



## Town of Cottesloe

### 2011/2012 Carbon Inventory Report



**Reporting period:** 1 July 2011 to 30 June 2012

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23 November 2012

## Summary

This report summarises the findings from the 2011/2012 greenhouse gas Inventory recently completed for the Town of Cottesloe. The Inventory and Report represents the third consecutive year of carbon accounting for the Town. 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 2011/2012 Inventory calculated 478 tonnes of Carbon Dioxide equivalent (CO<sub>2-e</sub>) emissions from the Town's operations for the period 1 July 2011 to 30 June 2012. This compares to a baseline greenhouse gas footprint of 806 tonnes of CO<sub>2-e</sub> for 2009/2010. The primary emissions-related activities at the Town for 2011/2012 were:

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

The large reduction in Council's total footprint this year is a result of changes in reporting of emissions relating to purchased electricity for streetlights.

Recommendations for the Town following the completing the 2011/2012 inventory are as follows:

1. This Report be submitted to Council by May 2013 summarising the 2011/2012 inventory.
2. This Report be published on the Town's website by June 2013.
3. Note that the recently developed *Town of Cottesloe Greenhouse Gas Reduction Plan* sets out the direction for greenhouse gas abatement. Future annual Reports will be used as a tool to monitor progress in carbon abatement activities recommended in the Plan.
4. The Town 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.

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## 1. Introduction

The 2011/2012 Carbon Inventory Report has been prepared for the Town of Cottesloe (hereafter “the Town”) to report on Council-related greenhouse gas (GHG) emissions for the period from 1 July 2011 to 30 June 2012. It provided 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. While not directly impacted by the Federal Government’s legislation on Carbon pricing, the Town has voluntarily chosen to report its emissions. In 2010, Council committed to reduce its emissions by becoming Carbon Neutral by 2015. This process largely drives the need to annually report on emission-related activities. The Town aims to become Carbon Neutral by following the for step process below:

- |               |   |
|---------------|---|
| <b>Step 1</b> | Measure the total GHG footprint at baseline year                |
| <b>Step 2</b> | Develop a GHG Reduction Plan to reduce highest emission sources |
| <b>Step 3</b> | Switch to energy sources that create less GHG emissions         |
| <b>Step 4</b> | 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 and 2010/2011 Carbon Inventory Reports. The Town recently developed and published the *Town of Cottesloe Greenhouse Gas Reduction Plan*, which sets out an approach to carbon abatement. Due to timing of the completion of this document, abatement activities are not reflected in the 2011/12 Inventory. Further Inventories and Reports will be used to monitor and evaluate implementation of abatement actions.

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 2010).

### ***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. During 2011/2012, the Town employed 40 full-time staff, operating out of two main buildings– the main Administrative Building (the Civic Centre); and the Depot. The Civic Centre has a total floor space of 1,546 m<sup>2</sup> and the Depot has a total floor space of 796 m<sup>2</sup>. Other building and facilities operated by the

Town include the Marmion Street Community Centre (toy library), Anderson Pavilion, a number of playgrounds, ovals and a golf course.

Financials for 2011/2012 show the Town had total revenue of \$10,189,328.

### ***Aims***

This Report presents the Town's GHG emission sources and total emissions for the period 1 July 2011 to 30 June 2012. Specifically the report has been developed in order to:

- Present the Town's GHG Inventory as the third 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 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 than scope 1 and 2 emissions and the Town has less control over them, so only selected scope 3 emissions are included in an organisation's inventory.

