



Town of Cottesloe

2012/2013 Carbon Inventory Report



Reporting period: 1 July 2012 to 30 June 2013

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Summary

This report summarises the findings from the 2012/2013 Greenhouse Gas Inventory recently completed for the Town of Cottesloe. The Inventory and Report represents the fourth consecutive year of carbon accounting for the Town, starting with a baseline of 2009/2010. As the Town aims to become carbon neutral by 2015, annual data collection and reporting is necessary to track progress and highlight areas for carbon abatement. The 2012/2013 Inventory calculated 372 tonnes of Carbon Dioxide equivalent (CO_{2-e}) emissions from the Town's operations for the period 1 July 2012 to 30 June 2013. This compares to a baseline greenhouse gas footprint of 806 tonnes of CO_{2-e} for 2009/2010. A number of abatement actions as well as recording changes have led to the reduction of over 50% of the total footprint. The primary emissions-related activities at the Town for 2012/2013 were:

- Petrol combustion from fleet vehicles for transportation (includes work and private use of vehicles);
- Purchased electricity for Council buildings and infrastructure as well as Western Power-owned streetlights; and
- Council-generated waste sent to landfill.

Business travel, paper use and gas make up the rest of the emissions calculated in the inventory.

The Town is on track to reach both of its goals of a 15% reduction of emissions on 2009/2010 by 2015 as well as the overarching goal of carbon neutrality by 2015.

Recommendations for the Town following the completing the 2012/2013 inventory are as follows:

1. This Report be published on the Town's website by the end of February 2014.
2. The Town continually review boundaries set at the baseline year to determine if they are still appropriate. This may include the inclusion of refrigerants, water use, litter bins, and selected contractors, and/or exclusion of staff travel by Taxi.
3. The Town re-assess the practice of providing new staff with corporate cars for personal use.
4. The Town encourage the practice of purchasing the voluntary flight offset option for business travel.
5. The Town investigate and purchase offsets to bring Council's footprint to zero net emissions in time for the 2015 goal of carbon neutrality.

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1. Introduction

The 2012/2013 Carbon Inventory Report has been prepared for the Town of Cottesloe (the Town) to report on Council-related greenhouse gas (GHG) emissions for the period from 1 July 2012 to 30 June 2013. It provides a summary and brief analysis of the carbon Inventory recently completed for the same time period.

Monitoring and reporting on emissions is an important step in taking responsibility for the Town's impact on the environment. Due to its small size, the Town is not obligated to report emissions under state or federal legislation, but chooses to voluntarily assess and publicly report its emissions as a part of its commitment to becoming carbon neutral. In 2010, the Town committed to becoming carbon neutral by 2015 by following the four step process below:

- Step 1** Measure the total GHG footprint at baseline year.
- Step 2** Develop a GHG Reduction Plan to reduce highest emission sources.
- Step 3** Switch to energy sources that create less GHG emissions.
- Step 4** Offset all remaining GHG emissions.

Continued development of annual Inventories and Reports assists the Town in understanding their emission's profile. This report follows the 2009/2010 (baseline year); 2010/2011; and 2011/12 Carbon Inventory Reports. In 2012 the Town developed and published the *Town of Cottesloe Greenhouse Gas Reduction Plan*, which set out a process of carbon abatement (step 2). The Town's approach to becoming carbon neutral involves reducing emissions through least-cost abatement, before offsetting any remaining emissions. The plan also established emissions reduction targets including:

- An overall goal of zero net emissions by 2015; and
- A 15% reduction on 2009/2010 emissions by 2015.

A number of abatement actions have been implemented since the last report, including the installation of a solar power system at the Civic Centre; a reduction in the number of cars in the Town's fleet; and the implementation of PC power management. By purchasing Green Power in 2013/2014, the Town will complete Step 3 and therefore be ready to offset any remaining emissions to achieve the goal of zero net emissions by 2015.

Compilation of this Report and Inventory involved liaison with management, contractors and staff; sourcing activity data from utility providers; and reviewing invoices. Relevant data was consolidated in the Inventory, with links to where original data can be accessed. This information is stored securely on Town record keeping software. Further information on data access or management can be provided by the Town's Sustainability Officer.

This report has been developed with close reference to the standards for the greenhouse gas emissions reporting set out by the Greenhouse Gas Protocol Revised Edition (GHG Protocol) (WRS 2004) and the National Carbon Offset Standard (NCOS) (DCC 2012).

