



NCOS CARBON NEUTRAL PROGRAM

PUBLIC DISCLOSURE SUMMARY

City of Sydney

456 Kent Street Sydney NSW 2001 ABN 22 636 550 790

30 June 2012

Table of Contents

2
∠
2
4
7
7
7
12

1. ORGANISATION AND PRODUCT INFORMATION

Organisation Name: City of Sydney

Disclosure Period: From: 1 July 2010 to: 30 June 2011

Date of most recent verification: March 2012

Carbon Neutral Disclosure Type: Organisation ⊠

2. ORGANISATION

ABOUT THE CITY OF SYDNEY

The City of Sydney is the local government authority responsible for the city centre and more than 30 suburbs. Our local government area (LGA) covers about 26 square kilometres of inner Sydney. Our boundary extends from Sydney Harbour at Rushcutters Bay to Glebe and Annandale in the west, Sydney Park and Rosebery in the south, and Centennial Park and Paddington in the east.

The City of Sydney's role is to provide services for our 183,616 residents as well as for the daily influx of 376,000 workers and 483,000 visitors. On any given day, Sydney's population swells to more than a million people. The City of Sydney is also the main consent authority for new development in most parts of our LGA.



Figure 1 City of Sydney Local Government Area

The core functions for Local Government in NSW are defined by the *Local Government Act* 1993. A high level plain-English overview of the City of Sydney operations and services include:

- Aquatic centres.
- Community centres, services and facilities.
- Development planning approval.
- Domestic waste service.
- Economic development.
- Events and sponsorships.
- Heath inspections.

- Infrastructure, i.e. roads, footways, drainage.
- Parking services.
- Parks and open space.
- · Provision of street lighting.
- Strategic planning.
- Sustainability.

The City owns more than 230 buildings, many of which are tenanted. The City also owns 8,599 street lights and there are a further 13,000 street lights owned by the electricity network provider but deemed to be within the City's control. The City's operations are mostly run out of two main administration buildings, multiple depots, parks, venues and community centres. The City's main office is located at 456 Kent Street, Sydney behind the Sydney Town Hall. In 20010/11 there were a total of 1,863 staff working for Council.

Sustainable Sydney 2030, developed in 2008 with the most consultation ever undertaken by the City of Sydney, set ambitious targets including 70% reduction of 2006 greenhouse gas emissions, noreliance on coal fired electricity, and for 30% of electricity to come from renewable sources by 2030. Sustainable Sydney 2030 proposes a *Green, Global and Connected* city and has significantly increased the expectations and service delivery by the City of Sydney. The major ways that the City can influence these outcomes are shown below.

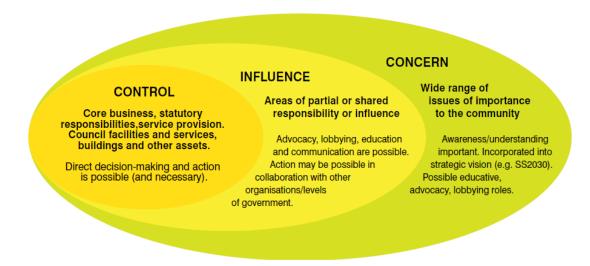


Figure 2 City of Sydney Sphere of Influence

DEVELOPING THE CITY OF SYDNEY EMISSIONS BOUNDARY

In 2007 the City of Sydney Council resolved to become carbon neutral for its own properties and operations. *Hyder Consulting* was engaged in 2008 to determine the City's emissions boundary. Hyder referred to the GHG Protocol's Corporate Accounting and Reporting Standard 2004 and included all Scope-1 and Scope-2 emissions, as well as a range of Scope-3.

In addition, a general principle was applied to include emissions that would not otherwise occur if the City of Sydney as an organisation did not exist. In 2011, the emissions boundary was reviewed with some minor modifications, such as the inclusion of paper, to ensure that it met requirements of the National Carbon Offset Standard (NCOS).

3. EMISSIONS SOURCES

The City of Sydney emissions boundary includes emissions from: grid electricity and natural gas used in its buildings, operations and street lighting; liquid fuels used by its fleet and major contractors to deliver local government services; business related air and taxi travel; waste generated through Council operations; onsite fuel used for back up generation; the production of the Sydney New Years Eve event; and leakage of refrigerants used in air conditioning.

