

Carbon Neutral Adelaide Status Report

July 2019





Introduction

In November 2015, the City of Adelaide (CoA) and the Government of South Australia (the Government) entered into a 5-year sector agreement under the *Climate Change and Greenhouse Emissions Reduction Act 2007* for the City of Adelaide local government area to become a carbon neutral city.

The *Carbon Neutral Adelaide Action Plan 2016-2021* (action plan) was released in November 2016 and includes five pathways towards carbon neutrality:

- energy efficient built form
- zero emissions transport
- towards 100 per cent renewable energy
- reduce emissions from waste and water
- offset carbon emissions.

The pathways are supported by two overarching themes: partnerships and governance. The action plan includes 104 actions to be delivered by the CoA and the Government in partnership with business and community.

This is the first status report for Carbon Neutral Adelaide (CNA). It provides an update on progress against the actions in the action plan since the project's inception.



Carbon Neutral Adelaide Action Plan

In delivering the Action Plan, 19 actions have been completed and 74 actions are in progress. A summary of progress across the different pathways and themes is provided in Table 1.

The full list of actions under the CNA initiative and their status as at 30 June 2019 is included as Appendix 2.

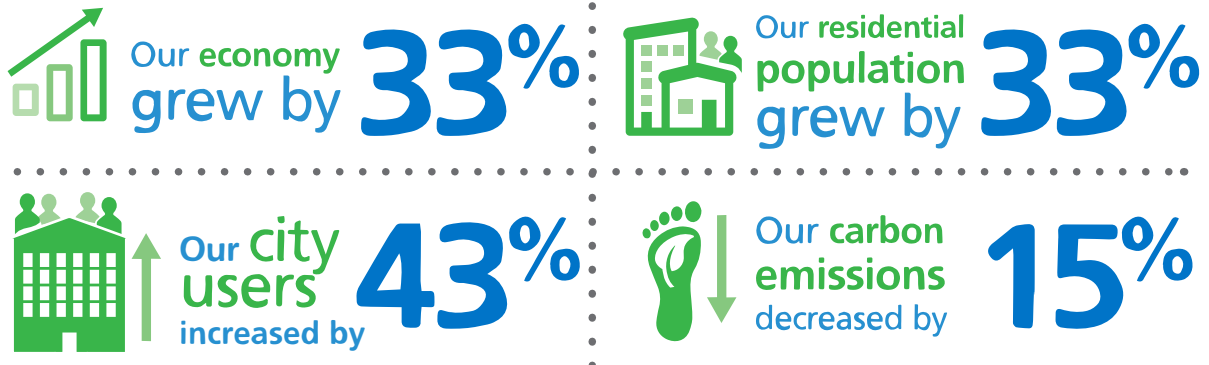
Table 1: Actions across each pathway and theme

Progress of Actions	Totals	Energy Efficient Built Form	Zero Emissions Transport	Towards 100% Renewable Energy	Waste and Water	Offset Carbon Emissions	Partnerships	Governance
Completed	18	2	7	2	2	1	-	4
In Progress	59	16	20	6	8	4	4	1
Ongoing / annual	18	4	5	1	1	1	3	3
Not Started	9	3	-	-	5	-	1	-
Total	104	25	32	9	16	6	8	8

Carbon Neutral Adelaide Pathways

CARBON NEUTRAL ADELAIDE HIGHLIGHTS

Since the 2007 emissions base year, the City of Adelaide has seen the following changes:

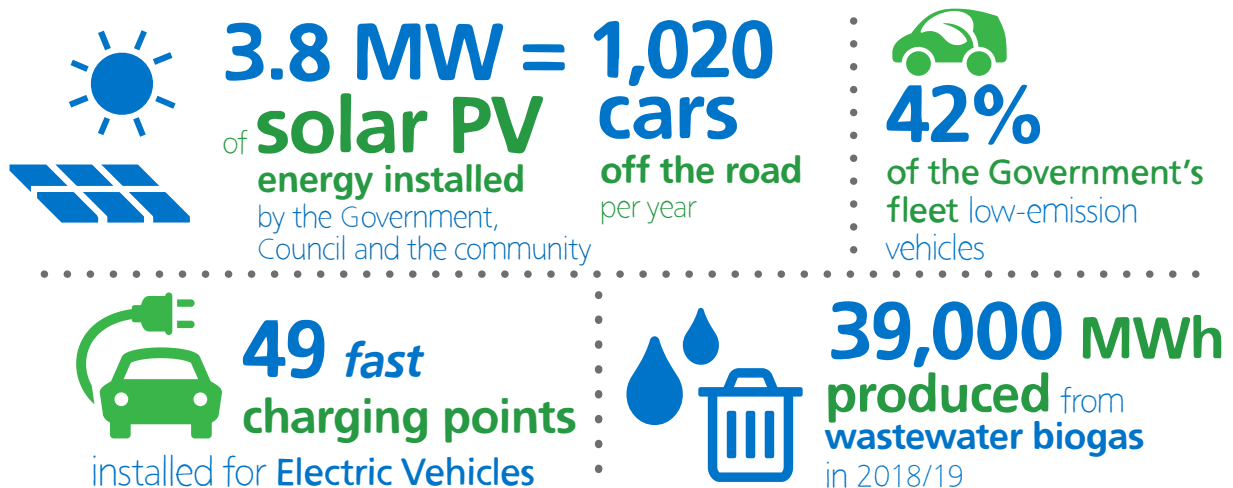


Since the launch of Carbon Neutral Adelaide in 2015

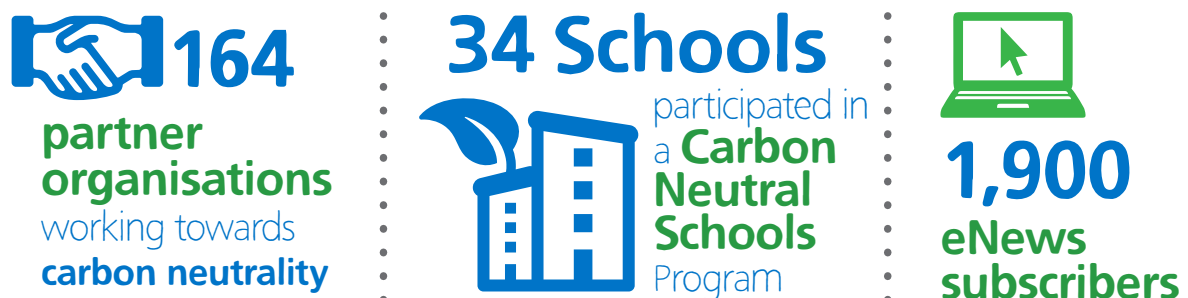
INVESTMENT



RENEWABLE ENERGY



PARTNERSHIPS



Carbon Neutral Adelaide Highlights

Energy Efficient Built Form

Driving investment that improves the energy efficiency of buildings and infrastructure is an important strategy in moving towards carbon neutrality. A number of key initiatives in sustainable technology and emissions reduction are detailed below.