Town of Cottesloe Profile

The Town of Cottesloe is a small coastal local government in the Western Suburbs of Perth. The Town covers a total area of approximately 4 square kilometers with a population of approximately 7500. During 2012/2013, the Town employed 40 staff. The Town has historically operated out of 2 main buildings, with administration at the Cottesloe Civic Centre and the Town's 'Depot' at Nailsworth Street, Cottesloe. During 2012/2013, the Depot was relocated to 8 Stack Street, Fremantle. Other building and facilities operated by the Town include the Marmion Street Community Centre (toy library); Anderson Pavilion; beach facilities; playgrounds; ovals and a golf course. Additionally the Town has over 700 streetlights within its boundaries and a fleet of approximately 30 vehicles.

Financials for 2012/2013 year show the Town had total revenue of \$ \$11,453,430.

Aims

This Report presents the Town's GHG emission sources and total emissions for the period 1 July 2012 to 30 June 2013. Specifically the report has been developed in order to:

- Present the Town's GHG Inventory as the fourth consecutive year of GHG emissions reporting;
- Demonstrate leadership as a Local Government through transparency and initiative in Carbon management;
- Identify emissions and financial savings opportunities for the Town.

Explanation of Carbon Accounting

The 3 Scopes

'Scopes' are used to categorise direct and indirect emissions. Scopes were introduced by the Greenhouse Gas Protocol to improve carbon accounting transparency and avoid double counting of emissions. The Town's carbon accounting framework includes three Scopes. These are defined by the Greenhouse Gas Protocol as:

- Scope 1** Direct GHG emissions occurring as a result of activities that constitute the facility (i.e. the burning of fuel in a vehicle).
- Scope 2** Indirect GHG emissions from energy (e.g. electricity) that is generated off site and then purchased for use by the Town of Cottesloe.
- Scope 3** All other indirect GHG emissions that have been generated as a consequence of the Town of Cottesloe's activities, but occur from sources not owned or operated by the Town. These are often harder to quantify and the Town has less control over them, so only selected scope 3 emissions are included in an organisation's inventory.

Occasionally the assignment of emissions sources within a particular scope may be revised. There are different schools of thought in regard to the reporting of streetlight emissions as scope 2 or scope 3 emissions. In 2011/2012 WALGA recommended local governments report

purchased electricity for Western Power-owned streetlights as scope 3 instead of scope 2. This led to a significant change in Cottesloe's emissions footprint in that year as emissions relating to street lighting make up a considerable proportion of the Town's emissions.

Calculating Emissions of Different Activities

Different activities result in different levels of emissions. Most activities result in the emission of several GHG such as Carbon Dioxide (CO₂), Methane (CH₄) and Nitrous Oxide (N₂O). Each of these GHG also has a different level of 'global warming potential'. To simplify calculations, different emissions are displayed as a single unit, Carbon Dioxide equivalent (CO_{2-e}). In order to calculate a carbon footprint for an activity or an organization, a unit of measurement for a given activity such as litres of fuel or kWh of electricity is multiplied by a standardized 'emissions factor' to calculate the total quantity of emissions (CO_{2-e}) for that activity. For example:

[Litres of diesel used] x [Emissions factor of diesel use] = [Total emissions from diesel use].

Agreed emissions factors are set out by Government to ensure consistency in reporting emissions. These figures are revised on a yearly basis, so that organisations must ensure they are using the most relevant figures each year. Changes to emissions factors can result in changes to the total footprint of an organization. In 2012/13 emissions factors for purchased electricity (0.8 to 0.82), and street lighting (from 0.13 to 0.1) were amended. While these changes need to be incorporated into the calculations of emissions, there is little impact on the total footprint. These changes demonstrate the need to remain up to up with the most accurate calculations and clearly state the emissions factors used (see the Carbon Inventory for more details).

2. Setting Boundaries

Boundary setting is a key step in measuring and managing emissions. Boundaries are determined by ownership or 'operational control' of facilities or infrastructure. Only one corporation or organization can have operational control over a facility at one time. The Town uses the following definition of 'operational control' to determine its boundaries (DCC, 2010):

"The greatest authority to introduce or implement any or all of the following for the Facility:

- *Operating policies;*
- *Health and safety policies;*
- *Environmental policies."*

The organisational and operational boundaries used to develop the Carbon Inventory are set out in Figure 1. These were determined at a workshop held in 2009, at commencement of the project. Boundaries set for the 2012/2013 Inventory and Report are based on those used in the Baseline Inventory. Emission-related activities included and excluded are detailed in the Appendix. It is important to note that activities included and excluded may change over time as reporting methods improve or relevance is re-assessed. As per guidance from NCOS, it is not necessary to include all emissions, as long as any emissions excluded are clearly identified and selection is justified. As the Town is choosing to voluntarily collect and reduce its emissions the emission footprint is the best attempt to collect all relevant activity data and best reflect the actions of the Town.

