

Sydney Opera House Trust
July 2017 - June 2018



Australian Government Carbon Neutral Program


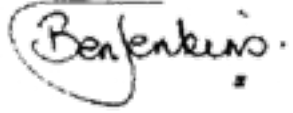
Public Disclosure Summary



An Australian Government Initiative

Declaration

To the best of my knowledge, the information provided in this Public Disclosure Summary is true and correct and meets the requirements of the National Carbon Offset Standard Carbon Neutral Program.

Signature 	Date 24/08/18
Name of Signatory Ian Cashen	
Position of Signatory Director - Building	
Carbon Neutral certification category	Organisation
Date of most recent external verification/audit	24/08/18
Auditor	Benjamin Jenkins Director - GPP Audit Pty Limited 
Auditor assurance statement link	N/A

1. Environmental sustainability at Sydney Opera House

The Sydney Opera House is a masterpiece that belongs to all Australians. It is the country's number one tourist destination and its busiest performing arts centre, welcoming more than 8.2 million visitors a year and hosting 1,800 performances attended by 1.45 million people. On its 40th Anniversary in 2013, the Opera House embarked upon a Decade of Renewal to prepare it for future generations of artists, audiences and visitors.

As the symbol of modern Australia, the Opera House is committed to leading by example and embedding environmental sustainability in everything it does. It is one of only a handful of UNESCO World Heritage-listed buildings internationally to achieve a 4 Star Green Star - Performance rating, setting a new standard for heritage buildings and encouraging the broad adoption of cleaner energy solutions.

The Opera House's third Environmental Sustainability Plan (2017-2019) commits to achieving a number of ambitious goals by its 50th anniversary in 2023; to reduce its energy use by 20% from baseline; achieve 85% recycling of operational waste; achieve and maintain a 5 Star Green Star - Performance rating; and to become certified Carbon Neutral.

2. Carbon Neutral

This inventory has been prepared for the financial year from 1 July 2017 to 30 June 2018.

The operational boundary has been defined based on an operational control test, in accordance with the principles of the National Greenhouse and Energy Reporting Act 2007. This includes all operations which are controlled by the Sydney Opera House Trust (SOHT).

The boundary excludes the transport of audience members, tenants and contractors to and from the Opera House precinct. Natural gas consumption by tenants within the precinct has also been excluded as this is separately metered.

The methods used for collating data, performing calculations and presenting the carbon account are in accordance with the following standards:

- National Carbon Offset Standard (NCOS) for organisations
- The GHG Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
- National Greenhouse and Energy Reporting (Measurement) Determination 2008

Where possible, the calculation methodologies and emission factors used in this inventory are derived from the National Greenhouse Accounts (NGA) Factors in accordance with “Method 1” from the National Greenhouse and Energy Reporting (Measurement) Determination 2008.

The greenhouse gases considered within the inventory are those that are commonly reported under the Kyoto Protocol; carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and synthetic gases - hydrofluorocarbons (HFCs). No perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆) or nitrogen trifluoride (NF₃) were detected within the operational boundary. All emission sources have been expressed as carbon dioxide equivalents (CO₂-e) using relative global warming potentials (GWPs).

Quantified sources

The sources of carbon emissions within the operational boundary are:

- Transport fuels
- Refrigerants
- Electricity
- Electricity (base building)
- Employee commuting
- Business flights
- Telecommunications
- Water
- IT equipment
- Office paper
- Publications paper
- Stationery
- Cleaning services
- Food and catering
- Postage
- Hotel accommodation
- Advertising
- Taxis
- Hire cars
- Waste – landfill and recycling.

Non-quantified sources

In accordance with the NCOS for organisations and Section 6.3 of the GHG Protocol, the following emission source has not been quantified:

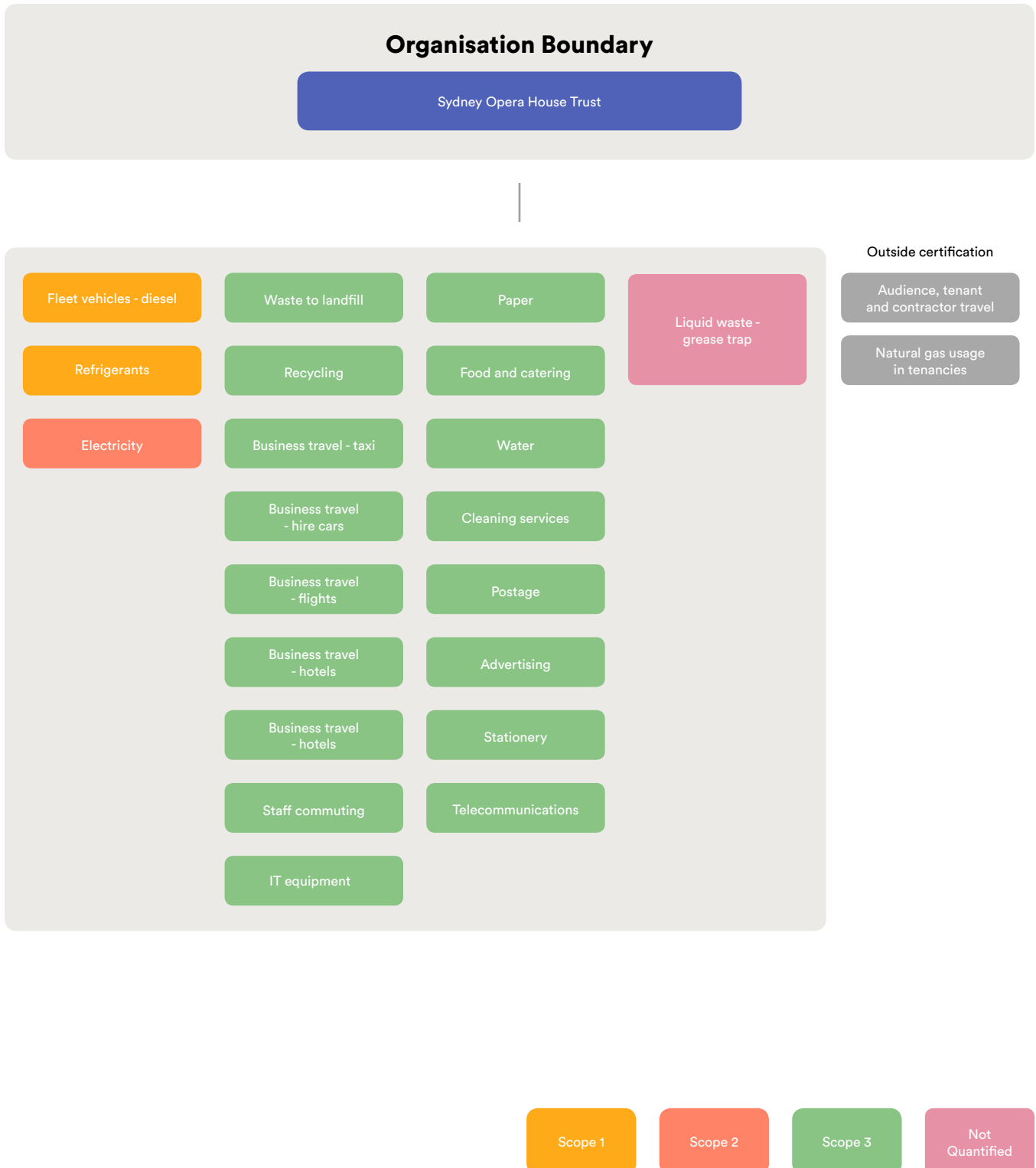
- Liquid waste disposal from grease traps
(scope 3) : Quantification of emissions related to the processes involved in the various streams associated with the treatment of grease trap waste is not currently possible due to insufficient data from third-party suppliers. Further engagement will be undertaken so that this activity can be incorporated into future accounts.

Outside of scope

- Audience, tenant and contractor travel to and from the Opera House precinct
(scope 3): Carbon emissions related to travel to and from the Opera House precinct by people who are not directly employed by the Opera House is outside of the operational control boundary as there is no jurisdiction to enforce policies and procedures related to health, safety and the environment.

- Tenant natural gas consumption (scope 1 and 3): The consumption of natural gas by tenants within the Opera House precinct is separately metered and not under the operational control of the SOHT.

2A. Diagram of the certification boundary



3. Emissions reduction measures

Emissions reduction strategy

The Opera House's [Environmental Sustainability Plan 2017-2019](#) (ESP) sets an objective to become certified Carbon Neutral by the Opera House's 50th anniversary in 2023. In 2017, a strategy was developed to provide a pathway for the organisation to achieve Carbon Neutrality in accordance with the NCOS standard.

The strategy demonstrated that electricity (Scope 1 & 2) is responsible for over 80% of the Opera House's emissions. Scope 2 - purchased electricity - was identified as the largest source, and therefore provided the greatest opportunity for decarbonisation, making it the primary focus of the emissions reduction strategy.

This was supported by implementation of a best practice waste management program in 2016, to increase recycling rates and diversion of total waste to landfill towards the Opera House's goal of recycling 85% of its operational waste by 2023.

