

DEVELOPING A NEW CLIMATE CHANGE STRATEGY FOR SOUTH AUSTRALIA

Carbon Neutral Adelaide consultation paper







INTRODUCTION

In February 2015, the State Government announced its ambition for the City of Adelaide to be the world's first carbon neutral city. The initiative will drive further emissions reductions, increase the demand for renewable energy, build the State's green industries, increase resource efficiency, improve waste management and facilitate the transition to cleaner transport modes.

Nearly 40% of South Australia's electricity is now generated from renewable energy sources. We boast the highest rate of roof top solar photo voltaic (PV) installations in the nation and our innovative climate change adaptation program has received national and international attention. While these are significant achievements, there is still plenty to do.

We are not alone in this challenge. A number of other cities also have carbon neutrality targets, including Melbourne by 2020 and Copenhagen by 2025. Masdar City, in the United Arab Emirates, aims to be the world's first newly constructed carbon neutral city, while the City of Sydney has a target of reducing its emissions by 70% of 2006 levels by 2030.

The State Government aims to work with the Adelaide City Council (ACC) to achieve its bold ambition. Building on the work undertaken through the Adelaide Green City Sector Agreement (2007-2012) entered into under the *Climate Change and Greenhouse Emissions Reduction Act 2007*, a further agreement between the Government and the ACC is being negotiated.

Both the Government and the ACC have already undertaken a significant amount of work to reduce emissions and adapt to climate change. By working together, we can achieve even greater results and move towards achieving carbon neutrality.

The Department of Environment, Water and Natural Resources (DEWNR) is leading the initiative on behalf of the South Australian Government.

Government, however, cannot do this alone. Industry and community participation is crucial to achieve this goal.

PROPOSAL

Carbon Neutral Adelaide



WHAT IS CARBON NEUTRAL?

A community, place or activity is 'carbon neutral' if it is effectively emitting zero net greenhouse gases into the atmosphere. This may be due to not emitting any greenhouse gases in the first instance, offsetting any emissions through other activities, or a combination of the two. Striving for carbon neutrality is an important driver to enable

mitigation of greenhouse gas emissions which contribute to climate change, a challenge for all nations of the world.

Greenhouse gases are measured as either Scope 1, 2 or 3 emissions. The Carbon Neutral Adelaide initiative will predominantly focus on Scope 1 and 2 emissions.

Scope 1 emissions	Scope 2 emissions	Scope 3 emissions
<ul style="list-style-type: none"> Stationary fuel combustion Industrial processes and product use In-boundary transportation In-boundary waste and waste water Agriculture, forestry and other land use 	<ul style="list-style-type: none"> Grid supplied energy 	<ul style="list-style-type: none"> Out-of-boundary waste and waste water Other indirect emissions Transmission and distribution Out-of-boundary transportation

WHAT AREA WILL BE CARBON NEUTRAL?

The aim is for the entire ACC area, which includes the CBD, North Adelaide and the Adelaide Park Lands to become carbon neutral. This reflects the fact that Adelaide is the business centre of the State and has a concentration of emission sources due to the volume of economic activity occurring, the size and nature of the built environment and the level of consumption of electricity and liquid fuels. Adelaide will be used as a testing platform for the roll out of successful mitigation initiatives across South Australia.



WHAT IS THE SIZE OF THE TASK?

The ACC estimates that its municipal area currently emits about 955,000 tonnes of carbon dioxide equivalent (CO₂-e) per year. Most of that is generated by the use of grid electricity and transport. Our aim is to reduce that figure to zero, primarily through the use of renewable energy and energy efficiency and changes to the way we live, work and move around our City.

The total greenhouse gas emissions declined steadily over the period from 2006/07 to 2012/13. The commercial sector experienced the largest reduction during this period, having reduced its emissions by 25% over a six-year period, largely due to the reduced greenhouse gas intensity of the South Australian electricity grid (Pitt & Sherry, 2015).