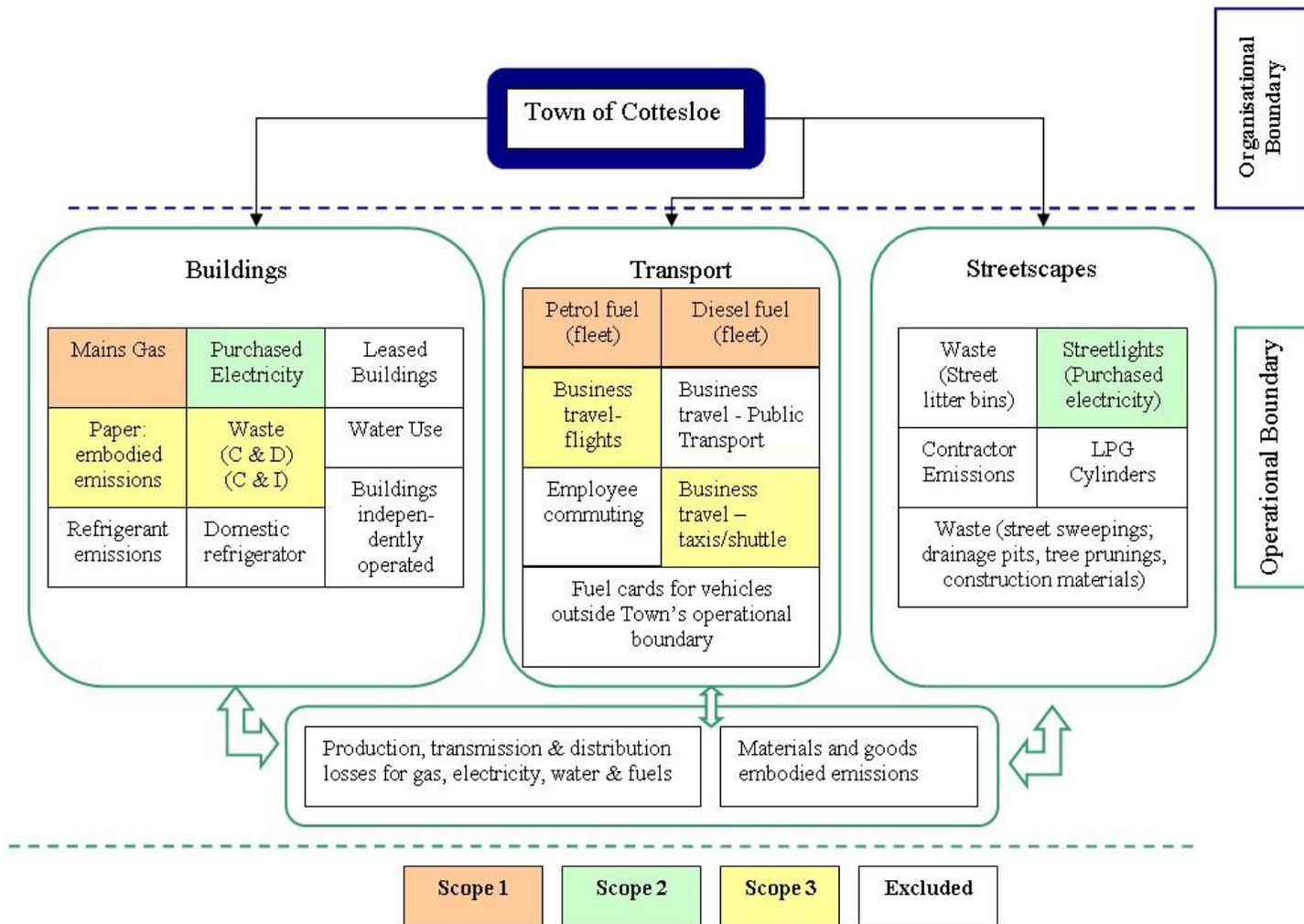


Figure 1: Town of Cottesloe’s Organisational and Operational Boundaries for the Carbon Inventory (Source: Based upon diagram from p 25, GHG Protocol, WRSD 2004)

3. Carbon Inventory

The Town's corporate GHG emission sources are presented in Table 1, as a summary of the 2012/2013 Inventory. The Town's total GHG emissions, or carbon footprint, were calculated to be 372 tonnes of CO₂-e emissions for the 2012/2013 financial year.