### ***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 (CO<sub>2</sub>), Methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O). 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<sub>2-e</sub>). 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<sub>2-e</sub> ) 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 Local Governments 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, as was the case for Cottesloe in 2010/2011 when emissions factors for waste were revised. In regard to Town of Cottesloe's Carbon



Inventory for 2011/2012, emissions factors for purchased electricity (scope 2), natural gas distributed in a pipeline (scope 1), petrol fuel (scope 1), diesel fuel (scope 1), taxi/shuttles used for business travel (scope 3) and waste disposed to landfill (scope 3) were all sourced from the National Greenhouse Accounts (NGA) Factors (2011). Emissions factors for flights were taken from EPA Victoria's worksheets for calculating greenhouse gas emissions: Worksheet 3 Flights. Emissions factors for paper use were taken from EPA Victoria's worksheets: Worksheet 4 Paper. Waste conversion factors were obtained from Sustainability Victoria.

There were no changes to emissions factor between 2010/2011 and 2011/2012 Inventories.

## 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. As a Local Government, the Town generally has 100% ownership of premises and vehicles that are managed under the guidance of the Chief Executive Officer. The exception is jointly funded buildings such as the Grove Precinct. Since the Town seeks to become Carbon Neutral, operational control was used as the boundary determinant for the Inventory.

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

- 1) Operating policies*
- 2) Health and safety policies*
- 3) Environmental policies*

*Only one corporation can have operational control over a facility at one time."* (DCC 2010)

The organisational and operational boundaries used to develop the Carbon Inventory are set out in Figure 1. Boundaries set for the 2011/2012 Inventory and Report are based on those used in the Baseline Inventory. Emission-related activities included and excluded are detailed in Table 1 and 2.