3A. Emissions reduction actions

The major contributor to emissions reduction has been investment into reduction of electricity use. The Opera House has reduced its CO₂ emissions related to energy use by 14% through initiatives including:

- Implementation of the Honeywell Building Management Control System (BMCS) to more effectively monitor energy use, water, climate control and create efficiencies in building operation (2017).
- Replacement of aging chiller units connected to the Opera House's original seawater cooling system to optimise the heating and cooling of the building (2017).
- Implementation of a new waste management program which introduced new recycling streams, allowing the Opera House to increase its operational waste recycling rates from 25% to almost 60% (2016).
- Award-winning Concert Hall lighting upgrade which replaced incandescent bulbs with custom LED lights to achieve a 75% reduction in the venue's electricity consumption (2014).
- Replacement of 1,900 back-of-house fluorescent lights to LED (2011).

4. Emissions summary

Table 1. Emissions Summary		
Scope	Emission source	t CO ₂ -e
1	Transport fuels - Post 2004 Diesel oil	4.9
1	Refrigerant	267.8
2	Electricity	13,144.2
3	Transport fuels - post 2004 diesel oil	0.3
3	Electricity	1,603.0
3	Electricity (base building)	119.2
3	Employee commuting	496.7
3	Business flights	189.4
3	Office paper – 0% recycled	9.2
3	Publication paper – recycled	42.3
3	Water	50.9
3	Hotel accommodation	13.6
3	International hotel accommodation	4.8
3	Telecommunications	91.6
3	IT equipment	116.5
3	Stationery	15.6
3	Cleaning services	440.1
3	Food and catering	22.5
3	Postage	96.1
3	Advertising	62.3
3	Taxis	28.3
3	Hire cars	12.4
3	Waste - landfill	608.6
3	Waste - recycling	157.4
Total Gross Emissions		17,597.7
GreenPower or retired LGCs		0
Total Net Emissions		17,597.7
*4.7% of total emissions have been estimated using the input/output method		

5. Carbon offsets

5A. Offsets summary

Offset type and registry	Year retired	Quantity	Serial numbers
<ul style="list-style-type: none"> • VER • Gold Standard • Markit 	2018	2,000	GS1-1-TH-GS4273-1-2016-6019-24029 to 26028
<ul style="list-style-type: none"> • VCU • Verified Carbon Standard • VCS: 	2018	17,005	5991-270777425-270794429-VCU-029-APX-IN-1-1582-29032016-31122016-0
Total offset units retired			19,005
Net emissions after offsetting			-1,407
Total offsets held in surplus for future years			1,407 from 5991-270777425-270794429-VCU-029-APX-IN-1-1582-29032016-31122016-0

5B. Offsets purchasing and retirement strategy

Offsets are purchased and retired in arrears at the end of the reporting period. Any remaining offsets will be used in the following year's in order to maintain certification.

5C. Offset projects (Co-benefits)

EcoAustralia

The Opera House purchased a proportion of offsets (2,000 Gold Standard VERs representing 10.5% of all offsets) from SouthPole through dual credit product - EcoAustralia. EcoAustralia combines Victorian biodiversity conservation with international emissions reduction. For every 1 tCO₂-e offset with EcoAustralia, an additional 1.5 m₂ of biodiversity is permanently protected in Victoria. For example, 1000 tCO₂-e offset with EcoAustralia protects an additional 1,500 m₂ of biodiversity in Australia.

The Myamyn Conservation project is protecting ancient forest and ensuring biodiversity in western Victoria's lowland forests. Sections of the Annya State forest land, illegally cleared around a decade ago, have been planted with Tasmanian blue gum, negatively impacting the biodiversity of the area. By protecting the land against further clearing and replanting it with natural vegetation, this project helps preserve the habitat of endangered native species such as the scented spider-orchid, the powerful owl and the long-nosed potoroo.

For more information on the Myamyn Conservation project visit:
<https://www.southpolecarbon.com/pm/public/files/brochures/2113.pdf>

For more information on EcoAustralia visit:
<https://www.southpole.com/public/factsheet/EcoAustralia.pdf>
<https://www.southpole.com/en/ecoaustralia-frequently-asked-questions>

6. Other Actions

Greenfleet

The Opera House purchased an additional 1,141 biodiversity offsets. These contribute to projects in New South Wales at the following locations:

- The Meadow – Gloucester
- Turkey Hill – Crookwell
- Witzend Farm – Kyogle

Greenfleet revegetation projects are located in areas that are in need of native, biodiverse forests. The native forests take carbon from the atmosphere to restore and protect our climate, but they also do much more. Greenfleet plants a variety of native trees in permanent forests that help to reduce salinity and soil erosion, provide essential habitat for native wildlife, and provide much needed resilience in our precious landscape.

Some images of typical Greenfleet revegetation projects can be found here:
[Photos](#)