Table 1. Summary of 2012/2013 Carbon Inventory for the Town of Cottesloe

Site	Emissions Source	Consumption	Units	Tonnes CO ₂ -e	Proportion of total inventory
Scope 1					
Fleet	Vehicle - Petrol	36068.04	L	82.28	22.1%
Fleet	Vehicles -Diesel	16567.3	L	44.25	11.9%
Buildings	Gas	6383.16	m ³	0.33	0.1%
Total Scope 1				126.86	34.1%
Scope 2					
Buildings & Cottesloe Area	Purchased Electricity - Black Power	251710.77	kWh	103.20	27.7%
Streetlights (Cottesloe owned)	Purchased Electricity - Streetlights	21637.20	kWh	17.74	4.8%
Total Scope 2				120.94	32.5%
Scope 3					
Streetlights (Western Power)	Purchased Electricity - Streetlights	423783.49	kWh	42.38	11.4%
Buildings	Waste - Commercial & Industrial	88.64	m ³	19.50	5.2%
Cottesloe Area	Waste - Construction & Demolition	180.00	m ³	57.60	15.5%
Administration	Business Travel (flights)	17096	km	3.57	1.0%
Administration	Printing Paper	1042.6	kg	1.54	0.4%
Total Scope 3				124.59	33.5%
Total Scope 1, Scope 2 and Scope 3 emissions				372.39	100.0%
OFFSETS				0.60	
Net Emissions for Town of Cottesloe				371.79	

Source of Emissions as a Percentage of Total Footprint: Scopes 1, 2, 3

Council-related emissions were evenly spread across Scope 1, Scope 2 and Scope 3 emissions in 2012/2013, as Figure 2 demonstrates. Scope 1 emissions, those directly emitted by the Town's actions, made up the largest proportion of the Town's footprint. Scope 3 emissions - indirect emissions resulting from Council activities – contributed 33.5%, followed by Scope 2 emissions, those generated offsite for Council use, with 32.5% of the total footprint. The make up the Town's footprint based on the 3 scopes has changed over the years, with scope 2 emissions previously contributing the largest section of emissions. This is largely related to the changes to reporting streetlight emissions (see the Town of Cottesloe Carbon Inventory Report 2011/2012).

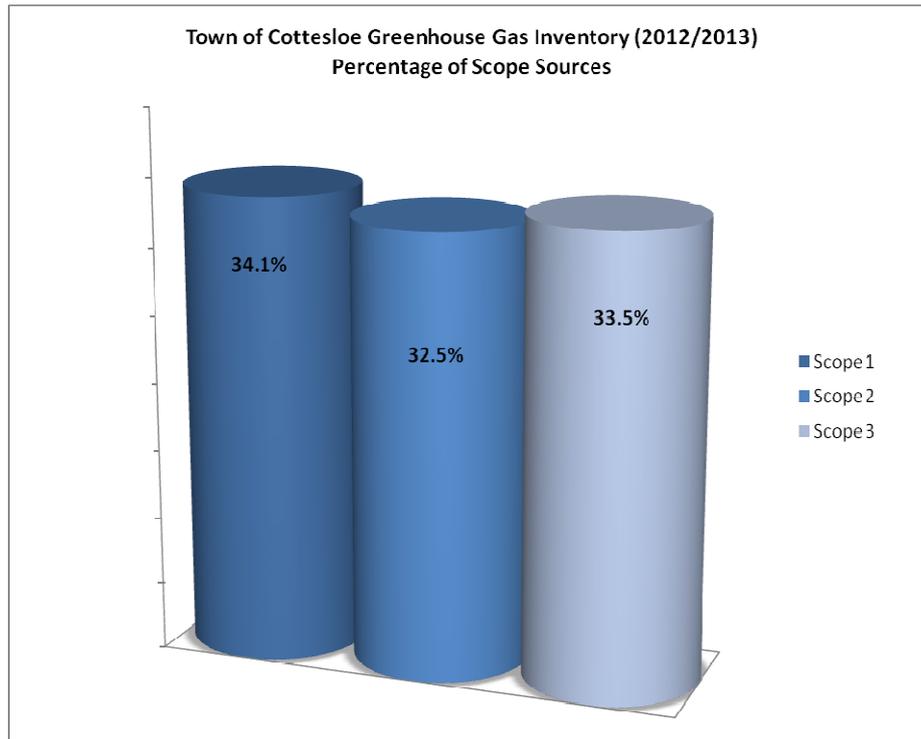


Figure 2. The Source of emissions as a percentage of the total footprint, grouped as Scope 1, Scope 2 and Scope 3 emissions (see Table 1 for information on emissions included in each Scope)