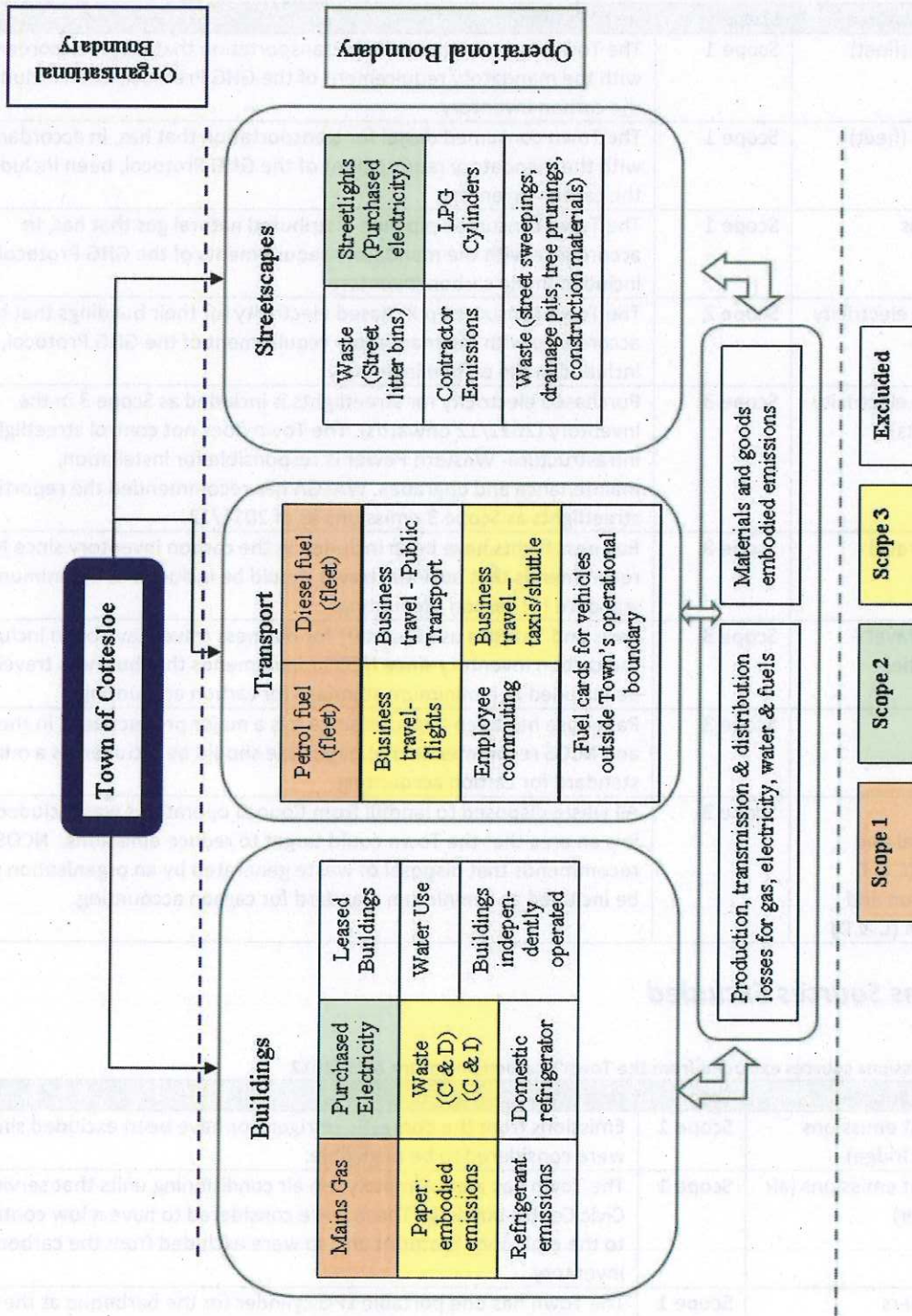


Figure 1: Town of Cottesloe's Organisational and Operational Boundaries for the Carbon Inventory (Source: Based upon diagram from p 25, GHG Protocol, WRS D 2004)



## Emissions Sources Included

Table 1. Emissions sources included in the boundary for the Town's carbon Inventory 2011/2012

Emissions Source	Scope	Justification
Petrol fuel (fleet)	Scope 1	The Town consumed petrol for transportation that has, in accordance with the mandatory requirement of the GHG Protocol, been included in the carbon inventory.
Diesel fuel (fleet)	Scope 1	The Town consumed diesel for transportation that has, in accordance with the mandatory requirement of the GHG Protocol, been included in the carbon inventory.
Natural Gas	Scope 1	The Town consumed pipeline distributed natural gas that has, in accordance with the mandatory requirements of the GHG Protocol, been included in the carbon inventory.
Purchased electricity (buildings)	Scope 2	The Town consumed purchased electricity for their buildings that has, in accordance with the mandatory requirement of the GHG Protocol, been included in the carbon inventory.
Purchased electricity (streetlights)	Scope 3	Purchased electricity for streetlights is included as Scope 3 in the inventory (2011/12 onwards). The Town does not control streetlight infrastructure- Western Power is responsible for installation, maintenance and upgrades. 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.
Business travel – taxis/shuttles	Scope 3	Taxis and Shuttles used by staff for business travel 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

Table 2. Emissions sources excluded from the Town's carbon Inventory 2011/2012

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 so that they can become carbon neutral. Employee commuting does not fit within the objectives set but it may be partly addressed through initiatives implemented when the Town begins a Carbon Reduction Plan. Commuting in a Council-owned vehicles 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".



### 3. Carbon Inventory

The Town's corporate GHG emission sources are presented in Figure 2, as a summary of the 2011/2012 Inventory. The Inventory was prepared using the standard methodology set out in the GHG Protocol. The Town's total GHG emissions, or carbon footprint, were calculated to be 478 tonnes of CO<sub>2-e</sub> emissions for the 2011/2012 financial year.