Unlocking opportunities through Building Upgrade Finance

[Building Upgrade Finance](#) (BUF) is a new finance product, provided by private sector financiers, that building owners can access to fund improvements to the energy, water and environmental efficiency of existing non-residential buildings. It can also be used for upgrades to non-residential heritage buildings.

BUF involves a three-party agreement between a building owner, a private financier and the relevant local council. The building owner receives a loan from the financier to undertake works on their building, which is repaid through a council charge. As a result of the agreement, the loan is secured by the property rather than the building owner. This level of security allows financiers to offer attractive loan terms.

Since BUF became operational in August 2017, six councils now support its use in their local areas (Cities of Adelaide, Marion, Onkaparinga, Playford and Salisbury and the Town of Gawler).

The City of Adelaide was the first council to enable BUF in its council area. One of the executed agreements was for the Angas Securities House building within the city. Upgrade works were completed in early 2018 and included LED lighting, a 30 kilowatt (kW) solar photovoltaic (PV) system and the installation of power factor correction equipment. It was estimated the upgrade works would reduce 127.4 tonnes of carbon dioxide equivalent (tCO₂e) per annum.

To assist stakeholders to use BUF, a central facilitation service provides a single point of contact for interested parties to access information on BUF. This service also provides resources to support the implementation of BUF and embed the product in the market.

Key Achievements

- Over \$5 million of investment in sustainable technologies has been leveraged from the Sustainability Incentives Scheme.
- Building Upgrade Finance introduced.
- 67 signatories to CitySwitch.

Growing investment in sustainability initiatives

The Sustainability Incentive Scheme (SIS), co-funded by the CoA and the Government, is designed to reduce carbon emissions and conserve energy and water. The scheme provides rebates to homes and businesses for water and energy-saving devices including solar hot water systems, energy storage systems, apartment building energy efficiency upgrades and electric vehicle charging points. It is estimated that every \$1 of incentive funding provided has leveraged \$6.45 of investment in sustainable technologies within the city.

Outcomes for SIS since the launch of CNA include¹:

- Over \$781,000 in rebates paid to the CoA community, that contributed to a total investment of over \$5 million in sustainable technologies
- 55 properties upgraded with 1,751 efficient LED lights



Activating greening opportunities for business with CitySwitch

The CitySwitch Green Office program provides a network of support and practical resources to assist businesses to successfully implement sustainability initiatives. The program is offered to commercial office tenants from local government areas throughout South Australia. In May 2019, there were 67 signatories in Adelaide representing 259,308 square metres of office tenancy.

CitySwitch supported Knight Frank and 91 King William Street to participate in the National Australian Built Environment Rating System (NABERS)² pilot. This program allows a single application to assess building and office tenancies together. Knight Frank led the nation in facilitating NABERS ratings for 17 of their 19 tenancies.

CitySwitch provides resources to businesses on waste audits, reducing disposable coffee cup waste and the importance of healthy offices for staff wellbeing.

Other activities have included:

- a workshop on biophilic design held with the Living Futures Institute of Australia
- a local case study on office greening
- a checklist for selecting new or refurbished office space developed with Savills
- ten new CitySwitch Beginner's Guides developed.

The CitySwitch Awards were run in 2016 and 2017 in order to recognise leaders in energy efficiency. South Australian winners over the last 2 years include Commonwealth Bank, dsquared Consulting, Wax Design, Oxigen, Knight Frank and Westpac House, Turner Real Estate, AMP, City of Unley and the Government of South Australia with Schiavello.

Lighting up one of South Australia's key cultural assets

The Government supported the South Australian Museum to undertake energy efficiency upgrade works to their building. Over 100 lighting upgrades were made with an estimated 60 per cent reduction in energy usage.

Other benefits include the protection of museum assets from heat damage and a lower reliance on air conditioning. A public educational display was installed in November 2018 which highlights the difference in energy usage between the old and new lights and demonstrates ways the community can act to reduce emissions.

The museum hosted a public 'Sustainability Saturday' event in July 2018 as part of the partnership. The day was attended by over 2,000 people, which included activities to help families to re-use, recycle and minimise their impact on the environment.

Zero Emissions Transport

Transport emissions comprise 25 per cent of the total emissions within the City of Adelaide. Transforming the transport system and changing the way people move to and around Adelaide and its surrounds will have a significant impact on carbon emissions. Through Carbon Neutral Adelaide, the following initiatives have been activated as part of this carbon reduction pathway.

Powering up electric vehicles across the city

The CoA and the Government have established a network of 40 destination and fast chargers for electric vehicles (EVs) at four on-street and five off-street locations. This brings the city's total EV charging stations to 49. In June 2019, there were an average of 276 charging sessions per month across the network; a figure that continues to grow.

The network helps address barriers to electric vehicle uptake by providing easily accessible and low-cost charging infrastructure. The project also enables innovative charging approaches to be trialled.

The majority of the charging stations are 22 kW three-phase AC destination chargers, which are ideally matched with the newest electric vehicles entering the Australian market. For the destination chargers, customers receive the first hour of charge free and can then use the service for around half of the tariff they would pay at home. Two 50 kW DC fast chargers and four Tesla 120 kW DC superchargers located on Franklin Street provide a more rapid charge (the latter were installed in a partnership with Mitsubishi Motors, SA Power Networks, and Tesla).

This infrastructure demonstrated its potential in April 2018 by providing charging services to the large fleet of electric vehicles used for the Adelaide Green Drive Day. This event allowed members of the public to experience a wide range of electric vehicle models.

A newly-developed smart EV parking system has been installed at UPark Central Market and UPark Rundle. This enables the sharing of EV car parks in peak times with conventional vehicles, using a coloured lighting system. The UPark Central Market Charging Hub also offers customers a new contactless payment system. In a world-leading trial, local companies Chargefox and Nilsen developed the contactless payment option that removes the need for drivers to pre-register with service providers, or to carry multiple membership cards for different charging stations.

In March 2019, Carbon Neutral Adelaide partner, Hyundai, launched the 100 per cent electric Kona SUV in Adelaide, in recognition of the city's extensive EV charging network infrastructure.

Key Achievements

- 49 destination and fast EV chargers installed across the city.
- \$12 million in funding committed by the CoA and the Government for bike infrastructure.



Increasing low-emission vehicles in the State Government fleet

As of 30 June 2019, the Government's passenger and light commercial motor vehicle fleet consisted of 6,815 vehicles. Of these, 2,859 (42 per cent) are low-emission vehicles, including 1,314 hybrids. There are a further 509 low emissions vehicles on order, including 193 hybrids. The initial goal, for the Government's fleet to be comprised of 30 per cent low-emission vehicles, was achieved ahead of the December 2019 target.

