

STANDING COMMITTEE ON CLIMATE CHANGE,
ENVIRONMENT AND WATER

Inquiry into ACT Greenhouse Gas Reduction Targets

INTERIM REPORT – UPDATED OCTOBER 2009

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Resolution of appointment

On 9 December 2008, the ACT Legislative Assembly agreed by resolution to establish general purpose standing committees to inquire into and report on matters referred to it by the Assembly or considered by the committee to be of concern to the community, including:

a Standing Committee on Climate Change, Environment and Water to examine matters related to climate change policy and programs, water and energy policy and programs, provision of water and energy services, conservation, environment and ecological sustainability.

The Assembly agreed that each standing committee can consider and make use of the evidence and records of the relevant standing committee appointed during the previous Assembly.¹

Terms of reference

On 11 December 2008 the ACT Legislative Assembly adopted the following terms of reference for the inquiry into ACT Greenhouse Gas Reduction Targets.

That this Assembly:

(1) notes:

- (a) expert scientific evidence confirms that human activity is causing a significant increase in global temperatures, which will have a dramatic impact on the sustainability of existing ecological systems and human settlements;
 - (b) climate change is one of the greatest economic, social and environmental challenges facing the ACT community, and must be addressed accordingly and that it is imperative that the ACT moves to a low carbon future both swiftly and equitably;
 - (c) Australia is a signatory to the United Nations Framework Convention on Climate Change and that the most recent Conference of the Parties agreed that emissions reductions of 25 – 40% will be necessary by 2020 (compared to 1990 levels); and
 - (d) the scientific understanding of climate change is evolving rapidly, and the ACT Climate Change Strategy and its greenhouse gas reduction target should be responsive to the best available scientific knowledge and experience to contribute to a safe climate outcome;
- (2) resolves that the Standing Committee on Climate Change, Environment and Water inquire into and report on:
- (a) an appropriate target to be established in legislation, including:
 - (i) an appropriate date for the peaking of greenhouse gas emissions in the ACT;
 - (ii) an appropriate target for the reduction of greenhouse gas emissions in the ACT by 2012; and

¹ Legislative Assembly for the ACT, *Minutes of Proceedings no 2*, 9 December 2008, pp15–18, accessible at <<http://www.parliament.act.gov.au/downloads/minutes-of-proceedings/08MoP02.pdf>>

- (iii) an appropriate target for the reduction of greenhouse gas emissions in the ACT by 2020;
- (b) appropriate monitoring, reporting and review processes to accompany the target; and
- (c) the following issues associated with achieving the greenhouse gas reduction target:
 - (i) the efficacy of existing programs within the current ACT Climate Change Strategy *Weathering the Change*, and the need for additional programs in the Strategy;
 - (ii) the ACT's future energy supplies, taking account of the draft ACT Government Energy Strategy due to be published in late 2008 and options for sourcing or producing sufficient renewable energy to meet the needs of the ACT;
 - (iii) climate change impacts on the sustainability of existing ecological communities;
 - (iv) social equity and economic issues, costs and opportunities in achieving this target;
 - (v) the relationship between the ACT's legislated target and policy and measures agreed to and implemented at a national level;
 - (vi) the acceptability of local and offshore offsets;
 - (vii) the need to ensure that the ACT does not transfer its greenhouse emissions to other jurisdictions;
 - (viii) the adequacy of existing data collection and methodology for the purpose of establishing a baseline year of 1990 or 2000 and for future monitoring and reporting purposes; and
 - any other related matter; and
- (3) resolves that the Committee shall report by 30 July 2009.²
 - On 23 June 2009 the Assembly amended this resolution and extended the reporting date for the inquiry to 'by 17 September 2009'.³

² ACT Legislative Assembly, *Minutes of Proceedings no 4*, 11 December 2009, pp 44–45

³ ACT Legislative Assembly, *Minutes of Proceedings no 24*, 23 June 2009, p 259

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RECOMMENDATIONS

RECOMMENDATION 1

1.20 The Committee recommends that a Climate Change (Greenhouse Gas Emissions Reductions Target) Bill be introduced into the Assembly before June 2010.

RECOMMENDATION 2

3.16 The Committee recommends that 1990 be used as a baseline year for calculating ACT GHGE reductions.

RECOMMENDATION 3

4.35 The Committee recommends that the proposed legislation set a target for the peaking of ACT per capita emissions by 2013, noting that this will require partnership with the ACT community, and the Commonwealth.

RECOMMENDATION 4

4.46 The Committee recommends that the proposed legislation set a target of a 5% reduction in overall emissions by 2015.

RECOMMENDATION 5

4.47 The Committee recommends the proposed legislation set a target of a 40% reduction in overall ACT GHGE by 2020 notwithstanding that the following factors need to be considered: • the ACT Government's zero net emissions roadmap • the ACT Government's proposed interim draft energy policy • outcomes of the Copenhagen meeting in December 2009 • evolution of the CPRS

RECOMMENDATION 6

4.51 The Committee recommends that the ACT Government consider the feasibility of setting a legislative target of an 80% reduction in overall ACT GHGE by 2050.

RECOMMENDATION 7

4.57 The Committee recommends that the proposed legislation set a target for the ACT government being zero net emissions [carbon neutral] in its own operations by 2015.

RECOMMENDATION 8

4.67 The Committee recommends that the ACT Government make further representations to the Commonwealth that the Carbon Pollution Reduction Scheme be amended as appropriate to ensure that voluntary actions by state and territory governments and the community be recognised, and to set a higher unconditional medium term target.

RECOMMENDATION 9

5.39 The Committee recommends that the Government undertake social environmental and economic impact analysis of all policies and programs introduced to implement legislated targets and that this analysis be publicly available.

RECOMMENDATION 10

6.9 The Committee recommends that the proposed legislation has mandatory public monitoring, reporting and review mechanisms.

RECOMMENDATION 11

6.18 The Committee recommends that the consultancy contract for the production of the ACT GHGE inventory include a requirement that the consultant produce a pdf inventory for on-line publication to a standard similar to the Commonwealth's national GHGE inventory.

RECOMMENDATION 12

6.19 The Committee recommends that an ongoing low-cost regular community education program be undertaken outlining ACT performance across sectors in meeting the ACT GHGE reduction targets. A hard copy of the GHG inventory should be available in all ACT public libraries.

RECOMMENDATION 13

6.59 The Committee recommends that the ACT Government amend the Annual Reports (Government Agencies) Act 2004 (ACT) to require a whole-of-government report on the sustainability performance of ACT Government operations, and on the GHGE reductions achieved by its decisions.

RECOMMENDATION 14

6.63 The Committee recommends that the ACT Government incorporate strategic indicators on Government and sectoral performance in reducing GHGE into its Budget strategic indicators or accountability indicators for agencies.

RECOMMENDATION 15

6.67 The Committee recommends that the proposed legislation require ACT Government agencies to undertake a sustainability assessment [including climate change and a sectoral impact analysis] of all major policies, programs and projects, using a consistent triple bottom line methodology at an early stage.

RECOMMENDATION 16

6.75 The Committee recommends that the proposed legislation require the Commissioner for Sustainability and the Environment, as part of the State of the Environment Report to review and report every four years on ACT sectoral and ACT Government progress on reducing GHGE.

RECOMMENDATION 17

6.79 The Committee recommends that the proposed legislation require the Independent Competition and Regulatory Commission to report annually on major ACT Government climate change policy, programs and projects concerning GHG mitigation and abatement achieved; social economic and environmental benefits of mitigation and abatement, and the total cost of programs, policies and projects, as well as the cost per tonne of emission reduction.

RECOMMENDATION 18

6.90 The Committee recommends that the proposed legislation establish an expert body to advise the Minister and Legislative Assembly on the operations of the proposed legislation, as well as to provide broader advice on climate change policy and program issues as determined by the Minister.

RECOMMENDATION 19

7.12 The Committee recommends that *Weathering the Change Action Plan 2* include specific targets for particular sectors, i.e. ACT Government, commercial, residential, transport, as well as measurements of the expected greenhouse abatement for each action.

RECOMMENDATION 20

7.13 The Committee recommends that ACT Government Budget papers provide an update of expenditure on climate change policies and programs.

RECOMMENDATION 21

7.21 The Committee recommends that an agreed methodology be developed with key stakeholders to assess the climate change impacts of

policies, programs and projects as the first step of the road map to zero net emissions.

RECOMMENDATION 22

8.7 The Committee recommends that the ACT Government put in place measures in the 2010–11 Budget to implement a number of cost effective GHG abatement policies and program initiatives.

RECOMMENDATION 23

8.24 The Committee recommends that the ACT Government evaluate the policy measures suggested by the Green Building Council, the Australian Institute of Architects and the Property Council of Australia as a matter of priority, and report back to the Assembly on their evaluation.

RECOMMENDATION 24

8.86 The Committee recommends the ACT Government responds to the Wright review as a matter of priority, as well as to release its review of the ACT NoWaste strategy by the last sitting day of February 2010.

RECOMMENDATION 25

8.93 The Committee agrees that community education and working with the community should be a strong feature of the ACT Roadmap to zero net emissions, and that existing programs in the education sector provides a good model, despite the need for additional resources.

RECOMMENDATION 26

8.96 The Committee recommends that the Government make a significant investment in the 2010–11 Budget in retrofitting and energy efficiency measures for all sectors and to report back to the Assembly by March 2010.

RECOMMENDATION 27

8.97 The Committee recommends all of the policies, projects and programs raised by witnesses be considered by the ACT Government as part of developing its roadmap to zero net emissions and to report back to the Assembly by March 2010.

RECOMMENDATION 28

9.26 The Committee recommends that climate change be recognised in all action plans and policy documents concerned with biodiversity conservation in the ACT.

RECOMMENDATION 29

9.27 The Committee recommends that the ACT Government work with the Commonwealth and NSW Governments, as a matter of urgency, to protect regional natural forests and to collaborate with those governments more closely on riparian zone, woodland and grassland conservation and regeneration, particularly in the Australian Capital Region.

RECOMMENDATION 30

10.42 The Committee recommends that the ACT Government develop an offset policy in relation to emissions from the ACT Government sector, as well as broader community emissions, as part of its roadmap to zero net emissions, noting ongoing developments in regard to the proposed Carbon Pollution Reduction Scheme.

RECOMMENDATION 31

11.41 The Committee recommends the ACT Government take into account when developing an energy policy: greenhouse gas abatement costs (cost benefit analysis of energy supply), local employment incentives, energy security and energy resilience, education and research opportunities, and mitigation of future costs for energy consumers.

1 INTRODUCTION

Background to the terms of reference

- 1.1 The Parliamentary Agreement for the 7th Legislative Assembly for the ACT, entered into on 31 October 2008 by Mr Jon Stanhope MLA for the Australian Labor Party, and Ms Meredith Hunter MLA for the ACT Greens, included a commitment to this inquiry. The Agreement provided that ACT Labor would legislate a greenhouse gas (GHG) emissions (GHGEs) reduction target for the ACT, with the target the subject of inquiry by the Assembly Climate Change, Environment and Water Committee.⁴
- 1.2 The Agreement indicated that the terms of reference should consider the United Nations Framework Convention on Climate Change meeting in Bali in December 2007. That meeting recognised the need for ambitious reduction targets by industrialised countries in the range of 25–40% below 1990 levels by 2020, and the triple bottom line implications of potential new targets.
- 1.3 On 10 December 2008, the leader of the Opposition, Mr Seselja MLA, re-introduced a Canberra Liberals' private member's bill – the Climate Change (Greenhouse Gas Emissions Targets) Bill 2008 (No 2). The bill proposed targets to reduce ACT GHGEs by at least 60% by 31 December 2050; and by at least 30% by 31 December 2020 on 1990 levels.⁵
- 1.4 The Committee recognises the enormity of the challenges created by climate change – economic, social and environmental – but also sees great potential for innovation and growing the ACT and regional economy sustainably, particularly in new green collar jobs and skills updating.
- 1.5 The Committee's inquiry has been made more difficult by the uncertainty around the: Australian Government's proposed Carbon Pollution Reduction Scheme (CPRS); the potential outcomes from the international climate change negotiations due to take place in Copenhagen in December 2009; the lack of

⁴ Appendix 2: Policy programme: Parliamentary Agreement for the 7th Legislative Assembly for the ACT, viewed 2 February 2009, <<http://www.actlabor.com.au/Documents/Documents/alp-greens-agreement.pdf>>

⁵ Refer to ACT legislation register

detailed analysis from the ACT Government on the costs and benefits of its existing climate change strategies; and uncertainty about the direction of energy policy in the ACT.

- 1.6 This report nonetheless explores why the ACT should demonstrate leadership in seeking to reduce its GHGs as soon as possible, and as efficiently and cost-effectively as possible.

Structure of this report

- 1.7 The structure and content of this report responds to the terms of reference for the inquiry set by the Assembly in its resolution of 11 December 2008, where the Committee was able to do so.
- 1.8 Chapter 1 provides the background to the inquiry. Chapters 2—11 consider a range of matters relating to GHGs, existing and future Commonwealth and ACT Government policies, and issues raised by stakeholders during the inquiry. Chapters 2 and 9 provide a fairly detailed overview of the projected impacts of climate change for Canberra and the region, and a summary of recent scientific studies, as the Committee is aware that there remains a degree of scepticism in the community about the causes and consequences of climate change.
- 1.9 Chapters 3 and 6 discuss the ACT Government's primary monitoring and reporting tool for GHGs - the ACT GHG inventory and possible future monitoring and reporting activities. Chapter 4 discusses short, medium long term targets for reducing GHGs, and a short-term peaking date. Chapter 5 examines the economic stimulus and green jobs potential of climate change mitigation and adaptation measures, as well as other projected social and economic impacts. Chapters 7, 8, 10, and 11 are mainly focussed on current policies and programs, and future possibilities. As discussed below, this report does not address energy issues in detail, given that the ACT Government's interim draft energy policy has not yet been released. The Committee comments on evidence considered throughout the report, and Chapter 12 provides further comments and the Committee's conclusions.

- 1.10 There are other important policy issues relating to climate change, such as adaptation policy and water policy which have not been considered as they are outside the already broad terms of reference for the Committee.
- 1.11 The Appendices provide detailed information which supports the content of the main report:
- Appendix A lists abbreviations and phrases
 - Appendix B outlines other national emissions reductions targets
 - Appendix C, D, and E lists the submissions and exhibits received, and witnesses heard by the Committee during the inquiry
 - Appendix F and G outlines Commonwealth Climate Change Programs and Climate Change Advisory Bodies
 - Appendix H and I outlines the ACT Government's progress on its policies Weathering the Change and the Sustainable Transport Plan and other transport initiatives, and
 - Appendix J outlines green building initiatives.

Conduct of the inquiry

- 1.12 The Assembly referred this inquiry to the Committee on 11 December 2008, for report by the end of July 2009.
- 1.13 On 25 June 2009 the Assembly resolved to extend the inquiry reporting date to 'by 17 September 2009'.⁶
- 1.14 The inquiry received 36 submissions. It held 11 public hearings, and deliberated at 17 private meetings. The list of submissions received, and witnesses who met with the Committee, are at Appendices C and E.
- 1.15 The Committee thanks everyone who assisted with the inquiry. Many stakeholders and witnesses provided detailed submissions and PowerPoint presentations, and the Committee appreciates the time and effort involved.
- 1.16 The proposed legislation and climate change policy and programs need to be considered by the Committee in light of a number of developments, the outcomes of which may impact on ACT GHG reductions, such as the forthcoming ACT Government's zero net emissions roadmap, the proposed

⁶ ACT Legislative Assembly, *Minutes of Proceedings no 24*, 23 June 2009, p 259

interim draft energy policy, the outcomes of the Copenhagen meeting in December 2009, and the likely evolution of the CPRS.

- 1.17 The Committee considers that its inquiry into these and related issues should be ongoing.
- 1.18 While noting these developments, the Committee believes that drafting of legislation for ACT GHG reduction targets, and associated mandatory monitoring, reporting and review mechanisms, should proceed as soon as possible.
- 1.19 The Committee recommends consideration of draft legislation by the Assembly in the first half of 2010 taking into account the above developments.

RECOMMENDATION 1

- 1.20 **The Committee recommends that a Climate Change (Greenhouse Gas Emissions Reductions Target) Bill be introduced into the Assembly before June 2010.**

2 CLIMATE CHANGE STATE OF PLAY

Climate change – the issue

- 2.1 Climate change is the result of changes in our weather patterns because of an increase in the Earth's average temperature. This is caused by increases in GHGs in the Earth's atmosphere. These gases soak up heat from the sun but instead of the heat leaving the earth's atmosphere, some of it is trapped, making the Earth warmer. Climate change is also known as global warming.
- 2.2 GHGs have always been a natural part of the atmosphere. They absorb and re-radiate the sun's warmth and maintain the Earth's temperature at a level necessary to support life. However, since the industrial revolution there has been a steep rise in the concentration of these gases in the atmosphere because of human activity. This increased concentration is known as the enhanced greenhouse effect, which is contributing to a warming of the Earth's surface.
- 2.3 GHGs are produced by human activity, including:
 - burning fossil fuels, such as coal, oil or gas
 - using energy generated by burning fossil fuels (coal, oil, gas)
 - some aspects of farming, such as raising cattle and sheep, using fertilisers and growing some crops
 - clearing land, including logging
 - breakdown of food and plant wastes and sewerage, and
 - some industrial processes, such as making cement and aluminium.
- 2.4 The main GHGs generated by human activity are carbon dioxide, methane and nitrous oxide. GHGs are usually described in terms of their equivalence in carbon dioxide or CO₂-e.

The science of climate change

- 2.5 In 1988 the World Meteorological Organisation and the United Nations Environment Programme established the Intergovernmental Panel on Climate Change (IPCC), as an objective source of information about climate change.
- 2.6 The IPCC assesses existing scientific, technical and socio-economic published or

peer-reviewed research in order to provide policy-makers information to understand the implications of human-induced climate change. The work of the IPCC is informed by the input of hundreds of scientists and provides an authoritative, consensus based account of the status of the trends and impacts of global warming.

- 2.7 The Fourth Assessment Report of the IPCC released in 2007 concluded that:
 - global warming is evidenced in observations that average air and ocean temperatures are increasing; that snow and ice is melting in many places, and that the global mean sea level is rising, and
 - this warming is very likely due to the observed increase in anthropogenic [human induced] GHG concentrations.
- 2.8 The IPCC recommended in 2007 that GHG concentrations in the atmosphere should be limited at 450 parts per million (ppm).⁷
- 2.9 The IPCC will release its 5th Assessment Report in 2014.
- 2.10 An international scientific congress in March 2009 in Copenhagen, Denmark, provided an update of scientific knowledge two years after the Fourth IPCC report. Some of the key messages from the congress included that climatic trends are near the upper boundary of the IPCC range of projections, and that unless abatement actions are effective; many trends will likely accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts. Social and environmental disruption may occur throughout this century and beyond, requiring rapid, sustained, and effective mitigation based on coordinated global and regional action.⁸
- 2.11 Professor Will Steffen of the Australian National University was commissioned by the Australian Government's Department of Climate Change to produce an update on the science of climate change since the IPCC's Fourth Assessment Report in 2007. In July 2009 Professor Steffen reported that:

⁷ Michel den Elzen (contributing Author IPCC WG III AR4) and Niklas Höhne (Lead Author IPCC WG III AR4), 'Emission reduction tradeoffs for meeting concentration targets', viewed 20 August 2009, <<http://www.ipcc.ch/pdf/presentations/briefing-bonn-2008-06/emission-reduction-trade-offs.pdf>>

⁸ Professor Katherine Richardson (Chair), *Synthesis Report: Climate Change Global Risks, Challenges and Decisions Copenhagen 2009*, 10–12 March, viewed 27 July 2009, <<http://climatecongress.ku.dk/>>

- the climate system appears to be changing more quickly than expected, as demonstrated by the amount of carbon dioxide in the atmosphere, trends in global ocean temperature and sea level, and reductions in Arctic sea ice
- some aspects of climate science remain uncertain, and particularly the rates and magnitudes of the major underlying processes causing climate change, how rapid and severe change may be and what it may mean for human societies and the natural world. But urgent and effective reductions in GHGs are needed to avoid the risk of crossing dangerous thresholds in the climate system
- human societies may need to develop resilience to, and adapt to new climate conditions, and
- long-term feedbacks in the climate system may be emerging which will not be possible to contain through human intervention. These include changes in the large polar ice sheets and the behaviour of natural carbon sinks, and the possible melting of the permafrost of the northern hemisphere. If these feedback mechanism's cause rapid and extreme climate change the implications for human societies are of concern.⁹

Global environmental impacts of climate change

2.12 In July 2009 the World Resources Institute released a brief on 'major new discoveries' in climate science in 2008. Some findings in the report included that:

- between 2000 and 2007 global carbon dioxide emissions increased at a rate four times that of the previous decade
- warming over the last century can be attributed largely to human activities, and not natural factors such as solar variability
- if atmospheric carbon dioxide concentrations reach 700 parts per million by 2100 daily maximum temperatures are projected to exceed 50 degrees Celsius in parts of Australia, India, the Middle East, and Africa

⁹ Prof. W. Steffen, *Faster Change and More Serious Risks*, Australian Government Department of Climate Change, Canberra, 2009, viewed on 20 July 2009, <http://www.climatechange.gov.au/science/publications/pubs/cc-faster_change.pdf>. Similar points were made by other witnesses. See for example: *Transcript of Evidence*, 1 July 2009, p250; *Transcript of Evidence*, 1 July 2009, p 257

- sea ice loss in the Arctic could trigger a rapid degradation of permafrost, releasing frozen carbon stores that have been stable for millennia
- from 1996 to 2006, the rate of ice mass loss of Antarctica increased by 75 percent
- the rate of melting and thinning of 30 glaciers across nine mountain ranges around the world doubled between 2004–05 and 2005–06.
- climate change may lead to a crisis in water supply in the western part of the United States
- changes in 28 800 plant and animal systems and 829 physical climate systems have led scientists to conclude that natural and physical systems are already being affected by climate change, and
- if carbon dioxide emissions continue unabated, tropical ocean dead zones are likely to increase by 50 percent by 2100.¹⁰

2.13 Other reports in 2009 suggested that:

- temperatures on the surface of Antarctica rose by an average of 0.5 degrees in the past 50 years, but temperatures on West Antarctica warmed at the faster rate of 0.17 degrees per decade. Melting Antarctic ice has the potential to make a significant contribution to sea-level rise ¹¹
- 20–30% of assessed species would be at risk of extinction if temperatures increase by 1.5–2.5 degrees ¹²

¹⁰ K Levin and D Tirpak, 'Climate Science 2008: Major new discoveries', *World Resource Institute Issue Brief*, July 2009, p 2

¹¹ Darby, 'Clear evidence emerges of Antarctic warming', *The Age*, 23 January 2009, p 1; T Arup, 'Antarctic ice melting faster than expected', *The Age*, 6 April 2009

¹² Convention on Biological Diversity, Draft Findings of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change, 2009

2.14 According to the Australian Government's reference to scientific literature:

Sea ice extent has increased by one percent per decade due to changes in wind patterns linked to ozone depletion and climate change. This is likely to be a short lived increase with models projecting Antarctic sea ice will reduce by almost a quarter in total extent and a third in total volume by 2100.

Most of the world's ice is in the vast ice sheets of Greenland and Antarctica. Greenland is melting rapidly, losing ice at the rate of about 200 cubic kilometres per year.¹³

...Sea level rise of up to a 1 metre by 2100 cannot be ruled out.