Source of Emissions as a Percentage of Total Footprint: Activities

Figure 3 demonstrates the activities identified by the 2012/2013 Carbon Inventory as generating the most GHG emissions. These were:

1. Petrol and diesel combustion from fleet vehicles for transportation. The Town owned and operated a total of 30 vehicles during 2012/2013. Eleven vehicles were diesel. Emissions from fleet vehicles, including mowers and buggies made up 34% of the Town's footprint. Emissions from fuel have decreased since last year due to the number of vehicles in the fleet being reduced (38 vehicles in 2011/2012). In active steps to reduce emissions, Council sold a number of fuel intensive vehicles. A small, fuel efficient "pool car" was purchased as a replacement. A significant proportion of staff members are provided with a Council-owned vehicle for commuting and personal use. These emissions figures therefore capture a degree of non-work related travel but it is impossible to separate fuel use. While there is an argument that the Town is responsible for these emissions since it has purchased and supplied the vehicle, it highlights a potential opportunity for reducing the Town's emissions. It is recommended that the practice of automatically providing new staff with a vehicle as part of their salary package be reviewed.
2. Waste to landfill. Waste produced at the Civic Centre and Depot from the Cottesloe area was a large contributor to the Town's carbon footprint in 2012/2013; however the actual tonnage has decreased. Waste made up 21% of the calculated emissions in 2012/2013. Relocation of the Depot site led to a gap in data relating to waste in 2012/2013 therefore figures from the previous year were used to estimate waste data for the missing period.

3. Purchased electricity for facilities and infrastructure. The Town operates out of 2 main buildings, which require lighting, heating, ventilation and cooling throughout the year. Furthermore, the Town has operational control over a range of other sites such as change room facilities and community centers. Bore pumps, used to reticulate Public Open Space and parks, require significant amounts of electricity, particularly in summer. The emissions from purchased electricity has decreased compared to 2011/2012, and now makes up 28% of the total. This is due to a number of changes including the new depot site being a newer and assumedly more efficient building, as well as the installation of solar panels which has reduced the purchased electricity requirement of the Civic Centre by 25%.
4. Purchased electricity for Western Power-owned streetlights. Purchased electricity for street lighting has consistently contributed large volumes of emissions for the Town. While the proportion of the total footprint relating to street lighting has decreased in the last few years due to reporting changes, it still remains a significant contributor with 16% of the total. Without a large financial investment (\$100,000+) in upgrading street lighting lamps, there is little the Town can do to abate these emissions.

While business travel is only a minor contribution to the footprint (approx 1%), the opportunity to offset this travel is convenient and affordable. In 2012/2013, one staff member elected to purchase the voluntary 'offset' for a return business flight. This trip therefore resulted in zero emissions. It is recommended that staff, when possible, take this option to reduce Council's emissions related to business travel.

