

The Siemens logo is displayed in a bold, teal, sans-serif font. It is positioned in the upper left corner of the page, set against a white rectangular background. The background of the entire page is a long-exposure photograph of a city street at dusk, showing light trails from cars and illuminated buildings.

**SIEMENS**

*Ingenuity for life*

# Carbon Neutral Adelaide

Comparing the benefits of  
technology choices

City Performance Tool

---

The Government of South Australia and the Adelaide City Council want the City of Adelaide to become the world's first carbon neutral city.

---



# Executive Summary

---

Through strong uptake of wind and solar power, the state of South Australia with its key private sector partners has become the country's stand-out renewable energy leader, with 41% of the electricity generated in the state coming from these sources in 2015.<sup>1</sup>

Both the carbon emissions of greater metropolitan Adelaide, with a population of 1.3 million inhabitants, and the commercial and administrative centre of the City of Adelaide, with a daily population of approximately 230,000<sup>2</sup> people, have reduced significantly as a result of this rapid decarbonisation of the state's electricity supply.

The Government of South Australia and the Adelaide City Council want the City of Adelaide to become the world's first carbon neutral city.

To achieve this ambitious shared vision, further mitigation programmes in the buildings, transport and energy sectors are required. To test the mitigation impact of technologies in each of these sectors, they recently teamed up with Siemens to look at the most cost effective technologies that the city needs to implement, in order to reach its carbon neutral goal.

Using Siemens' proprietary model, the City Performance Tool (CyPT) that looks at the environmental and economic benefits of technology investments, this study has found five key strengths and opportunities behind Adelaide's technology choices:

- 1. Coordinated action by the city and state can yield deep cuts in emissions:** Aggressive investments in the building, transport and energy sectors can help the City of Adelaide reduce CO<sub>2</sub>e emissions by a further 56% by 2025 compared to a business as usual scenario. Local and State level governments both influence these sectors and must therefore continue to coordinate their efforts in investing or incentivising technology implementation in order to benefit from these potential savings.
- 2. Decarbonisation efforts need to span energy, buildings and transport:** Although investments in renewable energy in the State have been unprecedented, building floor area growth and hence energy demand in the City of Adelaide have offset some of the emissions reductions arising from decarbonisation of the city's electricity supply. Whilst the recent closure of the state's last coal-fired power station and future large scale renewable investments will further drive

down electricity intensity, city and state governments must influence the energy performance and solar installations of buildings and drive a mobility future based on heavy investment in low emission vehicles and increasing shifts to public transit.

- 3. Start with commercial buildings:** The commercial sector remains the largest source of emissions in the City of Adelaide and this is also the sector that the city and state governments can most directly influence and regulate. With new programmes such as the introduction of Building Upgrade Finance being rolled out in 2017, the city can benefit from over 15% savings in buildings related emissions through just five building technologies modelled in this study. These same building technologies can deliver over 60% savings of buildings related emissions based on a scenario with heavier investments to further clean the electricity mix.
- 4. Decide whether to focus on public transport or low emission vehicles or both:** For decades, South Australia has been one of the country's main auto-manufacturing regions. Although this provided considerable labour returns, a 'car-biased' economic policy made it difficult for the city to counter the carbon impacts of a very high car dependency in the city. With the imminent closure of car manufacturing in Australia in 2017, Adelaide is entering a new phase of economic development based on growing innovation and export capacity in minerals, energy, both traditional sources and renewables, food and wine, healthcare, higher education, tourism and advanced manufacturing. This study modelled potential savings in the transport sector based on two scenarios. The first, a mobility future based on low emission vehicles with medium public transport investment delivering 47% savings in transport related emissions. The second, a future with higher public transport / lower uptake of low emission vehicles, delivering over 38% savings in transport related emissions.
- 5. Significant jobs can be created through strong action:** By cutting emissions by as much as 56% over the next decade, the City of Adelaide can also contribute to the state's transition to a low carbon economy. Our report has calculated a large gross employment benefit of nearly 23,000 full time equivalent jobs<sup>3</sup> in installation, operation and maintenance jobs in low carbon energy, public transport mobility and buildings systems spread over the next decade in the Greater Adelaide area.

<sup>1</sup> The 2014/15 stats breaks down to 34% wind and 7% solar in terms of proportion of electricity generated within the state. Solar uptake equates to approximately 28% of households.

<sup>2</sup> Breakdown of population - 23,169 residents, 141,275 workers and 64,229 visitors – <http://economy.id.com.au/adelaide> and [http://www.adelaidecitycouncil.com/assets/documents/INFOGRAPHIC\\_-\\_Adelaide\\_on\\_a\\_page\\_-\\_Leadership\\_group\\_version.PDF](http://www.adelaidecitycouncil.com/assets/documents/INFOGRAPHIC_-_Adelaide_on_a_page_-_Leadership_group_version.PDF)

<sup>3</sup> One full time equivalent job (FTE) equates to 1800 hours of labour. 10,000 FTEs relates to the total employment output over the next decade.