...the eventual disappearance of the Greenland ice sheet.... would lead to 7 meters (sic) of sea level rise. Such a change would be irreversible in any timeframe meaningful for human societies.¹⁴

2.15 The Committee also notes that there is current debate internationally over a possible new north-east summer shipping passage around Russia's Arctic coast. This route was previously inaccessible.¹⁵

2.16 Dr Andrew Glikson advised the Committee that CO₂ concentrations were at 388ppm in 2009, nearly 40 percent higher than levels recorded for the last 2.8 million years.¹⁶ With CO₂ concentrations rising by about 2ppm each year, the climate conditions which allowed the emergence of large mammals (34 million years-ago), humans (5 million years-ago), and civilization (about 7000 years ago) are said to be endangered.¹⁷

¹³ Hon Greg Combet AM MP, Statement by the Minister Assisting the Minister for Climate Change, 'The Scientific Imperative for Action on Climate Change', 12 August 2009, p 4

¹⁴ Hon Greg Combet AM MP, Statement by the Minister Assisting the Minister for Climate Change, 'The Scientific Imperative for Action on Climate Change', 12 August 2009, pp 3, 4, 6, 9, 10

¹⁵ L Riddoch, 'Meltdown 'to open Arctic tanker route', *The Guardian Weekly*, 24 July 2009, p 6

¹⁶ Or 383ppm in 2008 according to M R Raupach, J G Canadell, and C Le Qu'ere Anthropogenic and biophysical contributions to increasing atmospheric CO₂ growth rate and airborne fraction. *Biogeosciences*, 5, 1601–1613, 2008, cited in the Hon Greg Combet AM MP, Statement by the Minister Assisting the Minister for Climate Change, 'The Scientific Imperative for Action on Climate Change', 12 August 2009

¹⁷ Dr A Glikson, 'Warming earth', 22 July 2009, on 'Unleashed', <<http://www.abc.net.au/unleashed/stories/s2632735.htm>>

Impacts in Australia

- 2.17 The Australian Government has acknowledged that global average temperatures have increased by 0.74% over the last century, and 13 of the 14 warmest years on record occurred between 1995 and 2008. Australia is said to have warmed by 0.9 degrees C since 1950.¹⁸
- 2.18 On business-as-usual perspectives, average temperatures across Australia are expected to rise by just over 5°C (compared to 1990) by 2100. A 1°C rise in temperature risks a 15% reduction in stream flow in the Murray-Darling Basin which is a crucially important river system for Australia, including its ecosystems, agricultural industries and urban settlements.¹⁹
- 2.19 Professor Steffen notes particular implications in Australia include possible sea level rise of about 0.8 m by 2100; the threat of recurring severe droughts and the drying trends in major parts of the country; the likely increase in extreme climatic events like heatwaves, floods and bushfires; and the impacts of an increasingly acidic ocean and higher ocean temperatures on marine resources and ecosystems such as the Great Barrier Reef.²⁰
- 2.20 In April 2009 the Bureau of Meteorology advised that for the period from June 2007 to March 2009, serious to severe rainfall deficiencies were evident across much of southeast Australia and parts of central Australia. Rainfalls were in the lowest 10% of historical totals.²¹
- 2.21 On 1 July 2009 the Bureau of Meteorology advised that there was a 'high' probability that there would be an El Niño event in 2009 which usually means dry or drought conditions in eastern Australia. Contributing factors

¹⁸ Hon Greg Combet AM MP, Statement by the Minister Assisting the Minister for Climate Change, 'The Scientific Imperative for Action on Climate Change', 12 August 2009, pp 2, 3

¹⁹ W Cai and T Cowan, Evidence of impacts from rising temperature on inflows to the Murray-Darling Basin, *Geophys. Res. Lett.*, 2008 cited in Minister for Climate Change and Water, Senator the Hon Penny Wong, 'Building confidence toward an effective global climate change agreement – an Australian perspective', Address to the International Peace Institute, New York, 27 March 2009

²⁰ Prof W Steffen, *Faster Change and More Serious Risks*, Australian Government Department of Climate Change, Canberra, 2009, viewed 20 July 2009, <http://www.climatechange.gov.au/science/publications/pubs/cc-faster_change.pdf>

²¹ Australian Government Department of the Environment, Water, Heritage and the Arts 2009, 'Long-term rainfall deficiencies persist over south eastern Australia', Drought Statement issued 6th April 2009, for the 15 and 22-month periods ending 31st March 2009, viewed 7 May 2009 at <http://www.bom.gov.au/announcements/media_releases/climate/drought/20090406.shtml>

included sea surface temperatures more than 1°C warmer than normal for parts of the equatorial tropical Pacific Ocean, weaker than normal trade winds, and a negative Southern Oscillation Index.²²

Climate change in the ACT and its region

2.22 The Bureau of Meteorology presented evidence to the Committee in February 2009 which described the major drivers of climate change and variability, particularly for Australia. It summarised observed climate changes over this century and projections for the 21st century, with an emphasis on the ACT and surrounding regions of NSW. The Bureau advised that:

- the ACT is getting warmer. Minimum temperatures have risen approximately 1.0°C since around 1970, and most of the increase in maximum temperatures over the period of record, of around 1.2°C, has occurred since 1995. 2006 was Canberra's hottest year on record
- all model scenarios show a warming. Based on the best estimate (mean) from a range of different climate models, the most significant changes to NSW and ACT temperature are projected to be largest in spring and summer. Across all seasons a warming of between 0.6 and 1.0°C is expected. An increase of between 0.3 and 0.6°C in spring and summer temperatures by 2030 is projected
- the ACT has been getting drier, with autumn and early winter rainfall decreasing. Rainfall can be highly variable, ranging from 350mm to 1200mm a year, and since records began early last century there has also been significant inter-decadal variability. In the 1890s the Murray Darling Basin experienced the Federation Drought, which extended through a relatively dry first half of the century, followed by a much wetter period from the 1950s through to the 1990s. Rainfall has been in decline since the early 1990s, with greatest decline occurring since 1996. According to the Bureau, research in Western Australia has shown that the decline in autumn and early winter rainfall is highly likely to be due to anthropogenic climate change

²² Australian Government, Bureau of Meteorology, 'Predictions point to likely El Niño', Model Outlooks of ENSO Conditions from June 2009, viewed 21 July 2009, <http://www.bom.gov.au/climate/ahead/ENSO-summary.shtml>

- south-eastern Australian faces a substantially increased risk of fire weather in coming decades, with increasing frequencies of days with very high and extreme Forest Fire Danger Index ratings. Canberra is projected to have an annual average of 25.6 to 28.6 very high or extreme fire danger days by 2020, and between 27.9 and 38.3 extreme fire danger days by 2050. The average in 2007 was 23.1 extreme fire danger days²³
- more frequent hot days and warm nights are expected, with the number of days over 35°C each year expected to increase from an average of five in 2007, to an average of between eight and 14 a year by 2050, and between 12 and 26 by 2070.²⁴ The Bureau noted that as the projections are averages, in extreme years these numbers could be significantly higher;
- rainfall in NSW and the ACT is projected to lessen most in winter and spring, with a 5–10% reduction in spring rainfall likely, and with a 2–5% reduction likely across all seasons and
- there is likely to be a reduction of between 5 and 27% in the number of frost days by 2050.²⁵

2.23 ANU palaeoclimatologist Dr Timothy Barrows, has also found that Canberra will be warmer and drier than previous projections have suggested, based on past warming trends.²⁶

Health impacts

2.24 Climate change is expected to impact adversely on the health of vulnerable sectors of the population such as the elderly, children, people with pre-existing medical conditions and disabilities, homeless people, and low

²³ See also: Australian Government. CSIRO and Bureau of Meteorology, Department of the Environment and Water Resources, Australian Greenhouse Office 2007, *Climate Change in Australia: Technical Report 2007* (rev. ed), Canberra, pp 11, 90–91; BC Bates, SP Charles, F Chiew, K Harle, M Howden, M Kirby, M Peel, R Suppiah, L Siriwardena, NR Viney, and PH Whetton, *Climate change projections and the effects on water yield and water demand for the Australian Capital Territory*, Consultancy for ACT Electricity and Water, CSIRO 2003

²⁴ See also: *Climate Change in Australia: Technical Report 2007* (Rev. ed), pp 60–61; Garnaut, *The Garnaut Climate Change Review: Final Report*, pp 113–118

²⁵ Exhibit 1: Dr Michael Coughlan, Chief Climatologist and Mr Perry Wiles, NSW Regional Climate Service Centre, 'Climate Change and Variability', 18 February 2009, presentation, accessible at <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=753&category=18>>

²⁶ R Beeby, 'Climate horror scenario for ACT', *The Canberra Times*, 19 January 2009

income households. The health impacts of climate change were potentially apparent in Victoria in January 2009, when there were 374 more deaths than would normally be expected in heatwave conditions.²⁷

- 2.25 Key health impacts associated with climate change are being considered by the Australian Health Minister's Advisory Council.²⁸ In April 2007, the Council of Australian Governments (COAG) endorsed a National Climate Change Adaptation Framework, under which a Climate Change Adaptation Plan for Human Health will be developed, and which COAG is expected to consider by the end of 2009. A national \$10 million climate adaptation research plan for human health was launched in January 2009.²⁹
- 2.26 In evidence to the Select Committee on Estimates in May 2009 the Chief Health officer for the ACT, Dr Charles Guest, said that the health impacts of climate change was under 'intense discussion' within government.³⁰ He noted, for example, that the Population Health Division was exploring as part of the feasibility study for the Centre for Adolescent Health whether and how far environmental health concerns might be linked with health promotion.³¹
- 2.27 On the other recognised areas of climate change health impacts, Dr Guest suggested that heatwaves had been well-studied in Australia and communications had been developed accordingly. He said that as social connectedness in the ACT is better than in many places there were unlikely to be deaths here during heatwaves as sometimes occurs in other jurisdictions. It was an issue that was watched with care.³²
- 2.28 Dr Guest said that ACT Health was well linked in with ANU researchers working on the health impacts of climate change, such as Professor Tony McMichael's group. ACT Health was watching some diseases, such as Ross River virus, to see whether it may increase under climate change. Water quality, such as algal blooms in ACT lakes, may also deteriorate in the ACT. This could

²⁷ A Macgibbon, 'Warming - it's a health hazard', *The Sydney Morning Herald*, 7 May 2009

²⁸ Australian Government, *National Climate Change Adaptation Action Plan for Human Health*, Commonwealth of Australia, 2009

²⁹ J Massola, 'Climate change 'to increase disease risks'', 27 January 2009, p 1

³⁰ Select Committee on Estimates 2009–2010 (Reference: Appropriation Bill 2009–2010), *Transcript of Evidence*, 21 May 2009, p 433

³¹ Select Committee on Estimates 2009–2010, *Transcript of Evidence*, 21 May 2009, p 433

³² Select Committee on Estimates 2009–2010, *Transcript of Evidence*, 21 May 2009, p 435

lead to rashes, and eye and other inflammations in people exposed directly.³³

2.29 Some of the health risks relevant to the ACT are expected to arise from:

- more frequent and severe heatwaves and intense weather events (i.e. including storms and bushfires), and more sunburn and other heat-related impacts
- respiratory and cardiac illness associated with aeroallergens such as pollens, and reduced levels of physical activity in hot weather
- mosquito-borne infectious diseases such as Ross River Virus
- algal blooms and other water pathogens that cause human disease
- reductions in food production and increasing prices arising from reduced water availability, particularly affecting fresh fruit and vegetables
- increased risks of infectious food-poisoning (gastro-enteritis), from salmonella, campylobacter, various temperature-sensitive vibrios, and others
- stress and adverse mental health impacts such as depression, post-traumatic stress disorder etc.³⁴

Economic and social impacts

2.30 In 2006 the United Kingdom's Stern Report³⁵ found that the costs of climate change would be equivalent to losing between 5% and 20% of global GDP each year, now and into the future; and that the costs of reducing GHGs to avoid the worst climate change impacts could be limited to 1% of global GDP each year.

2.31 Australia's equivalent Garnaut Report estimated that unmitigated climate change could result in costs in the order of 8% of Australia's gross domestic product by 2100, finding:

³³ Select Committee on Estimates 2009–2010, *Transcript of Evidence*, 21 May 2009, p 435

³⁴ Prof AJ McMichael, *Climate Change in Australia: Risks to Human Wellbeing and Health*, *Austral Special Report 09-03S*, Nautilus Institute Australia and RMIT University, 23 March 2009; SGS Economics and Planning, *Climate Change Social Impact Analysis Stakeholder Workshop—Outcomes*, September 2008, viewed 21 July 2009
<http://www.cmd.act.gov.au/__data/assets/pdf_file/0010/2170/SIA_workshop_outcomes.pdf

³⁵ N Stern, *The Economics of Climate Change: The Stern Review*, Cabinet Office-HM Treasury, Cambridge University Press, UK, 2006

The increase in concentrations of GHGs in the atmosphere over the last two centuries has generated the climate change that we have experienced to date and will experience over the next couple of decades and beyond.

This is the result of economic activity in the countries that are now rich.³⁶

2.32 Economic impacts are considered in more detail below.

International policy response to climate change

2.33 The 1992 United Nations Framework Convention on Climate Change (UNFCCC), is the key international instrument to address climate change. The Convention aims to stabilise GHG concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system in order to protect the climate system for present and future generations’.

2.34 Based on the IPCC 4th assessments GHG concentrations in the atmosphere should be limited at 450ppm.

2.35 The Convention was adopted by the United Nations in May 1992 and came into force in 1994 on obtaining ratification by 50 countries. In August 2009 there were 192 parties to the Convention, thereby enjoying almost universal membership.

2.36 The Convention requires parties to:

- submit a national inventory of emissions and removals of GHGs
- implement national programmes to mitigate climate change and adapt to its impacts
- undertake scientific and technical research and systematic observation related to the climate system, and promoting the development and diffusion of relevant technologies
- promote education programs and public awareness about climate change and its likely effects, and
- report on activities to implement commitments under the Convention.

2.37 The UNFCCC did not set any GHG reduction targets. In 1997 the Kyoto Protocol was negotiated under the Convention. As of 8 July 2009, 186 countries and 1 regional economic integration organization (the EEC) had ratified the

³⁶ Garnaut, *The Garnaut Climate Change Review: Final Report*, ch 10

Protocol.³⁷

- 2.38 The Protocol requires signatories to, amongst other things; make specific national commitments to GHG reduction targets within the 'first commitment period' of 2008–2012 against their 1990 emissions levels. The targets agreed were an average 5.2% GHG reduction by the developed countries and the European Union, as well as specific targets for a number of other countries including an 8% increase for Australia.
- 2.39 These GHG reductions could be achieved through domestic action supplemented by internationally-operating market-based mechanisms, including the clean development mechanism.
- 2.40 The Kyoto Protocol required that parties initiate consideration in 2005 of subsequent GHGE reductions commitments and other arrangements for the period after 2012. In 2005 parties agreed to consider further reductions after 2012. Since then a number of processes have been put in place, including agreement at the 13th Conference of the Parties to the UNFCCC to the Bali Roadmap and Action Plan, to guide negotiations in the lead up to 15th Conference of the Parties to the UNFCCC, and the Fifth meeting of Parties to the Kyoto Protocol in Copenhagen in December 2009.
- 2.41 The Copenhagen Climate Change Conference in December 2009³⁸ – the 15th Conference of the Parties under the UNFCCC – is intended to culminate in a new multilateral agreement on climate change, to operate after 2012, a key component of which will be the legally binding targets set for developed countries including Australia.
- 2.42 The 13th Conference of the Parties under the UNFCCC acknowledged that emissions reductions of 25 – 40% will be necessary by 2020 (compared to 1990 levels) by developed countries.³⁹
- 2.43 During the 14th Conference of the Parties to the UNFCCC and the 4th Meeting of the Parties to the Kyoto Protocol in Poznan in December 2008, developing

³⁷ UNFCCC, Kyoto Protocol Status of ratification,

<http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php>

³⁸ 7–18 December 2009

³⁹ Mallesons, 'Decisions of COP 14, Poznań', viewed 20 August 2009,

<<http://www.mallesons.com/publications/2009/Feb/9780039w.htm>>

countries called for an overall quantified limitation and reduction of GHGEs of at least 25–40% below 1990 levels by 2020 for developed [Annex 1] countries.⁴⁰

The security implications of climate change

- 2.44 In 2007 the United Nations Security Council held its first debate on the international security implications of climate change.⁴¹
- 2.45 The Committee notes that Australia's Defence White Paper, released in May 2009, suggests that climate change and population growth may intensify competition over scarce resources (including energy, food and water) in developing countries, particularly in Africa and the Middle East, but that Australia is unlikely to face the large-scale strategic consequences of climate change before 2030.
- 2.46 In our region, due to the population, infrastructure and governance challenges facing many South Pacific island states and East Timor, and the prospect of increasing natural or man-made humanitarian crises or disasters, the White Paper noted that Australia may need to respond with humanitarian and security assistance, including Australian Defence Force deployments. Australia's main response will be through coordinated international climate change mitigation and economic assistance strategies, and concerted international action to assure energy supply and distribution.⁴²
- 2.47 The Committee agrees with several witnesses' comments that the implications of climate change for human security, including in Australia, are profound, and that our response, across communities, economies and governments, should be correspondingly comprehensive and responsive.
- 2.48 The Committee also recognises that climate change is just one of a range of global threats to human and ecological security and sustainable development.

⁴⁰ T Santarius, C. Arens, U. Eichhorst, D. Kiyar, F. Mersmann, H.E. Ott, F. Rudolph, W. Sterk, R. Watanabe, 'Pit Stop Poznan. An analysis of negotiations on the Bali Action Plan at the stopover to Copenhagen', Wuppertal Institute for Climate, Environment and Energy, p 4

⁴¹ United Nations Security Council, '5663rd Meeting (AM & PM), Security Council Holds First-Ever Debate on Impact of Climate Change on Peace, Security, Hearing Over 50 Speakers', 17 April 2007, viewed 27 July 2009, <<http://www.un.org/News/Press/docs/2007/sc9000.doc.htm>>

⁴² Australian Government Department of Defence 2009, *Defending Australia in the Asia Pacific Century: Force 2030 Defence White Paper 2009*, paras 4.7, 4.35, 4.60–4.65, viewed 5 May 2009 <http://www.defence.gov.au/whitepaper/docs/defence_white_paper_2009.pdf>

- 2.49 The ecological limits of population, food production, industrial production, pollution and consumption of non-renewable natural resources (including fossil fuels) are leading some scientists to forecast the collapse of the global ecological system by about 2050.⁴³ Others highlight the dangers of ecological tipping points which, if triggered, could produce rapid and extreme climate change.⁴⁴ Various commentators link the security threats of climate change and peak oil.⁴⁵ Philip Sutton, one of the witnesses to this inquiry, urged that a security framework be adopted for responding to climate change, describing it as ‘a civilisation-stopping sort of phenomenon’.⁴⁶ Others referred to the need for an economic transformation comparable with that for the Second World War.⁴⁷

Australia’s national policy response to climate change

- 2.50 The Australian Government has developed a range of measures to deal with climate change, including the Mandatory Renewable Energy Target (introduced in 2001) and cooperative work through COAG including policy measures to complement the central policy machinery of the proposed CPRS.
- 2.51 Australia ratified the 1992 United Nations Framework Convention on Climate Change on 30 December 1992, and following the election of the Rudd Government in October 2007, Australia ratified the Kyoto Protocol. From 11 March 2008, Australia was committed to limiting its national emissions to an average of 108 % of 1990 levels over the first commitment period (2008 to 2012).
- 2.52 In July 2008, the Australian Government released its CPRS Green Paper reflecting the Australian Government’s preferred positions on an emissions

⁴³ See for example: G. Turner, ‘A comparison of the Limits to Growth with thirty years of reality’, Socio-economics and the Environment in Discussion: CSIRO Working Paper Series 2008–09, June 2008; GM Turner, ‘A Comparison of The Limits to Growth with 30 years of reality’, *Global Environmental Change* vol 18, 2008, pp 397–411

⁴⁴ Chris Hammer, ‘“No return” fears on climate change’, *The Age*, 12 June 2008 reporting on presentations at a Canberra conference — Imagining the Real Life on a Greenhouse Earth; Dr A. Glikson, ‘The fatal consequences of atmospheric CO₂-e levels higher than 450 ppm’, Submission 9 and Exhibit 5; Submissions 3, 15, *Transcript of Evidence*, 1 July 2009, p 257

⁴⁵ S Scott, ‘Climate Change And Peak Oil As Threats To International Peace and Security: is it Time for the Security Council to Legislate?’, viewed 27 July 2009, <[http://www.mjil.law.unimelb.edu.au/issues/archive/2008\(2\)/09Scott.pdf](http://www.mjil.law.unimelb.edu.au/issues/archive/2008(2)/09Scott.pdf)>; Submission 15A

⁴⁶ Legislative Assembly for the Australian Capital Territory, Standing Committee on Climate Change, Energy and Water, *Transcript of Evidence*, 1 July 2009, pp 251–2; D. Spratt and P. Sutton, *Climate Code Red: the Case for Emergency Action*, Scribe Publications, Melbourne, 2008

⁴⁷ *Transcript of Evidence*, 1 July 2009, pp 256–7; *Transcript of Evidence*, 3 June 2009, p 230

trading scheme.

- 2.53 The Australian Government also released its Treasury's economic modelling of the potential economic impacts of reducing emissions over the medium and long term: *Australia's Low Pollution Future: The Economics of Climate Change Mitigation* on 30 October 2008. This modelling looked at distributional impacts, such as the implications of emission pricing for the goods and services that households consume and proposed that:

early global action is less expensive than later action; that a market-based approach allows robust economic growth into the future even as emissions fall; and that many of Australia's industries will maintain or improve their competitiveness under an international agreement to combat climate change.⁴⁸

- 2.54 In December 2008, the Australian Government released its CPRS White Paper which addressed, among other things, the national emissions trajectory and target, coverage, reporting and compliance, the nature of Australian emissions units, acceptable international units, auctioning, scheme caps, assistance, tax and accounting issues, household assistance and complementary measures, and the Climate Change Action Fund.
- 2.55 The Australian Government released its draft bills for public comment in March 2009, and following consultation announced new measures in May 2009, including:
- a delay in the start date of the Scheme of one year
 - a one year fixed-price period in 2011–12, during which emissions units would cost \$10 per tonne of carbon, with the transition to full market trading from 1 July 2012
 - additional assistance for emissions-intensive trade-exposed industries
 - eligible businesses to receive funding to undertake energy efficiency measures commencing in 2009–10
 - a commitment to reduce carbon pollution by 25 % of 2000 levels by 2020 if the world agrees to an ambitious global deal to stabilise levels of carbon dioxide equivalent (CO₂-e) in the atmosphere at 450 parts per million or less

⁴⁸ Parliament of the Commonwealth of Australia, Senate, CPRS Bill 2009, Revised Explanatory Memorandum p 10, viewed 20 August 2009, <http://parlinfo.aph.gov.au/parlInfo/download/legislation/ems/r4127_ems_70ed28a9-faab-47d6-aa74-4d7aff1eccde/upload_pdf/330663rem.pdf;fileType%3Dapplication%2Fpdf>

- up to five percentage points of the 25 % target could be achieved through Government purchase of international credits, such as avoided deforestation credits, using Scheme revenue and commencing no earlier than 2015
- should the world achieve this ambitious agreement, the Government would seek a new election mandate for increased 2050 targets.

Energy efficiency measures

- 2.56 COAG has been addressing energy efficiency since at least 2004 when the Ministerial Council on Energy (MCE) adopted a package of measures constituting stage one of the National Framework for Energy Efficiency. Stage One of the National Framework was largely complete in 2009.
- 2.57 In December 2007, the MCE agreed to Stage Two of the Framework, which included:
- expanding and enhancing the Minimum Energy Performance Standards program;
 - improving the efficiency of heating, ventilation and air conditioning systems;
 - the phase-out of inefficient incandescent lighting;
 - government leadership through green leases;
 - a national hot water strategic framework, which was approved by the MCE in December 2008; and
 - an energy efficiency data project.
- 2.58 The Framework also led to the establishment of the Energy Efficiency Opportunities program, new minimum energy performance standards for a range of appliances, minimum energy efficiency standards for new buildings, and the development of a range of training and information provision measures.
- 2.59 In December 2008 COAG endorsed the Commonwealth's Energy Efficient Homes package, which provided for the installation of ceiling insulation in up to 2.7 million uninsulated Australian homes.
- 2.60 To complement this program, COAG agreed that the States would maintain existing energy efficiency funding levels, and re-direct state funding for other energy efficiency programs such as insulation programs to home energy advice programs, particularly for the most disadvantaged households. States agreed to audit the energy efficiency of existing public housing stocks, and consider

implementing a program for cost-effective upgrades.⁴⁹

- 2.61 States also agreed to collaborate to use the Commonwealth's on-line portal as a single point of inquiry for all energy efficiency programs for households and businesses, and that a key part of the COAG National Energy Efficiency Strategy be a commitment from Commonwealth and State governments to improve the energy efficiency of their own operations.
- 2.62 States also re-committed to expediting the national roll-out of electricity smart meters, agreed by COAG in April 2007.⁵⁰
- 2.63 On 30 April 2009 COAG agreed to accelerate energy efficiency reforms, and streamlined roles and responsibilities under the National Energy Efficiency Strategy.⁵¹
- 2.64 In July 2009 COAG endorsed the new National Strategy on Energy Efficiency to deliver a coordinated and ambitious ten-year Strategy. Key measures include:
- a new 6-star standard for all new residential buildings
 - phasing in of mandatory disclosure of residential building energy, greenhouse and water performance at the time of sale or lease, commencing with energy efficiency, by May 2011
 - standards and assessment processes are to be made nationally consistent.
 - from 2010, the Building Code of Australia will require higher energy efficiency standards for all classes of new commercial building and major renovations
 - the energy efficiency of commercial buildings and tenancies will have to be disclosed at point of sale, and
 - new efficiency requirements for hot-water systems and lighting.

Review of Commonwealth climate change programs

- 2.65 In February 2008 the Commonwealth Government established a strategic review – the Wilkins review – of Commonwealth climate change programs. The review assessed 62 programs against the complementarity principles agreed on 29 November 2008 by the COAG Working Group on Climate Change and

⁴⁹ COAG Communique on the Nation Building & Jobs Plan, Media Statement - 5th February 2009, <<http://www.alp.org.au/media/0209/mspm050.php>> viewed 27 March 2009

⁵⁰ See COAG Communiqué on the Nation Building & Jobs Plan, Media Statement - 5th February 2009, viewed <<http://www.alp.org.au/media/0209/mspm050.php>>, 19 February 2009

⁵¹ Council of Australian Governments Meeting Canberra 29 November 2008 *Communique*, <<http://www.decs.sa.gov.au/coagnews/files/links/COAGCommunique291108.pdf>>, viewed 27 March 2009

Water, and endorsed by COAG, and made recommendations to Government.

- 2.66 In May 2009, the Commonwealth released its response to the Wilkins review. It agreed that 15 programs were complementary to the CPRS; 7 were complementary and should continue as Government core business, 14 should continue as transitional programs, 9 would be considered in other processes, and 13 programs would cease. The Commonwealth's response in relation to programs is at Appendix F.