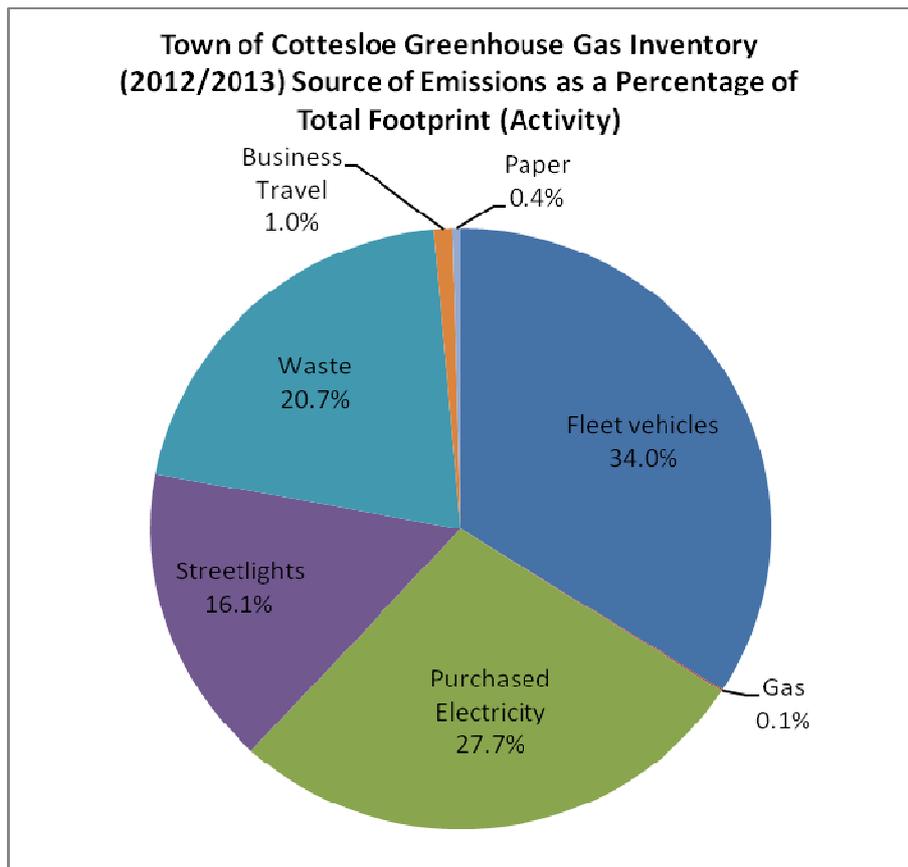


Figure 3. Activity Source of Emissions as a Percentage of Total Footprint.

Council's Carbon Footprint: Changes since Baseline

The Town has demonstrated an encouraging trend in total carbon footprint relating to its activities. Total emissions have decreased by over 400 tonnes CO₂-e since the baseline year. The key actions taken in the last year contributing to this change are:

- A reduction in fleet vehicles and purchasing of fuel efficient cars has reduced scope 1 emissions by 40 tonnes of CO₂-e this year.
- Installation of a solar power system at the Civic Centre has resulted in a 25% decrease in purchased electricity at the site, with a reduction of 40 tonnes of CO₂-e this year.

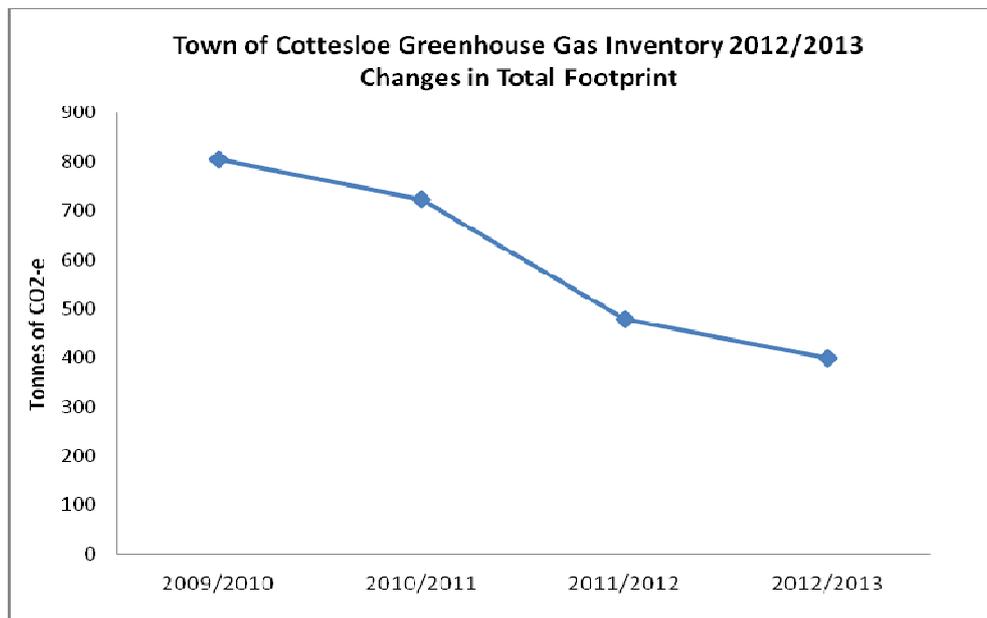


Figure 4. Change in total footprint since baseline year

These reductions mean that the Town is highly likely to successfully meet its goal of a 15% reduction in actual emissions by 2015. This is alongside the overall goal of zero net emissions by 2015, including the purchase of offsets.

4. Implications

The Town has elected to voluntarily collect and report its GHG emissions. There is currently no obligation to do so due to the small size of the Town's footprint, and the Town has never reached any reporting thresholds under Federal legislation. However the Town is subject to cost increases from direct and indirect emissions and contractors. Therefore it is prudent for the Town to identify ways to reduce their reliance on GHG intensive activities, suppliers and products. This will save Council significant amounts of money in the future, with fuel, electricity and waste costs likely to increase.