Generally, the City of Sydney greenhouse gas emissions boundary includes:

- Emissions sources where the City is considered to have operational control as defined by the National Greenhouse and Energy Reporting Act 2008. For example, emissions resulting from energy used where the City is the asset owner and/or the service provider and/or is liable to pay for the energy.
- Emissions sources deemed to be within the City's organisation boundary including all Scope-1 and Scope-2 emissions, and many Scope-3 emissions sources (including from business travel, waste and paper use as required under NCOS).

Table 1 City of Sydney scopes

Emission Source	Scope
Natural gas	1, 3
Diesel	1, 3
Biodiesel	1
Gasoline	1, 3
Ethanol-10	1, 3
Liquid Petroleum Gas	1, 3
Refrigerants	1
Grid electricity	2, 3
Flights	3
Taxis	3
Waste disposal	3
NYE event production	3
Paper	3

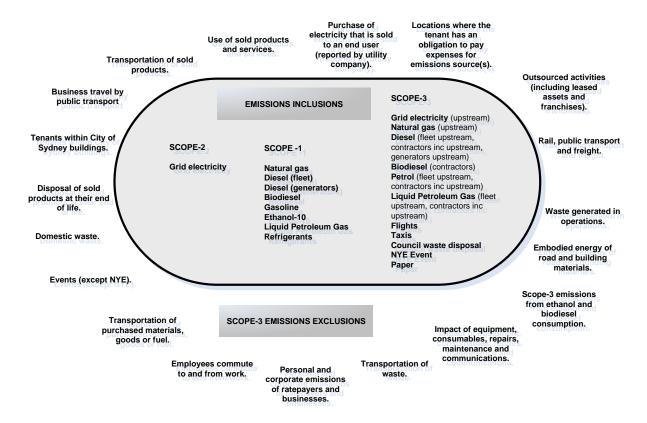


Figure 3 City of Sydney scopes

Table 2 lists greenhouse gas emissions sources included within the City of Sydney greenhouse gas emissions boundary:

Table 2 Emissions inclusions summary

Emissions source	Scope	Reason for inclusion
Combustion of fuel which results in greenhouse gas emissions directly by the City of Sydney for transport and stationary energy.	1	Requirement for NCOS certification.
Fugitive emissions from commercial buildings air conditioning.	1	Requirement for NCOS certification.
Combustion of fuel offsite which results in greenhouse gas emissions to provide electricity for the City's buildings, parks and street lighting.	2	Requirement for NCOS certification. The majority of street lighting in the City of Sydney is owned by the electricity network provider; however, the City of Sydney considers street lighting as a Scope-2 emission given that it is a core service provided by local government who is also the liable entity to pay the utility cost.
Business travel of employees.	3	Emissions occur as a result of City of Sydney business decisions and activities.
Disposal of waste generated by the organisation.	3	Emissions occur as a result of City of Sydney business decisions and activities.

Emissions source	Scope	Reason for inclusion
Use of paper in the course of its business.	3	Emissions occur as a result of City of Sydney business decisions and activities.
Extraction, production and transport of purchased fuels.	3	Full fuel cycle emissions of fossil fuel sources including upstream emissions, are reasonably considered by the City of Sydney to be attributed to the end user.
Major contractors fuel usage.	3	Reasonably considered as critical by key stakeholders. Local Government is required to deliver certain services under the NSW Local Government Act 1993. Constituents and others may not readily differentiate where core services are provided by City of Sydney services or contractors.
Various emissions sources associated with Sydney New Years Eve.	3	Reasonably considered as critical by key stakeholders with Sydney New Years Eve being a high profile international event.

The City of Sydney has publicly tested our emissions reduction targets, programs and carbon neutral assertions within the media, local and international events and programmes such as the C40 Cities Climate Leadership Group and the CDP Cities Carbon Disclosure Project. In 2008 the City of Sydney used the international emissions reporting tool, *Project2Degrees Emissions Tracker* (now defunct), developed by Microsoft and ICLEI for the Clinton Climate Initiative. The City's emissions inventory was publicly available world wide and reviewed by P2D staff. No criticism was received concerning the City's emissions boundary, which also aligned well with data fields of the Emissions Tracker tool which was purpose built for cities. Review of other local and international Governments at varying stages of carbon neutrality has not revealed any material emissions sources which are not reported on by the City of Sydney.