Table 3. Summary of 2011/2012 Carbon Inventory for the Town of Cottesloe

Site	Emissions Source	Consumption	Consumption Units	Tonnes CO <sub>2-e</sub>	Proportion of total inventory (%)
<b>Scope 1</b>					
Fleet	Petrol - mobile	46519.1	L	106.47	22%
Fleet	Diesel - mobile	20229.5	L	54.51	11%
Buildings	Gas - Distributed in a Pipeline	8902.45	m <sup>3</sup>	0.46	0.1%
<b>Total Scope 1</b>				<b>161.44</b>	<b>34%</b>
<b>Scope 2</b>					
Purchased Electricity - Black	Purchased Electricity - Black power	352799.37	kWh	143.63	30%
Purchased Electricity - Green	Purchased Electricity - Green power	0.00	kWh	0.00	0%
<b>Total Scope 2</b>				<b>143.63</b>	<b>30%</b>
<b>Scope 3</b>					
Streetlights (Western Power)	Purchased Electricity - Streetlights	423783.49	kWh	55.09	12%
Cottesloe Area	Waste - Construction & Demolition	240.00	m <sup>3</sup>	76.80	16%
Buildings	Waste - Commercial & Industrial	117.41	m <sup>3</sup>	25.83	5%
Town of Cottesloe	Business Travel (Taxi/Shuttle)	4320	L petrol	9.89	2%
Town of Cottesloe	Business Travel (flights)	14012	km <sub>(person)</sub>	2.93	1%
Town of Cottesloe	Printing paper	1448.2	kg <sub>(paper)</sub>	2.75	1%
<b>Total Scope 3</b>				<b>173.28</b>	<b>36%</b>
<b>Total Scope 1, Scope 2 and Scope 3 emissions</b>				<b>478.35</b>	<b>100%</b>

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

Council related emissions were fairly evenly spread across Scope 1, Scope 2 and Scope 3 emissions in 2011/2012, as Figure 3 demonstrates. Scope 3 emissions - indirect emissions resulting from Council activities - made up the largest component at 36%, followed closely by Scope 2 at 34%. These emissions relate to energy generated offsite for Council use, such as purchased electricity for the Admin Building. Scope 1 emissions, those directly emitted by the Town's actions, made up 30% of the total footprint. The contributing of Scopes, particularly Scope 2, has changed dramatically in 2011/2012 compared to 2010/2011. In 2010/2011, Scope 2 made up 63% of emissions, whilst Scope 1 and Scope 3 made up 20% and 18% respectively.



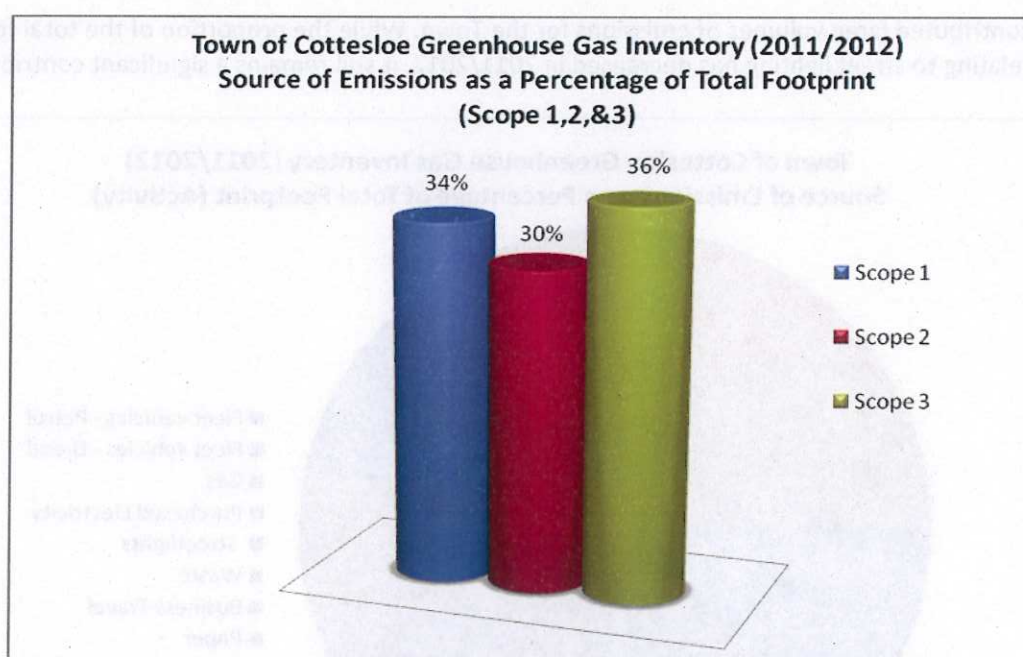


Figure 2. The Source of emissions as a percentage of the total footprint, grouped as Scope 1, Scope 2 and Scope 3 emissions (see Table 1 for information on emissions included in each Scope)