There is currently uncertainty in the Carbon landscape of Australia. With the change in federal government during the year it is likely that current emissions related legislation, including the price on

Carbon will be repealed. As the Town is not liable under the current legislation, and the Town has voluntarily elected to reduce its emissions, these changes are unlikely to have a significant impact on the Council. If the repeal is successful, there may be changes to pricing of utilities and other services, but this is likely to be delayed and minimal.

The Town has previously voluntarily reported their GHG emissions as part of ICLEI Cities for Climate Change Protection. These Inventories and Reports are a part of a voluntary process of reducing emissions and becoming 'Carbon Neutral'. The Town has chosen to follow the Standards set out in NCOS for voluntary carbon accounting, unless there is conflict with other Council policy (e.g. purchasing local offsets). Before carbon neutrality is claimed it is recommended that the 2014/2015 inventory be assessed and verified by an independent third party. This will ensure that the Town has met all of the requirements set out by NCOS (and the GHG Protocol) for relevance, consistency, transparency and accuracy.

5. Next Steps: Abatement and Offsets

Despite the positive progress there are a number of challenges for further abatement of emissions. As the Town's footprint gets smaller, opportunities for significant reductions will be limited. There is scope to make considerable changes to fleet related emissions, however this requires changes to policy and recruitment practices. The provision of a vehicle for private use to all new senior staff members significantly adds to Council's emissions footprint. By amending this practice so that new staff are offered the option of a vehicle or alternatively a financial increase to their salary package, the number of vehicles in Council's fleet is likely to be less. Council would not then be responsible for emissions created on staff personal time and would see a reduction in its GHG footprint.

As previously outlined, the Town is following a four-step process to achieve their goal of becoming a carbon neutral Council. The Town has been progressing through the 4 stages, and is approaching the final step. Step 1 was completed with the development of a baseline inventory for 2009/2010. In 2012, step 2 was completed with the development of the GHG Reduction Plan. The Town is currently prioritizing implementation of a number of abatement measures and the purchase of non-polluting sources of energy (step 3). Once these measures have been implemented as much as possible, the Town will investigate the purchase of NCOS approved Offsets, in order to bring the carbon footprint to zero by 2015.

6. Recommendations

Recommendations for the Town following the completing the 2012/2013 inventory are as follows:

1. This Report be published on the Town's website by the end of February 2014.
2. The Town continually review boundaries set at the baseline year to determine if they are still appropriate. This may include the inclusion of refrigerants, water use, litter bins, and selected contractors, and/or exclusion of staff travel by Taxi.
3. The Town re-assess the practice of providing new staff with corporate cars for personal use.
4. The Town encourage the practice of purchasing the voluntary flight offset option for business travel.
5. The Town investigate and purchase offsets to bring Council's footprint to zero net emissions in time for the 2015 goal of carbon neutrality.

References

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EPA Victoria (February 2009) *Worksheet 4: Calculating Your Greenhouse Gas Emissions from Paper*. EPA Victoria.

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World Resources for Sustainable Development (WRSD) (March 2004) *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition*. World Resources Institute, USA.

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Appendix

Emissions Sources Included

Table 1. Emissions sources included in the boundary for the Town's carbon Inventory 2012/2013

Emissions Source	Scope	Justification/Explanation
Petrol fuel (fleet)	Scope 1	The Town consumed petrol for transportation. As the Town allows private use of vehicles, some of these emissions relate to personal use.
Diesel fuel (fleet)	Scope 1	The Town consumed diesel for transportation and works machinery.
Natural Gas	Scope 1	The Town consumed pipeline distributed natural gas at a number of sites.
Purchased electricity (buildings)	Scope 2	The Town consumed purchased electricity for lighting, heating, cooling and miscellaneous activities at Council owned buildings.
Purchased electricity (streetlights - Cottesloe)	Scope 2	The Town consumed purchased electricity for streetlights, owned and operated by Cottesloe.
Purchased electricity (bores & infrastruct)	Scope 2	The Town consumes purchased electricity to power water bores and other infrastructure in parks and open spaces.
Purchased electricity (streetlights – Western Power)	Scope 3	The Town consumed purchased electricity for Western – Power owned streetlights. This is included as Scope 3 from 2011/12 onwards as WALGA has recommended the reporting of streetlights as Scope 3 emissions as of 2011/12.
Business travel - flights	Scope 3	Business flights have been included in the carbon inventory since NCOS recommends that business travel should be included as a minimum standard for carbon accounting.
Paper use	Scope 3	Paper use has been included since it is a major product used in the office and NCOS recommends that paper use should be included as a minimum standard for carbon accounting.
Waste Commercial and Industrial (C & I) Construction and Demolition (C & D)	Scope 3	All waste disposed to landfill from Council operations was included since it is an area that the Town could target to reduce emissions. NCOS recommends that disposal of waste generated by an organisation should be included as a minimum standard for carbon accounting.

