

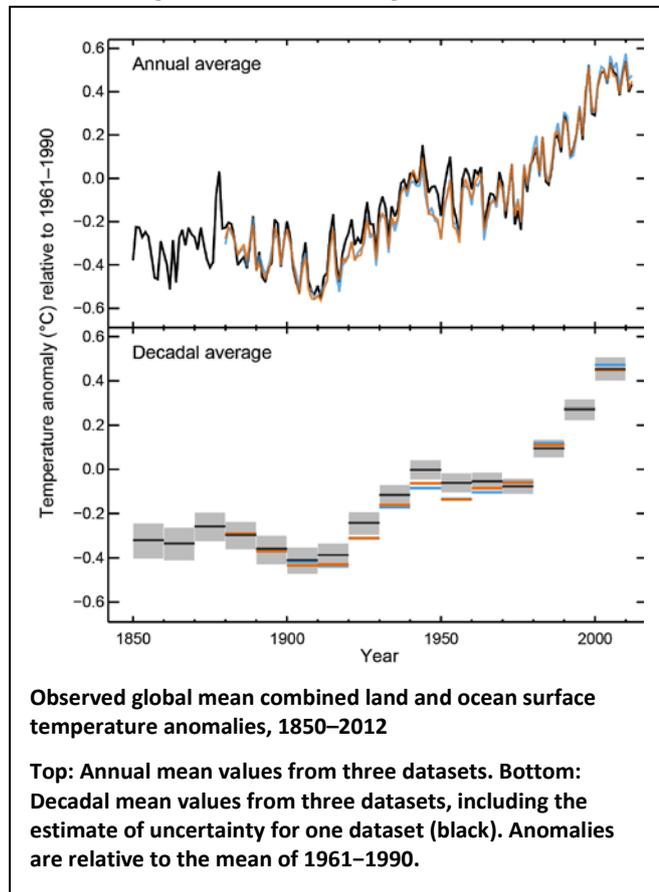


CLIMATE CHANGE

Earth's climate has been changing during the past century. The atmosphere and oceans have warmed, glaciers and ice sheets have decreased in size, sea levels have risen, and there has been an increase in extreme weather events. There is strong scientific evidence that human activities that result in greenhouse gases being emitted – such as burning fossil fuels and large-scale land use change – have been the main cause of these climatic changes. It is also anticipated that there will be further climatic changes as a result of human society's continuing release of greenhouse gases.

Climate change has emerged during the past three decades as the most significant challenge to our environment. It is certain that climate change will affect not only us, but our children and grandchildren as well. Climate change and its impacts therefore pose a serious challenge for governments and communities around the world.

The Australian Capital Territory (ACT) faces a number of serious challenges related to climate change, including decreased rainfall, and increased temperatures and fire danger. It is important to understand the drivers and impacts of climate change to develop strategies that address the risks they pose to human wellbeing. Building resilience in the social and environmental systems of the ACT is a core part of achieving this, as it allows us to focus on maintaining the desired values of the ACT's environment in the face of climate change.



Measuring climate change

The ACT State of the Environment Report has adopted indicators developed by the Intergovernmental Panel on Climate Change (IPCC) and adapted them to suit ACT State of the Environment reporting requirements.

The following indicators are used to assess state and trends and pressures:

State and trends

- changes in local and regional mean temperatures
- changes in local and regional climate variables
- changes in the intensity or frequency of extreme events

Pressures

- (causes of climate change) greenhouse gas emissions levels



MAIN FINDINGS

State and trends

The scientific evidence for climate change is overwhelming. Levels of greenhouse gases in the atmosphere are rising. Air and ocean temperatures are going up. Spring is arriving earlier, and summers in both hemispheres are hotter. Ice sheets are melting. Sea level is rising. The patterns of rainfall and drought are changing. Heatwaves are getting worse, as are extreme storm events. The oceans are acidifying. These environmental changes have impacts on humans – hunger, disease, drought and flooding are likely to worsen, as are the resulting conflicts and refugee crises.



An Erickson Air Crane drops water on a bushfire near the eastern edge of the Brindabella Ranges. With a warming climate the ACT will experience increased severe fire danger.

The ACT is already seeing the effects of climate change, and further impacts are predicted. In particular, we expect:

- Lower rainfall, which will affect water availability and quality, water-dependent ecosystems, agriculture and recreational amenity
- Higher temperatures and increased fire risk, which will affect human health and property, and vulnerable ecosystems
- More extreme weather events, which will affect property and ecosystems.

Pressures

ACT greenhouse gas emissions rose steadily from 1990 until 2010, when the ACT Government prescribed a legislative greenhouse gas emissions reduction target (the Climate Change and Greenhouse Gas Reduction Act 2010). As a consequence of the legislation and various supporting initiatives, emissions have steadily fallen since 2010–11. Per-capita emissions for the ACT peaked earlier (in 2005–06) than the total Territory emissions and dropped below the 1989–90 level in 2012–13.

Stationary energy (predominantly from electricity generation, but also including use of natural gas and non-transport use of petroleum fuels such as LPG, heating oil and fuel oil, and the use of wood fuel) is the dominant source of emissions in the ACT, and produced more than two-thirds of the carbon dioxide equivalent emissions that were attributable to the ACT in 2014–15. The transport sector is also very important, with one-quarter of emissions coming from petroleum-based fuels used in transport vehicles.

Response

Climate change action must be tackled at local, regional and national levels, but cities may be best placed to take serious action and play a leadership role in the reduction of greenhouse gases. The ACT Government, with strong community support, is responding robustly and constructively to the challenge. It has developed and is implementing mitigation strategies to reduce emissions and is working on an adaptation strategy to address current and predicted impacts of climate change.

The ACT Government has legislated greenhouse gas emissions reduction targets that are not only consistent with the recommendations of the Intergovernmental Panel on Climate Change, but are



also the most ambitious targets in Australia. The ACT Government also has actions plan for achieving these targets. Current projections show that the ACT is on track to achieve its target commitment.

Adaptation is well supported politically, and progress has been made on collaborative work to build knowledge and develop responses. A coordinated action plan is still to be released.



View of Royalla Solar farm. Photo: ACT Government

The ACT Government is leading by example to achieve carbon neutrality in its own operations by 2020 through the implementation of the Carbon Neutral Government Framework. Endorsed in August 2012, the framework provides a whole-of-government approach to achieving sustained emissions reductions and energy savings to become carbon neutral in a cost-effective manner.

The 2012–13 ACT Budget provided \$5 million to establish the Carbon Neutral Government Fund, which can provide loans to ACT Government agencies to invest in efficiency projects that will reduce energy consumption and greenhouse gas emissions, and minimise the impact of rising energy costs. Energy savings are used to repay the loan, making these funds available for new projects.

The ACT community has also contributed to the reduction in greenhouse gas emissions by:

- installing roof-top solar panels with the encouragement of the ACT Government feed-in tariff, but also increasingly on their own initiative
- retrofitting older houses or designing new ones with energy efficiency in mind
- joining the increasing numbers of people who use active and public transport by cycling, walking and taking buses for regular commuting and incidental trips
- recycling, reusing and reducing waste.

More ore information on this topic is available in the 2015 *ACT State of the Environment Report* <http://reports.envcomm.act.gov.au/actsoe2015>