### ***Source of Emissions as a Percentage of Total Footprint: Activities***

The activities identified by the 2011/2012 Carbon Inventory as generating the most GHG emissions for the Town were:

1. Petrol and diesel combustion from fleet vehicles for transportation. 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 for different types of travel. The Town owned and operated a total of 38 vehicles during 2011/2012. Twelve vehicles were Diesel (note figure 4 separates fleet emissions into petrol and diesel). Emissions from fleet vehicles, including mowers and buggies made up 34% of the Town's footprint. This is an increase in proportion compare to last year.
2. 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 infrastructure such as change room facilities and community centers. Bore pumps, used to reticulate Public Open Space and parks requires significant amounts of electricity, particularly in summer. Purchased electricity made up 30% of emissions in 2011/2012. Whilst the total emissions from purchased electricity has remained fairly static (a small increase), it now makes up a larger proportion of the total.
3. Waste to landfill. Waste produced by demolition and building activities from the Cottesloe area was a large contributor to the Town's carbon footprint in 2011/2012; however the actual tonnage has decreased. Combined with the commercial waste collected at the depot and Civic Centre, waste made up 21% of the calculated emissions.
4. Purchased electricity for Western Power-owned streetlights. Further discussion to reporting changes related to streetlights is below. 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 2011/2012, it still remains a significant contributor.

