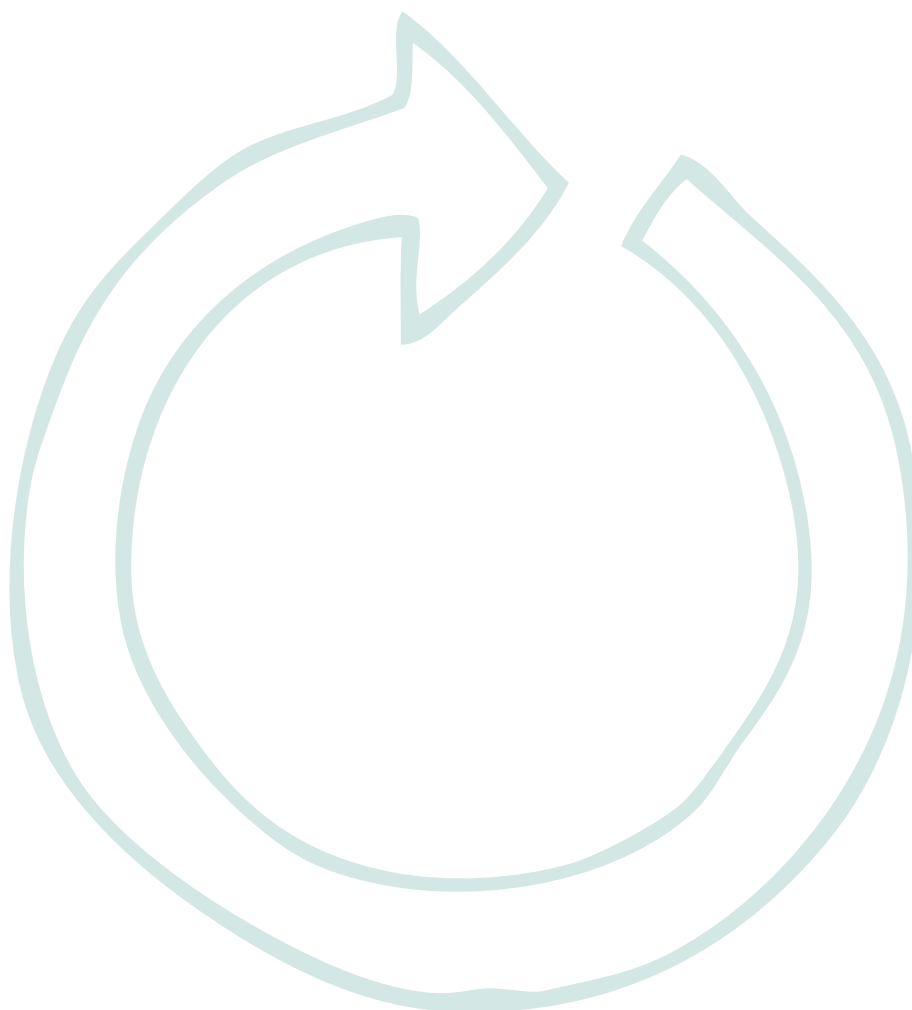




## Appendix 2 Static carbon conversion factors

Emission Type	Emission Factor	Carbon units
Electricity	0.537	Kg CO2/kWh
Gas	0.185	Kg CO2/kWh
Burning Oil	0.268	Kg CO2/kWh
Waste	447	Kg CO2/tonne
Diesel	2.674 then 2.55 from 08/09	litres
Petrol	2.3154	litres
Gas oil	2.674	litres

\* Source – Carbon Trust guidance



## Appendix 3 Updated carbon conversion factors

Emission Type CO2 units	Emission Factor	Year
<b>Electricity</b> Kg CO2/kWh	0.537	2005
	0.49608	2008
	0.49381	2009
	0.48531	2010
	0.45205	2011
	0.46002	2012
	0.44548	2013
	0.49426	2014
	0.46219	2015
	0.41205	2016
<b>Gas</b> Kg CO2/kWh	0.185	2005
	0.184	2009
	0.185	2010
	0.1836	2011
	0.18521	2012
	0.18404	2013
	0.184973	2014
	0.18445	2015
	0.184	2016
<b>Burning Oil</b> Kg CO2/kWh	0.268	2005
	0.252	2007
	0.277	2009
	0.275	2010
	0.27857	2011
	0.27778	2012
	0.27176	2013
	0.272123	2014
	0.27101	2015
	0.27631	2016