4. EMISSIONS EXCLUSIONS

The City has included all Scope-1 and Scope-2 emissions within its organisational boundary. Scope-3 emissions are shown in the Table 3 below with commentary why they have been excluded from the City of Sydney emissions boundary. Generally, these have been excluded as the City does not have a consistent reporting framework for source data and there is a high degree of uncertainty regarding methodologies and emissions factors that are locally relevant and would not result in double counting. There could also be material cost implications associated with conducting inventories and purchasing offsets, the implications of which would need to be considered by Council on behalf of its ratepayers.

Table 3 Emissions exclusions summary

(Scope 3 emissions listed for consideration within the National Carbon Offset Standard)

Emissions source	Scope	Reason for exclusion
Transportation of purchased materials, goods or fuel.	3	 Emissions from transportation of fuel are included within the City's emissions boundary. Excluded due to lack of complete and reliable data and uncertainty regarding methodologies and locally relevant emissions factors.
Employees commute to and from work.	3	 Partially included as some staff use vehicles for journeys to and from work which use fuel paid for by the City of Sydney and these emissions are included within the City's emissions inventory and offset by the City. Not considered a significant source of emissions by meeting the

Emissions source	Scope	Reason for exclusion
		threshold for an incidental emission in the NGER Reporting Regulations. Most employees commute by active or public transport.
		Excluded due to lack of complete and reliable data and uncertainty regarding methodologies and locally relevant emissions factors.
		Potential double counting by individual employees who offset their emissions.
Transportation of sold products.	3	City of Sydney does not sell products.
Transportation of waste.	3	Fuel emissions from the transportation of City of Sydney operations waste is excluded due to a lack of complete and reliable data for fuel used by the contractor for City of Sydney organisational waste.
		Fuel emissions for the transportation of domestic waste are included within the City's emissions boundary.
Purchase of electricity that is sold to an end user (reported by utility company).	3	City of Sydney does not supply electricity to an end user.
Outsourced activities (including leased assets	3	Emissions from fuel used by minor contractors are excluded due to a lack of complete and reliable data.
and franchises).		Emissions from fuel used by major contractors are included within the City's emissions boundary.
Impact of equipment, consumables, repairs, maintenance and communications.	3	Emissions from equipment, repairs, maintenance and communications are excluded (except for emissions from energy used by the City of Sydney and major contractors already included as part of the City's emissions boundary) due to uncertainty regarding methodologies and locally relevant emissions factors. The initial of the contractors are accounted to the contractors.
		Emissions from the use of paper as a consumable are included within the City's emissions boundary.
Use of sold products and services.	3	City of Sydney does not sell products.
Waste generated in operations.	3	Four aquatic centres and other properties are excluded where the tenants or operators are responsible under contract for removing waste.
		Emissions from the disposal of domestic waste, public bins and litter are excluded. While the City of Sydney is required to provide a domestic waste service under the Local Government Act, the origin of these emissions is attributed to the waste producers. The City of Sydney considers that taking on the liability of these 3rd party emissions could have material cost and time implications.
		Emissions from disposal of City of Sydney organisational waste are included within the emissions boundary.
Disposal of sold products at their end of life.	3	City of Sydney does not sell products
Scope-3 emissions from ethanol and biodiesel consumption.	3	NGA Factors Workbook states that Scope-3 factors for ethanol and biodiesel are highly dependent on individual plant and project characteristics.
		Excluded due to lack of complete and reliable data and uncertainty