COAG complementary measures policy

- 2.67 State and territory governments in Australia agreed in COAG in November 2008 to review their climate change mitigation policies against agreed 'complementarity principles', aiming to minimise duplication with the Commonwealth's initiatives. To be a complementary measure, state and territory laws and policies should comply with best-practice principles for regulation and policy design, including measures targeted at market failure⁵² that are not expected to be adequately addressed by the CPRS. Complementary measures should adhere to the principles of efficiency, effectiveness, equity and administrative simplicity and be kept under review. They should generally be implemented by the level of government that is best able to deliver the measure.⁵³
- 2.68 The Committee is not aware that the ACT Government has yet undertaken a 'complementary measures' review, although the ACT Department of the Environment, Climate Change, Energy and Water (DECCEW) was working

⁵² A market failure is generally an inefficient allocation of resources and can include externalities, public goods, split incentives, information failures and barriers to effective competition: NSW Independent Pricing and Regulatory Tribunal 2009, 'Review of Climate Change Mitigation Measures: Roundtable Issues for Discussion', 2 April 2009, p 2 viewed 9 April 2009, <www.ipart.nsw.gov.au>. NSW Independent Pricing and Regulatory Tribunal 2008, *Review of Climate Change Mitigation Measures: Other Industries – Issues Paper*, December, viewed 14 April 2009 <<http://www.ipart.nsw.gov.au/files/Review%20of%20NSW%20climate%20change%20mitigation%20measures%20-%20Issues%20Paper%20-%20December%202008%20-%20APD%20Website.PDF>>. See also: NSW Independent Pricing and Regulatory Tribunal 2009, 'Review of Climate Change Mitigation Measures: Roundtable Issues for Discussion', 2 April 2009, p 2 viewed 9 April 2009, <www.ipart.nsw.gov.au>

⁵³ Council of Australian Governments, 'COAG Principles for Jurisdictions to Review and Streamline their Existing Climate Change Mitigation Measures', in *Communiqué*, 29 November 2008 viewed 9 April 2009, <http://www.coag.gov.au/coag_meeting_outcomes/2008-11-29/docs/20081129_complementarity_principles.pdf>

closely with the Commonwealth to ensure programs were not duplicated.⁵⁴ The Committee discusses below the Independent Competition and Regulatory Commission (ICRC's) endorsement of the need for such a review of ACT climate change policies and program suggestions.

ACT policy response to climate change

- 2.69 The ACT has been at the forefront of policy responses to climate change.
- 2.70 In November 1997, the then Minister for the Environment Gary Humphries announced an ambitious target that the ACT would work towards reducing the ACT's GHGEs to their 1990 level by 2008, and would reduce emissions below this level by 2018.
- 2.71 The subsequent *ACT Greenhouse Strategy* was released in January 2000.
- 2.72 In March 2006 a revised draft climate Change Strategy, as well as draft energy policy was released for public discussion.
- 2.73 In July 2007, the ACT Chief Minister released the ACT Climate Change Strategy *Weathering the Change 2007–2025*. The Strategy sets out the approaches the Government will pursue between now and 2025 to support the broader community response to climate change. It commits to a target of a 60% reduction in GHGEs based on 2000 levels by 2050 and a milestone of limiting emissions to 2000 levels by 2025.
- 2.74 At the same time the first Action Plan for 2007 – 2011 was released. It outlines 43 actions, under four broad themes. The themes and actions are:

1. Being Smarter in Our Use of Resources

- Develop an Energy Policy
- Pursue Carbon Neutrality in Government Buildings
- Establish a \$1 million Energy Efficiency Fund for ACT Government Agencies
- Develop and Implement a Park-and-Ride Strategy
- Legislate for Green Power to be offered to all new electricity customers
- Implement a renewable energy target (RET) in line with the NSWRET

⁵⁴ *Transcript of evidence*, 13 May 2009, pp 199, 207

- Offer stamp duty concessions for low emission vehicles
- Implement energy efficiency improvements in government housing
- Provide a solar hot water rebate
- Pursue national emissions trading and reporting
- Assist schools become carbon neutral
- Undertake ACTION CNG Bus Fleet replacement
- Undertake energy efficient street light replacement
- Introduce free bus travel for bicycle riders

2. Designing and Planning our City to be more Sustainable

- Implement Public Transport Improvements
- Develop Network and Service Design Plans for buses
- Investigate Travelling to Work Options
- Introduce a Feed-in Tariff for renewable micro generation
- Pursue Energy Efficiency Rating for all Buildings
- Investigate Mandatory Solar Hot Water for new houses
- Develop integrated land use and transport planning
- Include environmentally sustainable design features in all new public schools
- Increase the new home owner's entitlement to trees and shrubs
- Pursue Triple Bottom Line Tendering for land release
- Pursue an Urban Forest Replacement Program
- Establish East Lake as a showcase urban development

3. Adapting to Current and Future Climate Change

- Develop a Grant Program for Community Groups
- Prepare Government Agency Vulnerability Assessments
- Undertake a climate change social impact analysis
- Prepare an ACT and Region Vulnerability Assessment
- Support the National Adaptation Framework
- Assess Climate Change Impacts on our Urban Areas
- Protect areas of high conservation value

- Develop an Ecosystem Connectivity Map
- Prepare a Sphagnum Bog Mapping and Recovery Plan
- Plant One Million New Trees

4. Improving our Understanding of Climate Change

- Undertake a Community Education Program
- Implement Sustainability in Schools
- Showcase Renewable and Energy Efficiency Technologies
- Facilitate a business roundtable on Climate Change
- Partner with key Institutions to Encourage Research
- Develop Fuel Sale Data Legislation for Emissions Monitoring
- Undertake a Carbon Sequestration Audit.

2.75 Appendix H outlines these actions and the current status of their progress.

2.76 The 2009–10 Budget also allocated \$19 million to a program called *Switch Your Thinking*. This program will provide a range of improved services to the ACT community through improved assistance packages and rebates. These include:

- a new Home Water Audit program incorporating water efficient dual flush toilets, showerheads and tap flow regulators;
- a new Residential Energy Efficiency program, that while providing rebates on energy efficient appliances, domestic insulation and an improved solar hot water rebate also continues to provide the ACT Energy Wise, HEAT and WEST programs;
- assistance packages for renters and low-income households that provides rebates for household energy saving additions and for energy efficient domestic white goods;
- waste minimisation programs to assist offices and businesses to improve their business based recycling and that will provide assistance to the supermarket industry on improving composting of organic material
- a web based portal that provides a one-stop-shop access to all rebates and assistance packages available through the new Department, that in the near future will link to assistance packages and services available through other ACT Government departments
- a package to assist small business to develop water management plans; and

- continuation of services currently provides including the GardenSmart service and rebate, the IrrigationSmart program pilot and Sustainable Schools Audit programs.⁵⁵

2.77 The Government has announced it will bring forward preparation of *Weathering the Change Action Plan 2* to 2010. The ACT Government has also committed to the ACT becoming zero net emissions and will develop a roadmap to deliver that goal in consultation with the community.

⁵⁵ This program is discussed in ACT Legislative Assembly, Select Committee on Estimates 2009–2010, *Appropriation Bill 2009–2010*, June 2009, Vol 1 – Report, pp 62–63

3 THE ACT'S GREENHOUSE GAS INVENTORY

National greenhouse gas accounts

- 3.1 The National Greenhouse Accounts are a comprehensive set of reports outlining Australia's GHGEs – as a nation, by state and territory, and by industry. They provide GHGE estimates for the United Nations Framework Convention on Climate Change (UNFCCC), and for tracking Australia's progress towards its internationally agreed target of limiting emissions to 108% of 1990 levels over the period 2008–2012. They are prepared using the accounting rules that apply under the Kyoto Protocol.

ACT greenhouse gas inventories

- 3.2 Since 1998 in various stages and time gaps, an ACT GHG inventory has been prepared for the ACT Government.⁵⁶
- 3.3 A separate ACT extrapolation is necessary as we import most of our electricity from New South Wales and the emissions associated with that electricity are counted in the NSW Inventory. A separate inventory is needed to take account of the emissions arising from the purchase of electricity from NSW but used in the ACT.
- 3.4 The ACT Government's aim for the ACT GHG inventory is to document and explain the total amount of GHGE for the Territory, and the amount of emissions per capita (or the greenhouse intensity).
- 3.5 The ACT GHG inventory is prepared using emission calculation methodologies consistent with the national and state GHG inventories and the national greenhouse accounts produced by the Australian Government Department of Climate Change (DCC).⁵⁷

⁵⁶ *Transcript of Evidence*, 22 July 2009, p 308

⁵⁷ Pitt&Sherry, 2005–06 ACT greenhouse gas inventory Series Report, July 2009, p 2

- 3.6 The inventory of the ACT's 2005–06 GHGEs prepared by Pitt&Sherry was released in July 2009 by the ACT Government.⁵⁸
- 3.7 DECCEW has commissioned two more inventories, for 2006–07 and 2007–08. These are expected to be completed later in 2009.⁵⁹

2005–06 Inventory

- 3.8 Key findings of the 2005–06 ACT GHG inventory were that:
- the ACT's net GHGEs were 4.02 million tonnes CO₂-e; an increase of 25.2% on 1990 levels, 10.4% above 2000 levels, and a 2.4% increase on the previous year. ACT emissions have increased on average by 1.7% since 2000
 - most of the ACT's emissions are from fossil fuel use: electricity (64.5%), transport fuels (23.1%) and natural gas (8.8%). 3.4% is generated by waste. Electricity use is also the largest increasing source of emissions, increasing 17.4% since 2000, compared with the total increase of 10.4%. Most of the increased electricity consumption was in the commercial sector
 - ACT emissions are a small percentage of national net GHGEs (0.7%)
 - the ACT produces the lowest per capita emissions of all Australian states and territories, at 12.0 tonnes per person per year, compared with 27.8 per person per year. This is largely because the ACT has very small industry and agriculture sectors. Energy intensive goods and services are produced in other parts of Australia or overseas, and
 - ACT emissions have been increasing at a faster rate than national emissions: 1.7% compared with the national average increase of 0.7%.
- 3.9 The 25 % increase in the ACT's net emissions above 1990 levels compares with a 4.2% increase from 1990 for national emissions.⁶⁰
- 3.10 ACT per capita emissions have increased 5.8% since 1990 compared with a 0.5% decrease in the national inventory since 1990.⁶¹

⁵⁸ http://www.environment.act.gov.au/__data/assets/pdf_file/0010/158248/2005-06_ACT_Greenhouse_Gas_Inventory_Series_Report_FINAL.pdf

⁵⁹ Simon Corbell MLA, Media Release: New Report Highlights Climate Change Challenge, 22 July 2009

⁶⁰ Pitt&Sherry, 2005–06 ACT greenhouse gas inventory Series Report, July 2009, p 3

⁶¹ Pitt&Sherry, 2005–06 ACT greenhouse gas inventory Series Report, July 2009, p 3

- 3.11 Mr Anderson of Pitt&Sherry, who has prepared the inventory, explained the reason electricity emissions in the ACT were growing at a faster rate than nationally was because demand for residential and non-residential electricity is growing, driven by population increases, the building of more suburbs, and by the construction of more commercial buildings. National institutions were also growing and increasing their energy consumption.⁶²

Baseline year

- 3.12 A term of reference for the inquiry was to report on the methodology and other data collection issues involved in establishing a baseline year of either 1990 or 2000 on which to measure future performance.
- 3.13 Under the Kyoto Protocol to the UNFCCC, 1990 is the baseline year for national GHG inventories, and is used in Australia's National Carbon Accounting System (NCAS)⁶³ Australia's national GHG inventory is critically reviewed by the UNFCCC secretariat, and a report and recommendations are issued.⁶⁴
- 3.14 DECCEW and the Minister for the Environment, Climate Change and Water, Mr Simon Corbell MLA (Minister Corbell) noted that it had used the 2000 baseline in *Weathering the Change* due to uncertainties and lack of data regarding 1990 emissions for the ACT. Its preference was to use a year which enhanced the accuracy of measuring changes in the ACT's emissions.⁶⁵
- 3.15 The author of the inventory, Mr Anderson, told the committee that there had been changes in methodology used since earlier inventories, and that had resulted in changes in the figures over time. The most recent methodology was used in the 2005–06 inventory. He noted that the 2005–06 inventory included a time series of ACT emissions back to 1990; that 1990 was a more

⁶² *Transcript of Evidence*, 22 July 2009, p 314

⁶³ Australian Greenhouse Office, *National Carbon Accounting System, Technical Report No. 10*, October 1999

⁶⁴ See for example: United Nations, United Nations Framework Convention on Climate Change, Report of the individual review of the greenhouse gas inventory of Australia submitted in 2008, UN Doc No FCCC/ARR/2008/AUS, 21 January 2009

⁶⁵ Submission 30

accurate baseline year than 2000; and that there was now no issue or uncertainty about the 1990 data.⁶⁶

RECOMMENDATION 2

- 3.16 **The Committee recommends that 1990 be used as a baseline year for calculating ACT GHGE reductions.**

⁶⁶ *Transcript of evidence*, 22 July 2009, p 311

4 TARGETS FOR THE ACT

Introduction

- 4.1 The Committee has been asked by the Assembly to inquire into and report on an appropriate target to be established in legislation, including:
- an appropriate date for the peaking of GHGs in the ACT
 - an appropriate target for the reduction of GHGs in the ACT by 2012, and
 - an appropriate target for the reduction of GHGs in the ACT by 2020.

International targets

- 4.2 In 2007 a broad scientific and political consensus emerged that in the longer term, global GHGs will need to reduce by 60% on 1990 levels by 2050, noting that more recent and additional scientific evidence suggests reductions in order of 80–90% may be required.
- 4.3 To date there has been less consensus on the nature of the medium term, 2020 GHG targets. A key and contentious view is that in the first instance developed countries have an obligation to take the initiative and lead on initial global reductions. This issue is currently being debated in the lead up to the Copenhagen 2009 negotiations.
- 4.4 IPCC has recommended that all developed countries reduce emissions by between 25% and 40% by 2020. The commitments that countries have officially announced to date are listed in Appendix B.

Australian Government targets

- 4.5 The Australian Government's 2008 White Paper on the CPRS committed to an unconditional commitment to reduce CO₂-e emissions by 5% on 2000 levels by 2020; and a conditional commitment to reduce emissions by 15% on 2000 levels by 2020 if there was international agreement by major developing economies to substantially reduce emissions, and advanced economies agree to commitments

comparable to Australia's.⁶⁷

- 4.6 In May 2009, Australian Government Ministers announced a conditional new target, of reducing emissions to 25% below 2000 levels by 2020, *if* international agreement to comprehensive global action is reached capable of stabilising CO₂-e emissions at 450ppm or lower by 2050. Up to 5% of this target could be met by government purchase of international credits, such as avoided deforestation credits, using CPRS revenue during or after 2015.⁶⁸

State government targets

- 4.7 Whether other Australian states and territories will retain statutory or other GHGE reduction targets is unclear, and may depend in part on the fate of the CPRS.
- 4.8 South Australia has a legislated target under its *Climate Change and Greenhouse Emissions Reduction Act 2007* to reduce GHGEs in the state by at least 60% to an amount equal to or less than 40% of 1990 levels, by the end of 2050.
- 4.9 Tasmania's *Climate Change (State Action) Act 2008* prescribes a target of reducing GHGEs in Tasmania to at least 60% below 1990 levels by 31 December 2050.
- 4.10 New South Wales through its November 2006 State Plan policy committed to a return to year 2000 GHGE levels by 2025 and a 60 % cut in GHGEs by 2050. The Committee understands that the NSW state plan is currently under review.
- 4.11 The Victorian Government's 2009 *Climate Change Green Paper* does not include a specific state emissions reduction target because, according to the Paper, that would 'distort' the CPRS, and would be inconsistent with a national target.⁶⁹ The Green Paper is a consultation document leading to its White Paper by the end of 2009. In relation to a national target, the Victorian Government advocates reducing Australia's emissions by at least 80 % by 2050 if a satisfactory global agreement to combat climate change after 2012 is reached.

⁶⁷ Australian Government 2008, *Carbon Pollution Reduction Scheme: Australia's Low Pollution Future*, White Paper Vol 1, p xix

⁶⁸ Australian Government, Prime Minister, Treasurer, Minister for Climate Change and Water 2009, Media release: 'A new target for reducing Australia's carbon pollution', 4 May, Canberra. Further details about a range of alternate targets are provided in an annexe to the media release.

⁶⁹ Victorian Government, *Victorian Climate Change Green Paper*, viewed 3 August 2009, <<http://www.climatechange.vic.gov.au/Greenhouse/wcmn302.nsf/LinkView/EF3BD0CABED3B830CA2575BC000E22A2BBA69776518142B6CA2575C400224496>>, p 7

- 4.12 In August 2009, the Queensland Government released its *Toward Q2: Tomorrow's Queensland* strategy for south-east Queensland.⁷⁰ It sets a target of cutting Queenslanders' carbon footprint by one third (33.3%) with reduced car and electricity use by 2020. The Queensland Government supports a 60 % reduction in national GHGs by 2050.⁷¹

Local government targets

- 4.13 The Committee did not undertake a review of local government targets but notes that in 2003 the City of Melbourne adopted a 'Zero Net Emissions by 2020' policy. In its 2008 update document, the council noted that community emissions in the local government area had increased, but that the council was on track to meet the target of zero net emissions by 2020.⁷² The City of Sydney Council reported zero net emissions for its operations in 2008.

ACT Government targets

- 4.14 The ACT Climate Change Strategy 2007–2025 *Weathering the Change* adopted by the Government in July 2007 set a target of a 60% reduction on 2000 levels by 2050, and a milestone of limiting emissions to 2000 levels by 2025.⁷³
- 4.15 The ACT Government has indicated it will review these targets in light of outcomes at the 15th Conference of Parties of the UNFCCC in Copenhagen in December 2009, the findings of this Inquiry, stakeholder consultations, and further scientific evidence.⁷⁴
- 4.16 In May 2009 the Minister Corbell, announced that the ACT Government had adopted a long-term goal of zero net GHGs for the Territory. This would involve reducing emissions to the greatest extent possible, and offsetting residual emissions by investing in carbon offset projects such as carbon sequestration.⁷⁵

⁷⁰ <<http://www.towardq2.qld.gov.au/tomorrow/index.aspx>>

⁷¹ Queensland Government, *Toward Q2: Tomorrow's Queensland* strategy, (Word version) pp 16–20, viewed 3 August 2009, <<http://www.towardq2.qld.gov.au/tomorrow/index.aspx>>

⁷² City of Melbourne 2008, 'Zero Net Emissions by 2020– Update 2008–Final', 5 August, p ii

⁷³ ACT Government 2007, *Weathering the Change* – the ACT Climate Change Strategy 2007–2025, Canberra, pp 21–22

⁷⁴ Submission 30, p 4

⁷⁵ Submission 30, p 3; S. Corbell MLA, 'Media release: MLA Labor Government Sets Zero Net

Stakeholder views on an ACT Target

4.17 Table 1 summarises suggested ACT targets contained in submissions.

4.18 Table 1: stakeholders' suggested targets

Stakeholder	Short term target	Medium term target	Long term target	Peak date
Dr Kevin McCue and Ms Sonja Lenz ⁷⁶		↓>25% on 1990 levels on 1990 levels by 2020		
Conservation Council ACT Region ⁷⁷	↓10% from 1990 levels by 2012	↓50% on 1990 levels on 1990 levels by 2020		2010
Dr Kevin Cox ⁷⁸		zero emissions by 2020		
Mr De Ruyter ⁷⁹	↓10% from 1990 levels by 2012	↓50% on 2009 levels by 2020		2010
Institute for Applied Ecology ⁸⁰		Zero emissions (n.d.)	Zero emissions(n.d.)	
Climate Action Canberra ⁸¹	↓15–20% by 2012 or 1990 levels by 2010	↓60% 1990 levels by 2020	90% of 1990 levels by 2030; zero or negative emission levels by 2050	2010
EDO (ACT) ⁸²	↓10% from 1990 levels by 2012	↓60% from 1990 levels by 2020	↓80–90% from 1990 levels by 2050	2010

Emissions Target for Canberra', 12 May 2009

⁷⁶ Submission 1

⁷⁷ Submission 4

⁷⁸ Submission 8

⁷⁹ Submission 13

⁸⁰ Submission 14 – no date for achieving zero emissions was recommended

⁸¹ Submission 15A; *Transcript of Evidence*, 3 June 2009, p 228

⁸² Submission 17

Stakeholder	Short term target	Medium term target	Long term target	Peak date
Property Council of Australia (ACT) ⁸³			↓60% of 2000 levels by 2050 to 1 623 million tonnes	
Mr Arundell ⁸⁴		4.3 tonnes CO ₂ -e emissions per person by 2020	1.1 tonnes CO ₂ emissions per person by 2050	
Dr Richard Denniss ⁸⁵		↓30%		
SEE–Change ACT ⁸⁶	↓30% on 2009 levels by 2012, plus a reduced ecological footprint	↓60% on 2009 levels by 2020	↓90% on 2009 levels by 2050	
Diane Johnson & Vivienne Pearce ⁸⁷		↓40% on 1990 levels by 2020, or 25–40% below 2000 levels by 2020	↓90–95% on 2000 levels by 2050	2010
Mr Philip Sutton ⁸⁸		100% reduction of emissions by 2020 and use of 100% clean energy by then		
Mr Mathew Wright ⁸⁹		Zero-net emissions by 2020		

Setting ACT targets

4.19 There was broad support in the submissions and evidence presented for ambitious targets to be set by the ACT Government and support for effective delivery of the Government's zero net emissions policy. Some of the reasons for setting an ambitious targets were that:

⁸³ Submission 20

⁸⁴ Submission 18

⁸⁵ *Transcript of Evidence* 8 May, pp 52–53; no date recommended

⁸⁶ Submission 23, *Transcript of Evidence*, 29 April 2009, pp 138–9

⁸⁷ Submission 31

⁸⁸ *Transcript of Evidence*, 1 July 2009, p 253

⁸⁹ *Transcript of Evidence*, 1 July 2009, p 278

- the ACT is the capital of Australia and a change of culture here on emissions and climate change would have a profound effect, over time, on the operations of the federal government, and that would be a positive contribution to long-term policy settings in Australia⁹⁰
- targets 'represent the aspiration and hope of a community [to prevent] catastrophic climate change'⁹¹
- the ACT Government should demonstrate leadership⁹² and move quickly to create a precedent, and demonstrate to other sectors of the community how carbon neutrality can be achieved,⁹³ particularly given that climate change should be a top priority issue⁹⁴ and Australia's emissions continue to increase⁹⁵
- the ACT is better placed than other jurisdictions to reduce emissions,⁹⁶ and it is also in the centre of a drought-stricken region⁹⁷
- Canberra 'would be the least likely place in the entire country for there to be much leakage of business due to going to zero emissions'⁹⁸
 - leadership can be demonstrated through the schools community and disseminated into the broader community in a cost-effective way.⁹⁹

4.20 Another view however was that as the ACT only produces 0.2% of the national emissions, and indirectly 0.35%, its action cannot really make a difference nationally.¹⁰⁰ In turn Australia's national emissions are only a small percentage of global emissions. On this view, the Territory's emissions are too small to make an appreciable difference to global scenarios.

⁹⁰ *Transcript of Evidence*, 1 July 2009, p 256

⁹¹ *Transcript of Evidence*, 4 March 2009, pp 27–28

⁹² Submission 31

⁹³ Submission 17, *Transcript of evidence*, 13 May 2009, p 198; *Transcript of evidence*, 13 May 2009, p 182; *Transcript of evidence*, 29 April 2009, p 137; *Transcript of evidence*, 1 July 2009, p256; *Transcript of evidence*, 1 July 2009, p260

⁹⁴ *Transcript of evidence*, 29 April 2009, p 137

⁹⁵ *Transcript of evidence*, 13 May 2009, p 188

⁹⁶ *Transcript of evidence*, 29 April 2009, p 137; Dr A. Glikson, 'summary and principal recommendations', document tabled 22 April 2009

⁹⁷ Dr A Glikson, 'summary and principal recommendations', document tabled 22 April 2009

⁹⁸ *Transcript of evidence*, 1 July 2009, p 256

⁹⁹ *Transcript of evidence*, 1 July 2009, p 291

¹⁰⁰ *Transcript of Evidence*, 8 May 2009, p 162

- 4.21 An alternative view however, was that ‘while the ACT is a small territory in a small country in a big world, frankly, everyone lives in a small community as part of a big country somewhere, and if individual communities do not try to make a significant difference then there is literally no prospect of our solving the problem.’¹⁰¹
- 4.22 The Minister indicated that the ACT Government recognised that the community expects strong targets and that ‘we have a very strong moral obligation to future generations to adopt stronger and more visionary targets’.¹⁰²
- 4.23 As noted in [Table 1](#), suggested targets ranged from a GHG reduction of 25% to 60% on 1990 levels by 2020, a peak date of 2010, with the most ambitious long-term target of a 90% reduction on 1990 levels by 2030, and zero net emissions by 2050.
- 4.24 The Committee is mindful that the economic, social and environmental costs and benefits of achieving any target is the subject of some controversy and speculation, and uncertainty. In particular in the absence of agreed methodologies to assign a price to non-market values such as protection of eco-systems, and the need to assign value to potential future impacts and costs and benefits that may accrue to future generations. However, Professor Garnaut in his 2008 Review noted the need for action despite uncertainties, emphasising that Australia and the world were running towards high risks of dangerous climate change at a more rapid rate than was previously understood, and that the opportunity costs of delaying decisions were high. As Garnaut discussed, the Stern Report had also found that the benefits of early action outweighed the costs.¹⁰³
- 4.25 A strong view put before the Committee was that the science of climate change should be the determining factor in setting targets and the key economic question is the most efficient and cost-effective way of achieving reductions to address internationally accepted scientific targets.¹⁰⁴

¹⁰¹ *Transcript of Evidence*, 8 April 2009, p 13

¹⁰² *Transcript of Evidence*, p 13 May 2009, p 197

¹⁰³ *The Garnaut Climate Change Review*, ch 12

¹⁰⁴ *Transcript of Evidence*, 8 April 2009, p 52

- 4.26 A potential issue not covered in depth through the inquiry process is the desirability and effectiveness of state and territory targets under the CPRS. Considerable evidence before the Committee highlighted the ‘flaw’ within the current proposed CPRS that additional voluntary action outside the CPRS by state governments or households would not actually reduce Australia’s national emissions. There is a view that State or even local targets will distort the market. Another is that each community can and should set its own targets as part of its contribution to reducing GHGEs regardless of the national or global frameworks, and such work at a local level is driving change in GHGE reductions. This is discussed in more detail below.
- 4.27 In regard to these issues, at this stage the Committee notes that the CPRS has an uncertain political future and that this flaw may be addressed before the CPRS commences, if it commences.
- 4.28 Further, regardless of the proposed CPRS, most witnesses and submissions to the inquiry supported having an ACT emissions reduction target, and for the ACT to take national leadership on sustainability.
- 4.29 The Committee is of the view that there is a strong case for ambitious action in the ACT, notwithstanding the likely introduction of the CPRS.