Emissions Sources Excluded

The following sources are documented to ensure transparency and adequate justification for exclusion. These include all *potential* emissions from Council-related activities, but for a variety of reasons, cannot be included in the inventory.

Table 2. Emissions sources excluded from the Town's carbon Inventory 2012/2013

Emissions Source	Scope	Justification
Refrigerant emissions (domestic fridge)	Scope 1	Emissions from the domestic refrigerator have been excluded since they were considered to be negligible.
Refrigerant emissions (air conditioner)	Scope 1	The Town has approximately ten air conditioning units that service the Civic Centre building. These were considered to have a low contribution to the emissions footprint and so were excluded from the carbon inventory.
LPG cylinders	Scope 1	The Town has one portable LPG cylinder for the barbeque at the Depot, which has been excluded from the carbon inventory since it is considered to have negligible contribution to the Town's emissions footprint.

Employee commuting (personal vehicles)	Scope 3	This inventory aims to present the major emissions under the Town's operational control. Employee commuting does not fit within the objectives set but it may be partly addressed through initiatives such as a Sustainable Travel Allowance. Commuting in a Council-owned vehicle is included as Scope 2 emissions.
Employee commuting & Business Travel (public transport)	Scope 3	Public transport is considered to be difficult to measure and likely to be a marginal part of the transport used by most employees. At this stage it has been excluded from the carbon inventory for the Town.
Fuel cards for vehicles outside the Town's operational boundaries	Scope 3	Fuel cards that the Town manages for external use (e.g. TAPSS minibus and staff vehicles) have been excluded since they are not under the operational control and hence fall outside the boundaries for the Town's carbon inventory.
Waste (street litter bins)	Scope 3	The Town aims to include waste from street litter bins as part of their carbon inventory but the availability and quality of data is not yet sufficient. Data capturing methods will be put in place so that waste from litter bins can be included in future inventories.
Waste (tree prunings; street sweepings, drainage pits, construction materials)	Scope 3	Tree prunings and other vegetation waste from the Town's operations is all mulched and re-used. Construction materials are collected by a contractor who reclaims and recycles almost all of the content. Contaminated soils and sands from street sweeping are remediated and then sold as soil after the process is complete. Since these products are claimed and re-used they have been excluded from the Town's carbon inventory.
Contractors	Scope 3	Emissions generated from contractors and the activities that they are hired to do for the Town have been excluded from the inventory but may be included in future inventories if data can be calculated to a satisfactory level of accuracy.
Water use and associated production and distribution emissions.	Scope 3	Water use (and associated production and distribution emissions) has been excluded since it is not considered to be a major emissions source. Water use may be included in future inventories.
Emissions from extraction and transport of petrol	Scope 3	The Town has chosen to exclude emissions from extraction and transport of petrol since the Town has an inability to affect these emissions.
Emissions from extraction and transport of diesel	Scope 3	The Town has chosen to exclude emissions from extraction and transport of diesel since the Town has an inability to affect these emissions.
Emissions from fuel extraction and T&D line losses for purchased electricity	Scope 3	The Town has chosen to exclude emissions from extraction and T & D line losses for purchased electricity since the Town has an inability to affect these emissions.
Emissions from extraction, transport, and line losses of natural gas	Scope 3	The Town has chosen to exclude emissions from extraction, transport and line losses of natural gas since the Town has an inability to affect these emissions.
Materials and Goods embodied emissions	Scope 3	Emissions generated from materials and goods embodied emissions have been excluded but may be included in future inventories if data can be calculated to a satisfactory level of accuracy.
Leased and Independently Operated Buildings	Scope 3	All Leased and Independently managed Council owned buildings have been excluded from the Town's carbon inventory since they fall outside the chosen boundary of "operational control".
Business travel – taxis/shuttles	Scope 3	Taxis and Shuttles have previously been included, however estimating mileage and fuel use became problematic and inaccurate. Figures for Taxis were not representative of emissions and have been excluded for 2012/13. This will be reviewed next year.