Emissions source	Scope	Reason for exclusion
		regarding methodologies and locally relevant emissions factors.
Business travel by public transport	3	Excluded due to lack of complete and reliable data and uncertainty regarding methodologies and locally relevant emissions factors.
Tenants within City of Sydney buildings (e.g. Woolworths) or head- leases (e.g. QVB, Capitol Theatre or Coronation Hotel).	3	In some instances the City takes on partial liability of tenant's emissions through the provision of base building energy where the tenants share cannot feasibly be separated out.
Locations where the tenant has an obligation to pay expenses for emissions source(s).	3	The City does not include emissions from tenants or contractors waste where they are obliged under the terms of their contract with the City of Sydney to manage that waste as the City does not pay for these waste services and/or the emissions are not considered to be material.
Domestic waste.	3	Emissions from the transport and disposal of domestic waste are a Scope-3 emissions source of the residents which produce the waste. Some argue that Local Government should take ownership of these emissions given their ability to determine the fate, and therefore emissions from the waste. The City of Sydney is committed to achieving waste reduction targets, currently sends domestic waste to a low emissions Advanced Waste Treatment facility, and is advanced in planning for other forms of treatment to reduce these greenhouse gas emissions further. The City has directed it resources to enabling these outcomes in place of taking liability for these emissions in the short term.
Events (except NYE).	3	 The provision of other events and sponsorships is not a core responsibility as defined by the Local Government Act 1993 and these emissions sources have been excluded from the City's emissions boundary on the basis that they are deemed to not be a significant source of emissions by meeting the threshold for an incidental emission in the NGER Reporting Regulations. For this reason, emissions associated with smaller City of Sydney events have been excluded (except for emissions from energy used by the City of Sydney and major contractors already included as part of the City's emissions boundary). However, the City of Sydney has made a decision to include emissions associated with the annual New Years Eve event within its emissions boundary due to the high profile nature of this event where key stakeholders have an expectation that the event will be carbon neutral. To ensure robustness, the City engages a specialist third party company to compile the NYE emissions inventory.
Rail, public transport and freight.	3	Emissions associated with rail, public transport or freight have been excluded on the basis that these are beyond the City's control and due to lack of complete and reliable data and uncertainty regarding methodologies and locally relevant emissions factors.
Embodied energy of road and building materials.	3	Embodied energy of materials is excluded from the emissions boundary due to a lack of complete and reliable data and/or report- ing framework and uncertainty regarding methodologies and locally relevant emissions factors.
Personal and corporate emissions of ratepayers and businesses.	3	 Considered to be outside of operational control. Possible material cost implications.

5. GREENPOWER™, CARBON NEUTRAL PRODUCTS AND RENEWABLE ENERGY CERTIFICATES (RECS)

No GreenPower[™] or RECS or identified NCOS carbon neutral products were purchased by the City of Sydney within the reporting year. In May 2010 the City made a Resolution of Council install renewable energy at Council owned sites instead of purchasing GreenPower[™].

6. TOTAL CARBON FOOTPRINT

Emission source	Tonnes CO2-e
Natural gas	1,797
Diesel	3,783
Biodiesel	0
Gasoline	353
Ethanol-10	252
Liquid Petroleum Gas (LPG)	44
Grid electricity	40,281
Refrigerants	87
Flights	72
Taxis	29
Waste disposal	1,265
NYE Event	294
Paper use	78
Total Emissions	48,336
Total Offsets	48,336
Total Net Emissions	0

7. EMISSION REDUCTION MEASURES

BACKGROUND

In 2011 the City of Sydney became the first Carbon Neutral government in Australia certified under the National Carbon Offset Standard. Prior to this certification, the City had unofficially been carbon neutral by reducing and offsetting its greenhouse gas emissions since 2006/07.

We made the voluntarily commitment to be carbon neutral to reduce impacts of climate change, meet public and staff expectations, show leadership, influence sustainable market processes, and reduce costs through energy savings.

The City recently completed its 2010/11 greenhouse gas emissions inventory with independent verification to procure accredited offsets equivalent to 100 per cent of the City's emissions, however the priority is to reduce emissions through energy efficiency and low-carbon energy.

Through energy efficiency and renewable energy projects underway, the City has made substantial progress toward its mid-term target to reduce emissions, excluding offsets, by 20 per cent by 2012 based on 2006 levels.