Increasing Adelaide's bike infrastructure

\$12 million in funding has been committed to build two separated bikeways through the city and Park Lands: one from north to south and the other from east to west. The new cycling corridors through the city encourage active transport, reduce carbon emissions, ease congestion and provide public health outcomes.

The North-South Bikeway on Frome Street was opened between Carrington Street and Rundle Street in August 2018. To date, approximately 100 new trees were planted along the new and upgraded bikeway during these works. Work on the remainder of the North-South Bikeway is progressing with a rolling program of engagement, design and construction activity.

Towards 100% Renewable Energy

Continuing to drive investment in renewable energy generation and storage will support the development of new affordable technologies. Carbon Neutral Adelaide has supported several projects under the pathway towards renewable energy. These projects reduce emissions and generate cost savings for businesses and residents.

Installing solar PV in low-income housing

A solar PV project for SA Housing Trust properties took place in 2017 with rooftop solar PV installed on 130 public housing properties within the City of Adelaide. The total renewable energy capacity is approximately 200 kW.

The CoA's Solar Savers Adelaide program has delivered the installation of solar PV energy systems on eligible low-income and rental residential properties in the city. In the reporting period, around 2 kW solar PV was installed on each of the 40 properties. The system is paid back over 10 years through a separate council rate.

Solar Savers was delivered with local company 'Cool or Cosy' using South Australian-manufactured Tindo solar PV panels. The total installed capacity of solar PV through the program was 86.9 kW, with estimated annual generation of 139,072 kWh. The solar generation combined with free, real-time energy monitoring will assist residents to reduce their electricity costs.

Energy security for South Australia using large-scale energy storage

The Hornsdale Power Reserve began operating in 2017 and comprises a 100 megawatt (MW)/129 megawatt hours (MWh) Tesla battery system that helps to stabilise the electricity grid.

70 per cent of the battery is contracted to provide energy security for South Australia. Under certain circumstances, 100 per cent of the battery capacity is available, for example, to reduce the risks of load shedding during peak load periods or due to temporary loss of significant generation or interconnector capability.

Installing battery storage on CoA and government buildings

Battery storage systems comprising 184 kWh at Adelaide High School, 276 kWh at the State Library of South Australia, 64 kWh at the Art Gallery of South Australia, and 64 kWh at the City of Adelaide London Road Works Depot were installed in early 2018 as part of the Government's Storage Demonstration project.

The project was undertaken in a partnership with CoA and local companies SIMEC Zen Energy and Green Sync.

Key Achievements

- 8.3 MW of solar photovoltaic energy installed by Government, Council and community members, which is equivalent to taking over 2,139 cars off the road.
- 1,290 kilowatt hours (kWh) small-scale energy storage capacity installed by Government, Council and community members.
- 100 MW large-scale energy storage established at the Hornsdale Power reserve.
- 702 kWh of energy storage capacity installed on 87 homes with solar PV systems



Building the City of Adelaide's solar generation

The CoA's 'Solar PV Project' is helping to maximise the cost-effective installation of solar PV systems at Council-owned and operated sites.

The CoA now has 2,362 kW of installed solar PV capacity at the Central Market, London Road Depot, Rundle UPark, Adelaide Central Bus Station and Topham Mall UPark. The CoA has committed up to \$1.9 million for the implementation of the Solar PV Project. This includes installation of an additional 580 kW of additional solar capacity on the Adelaide Aquatic Centre, Town Hall and Pirie UPark to reach over 1 MW of solar installation for 2019/20.

There was 2362 kW of solar PV energy systems installed by the community and businesses with support from the Sustainability Incentives Scheme, between July 2016 and June 2019.

Reduce Emissions from Waste and Water

In 2016/17, 83.4 per cent of all waste generated in South Australia was diverted from landfill. Only 6 per cent of the CoA's emissions are from waste disposal to landfill.

CNA has looked at opportunities to harness the economic potential of a circular economy and create cost savings across industries.

Investigating and leveraging opportunities through a circular economy

In May 2017, Green Industries SA released a report, ['Creating value, the potential benefits of a Circular Economy for South Australia'](#), which identified the potential for a circular economy to generate 25,700 jobs and reduce greenhouse gas emissions by the equivalent of 7.7 million tonnes of carbon dioxide. Green Industries SA continues to progress work on the development of pilot circular economy case studies with a number of leading SA businesses identified.

A Leadership Program on the Circular Economy was piloted in Adelaide in June 2018 to create an experiential learning environment with presentations from international and national experts in fields including water, waste, energy and materials management.

Using biogas to achieve energy self-sufficiency in wastewater treatment plants

SA Water is increasing the energy self-sufficiency of its metropolitan wastewater treatment plants by harnessing biogas to generate renewable electricity. In 2018/19 the Bolivar plant was 98 per cent energy self-sufficient, Christies Beach was 17 per cent energy self-sufficient and Glenelg was 62 per cent energy self-sufficient. The plants produced 12,000, 3,000 and 700 tonnes of biogas (methane) respectively, which generated over 39,000 MWh of total renewable electricity across the sites in 2018/19.

Bolivar and Christies Beach harness methane as a by-product of the sewage treatment process and Glenelg adds high-strength, quality organic waste products from industry to the biogas recovery process, which would otherwise have gone to landfill.

Key Achievements

- Bolivar, Christies Beach and Glenelg wastewater treatment plants are harnessing biogas. In 2018/19 this generated more than 39,000 MWh hours of renewable electricity.



Offset Carbon Emissions

Many of the pathways for Carbon Neutral Adelaide focus on emissions reduction. For the remaining emissions, carbon offsets can assist in the transition to carbon neutrality.

The Government has identified the significant potential to provide carbon sinks to draw down carbon dioxide emissions from the atmosphere while providing economic opportunities in South Australia. The Government has invested in carbon farming research to support the development of a local carbon offset industry.

Identifying opportunities for carbon farming for South Australia

The Goyder Institute for Water Research has progressed projects that support the assessment of land-sector and coastal-zone carbon farming and emissions abatement opportunities in South Australia. The projects are focused on identifying opportunities, addressing knowledge gaps and recommending policy interventions to expand carbon farming project development in South Australia.

A demonstration carbon offsets site has been planted at Adelaide High School to provide the community with a practical example of what a carbon offset site might look like. The site includes a mix of newly planted seedlings and existing mature trees and shrubs, planted by Greening Australia and Trees for Life, and was sponsored by the CoA, Adelaide High School and the Government.

A pilot project to look at the costs and benefits of biodiverse carbon offset projects on Kangaroo Island was launched in 2018. The Government received several expressions of interest from landholders wanting to sequester carbon through revegetation activities on their land.