Peaking target for ACT emissions

- 4.30 Peaking of GHGEs refers to the time when emissions stop rising and start to reduce. It is generally accepted that there will be some lag between setting targets, putting in place policy, programs and infrastructure projects, which in turn will lead to a decline in emissions. Reduction initiatives also need to take into account increases in emissions arising from population and economic growth.
- 4.31 Of the submissions and witnesses who addressed this issue, most recommended a peaking date of 2010 for the ACT.
- 4.32 In 2009 the ACT Government budgeted \$35 million for a range of programs and initiatives for sustainability and climate change.¹⁰⁵
- 4.33 In the absence of data on the deliverables of *Weathering the Change Action Plan 1*

¹⁰⁵ ACT Government Budget 2009–2010, *Budget Paper no 1*, p 13

in achieving GHGE reductions and the delay in more recent GHG inventories it is difficult to determine an appropriate peaking point for ACT GHGEs.

- 4.34 The Committee considers that setting an early peaking date for ACT emissions could be important for marshalling community, sectoral and Commonwealth Government support for energy efficiency and sustainable transport initiatives, whilst also recognising that a peaking date of 2011 or 2012 might be ambitious for the ACT. By 2013 seems to be a more realistic timeframe.

RECOMMENDATION 3

- 4.35 **The Committee recommends that the proposed legislation set a target for the peaking of ACT per capita emissions by 2013, noting that this will require partnership with the ACT community, and the Commonwealth.**

Short-medium term targets for ACT GHGEs

- 4.36 The Conservation Council ACT Region supports a target of at least 50% reduction of GHGEs by 2020 through energy efficiency measures and increased public transport infrastructure. Others support this.¹⁰⁶
- 4.37 The Environmental Defender's Office (ACT) advocates a target of 60% reduction in GHGEs by 2020.
- 4.38 The Committee heard evidence that GHGEs reductions from energy use to run, heat and cool existing ACT buildings – which account for 70% of ACT GHGEs – can be reduced in order of 45-60% within very short-timeframes using cost-effective abatement measures. Applying these measures not only results in significant GHG reductions but also substantial cost-savings.
- 4.39 For example, evidence was provided of a very large commercial property owner achieving a 45% energy efficiency saving in just three years and they are targeting for 60% energy efficiency reductions.¹⁰⁷
- 4.40 Similar evidence was provided of the possibility of achieving a 50% reduction in building energy use by 2020, again by using standard energy efficiency measures, with the benefit of ongoing cost savings to energy

¹⁰⁶ Submission 17; Oral evidence from Dr Andrew Glikson, 22 April 2009

¹⁰⁷ *Transcript of Evidence*, 8 April 2009, p 44

purchasers and substantial local employment opportunities in building retrofitting.

- 4.41 The Allen Consulting Group estimates that ‘some of the largest and most cost effective abatement opportunities are in the built environment, including commercial buildings’.¹⁰⁸
- 4.42 A similar view has been expressed in the IPCC Fourth Assessment Report, which estimated that emissions in the building sector could be reduced by 29% by 2020.¹⁰⁹
- 4.43 Investments in energy efficiency in buildings have the advantage that their net cost reduces over time as the cost of the initial investment is recouped through ongoing savings in energy costs.
- 4.44 The advantages of cost-effective abatement in regard to energy efficiency in residential and commercial building sectors, and the various policy and program options to drive these actions are discussed in more detail below.
- 4.45 The Committee recognises that it may take time for policy signals and programs to deliver outcomes, so the Committee proposes an initial 5% reduction in overall emissions by 2015, with most of this to be delivered through existing programs such as *Switch Your Thinking*.

RECOMMENDATION 4

- 4.46 **The Committee recommends that the proposed legislation set a target of a 5% reduction in overall emissions by 2015.**

RECOMMENDATION 5

- 4.47 **The Committee recommends the proposed legislation set a target of a 40% reduction in overall ACT GHGE by 2020 notwithstanding that the following factors need to be considered: • the ACT Government’s zero net emissions roadmap • the ACT Government’s proposed interim draft energy policy • outcomes of the Copenhagen meeting in December**

¹⁰⁸ The Allen Consulting Group, Mandatory disclosure of commercial office building energy efficiency: consultation regulation impact statement and regulation document

¹⁰⁹ Worldwatch Institute and Cornell University Global Labor Institute, Green Jobs: Towards Decent Work in a Sustainable, Low-carbon World, UNEP, ILO, IOE, ITUC, p 131, accessible at <www.unep.org/civil_society/Publications/index.asp>

2009 • evolution of the CPRS

Long-term target for ACT GHGEs

- 4.48 Sustainable Population Australia (Canberra and Region Branch) noted that given the growing expert opinion that global warming is occurring at rates close to or at the upper end of the range predicted by the Intergovernmental Panel on Climate Change, the ACT Government's milestone of limiting 2025 emissions to 2000 levels, and aiming for 60% reduction by 2050¹¹⁰, should be revisited.
- 4.49 The Environmental Defender's Office (ACT) advocates a target of 60% reduction in GHGEs by 2020, and at least an 80 to 90% reduction by 2050.
- 4.50 The Committee also notes that the science of climate change is evolving and already a number of scientists are of the view that stabilisation of GHG at 450ppm is too high. For example, the Chair of the IPCC, Dr Rajendra Pachauri, has more recently expressed a private view that he supports a target of 350ppm CO₂.¹¹¹

RECOMMENDATION 6

- 4.51 **The Committee recommends that the ACT Government consider the feasibility of setting a legislative target of an 80% reduction in overall ACT GHGE by 2050.**

Target for zero net emissions in ACT Government operations

- 4.52 *Weathering the Change Action Plan 1* provides that all ACT Government agencies (including schools, hospitals, shopfronts and other Government facilities) will work towards becoming carbon neutral – to generate no net emissions from their activities. Agencies were required to prepare Resource Management Plans by 2009 to assist them work towards achieving carbon neutrality.¹¹²

¹¹⁰ ACT Government 2007, *Weathering the Change: the ACT Climate Change Strategy 2007–2025*, p 8

¹¹¹ 'Dr Rajendra Pachauri endorses 350 ppm target', WotNews, 26 August 2009, <http://wotnews.com.au/like/dr_rajendra_pachauri_endorses_350_ppm_target/3874228/>

¹¹² *Weathering the Change Action Plan 1*, Action 2, p 13

- 4.53 In 2008 the Government re-affirmed its support for carbon neutrality of ACT Government operations, stating they will move toward carbon neutrality in Government by mandating agency reporting on energy and water use, as well setting targets to improve energy and water efficiency.¹¹³
- 4.54 The Committee notes that the Government has agreed to a 10% increase in Greenpower purchase each year, with the current purchase at 30%; by 2015 ACT Government Greenpower purchase will be 90%.
- 4.55 The Committee notes that in other jurisdictions considerable savings have been made through energy efficiency improvements in government operations. For instance, through the NSW \$40 million Loan Fund – since 1998, 26 NSW Government agencies have invested \$48.4 million in energy and water efficiency upgrades. These projects are delivering \$8 million in energy and water savings per year and cutting 56 000 tonnes of CO₂ emissions annually in NSW.¹¹⁴
- 4.56 The Committee notes that the Government could provide leadership and direction to the community by developing a plan for how it can move towards zero-net emissions in its own operations, as an indicator for the broader roadmap to zero net emissions for all of the ACT community.

RECOMMENDATION 7

- 4.57 **The Committee recommends that the proposed legislation set a target for the ACT government being zero net emissions [carbon neutral] in its own operations by 2015.**

Interplay between voluntary action and CPRS

- 4.58 Many witnesses raised concerns that under the proposed CPRS a significant reduction in ACT emissions would be unlikely to lead to a national net reduction in emissions, unless the Territory reductions only occurred in sectors not covered by the Scheme, or stakeholders purchased permits from

¹¹³ ALP Climate Change Policy October 2008, p 7

¹¹⁴<<http://www.environment.nsw.gov.au/government/loanfund.htm>>

the Australian Carbon Trust and retired them.¹¹⁵ This has been raised in several reviews of climate change programs.¹¹⁶

- 4.59 Dr Richard Denniss, the Executive Director of The Australia Institute, popularised this argument, suggesting that under the Commonwealth's proposed CPRS, reductions in GHGEs in the Territory would do nothing to reduce overall levels because unused permits will free up permits for large emitters to purchase. Dr Denniss argues that the emission reduction target needs to be increased substantially from the 5–15% currently proposed and that it take account of voluntary and additional emissions reductions, and that a secondary market for permits which can be purchased and removed from the Scheme should be created.¹¹⁷
- 4.60 The Committee is concerned about this flaw in the CPRS and the potential for it to undermine the Community's willingness to take voluntary action on climate change.
- 4.61 Minister Corbell seemed to support this view when he wrote to several Senate committee inquiries on behalf of the ACT Government in 2009, expressing concern that actions by the states and territories that go beyond the targeted reductions under the CPRS 'may not correspond to fewer emission permits ...[or] meaningfully contribute to reducing emissions'.¹¹⁸

¹¹⁵ *Transcript of Evidence*, 3 June 2009, p 239

¹¹⁶ See for example: R Wilkins AO, Strategic Review of Australian Government Climate Change Programs, 31 July 2008; Commonwealth of Australia 2008, NSW Government, Independent Pricing and Regulatory Tribunal, *Review of NSW climate change mitigation measures: Other industries—Issues paper*, December 2008, p 20, viewed 13 August 2009 at <<http://www.ipart.nsw.gov.au/files/Review%20of%20NSW%20climate%20change%20mitigation%20measures%20-%20Issues%20Paper%20-%20December%202008%20-%20APD%20Website.PDF>>; J Fear and R Denniss, Zero-sum game?: The human dimensions of emissions trading, *Institute Paper No 2*, The Australia Institute, August 2009

¹¹⁷ R Denniss, 'Tough talk won't turn the tide', *The Canberra Times*, 2 December 2009, p 11; R, 'Fixing the Floor in the ETS: The role of energy efficiency in reducing Australia's emissions', *Research Paper No 59*, The Australia Institute, November 2008

¹¹⁸ Minister for the Environment, Climate Change and Water, Simon Corbell MLA, Submission to the Senate Select Committee on Fuel and Energy, 23 February 2009; Submission to the Senate Standing Committee on Economics, 18 March 2009 <http://www.aph.gov.au/Senate/committee/economics_ctte/cprs_09/submissions/sub134.pdf>; Submission to the Senate Select Committee on Climate Policy, 14 April 2009 <http://www.aph.gov.au/Senate/committee/climate_ctte/submissions/sub462.pdf>. See also Legislative Assembly for the ACT: 2009 Week 1 Hansard (11 December 2008), pp 336–7; Legislative Assembly for the ACT: 2009 Week 3 Hansard (26 February), pp 1079–80

- 4.62 A report of the Senate Standing Committee on Economics in April 2009 recommended that the Australian Government 'develop policies complementary to the CPRS to encourage voluntary action'.¹¹⁹
- 4.63 The Commonwealth's policy response in May 2009 was to announce the establishment of the Australian Carbon Trust, and that households' purchase of accredited GreenPower after 2009 would be taken into account in setting CPRS caps. Individuals and households will be able to buy and retire carbon pollution permits from a \$25.8 million Energy Efficiency Savings Pledge Fund established under the Trust. Contributions will be tax deductible.¹²⁰
- 4.64 The Committee is concerned that under this proposal, consumers who invest in energy efficiency measures may effectively have to pay twice for 'doing the right thing', that is, by paying for the energy efficiency measures or Greenpower and then by having to purchase permits equivalent to their emission reductions (even though purchases from the Australian Carbon Trust are tax deductible).
- 4.65 Some evidence suggested that the ACT Government should urge the Commonwealth to strengthen its emission target.¹²¹ SEE-Change, for example, suggested that the Committee should recognise the urgent need for more imaginative, creative and courageous ways of approaching climate change.¹²²
- 4.66 Many submissions argued before the Commonwealth's announcement in April 2009 that the Commonwealth Government's aim of a 60% reduction target in emissions by 2050, with a 5–15% reduction (from a 2000 baseline) by 2020 was inadequate.¹²³ These submissions were lodged before the revised target, that the Commonwealth would increase its target to 25% below 2000 levels if UNFCCC members agreed in Copenhagen to stabilise emissions at 450ppm or lower by mid-century.

¹¹⁹ Australian Parliament, Senate Standing Committee on Economics, *Exposure draft of the legislation to implement the CPRS*, April 2009, p 73

¹²⁰ Prime Minister, Treasurer, Minister for Climate Change and Water, Media release: Helping All Australians do their bit on Climate Change, 4 May 2009

¹²¹ *Transcript of Evidence*, 29 April 2009, p 138

¹²² *Transcript of Evidence*, 29 April 2009, p 138

¹²³ Submissions 10, 15, 17

RECOMMENDATION 8

- 4.67 **The Committee recommends that the ACT Government make further representations to the Commonwealth that the Carbon Pollution Reduction Scheme be amended as appropriate to ensure that voluntary actions by state and territory governments and the community be recognised, and to set a higher unconditional medium term target.**

5 SOCIAL AND ECONOMIC IMPACTS

- 5.1 The terms of reference provide that the Committee inquire into and report on 'issues associated with achieving the GHG reduction target, including '(iv) social equity and economic issues, costs and opportunities in achieving the proposed targets'.

Economic impacts

- 5.2 The Garnaut Report estimated that unmitigated climate change could result in costs in the order of 8% of Australia's gross domestic product by 2100.¹²⁴
- 5.3 In February 2008 McKinsey&Company published *An Australian Cost Curve for Greenhouse Gas Reduction* which found that:

A significant reduction in Australian GHGs is achievable – 30 percent below 1990 levels by 2020 and 60 percent by 2030 without major technological breakthroughs or lifestyle changes.

Reducing GHGs is affordable – with an average annual cost of approximately \$290 per household to reduce emissions in 2020 to 30 percent below 1990 levels.

Achieving significant reductions requires prompt action from government, business and consumers.¹²⁵

- 5.4 McKinsey looked at the costs and abatement potential of more than 100 abatement measures, established a business as usual baseline for current and future emissions; identified a range of emissions-reduction opportunities with fact-based estimates of costs and potential abatement volume; combined these costs and volumes to form the Australia GHG abatement cost curve, and analysed the impact of likely regulatory and technological scenarios.
- 5.5 The Committee acknowledges the advice in the ICRC's submission that the Committee should apply a systematic cost/benefit/effectiveness framework to its assessment of climate change programs in the ACT. The ICRC noted that the

¹²⁴ Garnaut, *The Garnaut Climate Change Review: Final Report*, ch 10

¹²⁵ McKinsey&Company *An Australian Cost Curve for Greenhouse Gas Reduction* February 2008
http://www.mckinsey.com/locations/australia_newzealand/knowledge/pdf/1802_carbon.pdf

overall net benefits and costs should be considered, and a 'silo approach' avoided.¹²⁶

- 5.6 The Committee considers that McKinsey's GHG abatement cost curve provides a useful model against which to consider policy and it has been developed for studies including in the UK, US and Germany. McKinsey's Australian version focuses on six industry sectors: power, forestry, industry, building, agriculture and transport. It has limitations in application to the ACT given that there is currently very little power generation here and forestry and agriculture are insignificant. The profile of ACT industry is also different to most parts of Australia with government being the main business. Nonetheless, given that there is no specific ACT analysis available, the *Australian Cost Curve for Greenhouse Gas Reduction* provides a useful methodology for considering measures by government and some guidance as to the most effective and value-for-money approaches.
- 5.7 In particular, carbon-reduction opportunities in the building sector can be found at low cost or negative cost (that is, their introduction will save money). These measures include improved air conditioning and residential water-heating systems as well as improved insulation, lower energy lighting and appliances with energy-efficient stand-by features. McKinsey points to two key levers: aligning the incentives for tenants and developers to improve energy efficiency, and regulating appropriate building codes and standards.
- 5.8 The Committee notes that many of these changes make economic good sense as well as being environmentally sensible. They would also seem to advantage the residents of the buildings, including tenants and low-income residents who might be otherwise be impacted by an increase in the price of carbon-sensitive goods and services. In any case the Committee would consider that all policies, programs and projects should be considered in light of a sustainability analysis as this would cover a triple bottom line analysis including a poverty impact analysis.
- 5.9 The Committee notes also that these cost-effective abatements generally fall outside the influence circle of emissions trading schemes.

¹²⁶ Submission 34, p 8; *Transcript of Evidence*, 22 July 2009, p 316

- 5.10 The Committee notes the proposed medium term target of 40% by 2020 is based on implementation of cost-effective abatement within building and transport. These measures are justifiable in a 'straight' economic analysis let alone for the GHG abatement advantages they provide.
- 5.11 A March 2004 study for the Clean Energy Group [A Clean Energy Future for Australia](#) demonstrated that Australia could halve GHGEs by 2040 simply by improvements to existing 'clean' technologies. These reductions of greenhouse emissions could amount to around 80 % by 2050 with innovation.¹²⁷
- 5.12 The Australia Institute investigated a feasible scenario for reducing domestic GHGEs by 60 % of 1998–99 levels by the year 2050.¹²⁸
- 5.13 Various witnesses identified economic advantages of addressing energy efficiency of private residential and commercial buildings as a relatively easy way of dramatically reducing GHGEs for the ACT. In 2005–06 buildings accounted for 72% of the ACT's GHGEs.
- 5.14 The National Government Relations Manager and ACT State Manager of the Green Building Council Jeff House, advised the Committee 'buildings offer the single largest source of GHG abatement ...[and] this abatement is the most cost-effective abatement of all.' He noted that such abatement comes at a negative cost to GDP and actually saves the economy money. He referred to research conducted by the Centre for International Economics on behalf of the Australian Sustainable Built Environment Council which demonstrates that realising the full abatement potential within the property sector will save the Australian economy around \$38 billion annually, each and every year, by 2050.¹²⁹
- 5.15 The ICRC expressed concern that if different targets and policy measures are adopted by states and territories, ACT consumers may be disadvantaged by higher energy prices and inefficient, ineffective and/or duplicative programs.

¹²⁷ H Saddler, M Diesendorf, R Denniss, [A Clean Energy Future for Australia](#), Clean Energy Future Group, WWF Australia, March 2004 <http://www.wwf.org.au/news/n67/> or link here to access the full report http://www.wwf.org.au/publications/clean_energy_future_report/

¹²⁸ H Turton, J Ma, H Saddler, C Hamilton, '[Long-Term Greenhouse Gas Scenarios: A pilot study of how Australia can achieve deep cuts in emissions](#)' Discussion Paper No. 48, The Australia Institute, Canberra, 2002

¹²⁹ *Transcript of Evidence*, 4 March 2009, p 27

Higher energy costs would also disproportionately impact on households that fall into lower socio-economic categories. Households in the ACT can already expect higher prices to flow from the feed-in tariff program.¹³⁰

5.16 ActewAGL also expressed concern about the risk of businesses and potential new residents moving to or establishing in other jurisdictions (and particularly Queanbeyan), which would have the flow-on effect of increasing the relative cost of fixed infrastructure that could otherwise be shared across a larger business sector.¹³¹

5.17 The Committee notes that a differential in the price of energy, even if it was to occur as a result of better environmental policies and this is contestable, would be unlikely to cause major transmigration of business or residents from the ACT to NSW.

5.18 The Committee's proposed medium term target – 40% by 2020 – is based on cost-effective abatement measures. Other costs and benefits of more expensive abatement policies, programs or projects need to be looked at in context of an ACT specific abatement cost curve; the ACT's long-proposed energy policy – noting these decisions will have more bearing on the ACT's longer term targets of 80% GHGE reductions by 2050 and / or zero net emissions.

Green jobs for a low carbon future

5.19 Several studies highlight the economic growth opportunities created by the need to transition to a low carbon economy.¹³² These studies find that government investments in 'green initiatives' such as clean energy, energy efficiency, and other environmental investments stimulate economic growth, job creation, and other benefits. Often more jobs are created in labour intensive efficiency measures than in traditional economic sectors such as road infrastructure construction. The more energy efficient an economy, the more prosperous it also tends to be.

¹³⁰ Submission 34, pp 4–7

¹³¹ Submission 34, p6; Submission 27, pp9–10; *Transcript of Evidence*, 22 July 2009, pp 324, 326

¹³² World Watch Institute, *Green Jobs: Towards Decent Work in a Sustainable Low-Carbon World*, Washington 2008; UNEP SEF Alliance, *Why Clean Energy Public Investment Makes Economic Sense – The Evidence Base*, UNEP and MISI 2009
<http://www.sefi.unep.org/fileadmin/media/sefalliance/docs/specialised_research/Advance_Draft_economic_impact_01.pdf>

- 5.20 In a commissioned report, CSIRO researchers concluded that sustainable economic growth can continue to sustain living standards if policies are well designed and reduce our ecological footprint over time. The challenge they saw was the need for massive mobilisation of skills and training – both to equip new workers and to enable appropriate changes in practices. Current approaches do not appear sufficient for meeting these challenges, despite policy development through a Senate inquiry and other mechanisms.¹³³
- 5.21 A transition to a low carbon economy will require appropriately skilled staff to provide services such as ‘installation of solar panels, LPG conversions, grey-water systems, green accounting, energy efficiency monitoring and enforcement’ etc.¹³⁴
- 5.22 The ACT Government also sees ‘considerable green growth potential’ in renewable energy, energy efficiency and waste and recycling.¹³⁵
- 5.23 Possible government interventions for facilitating the growth in ‘green skills’ employment that is expected to occur under the CPRS was the subject of a Senate inquiry in 2008–09. The Committee is expected to report later in 2009.¹³⁶
- 5.24 The ACT Government’s submission to the Senate Education, Employment and Workplace Relations Committee inquiry focussed on the greens skills training provided by the Canberra Institute of Technology (CIT). The CIT is the largest training provider in the ACT, with about 30 000 student enrolments. It offers a Diploma in Sustainability, a Certificate IV in Renewable energy and other courses in renewable energy and building and environment trades. It also has an Environmental Reference Group to encourage and assist with the integration of sustainability principles into course curricula. The CIT also offers training in

¹³³ S Hatfield-Dodds, G Turner, H Schandl and T Doss, *Growing the green collar economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint*, Report to the Dusseldorp Skills Forum, June 2008. CSIRO Sustainable Ecosystems, Canberra, 2008; The report of the Senate Standing Committee on Education, Employment and Workplace Relations inquiry into the effects of climate change on training and employment needs is scheduled to be tabled on 17 September 2009.