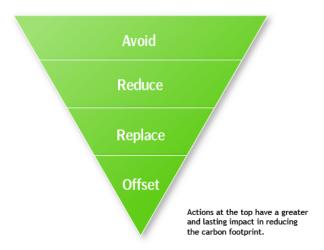
STRATEGY

Sustainable Sydney 2030 is the City's Vision for a Green, Global and Connected Future. It was developed through the most consultation ever undertaken by the City. Around 5,000 of the City's residents and business community were directly involved in developing the plan and greenhouse gas emissions and climate change were considered significant issues.

Accordingly, Sustainable Sydney 2030 contains many targets and strategies to reduce greenhouse gas emissions across the City of Sydney Local Government Area which also apply to the City of Sydney as an organisation. Sustainable Sydney 2030 was endorsed by Council in June 2008 as the City's Strategic Plan which guides our four yearly Corporate Plan and annual unit Business Plans. Sustainable Sydney 2030 can be viewed at www.cityofsydney.nsw.gov.au.

GOALS

The City's goal is to reduce greenhouse gas emissions in line with leading science to reduce adverse consequences of human induced climate change. Predominantly coal-fired grid electricity is the primary source of the City's greenhouse gas emissions and therefore the greatest opportunity to reduce emissions. In reducing greenhouse gas emissions, the City of Sydney applies recognised carbon hierarchy principles outlined in the graphic below and underpinned by monitoring and verification with independent assessment.



TARGETS

The City of Sydney adopted the following corporate greenhouse gas emissions reduction and energy targets within Sustainable Sydney 2030, the City of Sydney Environmental Management Plan, and the Corporate Plan:

- Reduce 2006 emissions 20% by 2012
- Reduce 2006 emissions 70% by 2030
- Reduce 2009 fleet emissions 20% by 2014
- No reliance on coal-fired electricity by 2030 including:
 - o 70 per cent electricity produced by trigeneration
 - o 30 per cent renewable electricity

The baseline year of this report is 2009/10. The targets above would:

- Reduce 2009/10 emissions 15% by 2011/12
- Reduce 2009/10 emissions 68% by 2030
- Reduce 2009/10 fleet emissions 20% by 2013/14

2009/10 Actual Emissions	2010/11 Actual Emissions	2011/12 Emissions Target
(tCO2-e)	(tCO2-e)	(tCO2-e)
50,030	48,336	42,378

ACTIONS IMPLEMENTED DURING 2010/11 PLAN YEAR

Emission Reduction Measures undertaken across City of Sydney Property Portfolio:

Property	Description	Imple- menta- tion Date	Estimated Emission Quantity Reduced (Tonnes CO ₂ -e)
Bay Street Depot	Lighting Control and lamp upgrades	Jun-10	212.0
Goulburn Street Parking Station	Car Park Led upgrade	Jun-10	193.1
Town Hall House	Car Park lighting upgrade	Jun-10	114.1
King George V Recreation Centre	Sports court lighting upgrade	Jun-10	65.9
Bourke Street Depot (Plunkett Street)	Lighting Control and lamp upgrades	Jun-10	42.4
Cook & Phillip Park Aquatic Centre	Lighting Control	Sep-10	42.4
Railway Square Interchange	Escalator Variable Speed Control	Sep-10	38.7
Ultimo Community Centre	Lighting Upgrade	Jun-10	30.9
Cook & Phillip Park Aquatic Centre	Lighting Upgrade	Sep-10	29.0
Epsom Road Depot	Lighting upgrade	Jun-10	26.3
Alexandria Depot	Lighting Control	Jun-10	21.2
King George V Recreation Centre	Lighting control and misc upgrades	Jun-10	21.2
Nursery and Depot	Lighting Controls	Jun-10	21.2
Ultimo Community Centre	Sports court lighting upgrade	Jun-10	15.6
Ian Thorpe Aquatic Centre	De-lamping service areas	Jun-10	13.4
King George V Recreation Centre	Gym area light replacement	Jun-10	12.8
Ultimo Community Centre	Lighting Control System	Jun-10	10.6
Waterloo Library	Lighting controls and de-lamping	Jun-10	9.5
Pyrmont Community Centre	Lighting Control	Jun-10	8.5
Customs House	Cooling Tower VSD	Jul-10	7.2
Alexandria Town Hall	Lighting Control	Jun-10	5.3
Nursery and Depot	Lighting Upgrade and skylights	Jun-10	5.3
Meals on Wheels Centre	Air conditioning control	Sep-10	4.6
Alexandria Child Care Centre	Car park Lighting	Jun-10	3.2
Andrew 'Boy' Charlton Pool	Disable Heat Pumps	Jun-10	n/a
Railway Square Interchange	Lighting control	Jun-10	n/a
Royal South Sydney Hospital (former)	Motion sensors for the lights	Aug-10	n/a
Victoria Park Pool	Heating Lock-Out	Sep-10	n/a
Town Hall House	Chiller decommissioning	Nov-10	n/a
Kings Cross Neighbourhood Service Centre and Library	AC improvements in operation	Nov-10	n/a
Ian Thorpe Aquatic Centre	Gym LED lighting Upgrade	Dec-10	n/a
Cook & Phillip Park Aquatic Centre	Lighting Upgrade	Dec-10	n/a
Andrew 'Boy' Charlton Pool	Change room LED lighting replacement.	Jan-11	n/a
Pitt Street Holding 1	Weekend AC operation	Jan-11	n/a
Ian Thorpe Aquatic Centre	LED Exit Lighting	Feb-11	n/a
Andrew 'Boy' Charlton Pool	Motor Replacement	Mar-11	n/a
Cook & Phillip Park Aquatic Centre	Lighting upgrade	Mar-11	n/a
, , , , , , , , , , , , , , , , , , , ,	5 1 5		, 🕳