Partnerships and Governance

Community engagement and education initiatives have been delivered to support and encourage business and the local community to participate in CNA and work towards carbon neutrality. Achieving carbon neutrality within the City of Adelaide requires the active participation of the business sector and the community to innovate and lead in their own sectors.

Partnering with community and business leaders

The Carbon Neutral Adelaide Partner Program was launched in May 2017. As of June 2019 the program had grown to over [164 partners](#) comprising small, medium and large businesses, universities, utilities, not-for-profits and peak bodies. The program has hosted and promoted a range of engagement and peer-to-peer learning opportunities for organisations who share the ambition of a carbon neutral Adelaide.

In November 2017, the inaugural CNA Awards were held to celebrate and recognise the active contribution of CNA partners. Anvil Capital and Lucid Consulting were awarded partner of the year for making the most significant carbon emissions reductions in the City of Adelaide. Uniting Communities was recognised as the first 'CNA Ambassador' for being the first South Australian organisation and the first registered charity in Australia to receive federal certification for carbon neutrality. Other partners recognised were Glacem Cooling for applied innovation, Jefferies for their contribution to the low carbon economy and for decoupling growth from emissions, and Simec Zen Energy for leadership and influence.

CNA partners are taking leadership within their fields in many ways. Since the launch of CNA, local company dsquared Consulting has also been certified as carbon neutral. The Adelaide Convention Centre is the first convention centre in the world to reach EarthCheck Platinum certification, representing best practice in sustainability in the travel and tourism sector. SkyCity, owners of the Adelaide Casino, have made a carbon neutrality pledge for their Adelaide site by 2020 and also set strong science-based targets to reduce emissions in their operations for 2025 and 2030.

Creating community leadership for sustainability

In 2018, the CoA ran two 12-week Community Leaders in Sustainability Programs with 40 participants trained in leadership, risk, project management, consultation, community engagement, event management and sustainability.

The program has delivered projects that include:

- Creating Climate Resilient Communities by increasing online promotion and completing a greening project
- 24-hour Carbon Neutral Adelaide lifestyle challenge
- Going Plastic Free in the Adelaide Central Markets.

Each project created tangible educational outcomes and increased awareness and active engagement in the issues they targeted.

Sustainable initiatives in our schools

Natural Resource Management Adelaide and Mount Lofty Ranges (NRM AMLR), the Department for Education, the Department for Environment and Water (DEW) and CoA worked together to pilot a 12-month carbon neutral schools program from July 2017.

The program included energy and waste audits, utilising online energy usage tracking portals. Two learning groups were attended by 40 participants from 16 schools to learn about carbon management and opportunities to implement sustainability initiatives at their respective sites.

Due to the level of interest in the learning groups, additional sessions were hosted until the end of 2018 by the central NRM Education team. The learning sessions were attended by a total of 79 attendees from over 34 schools.

The Department for Education have continued to undertake works through their Low Carbon Schools initiative, including LED lighting upgrades at over 240 schools and installation of 4.5 MW of new solar power generation since 2017.

Online engagement

The Carbon Neutral Adelaide [website](#) was launched in May 2017 and has since attracted over 1,900 subscribers and delivered 22 editions of the CNA eNews. The site includes a partner directory and information on the five pathways to carbon neutrality for businesses and the community. Since the website was launched, nearly 19,000 users have visited the site.





How are we tracking with our emissions reduction?

The most recent measurement of community greenhouse gas emissions within the City of Adelaide was for the 2018 financial year. Emissions have reduced by 15 per cent from the 2007 financial year (the base year).

At the same time, CoA gross regional product has increased by 33 per cent³. This demonstrates a decoupling of CoA greenhouse gas (GHG) from economic growth.

The reduction in emissions has taken place over a period of consistent growth of people visiting, living in, and working in the CoA. For example, since the base year: daily city user estimates increased by 43 per cent⁴, city residents increased by 33 per cent⁵, and student enrolments increased by 37 per cent⁶. Figure 1 illustrates the scale of the growth compared to the reduction in emissions.

The overall reduction in emissions has been driven by a 35 per cent reduction in stationary energy emissions (primarily from the growth in renewable electricity). Over the same period, transport emissions have increased by 27 per cent, consistent with the growth in city users (Table 2). Emissions from waste have increased by 6 per cent, which is also consistent with the growth in city users. Adelaide, like many global cities faces a challenge in transport emissions, as a large proportion of travel in the city is from private vehicles. Transformative change of the transport sector will be required to reduce emissions.

In 2017, the CoA improved the community inventory. An additional category of product use not previously accounted for, was added. In addition, the calculations of waste and transport emissions were enhanced in line with global methodologies, after the release of the Carbon Neutral Adelaide action plan. This has made the data more robust, and required a recalculation of the emissions data for the base year and subsequent financial years 2014 – 2018, using the new methodology.

Table 2 and Figure 2 below provide a summary of CoA community GHG emissions, measured in metric tonnes of carbon dioxide equivalent (tCO₂e), for each financial year since the base year using the updated methodology and new inclusions

The CoA community GHG emissions inventory has been prepared in accordance with the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories. The inventory measures the emissions within the City of Adelaide boundary, including transport, energy, waste and product use. See Appendix 1 for more information about the methodology and new emissions category inclusions.

Figure 1. Key Statistics for the City of Adelaide Local Government Area:
Percentage change between the 2007 and 2018 financial years⁸

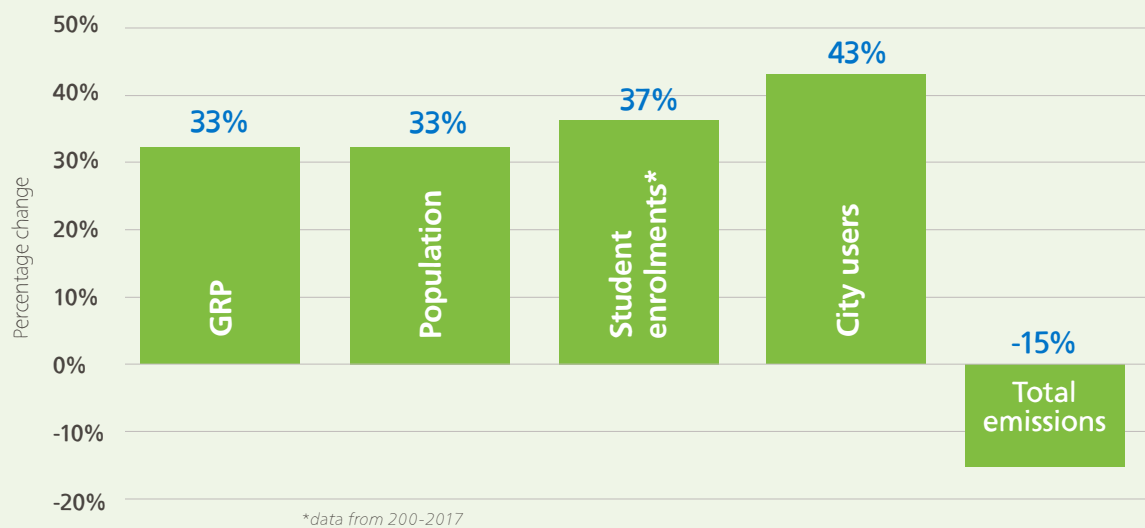


Figure 2: City of Adelaide Community Inventory:
Emissions by Type – 2006/07 and 2017/18 financial years