¹³⁴ S Hatfield-Dodds, G Turner, H Schandl, T Doss, *Growing the green collar economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint: Report to the Dusseldorp Skills Forum*, June 2008

¹³⁵ Submission 30, p 4

¹³⁶ Australian Parliament, Senate Education, Employment and Workplace Relations Committee, *Inquiry into the Effects of Climate Change on Training and Employment Needs*, viewed 16 April 2009 at <http://www.aph.gov.au/Senate/committee/eet_ctte/employ_climate/index.htm>

electro-technology, is developing a Solar Hot Water Installation course for plumbers; has a renewable energy module for mechanical and electronic engineering students and offers building and construction qualifications.¹³⁷

- 5.25 The Allen Consulting Group has advised the Victorian Government that Victoria might experience a 10% increase in demand for tertiary or technical training in specialist climate change professionals.¹³⁸

Impacts of the Carbon Pollution Reduction Scheme

- 5.26 Modelling done by Access Economics and the Australia Institute suggests that state and territory governments will have to pay more for inputs to health, education and transport services, and that this will have a flow on effect in higher taxes or reduced services. The impact on the ACT budget is expected to be about \$18 million in 2013–14 and \$43 million in 2020–2021. The largest impacts are expected to be in the areas of health, transport and communications.¹³⁹
- 5.27 Some estimates suggest that the CPRS will increase the average household's electricity bill by about around \$4–5 per week, and by about \$2 a week for gas and other household fuel bills, assuming a carbon price of \$25 per tonne and no new energy efficiency measures.¹⁴⁰
- 5.28 The Commonwealth's Climate Change Action Fund is intended to provide assistance to employers and employees, regions, communities and community service organisations, to alleviate the impacts of the CPRS. The Fund will receive \$2.75 billion over five years (2008–09 to 2012–13). The first tranche of \$200

¹³⁷ Submission 37, Mr Jon Stanhope MLA to Senate Standing Committee on Education, Employment and Workplace Relations, 11 September 2008

¹³⁸ The Allen Consulting Group Pty Ltd 2009, *Victoria's Greenhouse Opportunity Set: New growth prospects in a carbon constrained world*, Report to the Victorian Department of Innovation, Industry and Regional Development viewed 5 May 2009
<http://www.business.vic.gov.au/busvicwr/assets/main/lib60219/victoria's%20greenhouse%20opportunity%20set.pdf>, p 85

¹³⁹ R Denniss, 'State of denial: The impact of the CPRS on state government budgets', *Policy Brief No 2*, June 2009, p 7; R Beeby, 'States left to foot \$2 billion-a-year bill for emissions scheme', *The Canberra Times*, 2 July 2009

¹⁴⁰ Senate Economics Committee, *Exposure draft of the legislation to implement the Carbon Pollution Reduction Scheme: report*, 16 April 2009, para 6.62, viewed 6 August 2009,
http://www.aph.gov.au/Senate/committee/economics_ctte/cprs_09/report/index.htm

million for 2009–10 was announced in May 2009.¹⁴¹

- 5.29 The Committee is very concerned about the cost of living impact of the CPRS on the most economically disadvantaged households, and agrees with the ICRC that the energy concession cap be automatically adjusted as prices rise. The Committee notes that this is under ACT Government consideration. In evidence to the Select Committee on Estimates in May 2009, Minister Corbell advised that the government was looking at mechanisms for managing expected increases in the cost of energy under the CPRS.¹⁴²

Social impacts

- 5.30 Under the *Weathering the Change Action Plan 1* the ACT Government commissioned a social impact analysis of the impacts of climate change on disadvantaged residents (Action 29). The report *Social Impacts of Climate Change in the ACT Final Report*¹⁴³ was published in September 2008 and found that low income households would be the least able to cope with the expected increases in the cost of living associating with climate change and the new pricing of carbon-based inputs. The study found that minor capital investments and changes in behaviour at the household level could significantly reduce GHGEs. It also found that programs could target increased education, the retrofitting of public housing stock to improve energy efficiency, investment in sustainable transport to improve transport efficiency, and rebates to replace inefficient home appliances.
- 5.31 As part of the process of the development of the *Social Impacts of Climate Change in the ACT Final Report*, the Community Inclusion Board agreed that it would trial Poverty Impact Analysis (PIA) on some actions in the plan. The Chief Minister's Department worked with other areas within the ACT Government to

¹⁴¹ Australian Government, Prime Minister, Treasurer, Minister for Climate Change and Water 2009, Media release: 'Carbon Pollution Reduction Scheme: Support in Managing the Impact of the Global Recession', 4 May, Canberra; J Styles and A Talberg, 'Budget 2009–10: Climate Change and Energy', Department of the Parliamentary Library, 2009, p 7

¹⁴² Select Committee on Estimates 2009–2010, Reference: Appropriation Bill 2009–2010, *Transcript of Evidence*, 25 May 2009, p 856; see also comments by Mr Paul Baxter, Senior Commissioner, Independent Competition and Regulatory Commission, pp 856–7

¹⁴³ SGS Economics and Planning, *Social Impacts of Climate Change in the ACT Final Report*, commissioned for the ACT Chief Ministers Department, 2008 viewed 15 July 2009, <http://www.cmd.act.gov.au/__data/assets/pdf_file/0017/2942/SI_climate_change.pdf>

undertake trials and develop draft PIA guidelines.

- 5.32 Feedback on the draft guidelines indicated they were fairly clear and straightforward to follow, but that the timing and use of the results of the PIA needs to be made explicit for all policy-makers. For example, if the PIA was included as a requirement for a Cabinet Submission, then the policy officer would know when to carry it out and who to go to for help to complete one. Another piece of feedback was that the overall purpose of the PIA needs to be spelt out very clearly within the guidelines, as does the level of detail and analysis required.
- 5.33 Many of the actions in *Weathering the Change Action Plan 1* had already been agreed and development was almost complete when the responsible areas were approached about the PIA. This meant the economic analysis had already been done and the implementation strategy was being developed. These trials also found that there was a lack of specific knowledge about PIA across the ACT Government. Without clear guidance and support from an area knowledgeable about poverty and wellbeing definitions and measurements, the policy officers indicated it would be difficult for them to undertake a comprehensive PIA.¹⁴⁴
- 5.34 The draft Poverty Impact Analysis framework and tool are being used to further develop the social impact analysis component of the draft ACT Government Triple Bottom Line assessment framework.
- 5.35 *Weathering the Change Action Plan 1* has a number of elements intended to address social equity issues. For instance it includes a grants program to improve community groups' energy efficiency and awareness (Action 27); assist schools to become carbon neutral (Action 11); and increase the energy efficiency of public housing (Action 8).
- 5.36 In addition other ACT support programs include an electricity/gas rebate up to \$194.87 per annum under the Community Service Obligation, which was approved for approximately 22 000 households (electricity and gas) in August 2008.
- 5.37 In June 2009, the ICRC recommended that price regulation for the ACT

¹⁴⁴ *Development of a Poverty Impact Analysis approach in the ACT* prepared for the ACT Community Inclusion Board by the Social Policy and Implementation Branch Chief Minister's Department June 2008 http://www.cmd.act.gov.au/_data/assets/pdf_file/0003/2883/PIAstatus_report.pdf

electricity sector should be removed, but it also provided for a nominal increase in electricity prices in the transitional franchise tariff (TFT) of 3.84% – a real increase of 0.49% after a consumer price index (CPI) adjustment. Having considered the social implications of its decision the ICRC recommended that the total energy concession overall cap, as well as the per kilowatt hour rate, be linked to movements in the price of the TFT, or if the TFT is removed, to the most commonly used electricity contract offered by ActewAGL Retail.¹⁴⁵

- 5.38 The ACT Government has undertaken to review the adequacy of concessions and support programs available to low income households facing cost of living increases under climate change. The ACT Government recognises that the Australian Government has committed to increase support for low income households to fully meet the overall increase in living costs due to the introduction of the CPRS.¹⁴⁶ The ACT Government is also examining enhancing programs that reduce demand, or enhance energy efficiency, aware that from 2005–06 to 2007–08 the amount of debt waived under the *Utilities Act 2000* (ACT) doubled.¹⁴⁷

RECOMMENDATION 9

- 5.39 **The Committee recommends that the Government undertake social environmental and economic impact analysis of all policies and programs introduced to implement legislated targets and that this analysis be publicly available.**

¹⁴⁵ Independent Competition and Regulatory Commission, *Final Decision: Retail Prices for Non-contestable Electricity Customers 2009–2010*, Report 3 of 2009, June 2009, p 6

¹⁴⁶ http://www.treasury.gov.au/cprs/html/cprs_page2.asp

¹⁴⁷ Submission 30

6 MONITORING, REPORTING AND REVIEW

Enforceability of a target

- 6.1 A key consideration in developing legislation which sets GHGE reduction targets is whether such targets are non-binding or are enforceable under the legislation. The ACT Government submission discusses this issue.¹⁴⁸
- 6.2 The Committee notes that both the South Australian legislation and the Tasmania legislation have non-binding targets. The South Australian legislation has provision for development of sector agreements however, these are also non-binding. Neither Act includes compliance powers or penalties.
- 6.3 The Committee notes that it does not see the need or the desirability for compliance or penalties for individuals, households or businesses that do not take action to reduce their GHGEs under the proposed legislation.
- 6.4 Another legislative option was for the legislation to create a local emissions trading scheme. In the context of the proposed CPRS and the size of the ACT the Committee does not see this as a feasible proposal.
- 6.5 The Committee notes that there is a range of other regulatory policy tools available to the ACT Government – either alone or in line with federal measures that can lead to improvements in reducing GHGEs. For example, mandatory energy performance ratings for new buildings. Some of these policies are discussed in more detail in Chapter 8.
- 6.6 The Committee instead sees the legislation as being ‘an embodiment of the Government’s vision’.¹⁴⁹
- 6.7 The Committee is of the view that robust and mandatory monitoring and reporting mechanisms associated with well targeted policies and programs will be the key drivers to effect change to meet the proposed targets under the legislation.

¹⁴⁸ ACT Government submission, p 34

¹⁴⁹ ACT Government submission, p 34

- 6.8 The Committee considers that there should be mandatory public monitoring, reporting and review mechanisms for GHGE reductions, rather than *enforceable* targets.

RECOMMENDATION 10

- 6.9 **The Committee recommends that the proposed legislation has mandatory public monitoring, reporting and review mechanisms.**

Monitoring and reporting ACT sustainability performance

ACT Greenhouse Inventory

- 6.10 To date the ACT Greenhouse Inventory has been the key mechanism for monitoring ACT GHGE. The 2005–06 Inventory was discussed above. The Committee has already recommended that 1990 be used as a baseline, as the data issues that were evident in 2007 when *Weathering the Change* was being developed have been resolved. This appears to have been agreed between the Government and the consultant preparing the inventory.¹⁵⁰
- 6.11 While the Committee welcomes the release of the 2005–06 Inventory and the work on preparing 2006–07 and 2007–08 inventories, the Committee notes there has been some delay in obtaining these inventories. In addition, the Committee notes there is no actual requirement for these inventories to be publicly released.
- 6.12 In order to effectively monitor ACT progress on reducing its GHGEs the Committee believes it is essential the community has timely and public information on its GHGEs. The Committee would like to see the inventory released as soon as possible, at the end of each financial year, as data availability allows.
- 6.13 The Committee suggests that the consultancy contract for the production of the ACT GHGE inventory include a requirement that the consultant produce

¹⁵⁰ Simon Corbell answer to question taken on notice 28 May 2009

an on-line publication to a standard similar to the Commonwealth's national GHGE inventory.

- 6.14 The Committee does not see a need for a full-colour printed copy of the ACT GHG inventory.
- 6.15 The Committee suggests that innovative public education strategies could be adopted to ensure the ACT community is kept up to date on its GHGEs .
- 6.16 At a minimum the Committee would like to see a mandatory requirement that the inventory be published annually, moving to quarterly publication as data collection improves.
- 6.17 The Committee notes that the 2005–06 inventory was compiled in a manner consistent with national and international methodologies. The Committee recommends that the methodology used to compile the ACT GHG inventory continue to be consistent with national and international methodologies and consideration be given that this be specified in the proposed legislation.

RECOMMENDATION 11

- 6.18 **The Committee recommends that the consultancy contract for the production of the ACT GHGE inventory include a requirement that the consultant produce a pdf inventory for on-line publication to a standard similar to the Commonwealth's national GHGE inventory.**

RECOMMENDATION 12

- 6.19 **The Committee recommends that an ongoing low-cost regular community education program be undertaken outlining ACT performance across sectors in meeting the ACT GHGE reduction targets. A hard copy of the GHG inventory should be available in all ACT public libraries.**
- 6.20 In addition to the inventory there are a number of other monitoring and reporting mechanisms that relate to the ACT's GHGEs including:
- the ACT State of the Environment Report
 - ACT Ecological Footprint
 - Measuring Our Progress

- ACT Government Agencies ESD reporting
- liquid fuel sales
- Greenpower, and
- the annual operations of the Greenhouse Gas Abatement Scheme.

6.21 The Committee is also aware that the Allens Consulting Group has produced a report on a new performance and accountability framework for all ACT Government agencies, which is under consideration by Government.¹⁵¹

ACT State of the Environment Report 2007

- 6.22 The most recent ACT State of the Environment Report, produced by the Office of the Commissioner for Sustainability and the Environment (OCSE), published in 2007¹⁵² provides data on a range of sustainability indicators, including resource use (including energy), and our GHGs.
- 6.23 Energy use per person has increased in the ACT across the reporting period. At 8.7 MWh (2004–05), the ACT's per customer residential electricity consumption is higher than the national average (6.8MWh) and second only to Tasmania which uses significant amounts of hydro-electricity. This means the ACT has the highest GHGs per person from residential electricity in the country.
- 6.24 Average residential consumption has stayed fairly stable at 18.9MWh in 2004–05.
- 6.25 Government and business customers consumption increased from 56% in 2001–02 to just over 58% in 2004–05.
- 6.26 While the number of vehicles in the ACT has increased, the estimated annual kilometres travelled has dropped since 2004 and is below the national average for the first time.

¹⁵¹ The Allen Consulting Group, *Performance and Accountability in the ACT, Towards a New Framework*, A Report commissioned by the Chief Minister's Department, 2009, viewed 26 August 2009
<http://www.cmd.act.gov.au/__data/assets/pdf_file/0015/3327/Performance_and_Accountability_in_the_ACT.pdf>

¹⁵² This report was tabled in August 2008

- 6.27 Under *Weathering the Change Action Plan 1*, the OCSE has a role in scrutinising ACT Government agencies' Resource Management Plans and sustainability performance. In mid-2009 the OCSE was developing a terms of reference for a government agencies environmental performance audit and assessment.¹⁵³

ACT ecological footprint

- 6.28 Another accounting tool applied in the ACT is the ecological footprint. This refers to the amount of land required to supply all the goods and services needed to sustain everyday life and lifestyle. The ecological footprint is based on consumption data generated by the Australian Bureau of Statistics.
- 6.29 In 2004 the ACT commissioned an ecological footprint report for inclusion in its *Sustainability Report – Measuring Our Progress*. The ecological footprint for the year 1999 indicated that our footprint at 7.4 hectares.¹⁵⁴
- 6.30 In 2007 the ACT Government commissioned an update of the ACT ecological footprint for the year 2004 for use in the 2007 State of the Environment report. It found that the per capita ecological footprint for each Canberran was estimated to be 8.7 hectares per person in 2004. This was an increase of 15% since 1998–99 as well the highest in Australia. The average ecological footprint across Australia in 2004 was 6.4 hectares per person.¹⁵⁵

Measuring Our Progress

- 6.31 In mid-2004 the ACT Government released *Measuring Our Progress: Canberra's Journey to Sustainability*. The Government sustainability policy – *People, Place and Prosperity* is currently being updated.

¹⁵³ ACT Legislative Assembly, Select Committee on Estimates June 2009, Answer to question on notice E09–278

¹⁵⁴ ACT Office of Sustainability, *Measuring Our Progress: Canberra's Journey to Sustainability*, Volume 3 Chief Minister's Department, 2004

¹⁵⁵ ACT Commissioner for Environment, State of the Environment Report 2007, Appendix One. <http://www.environmentcommissioner.act.gov.au/soe/2007actreport/progressingsustainability07#app1>

ACT Government agency annual sustainability reporting requirements

6.32 The Committee notes that under the *Environment Protection Act 1997* (ACT) the chief executives of administrative units, and public authorities, are required to include in their annual reports¹⁵⁶, a report on:

- how their actions and administration of legislation complies with the principles of ecologically sustainable development
- how the outputs for which they have received budget funding has contributed to ecologically sustainable development
- the effect of their actions on the environment, including details of the reporter's compliance with relevant environmental laws and standards, and any contravention of a particular environmental law or standard
- measures taken to minimise their impact on the environment, and
- mechanisms (if any) for reviewing and increasing the effectiveness of those measures.¹⁵⁷

6.33 The *Chief Minister's Annual Report Directions 2007–2010* provides guidance on how to meet this reporting requirement. These directions require agencies to report on a number of quantitative environmental recourse use indicators, including GHGEs associated with their operations using a standard template.

6.34 These also require agencies to use the Online System for Comprehensive Activity Reporting (OSCAR) to report their GHGEs and energy use. OSCAR captures data on energy, waste and emissions via a web-based data collection application. OSCAR calculates emissions based on energy consumption figures.¹⁵⁸

6.35 The standard of agencies ESD has been a matter of concern for some time. In 2005 the Auditor-General undertook a performance audit of ACT

¹⁵⁶ prepared under the *Annual Reports (Government Agencies) Act 2004* (ACT)

¹⁵⁷ section 158A

¹⁵⁸ Submission 30

Government ESD reporting which found that there was scope for considerable improvement in annual reports.¹⁵⁹

- 6.36 Annual reports are also reviewed by ACT Legislative Assembly Committees, and recommendations for better agency ESD reporting have been made. For instance, the Public Accounts Committee review of 2007–08 agencies' annual reports noted that inconsistent reporting against the defined ESD indicators by agencies, and recommended

that, as a minimum, ACT Government agencies' annual reports include thorough reporting on ecologically sustainable development (ESD) that fully adheres to the Chief Minister's Annual Report Directions 2007–10.¹⁶⁰

- 6.37 The Committee also notes that *Weathering the Change Action Plan 1* requires all agencies to produce Resource Management Plans by 2009 and these would be expected to provide public information on how Government agencies are managing to reduce their GHGs.
- 6.38 The Committee notes that there is no current formal requirement for compiling agency ESD performance into a whole-of-government sustainability report.

Sustainable Transport Plan

- 6.39 The use of sustainable transport rather than private motor vehicles, reduces GHGs. The *Sustainable Transport Plan for the ACT* (STP) includes targets for the percentage of 'journey to work' trips by walking, cycling and public transport. These are:¹⁶¹

MODE	2001	2011	2026
Walking	4.1%	6%	7%
Cycling	2.3%	5%	7%
Public Transport	6.7%	9%	16%
Total	13.1%	20%	30%

¹⁵⁹ ACT Auditor-General's Office, *Performance Audit Report, Reporting on Ecologically Sustainable Development*, July 2005,

<<http://www.audit.act.gov.au/auditreports/reports2005/Reporting%20on%20ESD.pdf>>

¹⁶⁰ ACT Legislative Assembly, Standing Committee on Public Accounts, *Report on Annual and Financial Reports 2007–2008*, pp 6–8

¹⁶¹ ACT Government, *The Sustainable Transport Plan for the ACT*, April 2004, p ii

- 6.40 The ACT Government is developing a *Sustainable Transport Action Plan 2010–2016*, informed by a 2009 report, the *ACT Strategic Public Transport Network Plan*,¹⁶² and stakeholder feedback. The Action Plan is intended to contribute to the realisation of these STP targets.
- 6.41 The ACT State of the Environment Report, produced by OCSE, includes data on resource use, including sustainable transport. The annual budget and annual report for the Department of Territory and Municipal Services reports on performance against sustainable transport indicators.

Liquid fuel sales data

- 6.42 Since 2007 data about liquid fuel sales can be collected under Part 9A of the *Environment Protection Act 1997* (ACT). Fuel sales data was very accurate when states and territories had the ability to collect an excise on fuel sales until the High Court ruled against this in the 1990s. The ACT's legislative amendments allow for improved data accuracy than with the previous estimates based on ABS surveys.
- 6.43 The *Environment Protection (Fuel Sales) Amendment Act 2007* provides for collection of retail fuel sales data from service stations in the ACT and enables a more accurate calculation of emissions produced from the private vehicle fleet in Canberra. The data does not include wholesale purchases or sales from fuel depots.
- 6.44 The data is used to improve the accuracy of the ACT GHG inventory and does not seem to be otherwise released by the Government. The first collection took place for the 2007–08 year and the 2008–09 collection should be completed before the end of 2009. About a quarter of the ACT's total GHGEs come from the transport sector.¹⁶³
- 6.45 This data collection implements Action 42, *Weathering the Change Action Plan 1*.

¹⁶² McCormack Rankin Cagney, *ACT Strategic Public Transport Network Plan: Final Report*, Territory and Municipal Services 30 June 2009

¹⁶³ *Climate Change News 5*, DECCEW, February 2009<http://www.environment.act.gov.au/__data/assets/pdf_file/0016/153151/CCNEWS5.pdf>

Greenhouse Gas Abatement Scheme

- 6.46 Under the ACT Greenhouse Gas Abatement Scheme (GGAS scheme), the ICRC is required to report annually on the operations of the scheme. In the 2007 calendar year the Scheme delivered emission reductions for the ACT of 403 024 tonnes of CO₂-e and in 2008, 679 853 tonnes.¹⁶⁴ The ACT Government is considering the NSW Energy Savings Scheme (ESS) which is intended to complement the CPRS, as a program to replace the GGAS scheme.¹⁶⁵
- 6.47 The ICRC also undertakes monitoring and evaluation, and provides input to government policy development on request.¹⁶⁶

Greenpower usage

- 6.48 Government purchase of Greenpower is one of the accountability indicators in the ACT Budget papers. Other accountability measures affect resource use and sustainability but are not discussed here. In 2008–09 the expected purchase target for Greenpower was 23%, with an expected outcome of 25%. In 2009–10 the expected purchase target is 30%.¹⁶⁷
- 6.49 In addition the national Greenpower accreditation program produces quarterly program status reports which provide data on ACT [and other states] the number of Greenpower customers and the amount of Greenpower energy purchased.¹⁶⁸

Other reporting requirements

- 6.50 The Committee is aware of a range of targets in other policy documents which are not directly concerned with GHGE reductions, but which nevertheless could contribute to monitoring and evaluating the effect of climate change on Territory assets, and the effectiveness of Territory policies. The ACT Natural Resource Management Council's Bush Capital Legacy, for example, includes a

¹⁶⁴ ICRC, *ACT Greenhouse Gas Abatement Scheme: Compliance and operation of the Scheme for the 2008 compliance year*, Report 4 of 2009, June 2009, p 6

¹⁶⁵ ICRC, *ACT Greenhouse Gas Abatement Scheme: Compliance and operation of the Scheme for the 2008 compliance year*, Report 4 of 2009, pp 1–2

¹⁶⁶ *Transcript of Evidence*, 22 July 2009, p 328

¹⁶⁷ ACT Government, *2009–10 Budget Paper no 4*, p 68; \$3.3 million has been budgeted for GreenPower purchases 2009–12: ACT Government, *Budget 2009–10, Budget Paper 2*, p 45

¹⁶⁸ <<http://www.greenpower.gov.au/our-audits-and-reports.aspx>>, viewed 23 August 2009

range of targets for land, water, biodiversity and the community.¹⁶⁹

6.51 The Canberra Plan also has environmental sustainability indicators including to:

- meet the consumption targets of *Think Water Act Water* and prevailing water restrictions
- meet GHGE targets
- increase use of public transport, cycling and walking
- decrease waste to landfill.¹⁷⁰

6.52 The Committee notes that public reporting on sustainability or environmental resource use has generally led to improvements in environmental performance following the adage 'if you can't measure it you can't manage it'.

6.53 Several witnesses discussed whether Canberra's progress towards sustainability and emissions reduction should be benchmarked against progress elsewhere. Dr Heinz Schandl suggested that Canberra might consider comparing itself with the provincial city of Graz in Styria, Austria, Vancouver in Canada, or several other European cities.¹⁷¹ Others recommended the work of agencies or organisations, such as the London Climate Change Agency and the Brisbane City Council as comparators, rather than cities.¹⁷²

6.54 One submission suggested that ACT schools 'could be appropriate learning environments' for children to learn about monitoring, reporting and review processes for GHGEs.¹⁷³

6.55 The Committee suggests that a whole-of Government sustainability report, which includes GHG reductions emissions, would be useful rather than having a plethora of statistics, data and ad hoc reporting requirements. The Committee recognises that this should not replace existing statutory reporting requirements but rather ensure that key data in those reports is collated into a single document.

¹⁶⁹ ACT Natural Resource Management Council, *Bush Capital Legacy*, 2008

¹⁷⁰ Canberra Plan 2008 p 97

¹⁷¹ *Transcript of Evidence*, 4 March 2009, pp 16, 17, 19

¹⁷² *Transcript of Evidence*, 4 March 2009, pp 29, 34

¹⁷³ Submission 31

Reporting on progress in *Weathering the Change*

- 6.56 *Weathering the Change* indicates the ACT Government will establish a monitoring and reporting framework to measure both its own progress and that of the ACT community in meeting the climate change challenge. To date a monitoring and reporting framework is not clearly articulated.
- 6.57 In addition *Weathering the Change* states that reports will be made annually to both the Government and the community on: the level of ACT GHGEs, the effectiveness of actions taken to abate emissions, and to adapt to changes.¹⁷⁴
- 6.58 To date one progress report has been released in July 2008. The report is a compilation of action taken against the 43 actions.¹⁷⁵ DECCEW also produces an irregular newsletter of progress. Neither provides detail on the amount of GHG reductions associated with particular actions.