Emission Type CO2 units	Emission Factor	Year
<b>Waste – landfill</b> Kg CO2/tonne	447	2005
	459	2015
	421	2016
<b>Diesel</b> litres	2.6304	2005
	2.669	2009
	2.672	2010
	2.6676	2011
	2.6008	2013
	2.602	2014
	2.584	2015
	2.612	2016
<b>Petrol</b> litres	2.3154	2005
	2.3150	2008
	2.331	2009
	2.322	2010
	2.3117	2011
	2.2423	2012
	2.2144	2013
	2.19144	2014
	2.1970	2016
<b>Gas oil</b> litres	2.674	2005
	3.029	2009
	3.021	2010
	3.0595	2011
	3.0213	2012
	2.9343	2013
	2.9258	2014
	2.9088	2015
	2.9657	2016

\* Source - DECC guidelines



## Appendix 4 Carbon sources 2015-16

Emissions Source	Carbon sources 2015-16
Buildings (electricity, gas, oil)	59,162
Waste	39,072
Fleet	9,511
Street Lighting (electricity)	11,895
Employee Travel	635

## Appendix 5 Carbon emissions in tonnes by source 2005-6 to 2010-11

Year (emissions in tonnes CO <sub>2</sub> equivalent)						
Emissions Source	2005-6 Baseline	2006-7	2007-8	2008-9	2009-10	2010-11
Buildings (electricity, gas, oil)	69,427	66,480	67,573	67,691	69,512	67,914
Waste	61,320	60,015	57,824	54,876	50,711	48,928
Fleet	10,418	10,290	10,210	9,710	10,039	10,032
Street Lighting (electricity)	13,005	13,155	13,957	13,564	12,932	12,962
Employee Travel	1,795	1,941	1,772	1,783	1,638	1,428
<b>Totals</b>	<b>155,965</b>	<b>151,882</b>	<b>151,337</b>	<b>147,623</b>	<b>144,832</b>	<b>141,265</b>
<b>Variation against baseline</b>		<b>-2.6%</b>	<b>-3.0%</b>	<b>-5.3%</b>	<b>-7.1%</b>	<b>-9.4%</b>



## Appendix 6 Emissions in tonnes by source - static conversion factors

Year (emissions in tonnes CO <sub>2</sub> equivalent)						
Emissions Source	2010/11 Baseline	2011/12	2012/13	2013/14	2014/15	2015/16
Buildings (electricity, gas, oil)	67,914	64,901	70,857	64,902	59,821	59,162
Waste	48,928	46,741	45,334	46,724	41,392	39,072
Fleet	10,032	9,272	8,855	9,287	9,385	9,511
Street Lighting (electricity)	12,962	12,986	13,020	13,841	13,509	11,895
Employee Travel	1,428	1,356	1,375	1,261	1,097	635
<b>Totals</b>	<b>141,265</b>	<b>135,256</b>	<b>139,441</b>	<b>136,015</b>	<b>125,202</b>	<b>120,276</b>
Variation against 10/11 baseline		-4.3%	-1.3%	-3.7%	-11.4%	-14.9%
Variation against 05/06 baseline		-13.3%	-10.6%	-12.8%	-19.7%	-22.9%

## Appendix 7 Emissions trend (updated factors)

SLC emissions trend	Totals (Carbon Tonnes)
05/06	155,965
06/07	151,522
07/08	147,037
08/09	143,984
09/10	140,620
10/11	133,733
11/12	128,233
12/13	130,442
13/14	132,870
14/15	120,356
15/16	105,203



## Appendix 8 Carbon footprint

	Carbon tonnes	Population trendline
05/06 baseline	155,965	153,140
06/07	151,882	153,835
07/08	151,337	154,750
08/09	147,623	155,045
09/10	144,832	155,465
10/11	141,265	155,940
11/12	135,256	156,950
12/13	139,441	157,180
13/14	136,015	157,425
14/15	125,202	157,680
15/16	120,276	158,115





## Are you a friend of Sustainable South Lanarkshire?.....

If you would like to become a friend of Sustainable South Lanarkshire please sign-up by emailing [sustainability@southlanarkshire.gov.uk](mailto:sustainability@southlanarkshire.gov.uk)

Being a friend you will receive future updates and have the opportunity to share details of projects you are involved in that contribute to a Sustainable South Lanarkshire.



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