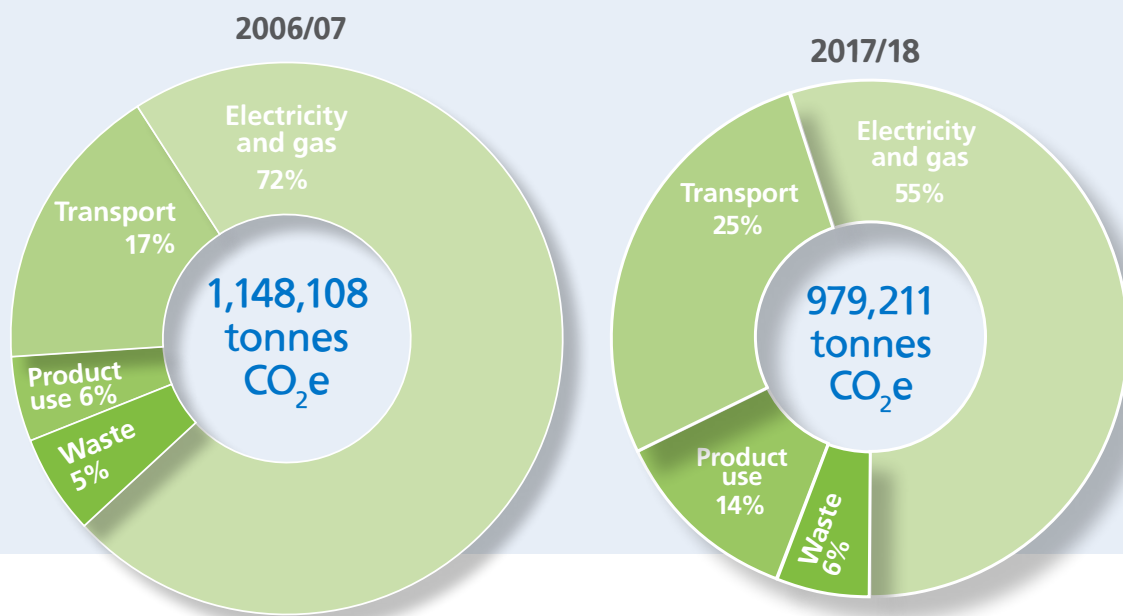


Table 2: Greenhouse Gas Emissions City of Adelaide (measured in tCO₂e)

Financial year	Base year 2006/07	2013/14	2014/15	2015/16	2016/17	2017/18	Change from base year to 2017/18
Electricity and gas	827,898	593,586	560,689	571,912	555,218	536,888	-35%
Transport	190,551	221,162	241,562	222,959	273,451	242,508	27%
Waste	60,414	62,511	64,641	67,724	64,003	63,891	6%
Product use	69,245	114,770	114,770	114,770	118,466	135,924	96%
Total	1,148,108	992,030	981,663	977,365	1,011,137	979,211	-15%



Appendix 1: Community Greenhouse Gas Inventory Methodology

The City of Adelaide community greenhouse gas emissions inventory has been prepared in accordance with the [Global Protocol for Community Scale Greenhouse Gas Emissions Inventories](#) (GPC).

The GPC measures the emissions within the City of Adelaide boundary, including transport, energy, waste and product use. The GPC was launched in 2014, by C40, the World Resources Institute and ICLEI, providing a robust framework for accounting and reporting city-wide greenhouse gas emissions.

Under the GPC framework, the City of Adelaide accounts for greenhouse gas emissions taking place within the City of Adelaide local government area. Greenhouse gas emission sources are broken into sectors, including:

- Stationary energy, which includes emissions from electricity and natural gas.
- Transportation to the city, which includes emissions from public and private transport through road (buses, visitor and work-related travel) and railway (including trains and trams).
- Waste, which includes emissions from waste to landfill, organic waste and waste water.
- Product use, which includes fugitive emissions of synthetic gases used in activities such as refrigeration, air-conditioning, fire extinguishers, aerosols and electrical equipment.

CoA community greenhouse gas emissions from product use are estimated from the Australian Government Department of the Environment, National Inventory Reports, which are downscaled for the CoA community.

Adelaide is working with the City of Sydney and the City of Melbourne, through the Carbon Neutral Cities Alliance, to ensure that the CoA community inventory is consistent and comparable with other cities.

Updates made to the methodology since publication of the *Carbon Neutral Adelaide Action Plan 2016-2021* include:

- Calculating and incorporating greenhouse gas emissions from product use
- Recalculating the 2007 financial year waste and transport greenhouse gas emissions in line with GPC calculation methodology, released in 2014, to enable a robust comparison of base year emissions to current performance, and
- Enhancing the approach used to calculate commercial waste greenhouse gas emissions.

CoA will continue to make improvements to the methodology as the reporting framework evolves and new data becomes available or more robust.