RECOMMENDATION 13

- 6.59 **The Committee recommends that the ACT Government amend the Annual Reports (Government Agencies) Act 2004 (ACT) to require a whole-of-government report on the sustainability performance of ACT Government operations, and on the GHGE reductions achieved by its decisions.**

Strategic indicators for greenhouse gas reductions

- 6.60 The Committee notes that during the 2009 Estimates inquiry, Minister Corbell invited comment on the potential strategic indicators which could be used in the Budget papers and DECCEW corporate documents.
- 6.61 The Committee recommends that *Weathering the Change* action plans use a set of standard strategic and accountability indicators in order to allow clear tracking of progress towards ACT sustainability goals, such as becoming a zero-net emissions jurisdiction.
- 6.62 In regard to indicators for indicating progress on reducing GHGEs the Committee suggests the following indicators be considered:

¹⁷⁴ *Weathering the Change: the ACT Climate Change Strategy 2007-2025* p 26

¹⁷⁵ ACT Government, Action Plan 2007–2011 Progress Report July 2008, viewed 21 January 2008, <http://www.tams.act.gov.au/__data/assets/pdf_file/0016/115072/CC_Fact_sheets_2008.pdf#July%202008>

- total ACT GHGEs
- per capita GHGEs
- % reduction from previous year
- % target reduction for forward year
- forward estimate of % reduction for forward year /s
- emissions from ACT Government operations [office]
- emissions from ACT Government operations [other]
- emissions from commercial buildings
- emissions from domestic buildings
- emissions from transport
- emissions from waste
- % of Greenpower purchased by Govt (already an indicator)
- % of Greenpower purchased by community
- total % renewable energy purchased
- % renewable energy generated in the ACT
- \$\$ cost and tonnage of offsets purchased for ACT Government emissions, and
- \$\$ cost and tonnage purchased offsets for ACT community emissions.

RECOMMENDATION 14

- 6.63 **The Committee recommends that the ACT Government incorporate strategic indicators on Government and sectoral performance in reducing GHGE into its Budget strategic indicators or accountability indicators for agencies.**

Climate impact assessment – monitoring in advance

- 6.64 The Committee notes evidence that the cheapest and easiest greenhouse abatement is the energy not used,¹⁷⁶ and that forward planning can lead to greater energy efficiency.
- 6.65 ActewAGL had done work on abatement curves and had found that most abatement could be secured at the design stage of infrastructure or facilities.¹⁷⁷
- 6.66 *Weathering the Change Action Plan 1* (Action 24) also provided that the Government would produce a report by 2008 on triple bottom line tendering. Although this report is not yet available it is reasonable to assume that it will provide a model for the consideration of social, environmental and economic outcomes that can be applied to ensure that not only is the process of

¹⁷⁶ *Transcript of Evidence*, p 314

¹⁷⁷ *Transcript of Evidence*, 8 May 2009, p 173

development sustainable, but that sustainability assessments can also be applied to other policies and programs considered by the ACT Government.

RECOMMENDATION 15

- 6.67 **The Committee recommends that the proposed legislation require ACT Government agencies to undertake a sustainability assessment [including climate change and a sectoral impact analysis] of all major policies, programs and projects, using a consistent triple bottom line methodology at an early stage.**

Review of targets and progress

- 6.68 Under Action 2 of *Weathering the Change Action Plan 1*, the Office of Commissioner for Sustainability and the Environment (OCSE) has a role in scrutinising ACT Government agencies' Resource Management Plans and sustainability performance.
- 6.69 To assist analysis, a whole of government report on sustainability performance should be produced annually by the ACT Government.
- 6.70 In mid-2009 the OCSE was developing a terms of reference for a government agencies environmental performance audit and assessment.¹⁷⁸
- 6.71 The Committee notes that the role of the Commissioner for Sustainability and the Environment has been expanded to include sustainability.¹⁷⁹
- 6.72 The exact nature of this change of this role is currently the subject of consultation. It is expected legislative change to the *Commissioner for Environment Act 1993* will be brought forward.
- 6.73 One area under consideration is the role of the Commissioner in undertaking sustainability reporting, in addition to existing responsibility for State of the Environment Reporting.
- 6.74 The Committee suggests that the OCSE be given a mandate to cover sustainability and the Commissioner should produce an additional sustainability report – similar to *Measuring Our Progress*, as part of the State of

¹⁷⁸ ACT Legislative Assembly, Select Committee on Estimates June 2009, Answer to question on notice E09-278

¹⁷⁹ Chief Minister Media Release September 2007

the Environment Report. This sustainability report should consider and report on ACT Government and sectoral performance in a number of sustainability goals including movement and barriers to achieving zero net emissions.

RECOMMENDATION 16

- 6.75 **The Committee recommends that the proposed legislation require the Commissioner for Sustainability and the Environment, as part of the State of the Environment Report to review and report every four years on ACT sectoral and ACT Government progress on reducing GHGE.**
- 6.76 The ICRC also undertakes monitoring and evaluation, and provides input to government policy development on request.¹⁸⁰
- 6.77 The ICRC is currently responsible for providing a technical assessment of greenhouse reductions achieved under the Greenhouse Gas Abatement Scheme and the feed-in-tariff.
- 6.78 The Committee supports the ICRC having an increased role in applying similar methodologies to other major climate change policies, programs and projects. The Committee notes however that such analysis ideally should be broader than a cost-benefit analysis and also incorporate other social, economic and environment impacts.

RECOMMENDATION 17

- 6.79 **The Committee recommends that the proposed legislation require the Independent Competition and Regulatory Commission to report annually on major ACT Government climate change policy, programs and projects concerning GHG mitigation and abatement achieved; social economic and environmental benefits of mitigation and abatement, and the total cost of programs, policies and projects, as well as the cost per tonne of emission reduction.**
- 6.80 The *Environment Protection Act 1997* (ACT) provides that the Auditor-General may audit compliance with ACT Government agencies' ESD reporting requirements.¹⁸¹ The Committee has already noted the Auditor-General's 2005 comments on the inadequacy of ACT Government agency ESD reporting.

¹⁸⁰ *Transcript of Evidence*, 22 July 2009, p 328

¹⁸¹ section 158

- 6.81 The Auditor-General also has broad powers and functions to undertake performance audits.
- 6.82 The Committee notes that there is potential for overlap between the Commissioner for Sustainability and the Environment, the ICRC and the Auditor-General's audit but agrees that this can be managed within the ACT Government.

Expert advice

- 6.83 *Weathering the Change* committed the ACT Government to establishing a taskforce to provide advice and undertake action, including the delivery of a seminar series on climate change, with an emphasis on issues facing business, and the options they have to address risk and reduce emissions.¹⁸² The July 2008 progress report indicated that this action had been completed, because the Climate Change Business Academic Roundtable had been formed, and key business and academic representatives met in June and September 2008, as a 'think-tank' for innovative climate change solutions.
- 6.84 The Communiqué from the first meeting outlines five priority areas for discussion. These were:
- the importance of Government leadership in promoting partnerships between government and the business sector
 - developing an enabling environment through government and building a strong business case that demonstrates the financial benefits to businesses of adopting sustainable practices
 - adopting guidelines and legislation that will promote improved design and management of the built environment
 - addressing shortages in skills and training – particularly in tradespeople understanding new energy saving technologies, and
 - facilitating the sharing of practical solutions between government, business and researchers.
- 6.85 Each jurisdiction has established an advisory body on climate change. Most have a dedicated home page. The content of each site varies, for example, in Queensland, the Premier's Council has published a working paper¹⁸³ and Tasmania's Climate Action Council published its communiqué on its website

¹⁸² Action 40, the *ACT Climate Change Strategy – Action Plan 2007–2011*, p 29

¹⁸³ <http://www.climatechange.qld.gov.au/downloads/index.html#working_papers>

after its first meeting on 27 March 2009.¹⁸⁴

- 6.86 Current information relating to the ACT roundtable is not readily accessible.
- 6.87 The ACT Government provided roundtable information and minutes to this Committee only upon request. The Committee's request for information from the roundtable about current activities was declined.
- 6.88 The Committee supports a high level expert advisory group that can advise on the proposed legislation, as well as other climate change matters.
- 6.89 The Committee supports the conduct, membership and business of the advisory committee being undertaken in an open and transparent manner.

RECOMMENDATION 18

- 6.90 **The Committee recommends that the proposed legislation establish an expert body to advise the Minister and Legislative Assembly on the operations of the proposed legislation, as well as to provide broader advice on climate change policy and program issues as determined by the Minister.**

¹⁸⁴ <http://www.climatechange.qld.gov.au/downloads/index.html#working_papers>

7 EFFICACY OF *WEATHERING THE CHANGE* PROGRAMS

- 7.1 The terms of reference provide that the Committee will inquire into and report on the efficacy of existing programs within the current *ACT Climate Change Strategy Weathering the Change*.
- 7.2 In July 2008 the ACT Government released a progress report on the implementation of the 43 actions under *Weathering the Change Action Plan 1*.¹⁸⁵ The Committee was provided an update in May 2009. That update is reproduced at Appendix H.
- 7.3 The ACT Government submission noted that as of December 2008, 11 actions had been completed, 11 were ongoing, and 21 were yet to be completed.
- 7.4 The actions that had delivered the most emission reduction were:
- Action 5 (Electricity retailers are now to offer a GreenPower product to new customers),
 - Action 10 (the Greenhouse Gas Abatement Scheme) and
 - Action 12 (ACTION Bus fleet replacement).¹⁸⁶
- 7.5 The Committee is also aware that ACTPLA and its Sustainable Futures program are looking at how to build resilience and responsiveness to climate change, and the suggestions made to this inquiry may be taken into account in that project.¹⁸⁷ The Committee understands that the Sustainable Futures program, consultants' reports and ACTPLA/industry research will inform a review of the Territory Plan that will culminate in a variation to that Plan in 2010. The first priority for the review is the residential code, the multi-unit development code and the subdivision code. This work is due for completion by the end of November 2009. The ACT Government has also agreed to

¹⁸⁵ ACT Government, Action Plan 2007–2011 Progress Report July 2008, viewed 21 January 2008, <http://www.tams.act.gov.au/__data/assets/pdf_file/0016/115072/CC_Fact_sheets_2008.pdf#July%202008>

¹⁸⁶ Select Committee on Estimates, Answer to question on notice E09–276

¹⁸⁷ *Transcript of Evidence*, 28 April 2009; *Transcript of Evidence*, 13 May 2009, p 223; Exhibit 7; Submission 30

develop its climate change adaptation policy through a COAG process by 2011.

- 7.6 While the Committee welcomes this information it notes there is little or no data available to compare the effectiveness of existing programs in terms of delivering actual GHGE reductions, and the unit cost of doing so, outweighed by other important factors such as addressing equity issues, economic stimulus, job creation, and health benefits.
- 7.7 The Committee repeatedly sought information from the Minister on any cost-benefit analysis [or sustainability assessment] that had been undertaken in regard to *Weathering the Change* actions or more recent policy or project commitments.¹⁸⁸ The Committee is disappointed that no information was forthcoming. The Committee can only conclude that either no analysis of this nature was actually undertaken or that the Government is not willing to release it.
- 7.8 The Conservation Council suggested *Weathering the Change* was unlikely to deliver necessary GHGE reductions and should be strengthened. It noted that actions were not linked to deliverable outcomes. The Conservation Council prefers the use of 'SMART' measures: those that are specific, measurable, ambitious, relevant and time-bound.¹⁸⁹
- 7.9 Energy Imaging suggested there was a need to collect data and audit public housing stock retrofitted under the *Weathering the Change* to assess the effectiveness of draught sealing and the installation of insulation. They also recommended that energy efficiency rating (EER) assessors of new and existing ACT housing stock be trained and nationally accredited in second generation software.¹⁹⁰
- 7.10 The Committee notes that the ACT Budget includes items described as climate change expenditure that are not clearly part of the actions under *Weathering the Change*. It is also not clear whether some items which have other and more predominant functions – such as the Canberra International Gardens and

¹⁸⁸ *Transcript of Evidence*, 13 May 2009, p 209; Minister for the Environment, Climate Change and Water, Mr Corbell MLA, response to question taken on notice, 28 May 2009; letter from the Chair to the Minister dated 19 June 2009

¹⁸⁹ Submission 4

¹⁹⁰ Exhibit 6; *Transcript of Evidence*, 29 April 2008, p 146–8

Arboretum which also has public utility and long-term tourism potential – should continue to be described as climate change measures.

- 7.11 It was not clear to the Committee what mechanisms the Government has to ensure that funding budgeted for climate change is expended for these purposes and whether there is any effective process in place to coordinate actions under *Weathering the Change*, especially given that actions are the responsibility of several agencies. The Committee is not in a position to do a performance review in order to assess whether the staff allocation and budgets to implement *Weathering the Change Action Plan 1* are adequate, but suggests that such a performance audit should be undertaken.

RECOMMENDATION 19

- 7.12 **The Committee recommends that *Weathering the Change Action Plan 2* include specific targets for particular sectors, i.e. ACT Government, commercial, residential, transport, as well as measurements of the expected greenhouse abatement for each action.**

RECOMMENDATION 20

- 7.13 **The Committee recommends that ACT Government Budget papers provide an update of expenditure on climate change policies and programs.**

Methodology for developing ACT climate change programs and actions

- 7.14 The ICRC's submission suggested that the Committee should apply a systematic cost/benefit/effectiveness framework to its assessment of climate change programs in the ACT. The ICRC noted that the overall net benefits and costs should be considered, and a 'silo approach' avoided.¹⁹¹ The ICRC's suggested cost/benefit evaluation methodology is:

1. Determine efficiency of proposed GHG reduction program
 - a. estimate GHG savings
 - b. estimate cost to achieve GHG savings

¹⁹¹ Submission 34, p 8; *Transcript of Evidence*, 22 July 2009, p 316

- c. determine efficiency factor as measured in either:
 - i. dollars per unit of GHG abated or
 - ii. units of GHG abated per dollar
 - 2. Benchmark against alternative programs
 - a. comparison by:
 - i. efficiency factor
 - ii. total GHG abated
 - 3. Determine social benefits
 - a. determine who can take advantage of the program (i.e. beneficiaries)
 - b. determine how program is funded
 - 4. Evaluate potential increase in social (community service) obligations
- 7.15 The Committee notes that the ACT Government has commissioned expert consultancy advice on policy, programs and projects to be considered for *Weathering the Change Action Plan 2*, including their cost-effectiveness.¹⁹²
- 7.16 Minister Corbell advised the 2009 Select Committee on Estimates that the Government would evaluate the cost of reducing emissions so as to identify the cost-effective actions as part of the development of the road map to achieve zero net emissions.¹⁹³
- 7.17 The Committee agrees that a cost-benefit approach should be applied to recommendations arising from this Committee and from the Government's proposed roadmap to zero net emissions.
- 7.18 The Committee suggests that the Government consider allocating resources to the ICRC to undertake such an evaluation as a model for rigorous independent analysis of climate change programs.
- 7.19 However the Committee notes that such an analysis should not be a limited to a traditional cost-benefit analysis, and include a detailed analysis of the various policy options available to deliver GHG reduction emissions, their expected delivery in terms of cost, abatement of GHGs, social impacts, economic benefits, as well as the time to achieve abatement benefits.

¹⁹² Minister for the Environment, Climate Change and Water, Mr Simon Corbell MLA, Letter to the Chair, 12 August 2009

¹⁹³ Select Committee on Estimates, Answer to question on notice E09-276

- 7.20 The Committee notes it is particularly important that a consistent and agreed methodology be used in this regard. If not decision-makers are placed in the difficult situation of operating outside rigorous analysis and into the realm of guesswork.

RECOMMENDATION 21

- 7.21 **The Committee recommends that an agreed methodology be developed with key stakeholders to assess the climate change impacts of policies, programs and projects as the first step of the road map to zero net emissions.**

8 ADDITIONAL CLIMATE CHANGE POLICY AND PROGRAMS

- 8.1 The terms of reference provide that the Committee will inquire into and report on issues associated with achieving GHG reduction targets including on the need for additional [climate change] programs in *Weathering the Change*.
- 8.2 Stakeholders and witnesses put forward a range of suggestions for policies and programs to achieve reductions in ACT GHGs.
- 8.3 Some suggestions were for increased resourcing for existing initiatives. Others were new initiatives. Others were for initiatives within the province of the Australian Governments, or requiring national cooperation.
- 8.4 The Committee notes it is not able to do justice in considering the merits or otherwise of all the various suggestions put forward, yet believes all should be considered using a consistent methodology, as proposed earlier in this report, in order to determine the appropriate and efficient policy mix to move Canberra towards a sustainable zero net emission modern city.
- 8.5 While strongly advocating the need for climate policies and programs to be subject to more thorough assessment of the costs, impacts and benefits than has occurred with previous climate change policies the Committee is of the view that there is sufficient evidence of the merits of actively implementing measures to enhance demand side management – energy efficiency – as a matter of priority.
- 8.6 In this context the key initiatives that stand-out as being low-cost and able to deliver substantial GHGs are:
 - policy measures and incentives to encourage retrofitting of commercial buildings;
 - measures and incentives to retrofit residential dwellings
 - ensuring high energy efficiency standards for all new buildings, including appliances, and

- a dramatic modal shift in transport to sustainable options (public transport, cycling, walking)

RECOMMENDATION 22

- 8.7 **The Committee recommends that the ACT Government put in place measures in the 2010–11 Budget to implement a number of cost effective GHG abatement policies and program initiatives.**

Policy context for considering potential policy and program initiatives

- 8.8 The Committee recognises that State and territory policies and programs in regard to climate change are being considered in the context of the November 2008 COAG Agreement on complementary measures discussed above.
- 8.9 The Independent Competition and Regulatory Commission (ICRC) urged the Committee accord these principles ‘careful consideration’.¹⁹⁴ The Committee expresses cautious support for these principles. Key issues are the final target of the CPRS, whether the CPRS is further reformed to take account of voluntary action as well as the extent of and nature of Commonwealth climate change programs.
- 8.10 The Committee is concerned however, that under COAG’s preferred approach, state and territory laws, programs and policies may be sacrificed to maximise perceived efficiencies, even though the targets under the CPRS are very low compared with other developed economies.
- 8.11 Despite these reservations and current uncertainties it is worth noting that the NSW review of climate change measures concluded by IPART in July 2009 recommended that the following NSW state programs be retained:
- Energy Saving Scheme
 - BASIX
 - The BASIX co-generation demonstration project
 - the overarching NSW Government Sustainability Policy
 - Energy Performance Contracts, and the

¹⁹⁴ Submission 34, pp 4–7

- Energy and Water Efficiency Investment Program.¹⁹⁵

Reducing GHGEs from ACT buildings

- 8.12 Almost three quarters (73.3%) of the ACT's GHGEs are generated by stationary energy consumption. This is energy used to control the temperature – heat and cool, provide lighting and the run appliances in our buildings.
- 8.13 The GHGEs reductions of adopting energy efficiency in buildings has been noted earlier. Likewise the case has been presented that historically there has not been a strong market mechanism to drive such energy efficiency improvements, even though these measures provide significant GHG reductions and save money in reduced ongoing energy costs.
- 8.14 Various stakeholders identified improving the energy efficiency of private residential and commercial buildings as a relatively easy way of significantly reducing GHGEs for the ACT.

Commercial buildings

- 8.15 According to the Property Council of Australia, as at July 2008 about 68% of Canberra's buildings were 'B, C, and D grade stock with little or no environmental credentials'.¹⁹⁶ Property owners had 'little commercial incentive' to upgrade their buildings and were already managing significant risks.¹⁹⁷
- 8.16 There is a growing rate of office vacancies in older buildings in the ACT partially caused, according to the Property Council of Australia, by the Commonwealth's policy of only renting energy efficient A Grade office space.
- 8.17 The Committee welcomes the introduction in the 2009–10 Budget for the Tune-Up Program. Yet based on the evidence it appears a number of other

¹⁹⁵ <http://www.ipart.nsw.gov.au/files/Media%20Release%20-%20IPART%20recommends%20a%20method%20for%20assessing%20NSW%20Climate%20Change%20Mitigation%20Measures%20and%20reviews%2026%20NSW%20programs%20-%202%20July%202009%20-%20WEBSITE%20APD.PDF>

¹⁹⁶ Submission 20

¹⁹⁷ Submission 20

policy and program measures could be pursued to ensure greater uptake of retrofitting of ACT building stock.

8.18 The Property Council of Australia suggested a range of reforms that the ACT Government could introduce that could facilitate the retrofit of existing commercial building stock. These included:

- stamp duty, rates and/or land tax reductions for green buildings
- gross floor area increases of 10–15% for green buildings
- fee waivers (development application lodgement fees and any required building covenant extension fees) for green buildings
- an ‘express’ or ‘green door’ approval process for larger projects that commit to a range of sustainability initiatives
- change of use charge remission or deferment for 1–2 years for optimum green buildings
- facilitation of adaptive re-use of inefficient office buildings, and
- density bonuses, transferable rights based on higher densities, rebates on infrastructure charges, ‘green door’ fast tracked planning approvals and assistance with environmental ratings and access to professional expertise.¹⁹⁸

8.19 Ms Carter said that in the 1990s, ACT Government policies were introduced which encouraged adaptive re-use of redundant existing buildings, including a waiver of development application fees, remission on the change of use charge, and stamp duty concessions on lower-priced apartments. As a result, the Jolimont Centre became the Novotel, the Wales Centre became the Waldorf Apartments, and other sites became serviced apartments. She explained that the social benefits of such policies include the provision of housing and other facilities in commercial centres, increased inner-urban population density, a greater diversity in housing choice and reduced traffic congestion because people live closer to their workplaces. Adaptive re-use also extends the life of buildings that might otherwise have been demolished, and residential accommodation tends to use less energy, because heating, lighting and air conditioning tends to be used less when tenants are at work.

¹⁹⁸ Submission 20

- 8.20 Ms Carter said that upfront costs were currently unnecessarily prohibitive, and should be reduced because the short-term, foregone revenue is paid back within a couple of years, because of the extra rates from apartments, and duties paid on property transfers.¹⁹⁹
- 8.21 According to the Green Building Council's Mr Jeff House, the ACT Government has lagged behind other jurisdictions – and particularly behind Queensland and Victoria – in adopting innovative policies for the retrofit of ACT commercial buildings.²⁰⁰
- 8.22 The Committee notes that in June 2009 the Treasurer, Ms Gallagher MLA, announced that Change of Use Charges would be reduced from 75 percent to 50 percent and available for applications made between 1 June 2009 and 1 June 2010. This would apply to new applications for lease provision changes which involve construction proposals for a higher value use, such as converting a lease from residential to commercial use. Amendments to leases granted in the last five years would be charged at a reduced rate of 75 percent. A 100 percent remission was also applied to the Change of Use Charge for disused petrol station sites.²⁰¹
- 8.23 The ACT Chapter of the Australian Institute of Architects submitted that Greenfield fringe developments should be stopped in Canberra, and that established areas should have their density increased. This would enable high-frequency transport to be provided, reduce the loss of Greenfield areas, reduce infrastructure costs, reduce resource consumption, and support the optimum use of existing infrastructure such as schools, shopping centres, and community centres. Apartments and medium density housing can also deliver a high level of energy efficiency. Increased density also offers opportunities for greater economic viability, vitality, affordability, creating a healthy city, and making a safer city. The Institute attached a report by the Australian Sustainable Built Environment Council to support its submission.²⁰²

¹⁹⁹ Catherine Carter, 'Re-use pays dividends in the long run', 6 March 2009, Property Council of Australia website <http://www.propertyoz.com.au/Blog/archive/2009/03/06/46.aspx>, viewed 6 March

²⁰⁰ *Transcript of Evidence*, 4 March 2009, pp29, 37

²⁰¹ Katy Gallagher, MLA, 'Media Releases, New Measures to Support Investment in the Territory', 8 June 2009

²⁰² Submission 37

RECOMMENDATION 23

- 8.24 **The Committee recommends that the ACT Government evaluate the policy measures suggested by the Green Building Council, the Australian Institute of Architects and the Property Council of Australia as a matter of priority, and report back to the Assembly on their evaluation.**

Residential buildings

- 8.25 Several stakeholders called for a new ACT Government emphasis on retrofitting buildings.²⁰³
- 8.26 According to Professor Andrew Blakers, the Director of the ANU Centre for Sustainable Energy Systems, and Director of the ARC Centre for Solar Energy Systems, the ACT Government should encourage the 'rapid development of a mass building retrofit industry, generating higher levels of employment in Canberra and a halving of consumption of imported electricity by 2020'.²⁰⁴
- 8.27 Professor Blakers described a mass retrofitting program involving 'roof, wall and floor insulation, draught proofing and solar water heaters' as 'solarization'. He estimated the cost of retrofitting a typical brick veneer house as \$7 000 – \$10 000; or about \$5 000 if Commonwealth subsidy programs are successfully accessed. If 100 000 homes were solarised over 10 years, this could generate about 700 new jobs, stimulate the economy and save energy.²⁰⁵
- 8.28 Professor Blakers recommended that a consortia of skilled tradespersons, financiers and administrative support be established to deliver retrofitting programs.²⁰⁶ The ACT Government's 'Switch Your Thinking program' which has elements of this approach.
- 8.29 The elements of a new program the Professor Blakers proposed include:
- ACT Government support for program guidelines and communications which promote a new mass retrofit program
 - ACT Government start-up incentives for participating businesses and consortia

²⁰³ Submissions 12, 15A, 16; *Transcript of Evidence*, 3 June 2009, pp228, 299; *Transcript of Evidence*, 1 July 2007, p 279

²⁰⁴ Submission 12

²⁰⁵ *Transcript of Evidence*, 22 July 2009, p307

²⁰⁶ Submission 12

- roll-out of smart meters to encourage energy efficiency
- independent monitoring by a new statutory authority such as Greenhouse Canberra²⁰⁷

- 8.30 The Committee notes that the Commonwealth is providing a range of assistance to households through its Climate Change Action Fund and CPRS household assistance measures. These include the energy efficiency homes package, the Green loans program, the energy efficiency pledge fund element of the Australian Carbon Trust, and 2009–10 budget measures.
- 8.31 The Committee suggests that the ACT Government consider, when developing the 2010–11 budget, a significant expansion in the support it provides for retrofitting programs, to complement existing Commonwealth programs.
- 8.32 The Committee also suggests that the ACT Government consider a range of regulatory and policy measures to facilitate the uptake of retrofitting by the community, in addition to financial incentives.
- 8.33 The Committee suggests that the business development sections of ACT Government work with small businesses involved in retrofitting activity in the Territory to assist them to form consortia to expand their work.
- 8.34 Another local company specialising in domestic energy efficiency, Energy Imaging, advised the Committee that the most cost-effective measures that households can implement to reduce their energy costs and GHGEs, and improve the comfort of their homes, by reducing the rate at which air leaked from their homes. The cost of testing for air leakage and retrofitting could be recovered in less than three years. Quite simple remedial measures included covering fans, capping the bases of downlights, and installing floor, door and window seals. Auditing roof and wall insulation and filling gaps would also lead to benefits as a 5% gap in insulation equated to about a 50% reduction in effectiveness. These were relatively low cost energy efficiency measures when compared with wall insulation and double glazing.²⁰⁸ The company had found that houses in Canberra typically leak more than 20 air changes per hour at 50 pascals. If this could be reduced to 10 air changes per hour heating costs could

²⁰⁷ *Transcript of Evidence*, 22 July 2009, pp299–305; Submission 12

²⁰⁸ Exhibit 6, *Transcript of Evidence*, 29 April 2009, pp146, 149, 150

be reduced by 30 to 50%, saving three to six tonnes of GHGEs.²⁰⁹

- 8.35 Energy Imaging suggested incentives were needed for households and buildings to implement air sealing measures and improve the installation of their insulation. They suggested that air leakage testing should be part of building certification (set a maximum air leakage standard), and that new, certified buildings should be audited for air leakage and the quality of their insulation. Draft sealing should also be a measure eligible for a rebate under the ACT Energy Wise home audit program.
- 8.36 In August Energy Imaging advised that the Department of Water Heritage and the Arts, and the Building Council of Australia had co-funded a review of international air leakage standards and the potential for air leakage reduction as a GHGE reduction strategy. An air leakage standard for new buildings is also understood to be under consideration. The United Kingdom adopted an air leakage standard in 2006.²¹⁰
- 8.37 Energy Imaging also suggested that the use of halogen globes in downlights should be banned, and that covers to prevent air leakage and allow proper insulation around downlights should be mandatory. In Victoria downlights are required to be covered with Isolites.²¹¹
- 8.38 In April 2009 ACTPLA released a discussion paper on a proposal to introduce licensing for building energy efficiency assessors, and to amend the rating provisions under the ACT House Energy Rating Scheme. The discussion paper invited feedback on a range of proposals which included:
- extending the definition of premises under the *Civil Law (Sale of Residential Property) Act 2003* to require EERs for transportable homes erected on-site and residences in a retirement village, but not hostels and nursing home-style accommodation.
 - requiring the disclosure of certain information relating to the energy performance of residential tenancy accommodation provided by a lessor to a tenant. Penalties would apply for failing to comply or for advertising

²⁰⁹ *Transcript of Evidence*, 29 April 2009, pp148–149

²¹⁰ Email from J Edwards, Energy Imaging, 12 August 2009

²¹¹ *Transcript of Evidence*, 29 April 2009, pp151, 154

a false or misleading disclosure. [This would not apply to sub-tenancies or arrangements between tenant].