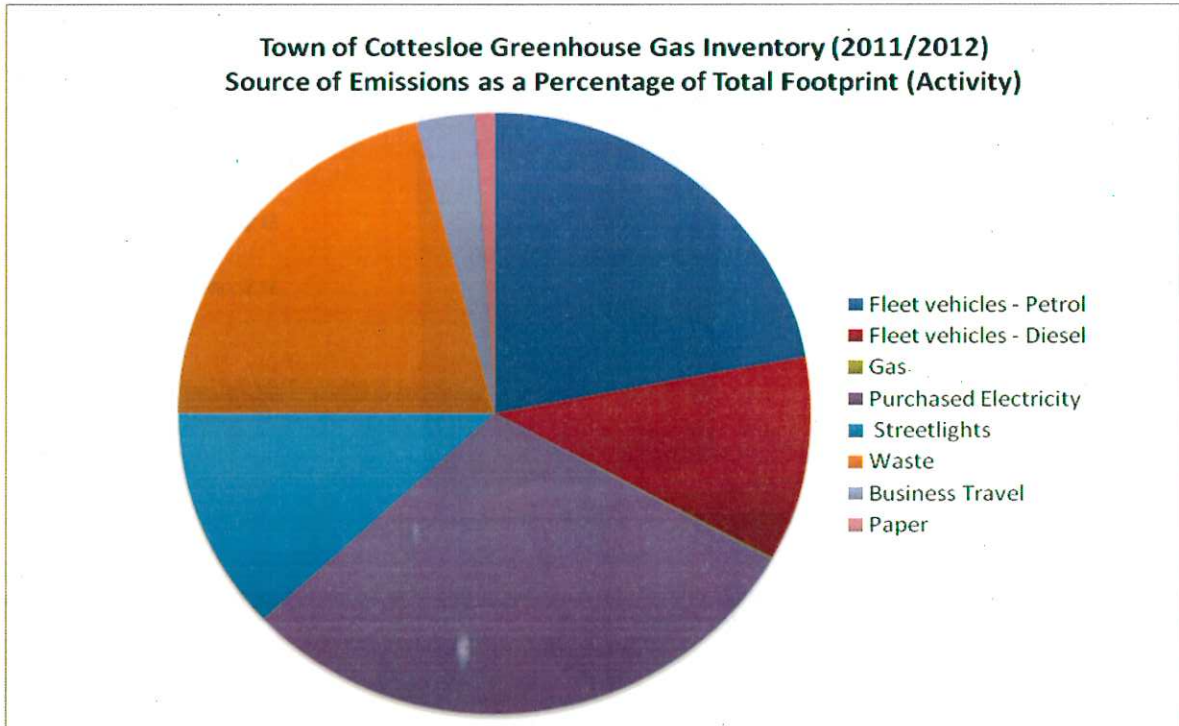


Figure 3. Activity Source of Emissions as a Percentage of Total Footprint.

### ***Council's Carbon Footprint: Changes since Baseline***

The Town has demonstrated a pleasing trend in total carbon footprint relating to its activities. Total emissions have decreased by 328 tonnes CO<sub>2</sub>-e since the baseline year. The largest change in emissions relates to streetlights. While the consumption data remains virtually the same, reporting of streetlight emissions has changed (this is discussed further below). Fleet emissions have increased marginally between 2010/2011 and 2011/2012 as has waste emissions, whilst emissions from business travel have decreased over the same period.



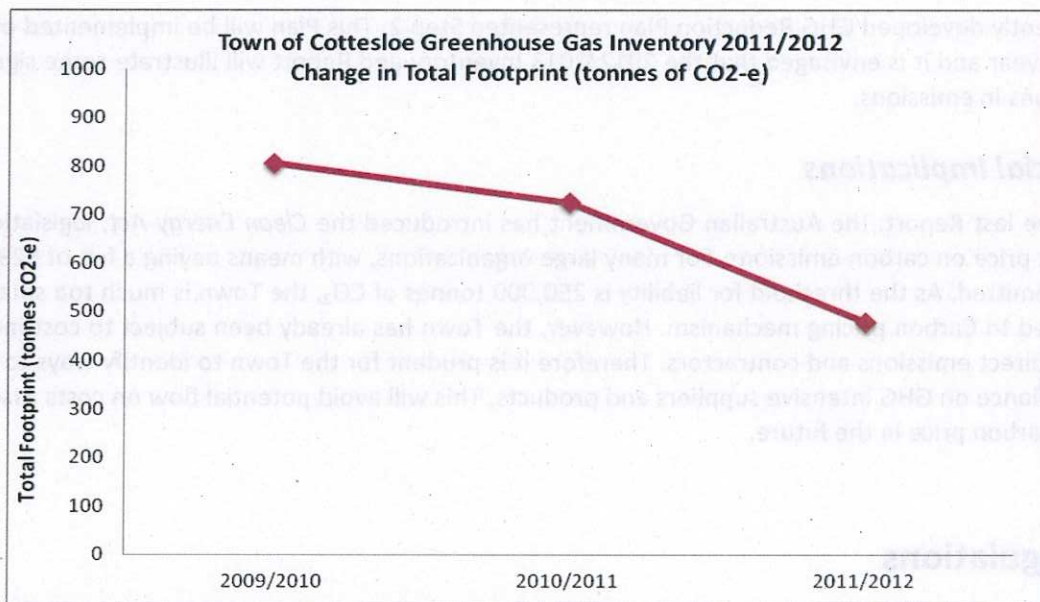


Figure 4. Change in total footprint since baseline year

### **Changes in Reporting Streetlight Emissions**

As is the case across Western Australia, the majority of Cottesloe's streetlights are owned and operated by Western Power. The Town purchases electricity from Synergy in order to operate the streetlights. Local Government's reporting of streetlight related emissions is contentious and inconsistent, with some Councils choosing to omit them from their inventories all together. At the time of boundary setting, Cottesloe elected to incorporate streetlight-related emissions in their footprint. This became a part of Cottesloe's Scope 2 emissions. In fact, purchased electricity for streetlights has been the largest emissions source for Cottesloe every year since the baseline year of 2009/2010.