Appendix 2: Action Plan Status Report

Pathway 1: Energy Efficient Built Form

Action	Status
Strategy 1.1 Encourage energy efficient and adaptive reuse of commercial buildings	
1.1.1 Implement the Building Upgrade Finance mechanism in South Australia by early 2017.	Completed
1.1.2 Support the adaptive reuse of under-utilised and heritage listed buildings.	In Progress
Strategy 1.2 Support community uptake of efficiency technologies	
1.2.1 Reduce cost barriers to improving energy efficiency by continuing to provide energy efficiency incentives through the Sustainability Incentives Scheme and the Retailer Energy Efficiency Scheme (REES).	Ongoing
1.2.2 Investigate an incentives program linked to NABERS rating improvements for mid-tier office buildings (PCA Class B, C and D rated).	In Progress
1.2.3 Continue to support office based businesses through joint delivery of the CitySwitch Green Office Program.	Ongoing
1.2.4 Foster design leadership in energy efficiency, reduced embodied energy and increase renewable energy systems in new developments.	Ongoing
1.2.5 Support and encourage tenants in Government and Council owned buildings to undertake energy efficiency upgrades and install renewable energy systems.	In Progress
1.2.6 Facilitate and case manage decentralised energy generation within significant development sites.	In Progress
Strategy 1.3 Utilisation of regulatory levers to encourage energy efficiency uptake	
1.3.1 Support progressively lowering the Commercial Building Disclosure threshold and advocate for extension to the residential sector by 2020.	In Progress
1.3.2 Pilot the provision of incentives for voluntary disclosure of residential energy efficiency at point of sale or lease for new apartments by the end of 2018.	Not Started
1.3.3 Lead the National Energy Efficient Buildings Project (NEEBP) and implement findings that improve the capacity of regulators and industry to deliver energy efficient buildings.	In Progress
1.3.4 Investigate the level of energy efficiency compliance in developments and effective measures to secure compliance, including: <ul style="list-style-type: none"> increasing routine building construction and planning inspections for thermal performance, energy efficiency and sustainability; e-passports for buildings; and disclosure of energy efficiency at point of sale or lease. 	In Progress
1.3.5 Support investigations into improvements to the energy efficiency provisions of the National Construction Code, by completing a cost benefit analysis on raising performance requirements for Class 2 buildings, to enable progressively and substantially increasing the minimum standards required of residential and commercial buildings in 2019.	In Progress
1.3.6 Review prescribed machinery, plant and equipment in the Valuation of Land Regulations 2005 to support investment in energy efficiency and sustainability upgrades.	Not Started
1.3.7 Facilitate an energy hierarchy in the built form, including through the Planning, Development and Infrastructure Act implementation, as follows: <ul style="list-style-type: none"> Low carbon design and construction measures Passive design Supplying energy efficiently, in particular by encouraging decentralised energy generation and embedded networks Large scale renewable energy 	In Progress

Action	Status
Strategy 1.4 Reduce climate impacts in city streetscapes	
1.4.1 Deliver the City Laneways Masterplan to identify priority streets and guide future development of the laneways between the Adelaide Railway Station and the Adelaide Central Market	Ongoing
1.4.2 By the end of 2017, develop a 'Green City Plan' that will increase city greening through trees, gardens, plantings, green walls and green or cool roofs.	Completed
Strategy 1.5 Energy efficient buildings and public lighting	
1.5.1 Strengthen the SA Government's Buildings Energy Strategy 2013-2020 to reflect the Carbon Neutral Adelaide ambitions.	Not Started
1.5.2 Complete benchmark energy ratings (NABERS or alternative) for all Government and Council owned or occupied office buildings and tenancies.	In Progress
1.5.3 Undertake energy efficiency upgrade opportunities under the Government Building Energy Efficiency Investment program in all Government and Council owned or occupied buildings and implement projects with simple paybacks of seven years or less.	In Progress
1.5.4 Increase building standards to a minimum 5 Star Green Star interiors and performance rating for new builds and substantial refurbishments.	In Progress
1.5.5 Strengthen leasing policies to include consideration of leading industry standards such as Green Star Office Interiors; NABERS Office Water and Waste and emerging carbon neutral standards.	In Progress
1.5.6 Partner with industry to promote and showcase the advantages of high performance buildings.	In Progress
1.5.7 Upgrade all Council owned public street and footpath lights to high efficiency LED and controls by 2020.	In Progress
1.5.8 Showcase the New Adelaide High School Campus by achieving a 5 Star Green Star Rating or above.	In Progress

Pathway 2: Zero Emissions Transport

Action	Status
Strategy 2.1 Zero net emissions from public transport	
2.1.1 Implement a City of Adelaide Net Zero Emissions Transport Plan 2017-2025 that includes: <ul style="list-style-type: none"> • maximising biodiesel as a transition fuel for existing public transport vehicles • evaluation of electric and Euro 6 buses • expansion of the Free City Connector Bus service to include a second route for the New Royal Adelaide Hospital by 2018 • utilising 100% renewable energy for the tram and train networks • phasing out the purchase of conventional fossil fuel buses by no later than 2025. 	In Progress
2.1.2 Evaluate electric buses and potential on-route charging infrastructure for the Adelaide Metro bus fleet, with the aim of establishing a 100% electric Free City Connector Bus service by 2020, and an all-electric 'Go Zone' route by 2025.	In Progress
2.1.3 Commence the upgrade and electrification of the Gawler train line in 2017-18.	In Progress
2.1.4 Deliver Stage 1 of the AdeLINK network along North Terrace to the East End by 2018 and completion of two suburban links by 2020.	In Progress
2.1.5 Complete a study on the electrification of public transport in Adelaide including AdeLINK.	Completed

Action	Status
Strategy 2.2 Increase the frequency and quality of public transport services	
2.2.1 Complete the O-Bahn City Access Project by the end of 2017.	Completed
2.2.2 Upgrade Grenfell Street and Currie Street to Light Square as a transit pedestrian precinct with enhanced facilities for public transport patrons by 2020.	In Progress
2.2.3 Review the Adelaide Metro bus system to determine opportunities for establishing a strategically aligned, integrated and connected network.	Completed
Strategy 2.3 Increase uptake of Low Emission Vehicles (LEVs)	
2.3.1 Review and update the Low Emissions Vehicle Strategy to place a greater emphasis upon electric vehicle initiatives and other emerging technologies such as hydrogen fuel cell vehicles.	In Progress
2.3.2 Investigate incentives for increasing the purchase of electric vehicles and installing public recharging infrastructure.	Ongoing
2.3.3 Investigate an electric vehicle bulk purchase scheme for the South Australian community by the end of 2018.	In Progress
2.3.4 Through the Australian Government's Ministerial Forum on Vehicle Emissions, advocate for: <ul style="list-style-type: none"> introduction of Fleet Average Fuel Efficiency Standards that include additional incentives for electric and other zero emission vehicles removal of Federal taxation measures that disproportionately impact on electric vehicles alignment of the vehicle purchasing policies of state and local governments to improve the business case for auto manufacturers to bring new electric and zero emissions vehicles to Australia. 	Completed
2.3.5 By the end of 2017, determine the feasible number of on-street parking bays that will provide recharging services by 2020 and then 2025.	In Progress
2.3.6 Install on-street electric vehicle and electric bicycle recharging points and pilot an Internal Combustion Engine (ICE) to Electric Vehicle (EV) Parking Space Management System at the Adelaide Central Market UPark.	Completed
2.3.7 Provide incentives for the installation of electric vehicle and electric bicycle charging infrastructure, including in public car parks and connecting to regional networks such as the Adelaide to Kangaroo Island electric highway.	Completed
2.3.8 Encourage 100% renewable energy for all electric vehicle recharging.	In Progress
2.3.9 Provide on-street fast recharging infrastructure to facilitate the transition of the taxi, chauffeured vehicle and car share industries to electric vehicles.	In Progress
Strategy 2.4 Support electric vehicle innovation	
2.4.1 Continue to host the World Solar Challenge and Celebrate the 30th anniversary of the World Solar Challenge in 2017.	Ongoing
Strategy 2.5 Enhance access to commercial car share services	
2.5.1 Provide operational certainty for commercial car share companies and promote the benefits of services to residents, businesses and visitors and encourage electric vehicles as share cars.	Ongoing
2.5.2 Increase the supply of public car share vehicles, by enabling and promoting staff use of commercial car share services for Council and Government business purposes.	Ongoing