- A requirement that EER reports have information attached about the residence's hot water unit(s) and that unit's efficiency rating, if applicable.

8.39 Licensing is expected to be introduced in late 2009, with time provided for any necessary training to be undertaken.²¹²

Reducing emissions from transport

8.40 GHGE from the use of transport fuels in the Territory were 23.1 % according to the 2006–06 GHG inventory.

Existing initiatives

8.41 The Department of Territory and Municipal Services is responsible for implementing the *Sustainable Transport Plan*, the *Accessible Public Transport Action Plan (2004)*, and the *ACT Government Integrated Transport Framework (2008)*. Two of the four principles that inform the latter policy is to 'promote a city form and transport options that minimise GHGEs; and 'integrate transport priorities with land use planning'.²¹³ As noted above, a *Sustainable Transport Action Plan 2010–2016* is being developed. This will be a strategic transport policy document to support government transport decision-making and infrastructure investments from 2010–2016 and beyond.²¹⁴

8.42 The Framework includes various transport investments and programs, but not a commitment to monitoring and evaluation.²¹⁵

8.43 The ACT is said to be on track to achieve its 2011 *Sustainable Transport Plan* targets, but does not yet have emissions reduction targets for the transport sector. The current Integrated Transport Framework targets modes of transport (walking, cycling and public transport) rather than emissions reductions.

²¹² Select Committee on Estimates, Answer to question on notice, E09-307

²¹³

http://www.tams.act.gov.au/__data/assets/pdf_file/0019/117145/Integrated_Transport_Framework.pdf

²¹⁴ http://www.tams.act.gov.au/move/sustainable_transport_action_plan

²¹⁵ Department of Territory and Municipal Services, *ACT Government Integrated Transport Framework: Ready for the Future*, Canberra 2008

8.44 ACTPLA has limited responsibility for transport planning apart from implementing the Territory Plan, and the Spatial Plan. It assesses some transport planning through development assessments. For example, in planning for subdivisions in the Molonglo development, ACTPLA is designing the primary arterial transport network so that buses can use it now, but so that it also has the capacity to carry a rapid transit system, such as a busway or light rail, in future. ACTPLA is also encouraging walking through pedestrian-friendly urban design, and greater use of park 'n' ride opportunities. ACTPLA is constrained in its ability to design for recovery of some infrastructure costs however because high density developments cannot be built along all existing public transport corridors, due to the proximity of Canberra Nature Park.²¹⁶

8.45 Sustainable transport initiatives highlighted in the 2009–10 budget papers include:

- completing and implementing the ACT Parking Strategy (\$150 000) and a new study on parking supply options and the role of the private sector, and an assessment of a potential parking offset fund
- a transport and access survey to provide information on demand and demand management
- a feasibility study of new Park'n'Ride and Bike'n'Ride facilities at Erindale and Mitchell will be undertaken
- measuring ACTION's carbon footprint and ways to reduce emissions
- \$7.8 million for new cycle and foot paths
- continuing the retrofitting of ACTION buses to install bike racks, and new seats and signage at bus stops and
- improving ACTION's Network 08, creating bus lanes and priority measures to improve bus travel times on busier routes, and \$1 million for the trial of an additional inter-town route incorporating improved bus stops (transfer stations) at eight major employment hubs (the REDEX service).²¹⁷

²¹⁶ *Transcript of Evidence*, 29 April 2009, pp101, 106, 108, 118, 121

²¹⁷ ACT Government, *Speech: Budget 2009–2010 Budget Paper No 1*, p 6; ACT Government, *A Sustainable*

Stakeholder comments

- 8.46 Several witnesses emphasised the importance of transit-oriented and mixed use urban planning for sustainability and reducing GHGs.²¹⁸ Dr Schandl suggested that planning should enable work, shop and live in mixed-use communities so that travel and emissions are reduced.²¹⁹ The Architects Institute of Australia had a similar view, arguing that we should significantly increase the density of suburbs in inner Canberra, and not release further land in greenfield areas. Each new outer-suburban house is estimated to generate 4.4 tonnes of GHGs over 50 years, and to add \$250 000 in public and private transport costs.²²⁰
- 8.47 Several submissions identified a need for more and better integrated public transport planning (including light rail and electric cars and electric car infrastructure),²²¹ increased residential density and more mixed use developments in suburbs and along transport routes, and more employment in outlying town centres. These would contribute to reducing private car use and GHGE.
- 8.48 Increased use of public transport was recognised in nearly all the submissions as a key means for reducing GHGs. One commended the ACT Government's sustainable transport initiatives, but suggested that more attention needed to be given to maintaining on-road cycling lanes and paths so that they could be as safe for cyclists as road surfaces are for cars.²²²
- 8.49 Several stakeholders argued for more funding for ACTION (either directly, or by implication by calling for more frequent services, better information and more comfortable buses and facilities).²²³ Action for Public Transport criticised the transitional arrangements for bus stops at the Belconnen town centre, and suggested more funding should be budgeted to increase ACTION's carrying

Territory: 2009–10 Budget Paper No 3, p 177

²¹⁸ Submissions 4, 14, 15A, 17, 32; *Transcript of Evidence*, 29 April 2009, p 140

²¹⁹ *Transcript of Evidence*, 4 March 2009, pp19, 23

²²⁰ J Thistleton, 'Double density of suburbs: architect', *The Canberra Times*, 9 July 2009

²²¹ Submission nos 2, 3, 4, 15, 20, 23, Exhibit 5. See also Submission nos 12, 14 for recognition of the importance of public transport systems to reducing emissions; *Transcript of Evidence*, 1 July 2009, pp 275–7, 279

²²² Submission 31

²²³ Submissions 4, 15, 17, 19

capacity.²²⁴

8.50 A communications focus was evident in several submissions.

- The ACT Transit Group and Action for Public Transport emphasised the importance of the provision of accessible information for passengers as an essential strategy for encouraging more people to use ACTION's services. Suggestions included the provision of more information at each bus stop; consolidated timetables at employment and tertiary education nodes; zone-specific guides across service providers and with complementary route information; more information about fares, ticket outlets, and the ticketing system; better distribution of more detailed/interlinked timetables and other passenger information; improving passenger comfort; and building more Park'n'Ride sites.²²⁵
- Climate Action Canberra and Action for Public Transport suggested more communications should promote the advantages of using public transport.²²⁶
- Action for Public Transport also suggested that more and better consultation was needed to develop the bus system, such as through 'an active and community conscious advisory body', and that drivers needed to be consulted more often.²²⁷
- One submission called for the inclusion of 'a small but effective Arts for a Sustainable Future stream' as a new component of *Weathering the Change*, 'to vision and create enduring physical symbols of a positive, desirable future in a clean energy society'. This submission also suggested that public transport could be a theme for the Floriade festival.²²⁸

8.51 Several submissions called for incentives policies to encourage a wider range of travellers to use ACTION's services,²²⁹ car-pooling and new incentives to share journeys to work.²³⁰

²²⁴ *Transcript of Evidence*, 3 June 2009, pp 245, 247

²²⁵ Submissions 11, 19, 20

²²⁶ Submissions 15A, 19, 21

²²⁷ Submission 19; *Transcript of Evidence*, 3 June 2009, pp 244, 247, 249

²²⁸ Submission 29

²²⁹ Submissions 15A, 19, 21

²³⁰ Submission 15A

- 8.52 The Committee discussed with some stakeholders the view that free bus travel on ACTION services might increase patronage of ACTION bus services.²³¹ A See Change spokesperson suggested that free travel was an incentive to start using ACTION, but it was more about getting to know how to use buses and the social benefits that provided, as cost was not a major deterrent. Rather attitudinal change needed to be encouraged.²³² Action for Public Transport suggested that patronage of ACTION would increase if passes for free bus travel were issued to people aged 60, 65 or 70 years, rather than just to those 75 years of age and older.²³³
- 8.53 Deane's Transit Group, incorporating Deane's Buslines, Transborder Express and the Airliner Service, submitted that its contribution to sustainable transport in the Territory was hampered by traffic congestion, particularly during peak times. The submission recommended the introduction of bus priority measures on the East-West Canberra Corridor, particularly for Canberra Avenue, Hindmarsh Drive and Northbourne Avenue.²³⁴
- 8.54 Deane's Transit Group also submitted that the ACT Government had placed restrictions on its pick up and set down points, effectively protecting ACTION's area of operation. Deane's Transit Group is seeking discussions with the ACT Government to see if its spare capacity could be better utilised to complement ACTION's services. Deane's Transit Group's Airliner Services had been complementing ACTION route 10 to the Brindabella Business Park for twelve months.²³⁵
- 8.55 Several advocated reducing food miles, and use of more energy efficient vehicles as key measures for reducing GHGs,²³⁶ as did participants in at least one community forum.²³⁷ The replacement of all ACTION diesel buses with compressed natural gas vehicles or battery-cell technology was suggested for example.²³⁸

²³¹ Submissions 1, 19, 23

²³² *Transcript of Evidence*, 29 April 2009, pp 144–5

²³³ *Transcript of Evidence*, 3 June 2009, pp 248

²³⁴ Submission 35

²³⁵ Submission 35

²³⁶ Submission 22; *Transcript of Evidence*, 29 April 2009, p140; *Transcript of Evidence*, 8 April 2009, p50; *Transcript of Evidence*, 3 June 2009, pp230, 237

²³⁷ enACT For The Future 2 forum held at ANU, 18 March 2009

²³⁸ Submission nos 2, 15

- 8.56 Several submissions called for the introduction of stronger disincentives to private car use, such as less and more expensive car parks,²³⁹ paid parking for the parliamentary zone,²⁴⁰ and less investment in road infrastructure.²⁴¹ The ACT Government was encouraged to 'actively pursue' with the Commonwealth the elimination of the 'anomalous' free parking in national zones with better public transport services, including more and better Park'n'Ride facilities offered in return.²⁴² Others called on the ACT Government to press for the abolition of the perverse incentive to drive further to increase concessions under Commonwealth fringe benefits tax law for employer-provided vehicles.²⁴³
- 8.57 Some stakeholders argued that new vehicle fuels and technologies, such as rechargeable electric vehicles using green power, and compressed natural gas vehicles should be better supported. Increased uptake by the ACT Government vehicle fleet and Canberra drivers, and support in transport policies and planning was advocated. Incentives such as driver training, upgrading transport routes (such as cycle paths and ramps), dedicated traffic lanes, charge points and registration discounts should be considered for electric vehicles, including electric bicycles.²⁴⁴ The ACT Government's submission noted the potential for improved transport systems to stimulate the growth of 'green jobs' locally.²⁴⁵
- 8.58 One submission argued that discrimination against pedestrians should cease, with pedestrians having priority if walking along roads without footpaths; by setting a completion date for retrofitting footpaths, and for having footpaths or on-road walking lanes for streets with speed limits about 50km/hr; by requiring Access Street A class streets to have footpaths or a 30km/hr speed limit; and to review the programming of traffic light to better serve the needs of pedestrians.²⁴⁶ Other submissions also advocated greater encouragement for

²³⁹ Submission 15, Exhibit 5

²⁴⁰ Submission 4

²⁴¹ Submission 17

²⁴² Submission 2

²⁴³ Submission 23; *Transcript of Evidence*, 29 April 2009, p140

²⁴⁴ Submissions 2, 23; Exhibit 5

²⁴⁵ Submission 30

²⁴⁶ Submission 18

walking as a sustainable mode of transport.²⁴⁷ The Commissioner for Sustainability and the Environment has also recommended the development of an action plan for pedestrians.

- 8.59 Dr Schandl noted that infrastructure is a significant determinant of social behaviour as the scope for individuals to make significant changes to their environmental impact is limited in relation to domestic lifestyles, and is more fundamentally constrained by the availability of appropriate infrastructure, such as clean and renewable energy sources, energy efficient buildings and effective public transport systems and sustainable transport policies.²⁴⁸
- 8.60 The Property Council of Australia called for the development of a 'genuinely integrated and sustainable transport plan ... based on land use planning, population ... modes of transport ... park 'n' ride, and ... car parking prices ... to encourage people onto public transport.'²⁴⁹ The Council advocates increased urban density to encourage greater use of public transport and less reliance on private motor vehicles.²⁵⁰ The Green Building Council referred to research being done by ASBEC, looking at transport modelling for sustainable cities.²⁵¹
- 8.61 Action for Public Transport called for a reinstatement of ACTPLA's responsibilities for transport planning, and for transport planning expertise to be enhanced within the ACT public service.²⁵²

Committee comments

- 8.62 The Committee supports all these various policy and program options put forward by stakeholders assessed using a consistent methodology through the development of the ACT Roadmap to Zero Net Emissions and the draft Interim Energy Policy.
- 8.63 The Committee welcomes the ACT Government's commitments to improving public transport in the Territory, as public transport is going to

²⁴⁷ Submissions 2, 4, 12, 15A, 17, 18, 21, 30, 33

²⁴⁸ *Transcript of Evidence*, 4 March 2009, pp 16, 20, 21

²⁴⁹ *Transcript of Evidence*, 22 April 2009, p 90

²⁵⁰ *Transcript of Evidence*, 22 April 2009, p 90

²⁵¹ *Transcript of Evidence*, 4 March 2009, p 40

²⁵² *Transcript of Evidence*, 3 June 2009, pp 243, 244

become an increasingly important response to the challenges of both reducing GHGEs and declining fossil fuel supplies.

- 8.64 The Committee agrees with the ACT Government's stated policy commitment of increasing Canberra's urban density, and policies on paid parking, differential car registration, promotion of cycling and walking, and more bus transit lanes.
- 8.65 The Committee agrees with stakeholders who identify community education and more effective communication strategies as a way of promoting more patronage of ACTION buses and other sustainable transport options, including through public art. The Committee notes that 'guerrilla knitter' Magda Sayeg, of Knitta Please, was commissioned to cover a Mexican bus in a brightly knitted wool design.
- 8.66 The Committee notes that the ACT Government provided a detailed update of its implementation of *The Sustainable Transport Plan* and some information about its implementation of the *Integrated Transport Framework* in its submission to this inquiry, which the Committee reproduces at [Appendix I](#).
- 8.67 The Committee regards sustainable transport policy as central to sustainability given our current reliance on declining fossil fuels. A prudent approach to fuel conservation is essential to enable manufacturing, food production and distribution and construction to continue into the future, and until alternative fuels are available and consumable in sufficient quantities to maintain reasonable living standards.
- 8.68 The Committee agrees that Canberra 'should aim to become one of the world's most successful cycling cities' and that it has the capacity to be a successful walking city as well. A 10km each way commute by bicycle instead of a car can save 1.3 tonnes of GHGEs each year, and can significantly improve a commuter's health, fitness and productivity.²⁵³
- 8.69 The Committee also notes that the Commonwealth's Review of Australia's Future Tax System (led by Dr Ken Henry) has received submissions calling for the removal of perverse incentives in fringe benefit tax arrangements which lead to adverse environmental outcomes by encouraging more use of

²⁵³ J Black, 'Imagining Canberra's Sustainable Future: On Movement and Access – an essay', Paper for workshop 'Transport/Communication – Towards an Accessible Canberra', 20 September 2008, p 14

private motor vehicles for work related travel, and that the inquiry is expected to address this issue. This Committee supports the call for reform of fringe benefits tax arrangements,²⁵⁴ as did the former Standing Committee on Planning and Environment.²⁵⁵

- 8.70 The Committee recognises the imperative of reducing Canberra's transport emissions through greater use of more sustainable transport options.

Reducing emissions from waste

ACT Government initiatives

- 8.71 GHGEs from ACT waste were 3.4% in 2005–06.²⁵⁶
- 8.72 The *ACT NOWaste* strategy has been highly successful to date. Outcomes include an increase in resource recovery and recycling from 22% in 1993–94 to 74% in 2007–08. This is the highest level of resource recovery in any Australian jurisdiction.²⁵⁷
- 8.73 The ACT Government is reviewing its *ACT NOWaste strategy*, with a particular focus on complex waste issues such as commercial, electronic and organic waste.²⁵⁸ One of the aims of the waste policy review is to further reduce landfill and minimise or reduce methane gas emission.²⁵⁹
- 8.74 In July 2008, Wright Corporate Strategy Pty Ltd submitted its report on *ACT NOWaste Strategy and Targets* to the commissioning department – the Department of Territory and Municipal Services. As at August 2009 no announcements had been made about the ACT government's response to the

²⁵⁴ Senate Standing Committee on Rural and Regional Affairs and Transport, *Investment of Commonwealth And State Funds in Public Passenger Transport Infrastructure and Services: Report*, August 2009, Recommendation 7 (paragraph 5.79), viewed 26 August 2009, <http://www.aph.gov.au/senate/committee/rrat_ctte/public_transport/report/report.pdf>

²⁵⁵ ACT Legislative Assembly, Standing Committee on Planning and Environment, *Report on ACTION Buses and The Sustainable Transport Plan*, Report no 29, 2007

²⁵⁶ G Anderson, *ACT greenhouse gas inventory Series*, May 2009, p4. Methodological differences in calculating emissions led to a slightly different figure of 4.7% being cited in the State of the Environment Report and Submission 33.

²⁵⁷ Wright Corporate Strategy Pty Ltd, *ACT NO Waste Strategy and Targets Review and Assessment of Options: Revised Final Report to ACT NO Waste*, July 2008, piv; Submission 30; *Transcript of Evidence*, 13 May 2009, p 189

²⁵⁸ ACT Government, *A Sustainable Territory, 2009–10 Budget Paper No 3*, p 175

²⁵⁹ Submission 30

Wright review. The options proposed in the review range from maintaining the status quo, to moving resource recovery beyond 90%.²⁶⁰ The review found that waste management was under pressure from 'steady population growth, increasing prosperity and increasing rates of waste generation'.²⁶¹

- 8.75 The Wright Review noted that food and other organic wastes decompose in landfill, and that recovery and reprocessing of such waste 'can make an important contribution to GHG abatement'.²⁶² It recommended that the ACT move to a three-bin kerbside/residential collection system, so that green waste and food and garden organics become collectible.²⁶³
- 8.76 In August 2009 Minister Corbell launched the BusinessSmart and OfficeSmart programs, for business recycling, and noted that \$233,000 had been committed under the 'Switch Your Thinking' initiative in 2009-10. He also noted that the Department of the Environment, Climate Change, Energy and Water (DECCEW) had developed a Best Practice guide for program participants.²⁶⁴ The ACT Government is also working with the Commonwealth to develop an effective response to E-waste, particularly end-of-life computers and televisions, through the Environment Protection and Heritage Council. This may involve a national product stewardship scheme.²⁶⁵

Stakeholder comments

- 8.77 Dr Freudenberger commented that it was 'a privilege to be a member of the ACT community for the last 17 years and to see initiatives like NOWaste by 2010 become real.' Dr Freudenberger also noted that the ACT had taken

²⁶⁰ Wright Corporate Strategy Pty Ltd, *ACT NO Waste Strategy and Targets Review and Assessment of Options: Revised Final Report to ACT NO Waste*, July 2008

²⁶¹ Wright Corporate Strategy Pty Ltd, *ACT NO Waste Strategy and Targets Review and Assessment of Options: Revised Final Report to ACT NO Waste*, July 2008, pp iv-v

²⁶² Wright Corporate Strategy Pty Ltd, *ACT NO Waste Strategy and Targets Review and Assessment of Options: Revised Final Report to ACT NO Waste*, p41

²⁶³ Wright Corporate Strategy Pty Ltd, *ACT NO Waste Strategy and Targets Review and Assessment of Options: Revised Final Report to ACT NO Waste*, p ix

²⁶⁴ Minister for the Environment, Climate Change and Water, Simon Corbell, MLA, Media Releases, 'Helping Act Businesses Recycle', 13 August 2009

²⁶⁵ Submission 33, ACT Legislative Assembly, Government Response to the 2007 State of the Environment Report, tabled 16 June 2009, pp21-22; Legislative Assembly for the ACT: 2009 Week 7 *Hansard* (16 June), pp 2333-2336

leadership on reducing water consumption.²⁶⁶

- 8.78 Several stakeholders urged new initiatives for recycling organic food waste. About 48%, of households' annual waste, or 412.85 tonnes, is compostable.²⁶⁷
- 8.79 The Committee notes that the ACT currently operates a highly successful 'Green garden' waste scheme, where for a small fee green garden prunings can be taken to select sites and the material is turned into high quality compost. These facilities do not take domestic or commercial food waste products.
- 8.80 Permaculture ACT advised the Committee that new policy initiatives were needed to encourage more households and businesses to compost their food waste. Adding compost to soil increases its sequestration of CO₂-e, and could be used to offset private vehicle use. Generating more compost may also encourage people to grow more fruit and vegetables.²⁶⁸
- 8.81 Permaculture ACT referred to the success that the ANU had achieved with composting its food waste. It said that a composting machine was available which was large enough to process domestic food waste in the ACT.²⁶⁹ Permaculture ACT and Ms Johnson and Ms Pearce urged the ACT Government to introduce green waste bins.²⁷⁰
- 8.82 Climate Action Canberra also suggested that diverting organic waste from the landfill waste stream could reduce emissions from landfill and from the use of imported fertilizers if the organic waste is composted for horticultural use.²⁷¹
- 8.83 The recommendations in a team submission from the Canberra Environment and Sustainability Resource Centre, Healthy Soils Australia, and Climate Xchange included that the ACT Government
- investigate the viability of collecting organic household waste and in-vessel composting as a resource for local soils²⁷²
 - the hospitality and catering sector of the business community which produces a large proportion of organic waste currently going to landfill

²⁶⁶ Dr Freudemberger, *Transcript of Evidence*, 1 July 2009, p 260

²⁶⁷ *Transcript of Evidence*, 29 April 2009, p 130; Submissions 15A, 21, 33

²⁶⁸ *Transcript of Evidence*, 29 April 2009, p 131

²⁶⁹ *Transcript of Evidence*, 29 April 2009, p 131

²⁷⁰ Submissions 21, 31

²⁷¹ Submission 15A

²⁷² As did Submission 31

should be particularly encouraged to engage with the ACTNOWaste strategy

- ensure that in future contracts for waste collection and disposal in the ACT a commercial incentive be incorporated to reduce waste to landfill at the waste industry level
- support community initiatives that aim at reducing waste to landfill and reclaiming organic waste as a resource.²⁷³

8.84 The ACT P&C Association suggested that waste management was just one of the issues needing to be better addressed by ACT schools in their curriculum, school management and physical infrastructure. Educating the school community in this area would have flow-on effects in homes and workplaces, and schools' carbon footprint would also be reduced.²⁷⁴

Committee comments

8.85 The Committee supports proposals to reduce household and commercial organic waste going to landfill such as a third kerbside bin as a matter of priority, noting the additional benefits of reductions in GHGEs by doing so.