Property	Description	Imple- menta- tion Date	Estimated Emission Quantity Reduced (Tonnes CO ₂ -e)
Customs House	HVAC times and set-point	Mar-11	n/a
Epsom Road Depot	AC operation to match occupancy	Mar-11	n/a
Victoria Park Pool	VSD Installation	Apr-11	n/a
Andrew 'Boy' Charlton Pool	VSD Installation	Apr-11	n/a
Customs House	AC operation to match occupancy	Apr-11	n/a
Surry Hills Community and Child Care Centre and Library	Removed Child Care from house services.	Apr-11	n/a
Cook & Phillip Park Aquatic Centre	VSD Installation	May-11	n/a
Cook & Phillip Park Aquatic Centre	VSD Installation	May-11	n/a
Victoria Park Pool	Installation of gas hot water system to replace electric restive	May-11	n/a

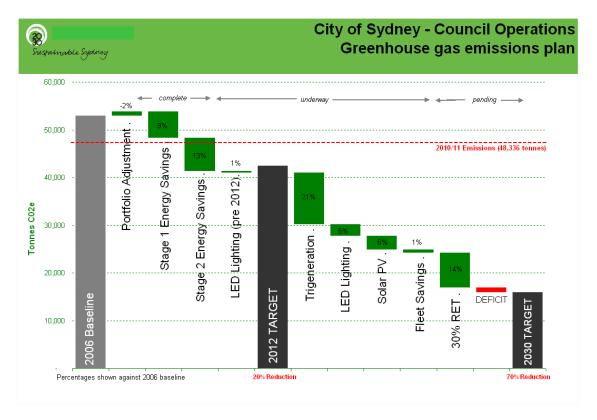
PERFORMANCE AND FUTURE ACTIONS

The City has made substantial progress toward its 2012 emissions reduction target. There are many energy efficiency and renewable energy underway making the City well positioned to achieve its mid and long term targets. In 2010/11 the City advanced projects to reduce greenhouse gas emissions including:

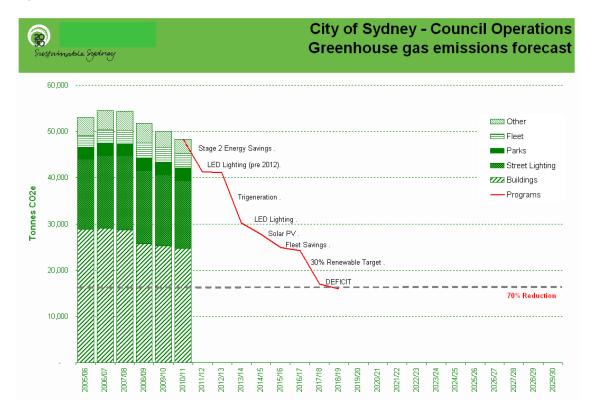
- Trigeneration Systems Design, Installation, Operation and Maintenance for Aquatic Centres, Town Hall Precinct and Other Sites - Natural gas fired combined cooling, heat and power (trigeneration) to take all of the City's buildings and street lighting "off the grid".
- \$12M worth of solar photovoltaic solar to be installed at Council sites over 5 years.
- Energy Efficient Light Emitting Diode (LED) Lighting Retrofit of the City's Public Domain Lighting Luminaries - Replacement of 6,450 street lights with energy efficient LED lighting.
- Fleet eco driver program and biofuels.
- Energy and Water Efficiency Retrofit of the City's Buildings and Operations.

Many of these projects are underway and the City expects to meet its 2012 emissions reduction target. Expected savings from these projects are shown in the figures below which serve as a guide to show how the City expects to meet its medium and long term emission reduction targets.

To guide implementation of these projects, the City has engaged Allan Jones MBE as its Chief Operations Officer or Energy and Climate Change.



The figure below shows forecast and actual trends. The information above is updated periodically as more timely data becomes available and reported publicly to Council within quarterly sustainability reports.



8. OFFSET PURCHASE / CANCELLATION

Offset Type	Offset Register	Planned offset purchasing strategy (including plans to offset early and/or regularly)
Verified Carbon Units (VCUs) issued by the Verified Carbon Standard (VCS)	Registry: NYSE Blue. VCS Registry. 48,264 VCU offsets were purchased in June 2012 and retired on 27/06/2012 to offset all of the City of Sydney 2010/11 emissions (excluding emissions from work flights). Project Type: Fugitive Emissions from Fuels. VCU Serial Numbers: 418-16107352-16155615-VCU-004-APX-CN-10-196-01012008-05122008-0 To view retired offsets, go to: https://vcsregistry2.apx.com/myModule/rpt/myrpt.asp?r=206 and search "The CarbonNeutral Company Ltd" as Account Holder, and "City of Sydney" as Beneficial Owner:	The City of Sydney procures offsets at the end of the reporting year once it has developed its greenhouse gas emissions inventory which is used as the basis to request quotations for offsets. The successful company retires the offsets on behalf of the City of Sydney. The City has developed a set of stringent criteria to ensure that offsets are real, additional, and result in greatest emissions reductions with least environmental impacts. Offsets for the 2010/11 reporting year were purchased in 2011/12. The City's planned offset strategy is to continue to use independently verified greenhouse gas emissions inventories as the basis to annually purchase offsets via request for quotation. Information about the City's carbon neutral program including offset certificates is listed at www.cityofsydney.nsw.gov.au/Carbon
Gold Standard Offsets	Registry: Gold Standard VER Registry. 72 Gold Standard offsets were purchased to offset all of the City of Sydney 2010/11 emissions from work flights. Project 1 (14 units) Type: Wind. Gold Standard Serial Numbers: GS1-1-TR-369-12-2009-58-1 to 14 To view retired offsets, go to: https://gs2.apx.com/myModule/rpt/myrpt.asp?r=206 and search "2009" as Vintage, "GS369" as Project ID, and "Climate Friendly" as Account Holder.	The City of Sydney is subscribed to the FlightPortal service by Climate Friendly which offsets flight emissions using Gold Standard carbon credits throughout the reporting year. The City's planned offset strategy is to continue to use the FlightPortal service to offset emissions from work flights.

Offset Type	Offset Register	Planned offset purchasing strategy (including plans to offset early and/or regularly)
	Project 2 (58 units) Type: Wind. Gold Standard Serial Numbers: GS1- 1-TW-472-12-2009-46-146497 to 146554 To view retired offsets, go to: https://gs2.apx.com/myModule/rpt/myrpt. asp?r=206 and search "Climate Friendly" as Account Holder, and "City of Sydney" as Transferee/Honoree/Other.	

In May 2010 the City made a Resolution of Council to use funding previously allocated to GreenPower™ to renewable energy projects installed at Council owned sites - but continues to offset 100% of its greenhouse gas emissions.