Action	Status
Strategy 2.6 Reduce single-occupancy vehicle use	
2.6.1 Influence personal transport choices through programs such as: <ul style="list-style-type: none"> • TravelSmart households • Smarter travel@ work • Way to Go primary schools program; and • Car Pool South Australia. 	In Progress
Strategy 2.7 Optimise the efficiency of existing road and public transport networks	
2.7.1 Through Operation Moving Traffic optimise traffic flows to improve transit times and more consistent travel flows to and from the city.	In Progress
Strategy 2.8 Develop integrated cycling and walking networks	
2.8.1 Establish a cycling infrastructure fund and develop a comprehensive and integrated network of bicycle ways that connect Adelaide, North Adelaide and surrounding suburbs to provide safe and convenient access to workplaces, services, shops, leisure activities and bus, train and tram services	In Progress
2.8.2 Implement a point to point Adelaide Bicycle Share Scheme.	Completed
2.8.3 Provide secure bicycle facilities at more suburban train stations.	In Progress
Strategy 2.9 Increase the transport advantages of city and apartment living	
2.9.1 Facilitate a shift to sustainable transport modes and reduced private car ownership, including through the Planning, Development and Infrastructure Act implementation, as follows: <ul style="list-style-type: none"> • encourage design innovation for electric and autonomous vehicle technology • reduced onsite parking requirements where alternatives such as car share and cycling are available • application of end of trip facilities and bicycle parking standards in new developments • designing for comfortable pedestrian environments; and • convenient placement of stairs and bicycle storage areas within buildings. 	In Progress
Strategy 2.10 Reduce emissions from business trips	
2.10.1 Transition to zero and low carbon vehicles and fuels including 30% of the Government and Council passenger fleet to be electric, hybrid, and low emission vehicles by 2018.	In Progress
2.10.2 Implement a procurement plan for all Council vehicles to be low or zero emissions by 2025.	In Progress
2.10.3 Investigate electric heavy vehicle trials for the city in conjunction with key industry partners.	In Progress
2.10.4 Transform business trip transport choices through participation in engagement programmes that prioritise walking, cycling, public transport and commercial car share over regular pool vehicle usage.	In Progress
2.10.5 Provide staff with convenient access to pool bicycles and Adelaide Metrocards for all business trips.	Ongoing
2.10.6 Minimise emissions from transport through greater use of technologies including video conferencing.	In Progress

Pathway 3: Towards 100% Renewable Energy

Action	Status
Strategy 3.1 Increase investment in large scale renewables across the state	
3.1.1 Implement the Low Carbon Investment Plan and associated initiatives to increase investment in renewable energy production in South Australia to \$10 Billion by 2025.	In Progress
3.1.2 Advocate for the establishment of a supportive national framework for renewable energy generation, electricity network upgrades, demand tariffs and energy market rule changes by 2020.	In Progress
3.1.3 Undertake a study to review the feasibility of an additional interconnector to export renewable energy to Eastern states and increase energy security in South Australia.	In Progress
Strategy 3.2 Increase uptake of renewable energy and battery storage	
3.2.1 Provide incentives for the installation of renewable energy and energy storage systems in city buildings.	Ongoing
3.2.2 Deliver a renewable energy bulk purchase scheme, including consideration of community energy and virtual metering models by 2018.	In Progress
3.2.3 Deliver programmes that enable access to solar PV systems and improved energy efficiency for low income and rental households, through the installation of up to 200 solar PV systems on Housing Trust properties in the city and at least 100 solar PV systems via the Solar Savers initiative.	Completed
3.2.4 Support and encourage large scale grid connected energy storage in South Australia.	Completed
Strategy 3.3 Increase the percentage of renewable energy purchased directly for Government and Council Operations	
3.3.1 Enter into direct power purchase agreements for the supply of low carbon and renewable electricity for use in Government and Council operations.	In Progress
3.3.2 Use the battery storage installations at the Adelaide High School, State Library of South Australia and South Australian Art Gallery to monitor and verify the benefits and costs of energy storage technology and consider expansion to other government buildings.	In Progress

Pathway 4: Reduce Emissions from Waste and Water

Action	Status
Strategy 4.1 Reduce emissions from solid waste	
4.1.1 Build upon the leadership of major city events by adopting world leading recycling practices at all large and medium size events by the end of 2020.	In Progress
4.1.2 Implement new and expanded business and residential organics and recycling collection and support services to increase recycling rates for Council collection services to at least 60% by 2020.	In Progress
4.1.3 Incentivise the use of recycling rather than waste services, including investigating of individual and precinct level recycling rates.	Not Started
4.1.4 Provide recycling rate information for multi-premise residential and business sites on the way to extending this service to individual premises by 2020.	Not Started
4.1.5 Investigate procurement of precinct level waste and recycling services for business premises, to reduce heavy vehicle movements and improve the cost advantages of recycling services by June 2018.	Not Started
4.1.6 Implement a precinct level trial of reusable and compostable takeaway food and beverage containers by businesses and catering companies.	Completed
4.1.7 Investigate circular economy opportunities, including sharing and waste avoidance opportunities within the City of Adelaide and South Australia.	In Progress
4.1.8 Investigate and support energy from waste technologies, where appropriate, for generating renewable energy including organic waste.	In Progress
4.1.9 Secure at least one carbon neutral main street food precinct by 2020.	Not Started
4.1.10 Through the Planning, Development and Infrastructure Act implementation, codifying the Better Practice Guide - Waste Management for Residential and Mixed Use Developments to enhance the performance of waste and recycling systems in new developments by: <ul style="list-style-type: none"> ensuring convenient access to and within bin storage areas for all users, with particular regard for persons with a disability mitigating potential access and fire egress obstructions caused by poorly designed waste management systems ensuring system design preferences recycling services designing for safe and convenient movement of trucks and bins by service contractors. 	In Progress
Strategy 4.2 Improve emissions reduction and energy capture from liquid waste	
4.2.1 By December 2020 increase the efficient use of recycled water from the Glenelg to Adelaide Park Lands (GAP) water recycling scheme.	In Progress
4.2.2 Capture methane and use it to power the wastewater treatment plants in metropolitan Adelaide.	In Progress
Strategy 4.3 Develop and share knowledge as we learn from our partners	
4.3.1 Host the Seventh Regional 3R (Reduce, Re-use, Recycle) Asia Pacific Forum in November 2016 in Adelaide, supporting the organisation of the event with the Secretariat of the United Nations Centre for Regional Development (UNCRD).	Completed
4.3.2 Support and encourage application of the Better Practice Guide - Waste Management for Residential and Mixed Use Developments in new and existing developments.	Ongoing
4.3.3 Investigate waste generation volumes for commercial land use types and establish an enhanced methodology for calculating annual carbon emissions from solid waste by the end of 2017.	Not Started
Strategy 4.4 Minimise waste to landfill from Government and Council Operations	
4.4.1 Maximise recycling and minimise waste to landfill from Government and Council buildings, facilities and services.	In Progress