Figure 2 below demonstrates the estimated make-up of the ACC's emissions by sector (Pitt & Sherry, 2015). Commercial and transport sectors are the two largest sub-sectors in terms of emissions, contributing 47% and 40% to the total respectively. The other sectors, such as waste, residential and industrial sectors, contribute 5%, 4% and 4% each.

The commercial sector is the largest consumer of electricity. Electricity consumption in the commercial sector reached its peak in 2009 and has been declining ever since. This can be predominantly attributed to energy efficiency policies and measures. On the other hand, gas consumption increased by 1% from 2006/07 to 2012/13.

Electricity consumption in the residential sector has largely followed the same trend as the commercial sector, showing a decline from 2009/10. There are a number of contributing factors, including rooftop solar PV installations, consumer responses to electricity price rises and increased energy efficiency initiatives. At the same time, gas consumption has remained relatively stable.

Both gas and electricity consumption in the industrial sector have been falling consistently since 2006 with the exception of a peak for gas in 2010/11 which was followed by a sharp decrease. Unlike the commercial and residential sectors, the industrial sector in the City of Adelaide consumes more gas than electricity. In 2013 gas consumption was only 6% of the total stationary energy consumption. This may be due to the drop in activity of industrial sector and relocation of energy-intensive activities.

Transport is the second largest contributor of greenhouse gas emissions in the City, accounting for 40% of the total in 2012/13. Passenger vehicles are estimated to contribute approximately 99% of the total transport emissions in 2013. Petrol is the most popular type of fuel for passenger vehicles, being 88% of the total, followed by diesel and liquefied petroleum gas. In 2013, public transport contributed approximately 1% of the total net emissions, with trains and buses contributing 32% and 45% of this respectively.

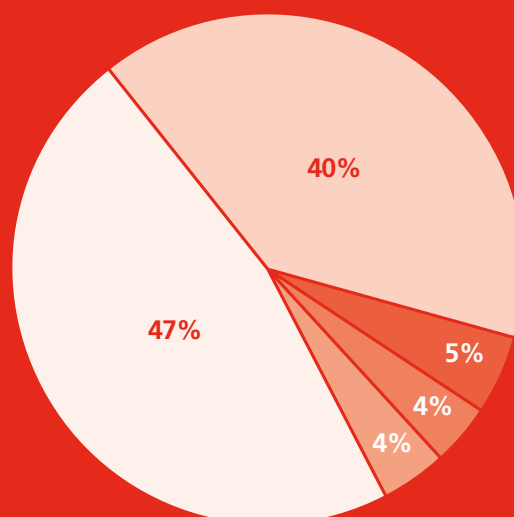
The waste sector was responsible for 5% of net emissions in 2012/13, with emissions from landfills responsible for around 77% and green waste approximately 22%. The remaining emissions were attributed to waste water. The biggest share of emissions from the landfill waste was contributed by the commercial and industrial sectors (85%). The municipal sector was responsible for a further 14%, and construction and demolition activity 1%.

Achieving carbon neutrality is an ambitious goal, but an achievable one. At every step of the way we will ensure we are meeting standards for accounting and reporting our emissions for carbon neutrality.

GREENHOUSE GAS EMISSIONS WITHIN THE CITY OF ADELAIDE - 2012/13



Figure 2 - Graphical representation of Adelaide City Council area's greenhouse gas emissions (Pitt & Sherry, 2015)



WHAT ARE THE BENEFITS OF ACHIEVING CARBON NEUTRALITY?

Greenhouse gases, primarily from the combustion and consumption of carbon-intensive fossil fuels, have contributed to an observed warming of global temperatures and heightened concentrations of greenhouse gases in our atmosphere, which is one of the primary causes of climate change.

Future changes in our climate are likely to present significant challenges for the global community and thus increasing global commitments to containing temperature rises relies upon reducing the quantity of greenhouse gases emitted into our atmosphere. In this sense, achieving carbon neutrality in the City of Adelaide will serve as a demonstration that a functioning, advanced urban centre need not be linked to consumption of carbon intensive fuel inputs.