Recent developments in the way Western Power reports their own emissions, including the emissions relating to customer consumption of electricity for powering streetlights, as well as guidance from WALGA, suggests that Local Governments should report purchased electricity for streetlights as scope 3 emissions as of 2011/12.

As emissions relating to purchased electricity for street lights were the Town's greatest source of emissions, this change has led to a significant reduction in the Town's overall carbon footprint. It should be noted that while this better reflects the emissions that Council has operational control over, there are some areas that have had an increase in emission and therefore require further attention.

## **4. Implications**

### **Original Drivers**

Consistent recording of Council's GHG emissions allows the Town to improve its understanding of its carbon footprint, and identify the most effective methods of abatement. This is a necessary step in the journey to becoming Carbon Neutral. The baseline Inventory represented Step One in the process, while

the recently developed GHG Reduction Plan represented Step 2. This Plan will be implemented over the coming year and it is envisaged that the 2012/2013 Inventory and Report will illustrate some significant reductions in emissions.

### **Financial Implications**

Since the last Report, the Australian Government has introduced the *Clean Energy Act*, legislation that places a price on carbon emissions. For many large organizations, this means paying a fee of \$23/tonne of CO<sub>2</sub> emitted. As the threshold for liability is 250,000 tonnes of CO<sub>2</sub>, the Town is much too small to be subjected to Carbon pricing mechanism. However, the Town has already been subject to cost increases from indirect emissions and contractors. Therefore it is prudent for the Town to identify ways to reduce their reliance on GHG intensive suppliers and products. This will avoid potential flow on costs associated with a carbon price in the future.

## **5. Regulations**

The Town operates within the jurisdiction of the Australian Government and the Western Australian State Government. Table 4 details the relevant legislation against the Town's carbon inventory. The Town does not currently trigger any of the regulatory thresholds.

Table 4. The Town's regulatory obligations based upon annual emissions of 478 tonnes CO<sub>2-e</sub>.

Legislation	Jurisdiction	Reporting Threshold	Threshold reached?
Clean Energy Act	Federal	<b>1 July 2012</b> 25kt CO <sub>2-e</sub> per year	No
National Greenhouse and Energy Reporting (NGER) Act 2007	Federal	<b>2009/2010</b> 87.5 kt CO <sub>2-e</sub> of GHG emissions or 350 TJ of energy produced per financial year.	No
Energy Efficiency Opportunities Act 2006	Federal	<b>2008/2009</b> Corporations with controlling groups that use more than 500 TJ of energy (same as NGER threshold)	No

## **6. Voluntary Reporting**

The Town has previously voluntarily reported their GHG emissions as part of ICLEIs 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 most recent inventory completed is assessed and verified by an independent third party. This will ensure that the Town has met all of the requirements that they sought to achieve through following the Standard set out by NCOS (and the GHG Protocol) of relevance, consistency, transparency and accuracy.



## 7. Next Steps: Carbon Abatement and Offsets

The four-step process outlined previously in this document will be followed by the Town to achieve their goal of becoming a Carbon Neutral Council. As Step 2 was completed with the development of the GHG Reduction Plan, the Town is currently prioritizing implementation of a number of abatement measures. Once these measure 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.

At that point, the Town will seek accreditation from NCOS, in order to legitimately claim Carbon Neutrality. As all Inventories have been conducted in accordance with the GHG Protocol upon which NCOS is based, it is hoped that this accreditation will be achieved without a large degree of additional work.

## 8. Recommendations

Recommendations for the Town following the completing the 2011/2012 inventory are as follows:

1. This Report be submitted to Council by May 2013 summarising the 2011/2012 Inventory.
2. This Report be published on the Town's website by June 2013.
3. Note that the recently developed *Town of Cottesloe Greenhouse Gas Reduction Plan* sets out the direction for GHG abatement. Future annual Reports will be used as a tool to monitor progress in carbon abatement activities recommended in the Plan.
4. The Town 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.

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