Pathway 5: Offset Carbon Emissions

Action	Status
Strategy 5.1 Offset residual community carbon emissions	
5.1.1 Work with our partners, to develop a carbon offsets guideline, approach and plan.	Completed
5.1.2 Develop a State carbon sequestration strategy and identify bio-sequestration opportunities in South Australia.	In Progress
5.1.3 Investigate South Australian and Australian abatement activities that could generate carbon offsets while delivering multiple benefits for local communities.	Ongoing
5.1.4 Implement a pilot program in which carbon offsets are purchased in a government and community partnership to learn more about the public value of carbon offsets and assist in the development of South Australian carbon offsets consistent with community wants.	In Progress
5.1.5 Provide incentives to city based partner organisations that secure National Carbon Offset Standard (NCOS) carbon neutral certification.	In Progress
Strategy 5.2 Offset residual Government and Council operational carbon emissions	
5.2.1 Develop a carbon offsets guideline, approach and implementation plan for Council and Government operations to achieve carbon neutral accreditation by 2020.	In Progress

Governance

Action	Status
Strategy G.1 Provide overarching governance for the Carbon Neutral Adelaide Initiative	
G.1.1 Maintain and expand the Carbon Neutral Adelaide Steering Group, comprising senior managers from Council, Government and partner organisations, to oversee implementation of the Carbon Neutral Adelaide Action Plan.	Not Started
G.1.2 Prepare an annual greenhouse gas emissions inventory for the City of Adelaide and Corporation of Adelaide and publicly disclose progress.	Ongoing
G.1.3 Publish an annual progress report on the Carbon Neutral Adelaide initiative.	Ongoing
G.1.4 Maintain compliance with membership requirements of international agreements, reporting frameworks and partnerships including; <ul style="list-style-type: none"> • Compact of States and Regions • Global Covenant of Mayors for Climate and Energy • Under 2 MOU • Regions Adapt • The Climate Group • CDP (formerly Climate Disclosure Project) • Carbon Neutral Cities Alliance; and • Climate Neutral Now. 	Ongoing
G.1.5 Develop and maintain an interactive information platform for individuals and businesses to build their knowledge and understanding of their carbon footprint and actions that can be taken to reduce their carbon footprint.	In Progress
G.1.6 Develop indicators to measure and report the City of Adelaide's transition to a low carbon economy.	In Progress
G.1.7 Partner with the education sector to develop and share knowledge on leading cities, businesses and individuals that are pursuing carbon neutrality and preparing for the impacts of climate change.	In Progress
G.1.8 Partner with leading cities to improve data collection and modelling assumptions to continually improve the accuracy and integrity of community greenhouse inventories.	In Progress

Partnerships

Action	Status
Strategy P.1 Encourage community action through engagement and education programmes	
P.1.1 Actively support the community through the establishment of the Carbon Neutral Adelaide Partnerships initiative by early 2017.	Completed
P.1.2 Promote thought leadership, innovation and entrepreneurialism through delivery of the Adelaide to Zero Carbon Challenge.	Completed
P.1.3 Support investment and product innovation through the establishment of a Climate Knowledge Innovation Community (Climate KIC) initiative in Australia.	Completed
P.1.4 Implement sustainable behaviour change programmes to secure active participation in Carbon Neutral Adelaide initiatives including; <ul style="list-style-type: none"> • Office based businesses • Residents • Schools and universities • Major and medium sized events. 	Ongoing
P.1.5 Progress research and development into low carbon industries and lifestyles including; <ul style="list-style-type: none"> • the Cooperative Research Centre for Low Carbon Living; • University research programs. 	Ongoing
P.1.6 Participate in industry development, leadership and knowledge sharing networks including the States and Regions Alliance, Carbon Disclosure project (CDP), Carbon Neutral Cities Alliance, Climate Neutral Now, and the Sister City Programme.	Ongoing
P.1.7 Pilot a carbon neutral schools program in the City of Adelaide.	Completed
P.1.8 By the end of 2017, develop a 'Low Carbon Economy Plan' for the city that will aim to: <ul style="list-style-type: none"> • maximise opportunities for business leadership and entrepreneurs; • accelerate the decoupling of economic growth and carbon emissions; • identify indicators to measure and report on the city's transition to a low carbon economy. 	In Progress

References

¹Sustainability Incentives Scheme figures from 1 July 2016 to 30 June 2019.

²The National Australian Built Environment Rating System (NABERS) is a system to measure a building's energy efficiency, carbon emissions, as well as the water consumed, the waste produced and compare it to similar buildings. It is a nationally recognised rating system.

³National Institute of Economic and Industry Research, 2019, *Gross Regional Product Data*; accessed 12 Sept 2018.

⁴City of Adelaide, 2019, City User Profile Survey data.

⁵Australian Bureau of Statistics, 2019, *Regional Population Growth, Australia 2006-07 and 2017-18*, cat. no. 3218.0, ABS, Canberra.

⁶Department of Education and Training, 2018, *uCube Enrolment Data*, Student enrolments at University of Adelaide, Torrens University SA, UniSA, Private and non-private universities for 2007 and 2017.

⁷Product use includes fugitive emissions (emissions of gases or vapours from pressurized equipment) of synthetic gases used in activities such as refrigeration, air-conditioning, fire extinguishers, aerosols and electrical equipment

⁸National Institute of Economic and Industry Research, 2019, *Gross Regional Product Data*, accessed 12 Sept 2019; Australian Bureau of Statistics, 2019, *Regional Population Growth, Australia 2006-07 and 2017-18*, cat. no. 3218.0, ABS, Canberra; Department of Education and Training, 2018, *uCube Enrolment Data*, Student enrolments at University of Adelaide, Torrens University SA, UniSA, Private and non-private universities for 2007 and 2017, accessed September 2018; Australian Bureau of Statistics, 2019, *2006 Census of Population and Housing, Working Population Profile, Based on Place of Work*, and *2016 Census of Population and Housing, Working Population Profile, Based on Place of Work*, cat. no. 2006.0, ABS, Canberra, accessed 30 May 2019; City of Adelaide, Greenhouse Gas Community Inventory, 2018.





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For further information

If you would like any further information on Carbon Neutral Adelaide or the actions summarised in this report please contact:

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