The commercialisation and uptake of recent technological and manufacturing advancements that optimise resource efficiency and productivity will deliver financial savings and employment opportunities for the community. This may drive a culture of innovation that will have benefits across the wider economy. An increased focus on green infrastructure initiatives, such as green roofs and walls, vegetation plantings, and water sensitive urban design measures, will bring about improvements in the quality of life for those living and working in the City by reducing the heat island effect, providing shading and cooling and reducing air pollution.

Being carbon neutral will also respond to global investment trends and demand by consumers for ethical, low carbon products and services. By decoupling economic development and carbon intensity, Adelaide can secure the benefits of this investment, including jobs growth and contemporary skills development. In addition, demonstrating carbon neutrality has the added benefit of transferring knowledge and expertise to other jurisdictions looking to implement similar initiatives.



WHAT ARE THE CHALLENGES TO ACHIEVING CARBON NEUTRALITY?

The challenge for all South Australians is to embrace the cultural and behavioural change necessary to achieve our climate change goals. This requires new thinking about our buildings, transport, energy and waste management. While some changes can be made immediately, others will require longer time horizons. For example, some changes are reliant upon technological progress and economies of scale that would assist with affordability.

Another challenge is determining the extent to which carbon offsets will be used to achieve the ambitious goal of becoming the world's first carbon neutral city. Provided offsets are properly certified, they are a legitimate emissions reduction strategy. However, a genuine effort also must be made to prevent or reduce emissions in the first instance. A balanced and practical approach to achieving carbon neutrality is sought by the State Government, one that maximises cost effective actions to reduce emissions at the source and minimises the need to purchase offsets for the remaining emissions.

Access to finance may also present a challenge to the uptake of low carbon technologies for businesses, property owners and residents. Achieving the goal of carbon neutrality is a significant task, requiring efforts beyond government. Participation from other sectors, including private, not-for-profit and research organisations, along with members of the public will be critical to meet the challenge.

PATHWAYS TO CARBON NEUTRALITY

Significant work and investment has been delivered to date at both the State and local government level which have a potential to reduce greenhouse gas emissions attributed to the City of Adelaide. These initiatives include, but are not limited to, improvements to public transport fleet, rail network electrification, extension of the tram line, promoting cycling and walking, and energy efficiency measures. These initiatives are outlined in the Reduce consultation paper.

To achieve the ambition for carbon neutrality, we will need to build on existing successes, capitalise on our strengths, explore innovative solutions, create effective partnerships and develop new initiatives.

Some of the future initiatives may include measures to further improve performance of our built environment, transport and street lighting; mitigate urban heat island effect; increase the uptake of renewable energy and energy efficiency solutions; further encourage low-carbon commuting modes; and facilitate behaviour change towards sustainable consumer choices.

The initial challenge for the State Government, in collaboration with the ACC and other stakeholders, is to develop a framework and action plan to achieve carbon neutrality that are relevant, realistic, coordinated, transparent and achievable.



THE NEXT STEPS

A Carbon Neutral Adelaide framework and action plan is being developed and this will have an influence on the future actions of commerce, industry and the community, both in the City of Adelaide and beyond. Government also needs to create a supportive, enabling environment where people are encouraged to offer their creativity and full capacity for innovation. We need to engage very widely with as many communities, sectors and industries as possible.

We want to hear views from the community and other stakeholders regarding the development and implementation of this new initiative, tap into a wealth of innovative capability and technical expertise, and identify actions that are cost-effective and that will achieve the greatest benefit.

CONSULTATION QUESTIONS

- What ideas do you have for how investment and job opportunities can be created from the Carbon Neutral Adelaide initiative?
- What initiatives would create the greatest economy wide benefits?
- What actions and investments do you consider are important to achieve Carbon Neutral Adelaide?
- What ideas do you have for involving business and the community in the initiative?







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