RECOMMENDATION 24

8.86 **The Committee recommends the ACT Government responds to the Wright review as a matter of priority, as well as to release its review of the ACT NoWaste strategy by the last sitting day of February 2010.**

Educational initiatives

8.87 The ACT Council of Parents and Citizens, the peak body representing parents through their member associations, identified the need for a broader environmental focus across the public education sector. The Council's sustainability policy had broad support from their parent constituency.²⁷⁵ Whilst acknowledging current activities in a range of areas, Council President, Mrs Singer, suggested that the ACT Government should include the themes of climate change, environment, water and GHGEs 'in its plans,

²⁷³ Submission 36

²⁷⁴ Submission 22

²⁷⁵ *Transcript of Evidence*, 1 July 2009, p 297

student learning, curriculum, school management, and school buildings and infrastructure.’ Other witnesses also referred to the need for school building retrofits.²⁷⁶

- 8.88 The Council called for a dedicated officer in the Department of Education and Training to advise schools on the curriculum about these matters.²⁷⁷ Such an officer should be at ‘school teacher C level’.²⁷⁸ As well as having sustainability spread across the curriculum, vocational and green courses needed to be developed for senior students and vocational guidance provided so that students could pursue ‘green’ jobs.²⁷⁹
- 8.89 Ms Pearce, a Council parent, said that the Australian Sustainable Schools Initiative (AsSSI) also needed to be supported and enhanced, because just two officers in the Department of Environment, Climate Change, Energy and Water, currently had to cover all schools in the ACT, which was ‘a huge job’. Some good work was underway, but more needed to be done, and with more schools. Only 30 schools had school environment plans and eight had done energy audits, and ‘a faster pace’ was needed for improving the ‘school curriculum, management, physical infrastructure, energy, water, waste reduction and biodiversity and landscaping within and around our schools’.²⁸⁰
- 8.90 The Council also called for more courses in ACT colleges in sustainability and environmental systems, and training courses for school principals, business managers, school registrars and building managers.²⁸¹ Council members also called for more funding for professional development for teachers.²⁸² This could lead to significant cost savings for the education sector as schools were managed more efficiently and sustainably.²⁸³
- 8.91 The Council’s evidence was supported by Council members Ms Johnson and Ms Pearce, who suggested that the ACT curriculum framework needed to be

²⁷⁶ *Transcript of Evidence*, 3 June 2009, p 231

²⁷⁷ *Transcript of Evidence*, 1 July 2009, pp 283, 290

²⁷⁸ *Transcript of Evidence*, 1 July 2009, p 285

²⁷⁹ *Transcript of Evidence*, 1 July 2009, p 293

²⁸⁰ *Transcript of Evidence*, 1 July 2009, pp 291–2

²⁸¹ *Transcript of Evidence*, 1 July 2009, pp 286–7, 293

²⁸² *Transcript of Evidence*, 1 July 2009, p 292

²⁸³ *Transcript of Evidence*, 1 July 2009, p 295

enhanced. The Essential Learning Achievement No 20 – ‘the student acts for an environmentally sustainable future’, is only in the science section.

Extending such learning across the curriculum would have the added benefit of providing skills to students for sustainable and economic living. This would have social equity benefits for disadvantaged students. The use of smart meters could also be an educational tool.²⁸⁴

- 8.92 Mr Frawley suggested that the ACT Government provide a simple household calculator for calculating emissions on its website so that community had become engaged in reducing their emissions and sharing their progress with others. Mr Frawley also suggested that signs, like the flashing roadside water target lights, are useful.²⁸⁵

RECOMMENDATION 25

- 8.93 **The Committee agrees that community education and working with the community should be a strong feature of the ACT Roadmap to zero net emissions, and that existing programs in the education sector provides a good model, despite the need for additional resources.**

Other suggestions

- 8.94 A wide range of suggestions were made by stakeholders including:
- a phase out of oil-based cars and replacement with electric vehicles or hybrids²⁸⁶
 - a new policy focus on sustainable food, including awareness-raising, food miles, local food security,²⁸⁷ farmers’ markets and food networks,²⁸⁸ ‘sustainable food’ coaches and food festivals²⁸⁹
 - declare Canberra a ‘transition town’, weaning off fossil fuels²⁹⁰

²⁸⁴ *Transcript of Evidence*, 1 July 2009, pp 289, 293

²⁸⁵ Submission 6

²⁸⁶ *Transcript of Evidence*, 3 June 2009, p 229

²⁸⁷ Submissions 15, 17, 21, 22, 25, 33 *Transcript of Evidence*, 22 April 2009, p 77; *Transcript of Evidence*, 3 June 2009, p 230; *Transcript of Evidence*, 1 July 2009, p 297; *Transcript of Evidence*, 29 April 2009, p 131; *Transcript of Evidence*, 3 June 2009, p 230

²⁸⁸ Submissions 21, 25

²⁸⁹ EnACT For The Future 2 forum, held at ANU on 18 March 2009

²⁹⁰ *Transcript of Evidence*, 29 April 2009, p 132

- encourage greater uptake of GreenPower by households and improved residential energy efficiency²⁹¹
- energy and water meters in buildings²⁹²
- improve cycling infrastructure²⁹³
- work with local councils in the ACT region on climate change²⁹⁴
- develop a festival theme, e.g. organise a youth event or festival in the lead up to the December 09 Copenhagen conference with a focus on art, media and music²⁹⁵
- have a community sustainability festival with a strong comedy element to alleviate the doom and gloom of the climate emergency²⁹⁶
- embed key sustainability messages in all ACT festivals with a portion of arts funding allocated to sustainability themes²⁹⁷
- improve urban planning for sustainability²⁹⁸
- strengthen networks amongst groups, including through Communities @ Work and through websites with links, and people involved in promoting sustainability should offer support to others involved in the movement²⁹⁹
- develop a program to use artists to stimulate behavioural change by allocating a portion of public arts funding to promote sustainability messages³⁰⁰
- develop a website to encourage car pooling in the ACT and region³⁰¹
- develop and use wellbeing indicators for the ACT and region³⁰²

²⁹¹ Submissions 15, 17, 24, Exhibit 8

²⁹² Submissions 23, 24, 27

²⁹³ Parents on the P&C Council also called for improved cycle path maintenance, including on Belconnen Way: *Transcript of Evidence*, 1 July 2009, p 290

²⁹⁴ Submission 14. See also: J. Schooneveldt, 'Regional State of the Environment Report 2004–2008: Regional Sustainability', Attachment to submission 33; C J Riedy, AM Atherton and J Lewis, Capital Region Climate Change Forum: Citizens' Report, [prepared for NSW Greenhouse Office & ACT Department of Territory and Municipal Services], Institute for Sustainable Futures, UTS, Sydney, 2006, pp 1–62

²⁹⁵ EnACT For The Future 2 forum, held at ANU on 18 March 2009; Submission 29

²⁹⁶ EnACT For The Future 2 forum, held at ANU on 18 March 2009

²⁹⁷ See also Submission 29

²⁹⁸ Submissions 5, 11, 15A, 24, 30, *Transcript of Evidence*, 3 June 2009, pp 242, 243, 246

²⁹⁹ enACT For The Future 2 forum, held at ANU on 18 March 2009

³⁰⁰ See also Submission 29

³⁰¹ enACT For The Future 2 forum, held at ANU on 18 March 2009

³⁰² enACT For The Future 2 forum, held at ANU on 18 March 2009

- the approach taken by the Victorian Women's Trust for its Watermark Program a good model for a community engagement program. It involved 12 months of facilitated discussion with the community, with scientific input. About 2 0000 people were involved.³⁰³
- a sustainable population policy³⁰⁴
- the need for an infrastructure plan³⁰⁵
- ACT schools 'could be appropriate learning environments' for children to learn about monitoring, reporting and review processes for GHGEs and feedback could be sought.³⁰⁶
- arts activities focussed on sustainability be funded.³⁰⁷
- the proposed ACT UNESCO Biosphere Reserve nomination would be one way to encourage investment in sustainable practices.³⁰⁸
- funding be made available for competitions to leaven the debate on climate change and to promote creativity.³⁰⁹
- a creative arts initiative be further developed for ACTION, in partnership with the community arts sector.³¹⁰
- more activities around the ACT's ecological footprint,³¹¹ including an Assembly committee inquiry into the ecological 'carrying capacity' for the ACT and region', as also agreed in the ACT Labor-Greens agreement³¹²
- creating a small sustainability arts grant funding stream in artsACT to supply seed funding to artists and curators mounting exhibitions on sustainability, possible coinciding with World Environment Day³¹³

³⁰³ *Transcript of Evidence*, 1 July 2009, pp 253–4

³⁰⁴ Submissions 1, 5, 10, 15A, 18, 20, 23B, *Transcript of Evidence*, 4 March 2009, p 17; *Transcript of Evidence*, 3 June 2009, p241, 242. See also: B Birrell and E Healy, 'Labor's Greenhouse Aspirations', *People and Place*, vol 16, no2, pp1–14 *Transcript of Evidence*, 22 July 2009, p307

³⁰⁵ Submission 20; *Transcript of Evidence*, 4 March 2009, p 15

³⁰⁶ Submission 31

³⁰⁷ See also Submission 29

³⁰⁸ *Transcript of Evidence*, 8 April 2009, pp 61, 63; Exhibit 2

³⁰⁹ Submission 29

³¹⁰ See also Submission 29

³¹¹ Submissions 4, 15A, 21, 22, 23A&B, 25, 33; *Transcript of Evidence*, 1 July 2009, p 291; *Transcript of Evidence* 4 March 2009, p 23; *Transcript of Evidence*, 29 April 2009, pp 137–38

³¹² David Turbayne, Letter to *The Canberra Times*, 23 January 2009, p 24

³¹³ See also Submission 29

- 8.95 The Committee notes that not all of these are directly related to achieving GHGE reductions but rather point to a community desire for a sustainable ACT. Nor did the Committee have the capacity to do a triple-bottom line assessment of these various proposals, or a cost-benefit analysis as urged by the ICRC.³¹⁴

RECOMMENDATION 26

- 8.96 **The Committee recommends that the Government make a significant investment in the 2010–11 Budget in retrofitting and energy efficiency measures for all sectors and to report back to the Assembly by March 2010.**

RECOMMENDATION 27

- 8.97 **The Committee recommends all of the policies, projects and programs raised by witnesses be considered by the ACT Government as part of developing its roadmap to zero net emissions and to report back to the Assembly by March 2010.**

³¹⁴ Submission 34; *Transcript of Evidence*, 22 July 2009, p 319

9 ECOLOGICAL COMMUNITIES

Impacts on ecological communities

- 9.1 The terms of reference provide that the Committee will inquire into and report on issues associated with achieving GHG reduction targets including on climate change impacts on the sustainability of existing ecological communities.
- 9.2 The Committee notes that the Australian Government released in August 2009 a major strategic assessment on the vulnerability of Australia's biodiversity to climate change.³¹⁵
- 9.3 Under climate change the ACT will have a warmer and drier climate which in turn is expected to lead to many changes in:
 - the interactions among species, the genetic composition, distribution and abundance of species, and the range, structure and composition of species, ecological communities and ecosystems
 - the timing of life-cycle events such as flowering and pollination, seed and egg laying, and migration
 - plant photosynthesis, respiration, growth and tissue composition
 - nutrient recycling, including carbon/nitrogen cycles
 - the frequency and intensity of wild fires

³¹⁵ W Steffan et al, *Australia's Biodiversity and Climate Change: a strategic assessment of the vulnerability of Australia's biodiversity to climate change*, viewed 25 August 2009 <<http://www.climatechange.gov.au/impacts/pubs/biodiversity-vulnerability-assessment.pdf>>. See also: Australian National University, *Implications of climate change for Australia's World Heritage properties: A preliminary assessment*. A report to the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts by the Fenner School of Environment and Society, the Australian National University, 2009; Hyder Consulting, *The Impacts and Management Implications of Climate Change for the Australian Government's Protected Areas*, Report to the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts, March 2008; M Dunlop and PR Brown, CSIRO Sustainable Ecosystems, *Implications of Climate Change for Australia's National Reserve System - A Preliminary Assessment*, Report to the Department of Climate Change, and the Department of the Environment, Water, Heritage and the Arts, March 2008; Council of Heads of Australian Botanic Gardens, *National Strategy and Action Plan for the Role of Australia's Botanic Gardens in Adapting to Climate Change*, Commonwealth of Australia, 2008; A Campbell, *Managing Australian Landscapes in a Changing Climate: A Climate Change Primer for Regional Natural Resource Management Bodies*, Australian Government Department of Climate Change, 2008

- soil erosion, catchment and stormwater management, due to the impacts of extreme weather events, and
 - water availability, including falling groundwater levels, and declining water quality in streams, lakes, wetlands and estuaries, which in turn impacts on freshwater aquatic biodiversity.³¹⁶
- 9.4 For example, Alpine and frost-hollow species which require cold temperatures for seed germination, such as Snow Gums, might be affected adversely by rising temperatures, and be displaced over time by tree species which are adapted to warmer temperatures.³¹⁷
- 9.5 Several submissions³¹⁸ noted that pest plants and other invasive species and diseases (including fungal, bacterial and viral pathogens) are likely to increase under increased climate change.
- 9.6 The Commissioner for Sustainability and the Environment³¹⁹ expects that higher temperatures and less rainfall will likely result in new weed incursions, which may result in higher rates of displacement of native flora, increase fire threats and burden land management budgets. The Commissioner noted however, that if ecosystem functioning is maintained, the Territory's biodiversity may be resilient against such weed incursions.
- 9.7 This concern is consistent with findings by the CSIRO, which are that climate change will cause some of Australia's potential weeds to move south by up to 1000km, and enable new weeds to thrive.³²⁰
- 9.8 In 2008 researchers at the Australian National University (ANU) released a study on the role of natural forests in carbon storage, and its policy

³¹⁶ Australian Government Department of the Environment Water Heritage and the Arts Australia's Biodiversity - Impacts of Climate Change 2008, 'Australia's Biodiversity - Impacts of Climate Change', viewed 6 May 2009 at <<http://www.climatechange.gov.au/impacts/biodiversity.html>>; Garnaut Review, p141; Submissions 4, 14, 17; Convention on Biological Diversity, Draft Findings of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change, 2009

³¹⁷ Submission 4

³¹⁸ Submissions 4, 14

³¹⁹ Commissioner for Sustainability and the Environment Dr M. Cooper, Report on ACT Lowland Native Grassland Investigation, Canberra, 2009, viewed 5 May 2009
<http://www.envcomm.act.gov.au/__data/assets/pdf_file/0011/142958/ocse_actgrasslandreport_0309_full.pdf>

³²⁰ CSIRO Australia, 2009, 'Climate change may wake up sleeper weeds', in CCH Parliament, *Climate Change & Environment Alert*, Issue: 11-2009, 27 March 2009

implications. The study found that the 'green' carbon in natural forests is far superior to the 'brown' carbon of plantation monoculture forests. It found that natural forests are 'more resilient to climate change and disturbances than plantations because of their genetic, taxonomic and functional biodiversity. It found that the carbon stored in intact natural forests should be protected from activities that release that carbon (such as logging), and that previously logged forests should be allowed to regrow and reach their carbon sequestration potential.³²¹

Australian Government policy response

- 9.9 The Council of Australian Governments (COAG) and the Natural Resource Management Ministerial Council (NRMMC) regard biodiversity conservation as a priority under climate change, with COAG endorsing in April 2007 a National Climate Change Adaptation Framework.
- 9.10 Australia's fourth national report to the Convention on Biological Diversity (2009) discusses the challenges from climate change for Australia's biodiversity. It identified the Australian Government's future priorities as:
- building ecological resilience at landscape scale by protecting habitats and reducing existing pressures
 - increasing connectivity by establishing conservation linkages across the landscape and ... facilitating the adaptation of species to climate change
 - mainstreaming biodiversity issues in the government, business, scientific and education sectors ..., and
 - establishing base-line data sets and long-term monitoring sites to inform decision making.³²²
- 9.11 Noting the potential impacts of climate change on biodiversity and ecological communities the Committee agrees with these priorities. The Committee suggests these issues should be incorporated into ACT and regional policy and processes in regard to biodiversity conservation.

³²¹ BG Mackey, H Keith, SL Berry, DB Lindenmayer, *Green Carbon: The role of natural forests in carbon storage*, The Fenner School of Environment and Society, ANU, 2008

³²² Australian Government, *Australia's Fourth National Report to the Convention on Biological Diversity*, p5

ACT Government policies and initiatives

- 9.12 The ACT Government is party to a range of regional conservation and planning initiatives, but is most active in Territory scale conservation.³²³
- 9.13 On 8 May 2009 the meeting of the Local Government and Planning Ministers' Council, the Territory, along with other jurisdictions, agreed to develop climate change planning policies for their jurisdiction, by 2011. These are intended to inform local and regional planning responses to climate change.
- 9.14 Jurisdictions also agreed to collaborate with the Climate Change and Water Working Group, the Australian Transport Council, and Ministerial Council on Police and Emergency Management, to develop a national framework and tools for use by local government to inform planning for climate change adaptation and mitigation.³²⁴
- 9.15 The ACT Government is providing financial support to a 'Climate Vulnerability and Adaptation in the ACR Project', partnering with the ANU and NSW Government. Phase one of this project is expected to completed in late 2009–early 2010.
- 9.16 The Committee notes that there are a number of other initiatives in *Weathering the Change Action Plan 1* which seek to address impact of climate change on urban biodiversity (whatever its grade) and ecological communities.

Stakeholder comments

- 9.17 Several submissions noted the importance of urban planning to sustainability and biodiversity conservation, and responding effectively to climate change.³²⁵
- 9.18 Several submissions urged that habitat connectivity and fragmentation be addressed in Territory planning processes.

³²³ H Jaireth and G Robertson, 'Biodiversity conservation' in *ACT Environmental Law Handbook* (2nd ed) (K Miller and A Rawson eds), Environmental Defender's Office (ACT), pp 61–84 at pp 62–72

³²⁴ Local Government and Planning Ministers' Council, *Communiqué: Eighth Meeting of the Council* (Sydney, 8 May 2009), <http://www.lgpmcouncil.gov.au/communique/20090508.aspx> viewed 30 June 2009

³²⁵ *Transcript of Evidence*, 29 April 2009, p 140

- Greening Australia noted that its contribution to GHG mitigation and climate change adaptation is through the establishment of biodiverse native forest carbon sinks that deliver a range of environmental services. It suggested that natural native forest systems provide ‘the best guarantee for resilience to the current rapid climate change of the 21st century and beyond’.³²⁶
- The EDO (ACT) submitted that the resilience of ecosystems needs to be enhanced by managing for uncertainty, increasing the size of habitat areas, providing connectivity, improving the management of off-reserve lands, identifying and protecting refugia, prioritising protection and considering triage and exploring assisted migration/translocation.³²⁷
- The EDO (ACT) also submitted that a new protective listing category be included under the *Nature Conservation Act 1980* for species considered particularly susceptible to the impacts of climate change, in addition to the current categories of endangered, vulnerable, protected or specially protected. This is intended to trigger the preparation of environmental impact assessments under the *Planning and Development Act 2007* when developments are proposed that may impact adversely on such listed species.³²⁸
- The University of Canberra’s Institute for Applied Ecology advised that planning is necessary for help all biota adapt to climate change. ‘Major contributions’ could be made by maintaining the integrity of natural ecosystem patches and connectivity between them, or investing and assisting to overcome habitat fragmentation and degradation and new demographic pressures and exotic species.³²⁹
- The Climate Action Network highlighted the importance of planning being sensitive to the protection of areas of high conservation value, and particularly remnant areas of grassland and grassy woodlands.³³⁰

³²⁶ Submission 32

³²⁷ Submission 17 and the January 2009 submission by the Australian Network of EDOs to the 10 year review of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999, accessible at <<http://www.edo.org.au/policy/090219epbc.pdf>>, pp59–68

³²⁸ Submission 17

³²⁹ Submission 14

³³⁰ Submission 15A

- The Property Council of Australia submitted that the current approach of environmental impact assessment, flora and fauna and in particular tree assessment and replacement are cost and time intensive, and undervalue the positive biodiversity enhancements that property developments can deliver. These include increased tree planting after pruning and clearing, on-site and off-site water flow management, wild life access corridors, creation of various microclimatic zones on site, and the broadening of local species to attract and build more complex flora and fauna systems on site.³³¹
- 9.19 Greening Australia suggested that it might be necessary to relax the concept of local provenance for selected local species used in revegetation work so that germplasm from a range of climate zones might be planted, with nature working out what can survive under in changing local conditions.³³²
- 9.20 The Institute for Applied Ecology identified a need for new research on the impact of extreme weather events on water quality in the Territory. The Institute submitted that the ANZECC/ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality are based on risk based trigger values, set locally based on ambient [or average] conditions. It noted that significant information gap exists where data from extreme events are not available and because of the nature of such events, relevant data are often not collected. The Institute suggested that sustainable water planning should include consideration of the consequences of extreme weather events under climate change for both water quantity and water quality.
- 9.21 The Institute noted that higher temperature during extended dry periods may result in ecological thresholds being exceeded, leading to changes that may be difficult to reverse. These could include algal blooms and other plant growth in waterways, lower nutrient processing, and degraded habitat and biota.

Committee comments

- 9.22 The Committee recognises the likely severity of climate change on ecological communities in the Territory and the region. Whilst policy responses are in

³³¹ Submission 20

³³² *Transcript of Evidence*, 1 July 2009, pp 267–268

place and are being developed, the Committee considers that more should be done.

9.23 The Committee is particularly concerned to see more investment in regional responses to climate change, and urges the ACT Government to take a lead in influencing the Commonwealth, Victorian and NSW Governments to:

- recognise the carbon storage and biosequestration values of native forests in the region.
- to avoid emissions from deforestation and forest degradation from regional forests, and
- cooperate on riparian zone, woodland and native grassland conservation and regeneration, to strengthen biodiversity outcomes and bio sequestration.

9.24 The Committee suggests that key ACT biodiversity policy documents and legislation such as the Nature Conservation Strategy take into account potential impacts of climate change on biodiversity including for larger areas, possibly shared with NSW, to enhance the resilience of ecological communities.

9.25 The Committee recognises the significant potential impacts of climate change on ecological communities and see this as another key reason for the need for broader mitigation efforts including through GHG reduction targets in the ACT.

RECOMMENDATION 28

9.26 **The Committee recommends that climate change be recognised in all action plans and policy documents concerned with biodiversity conservation in the ACT.**

RECOMMENDATION 29

9.27 **The Committee recommends that the ACT Government work with the Commonwealth and NSW Governments, as a matter of urgency, to protect regional natural forests and to collaborate with those governments more closely on riparian zone, woodland and grassland conservation and regeneration, particularly in the Australian Capital Region.**

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WATER

10 OFFSETS

- 10.1 Offsets policy and practice is a relatively new domain of international, national and local law and policy. The currently small scale of this sector is demonstrated in Australian Government statistics. Australia's net GHGEs were 576 million tonnes in 2006. Globally, in 2007, voluntary carbon offset credits for only 42.1 million tonnes of CO₂ equivalents were traded. Offsets for 2.9 million tonnes were bought by Australian and New Zealand interests.³³³ There is a growing body of literature on offset trading under the UNFCCC and linked emissions trading schemes.³³⁴

Definition of carbon neutrality or zero net emissions and offsets

- 10.2 Many things are described as carbon neutral or zero net emissions. For example, you can buy carbon neutral beer — Cascade Green³³⁵, organise a carbon neutral conference with the Mercure hotels, who claimed they were the first to do so in 2008³³⁶, and many airlines offer carbon neutral travel³³⁷. Increasingly many organisations are describing themselves as carbon neutral and the ACT Government has indicated the entire ACT community will work towards having zero net emissions.
- 10.3 Yet carbon neutrality is not well defined. The Oxford Dictionary in 2006 defined it as: 'Being carbon neutral involves calculating your total climate-damaging carbon emissions, reducing them where possible, and then balancing your remaining emissions, often by purchasing a carbon offset: paying to plant new trees or investing in 'green' technologies such as solar and wind power.'

³³³ Australian Government Department of Climate Change, *National Carbon Offset Standard Discussion Paper*, December 2008, p 3

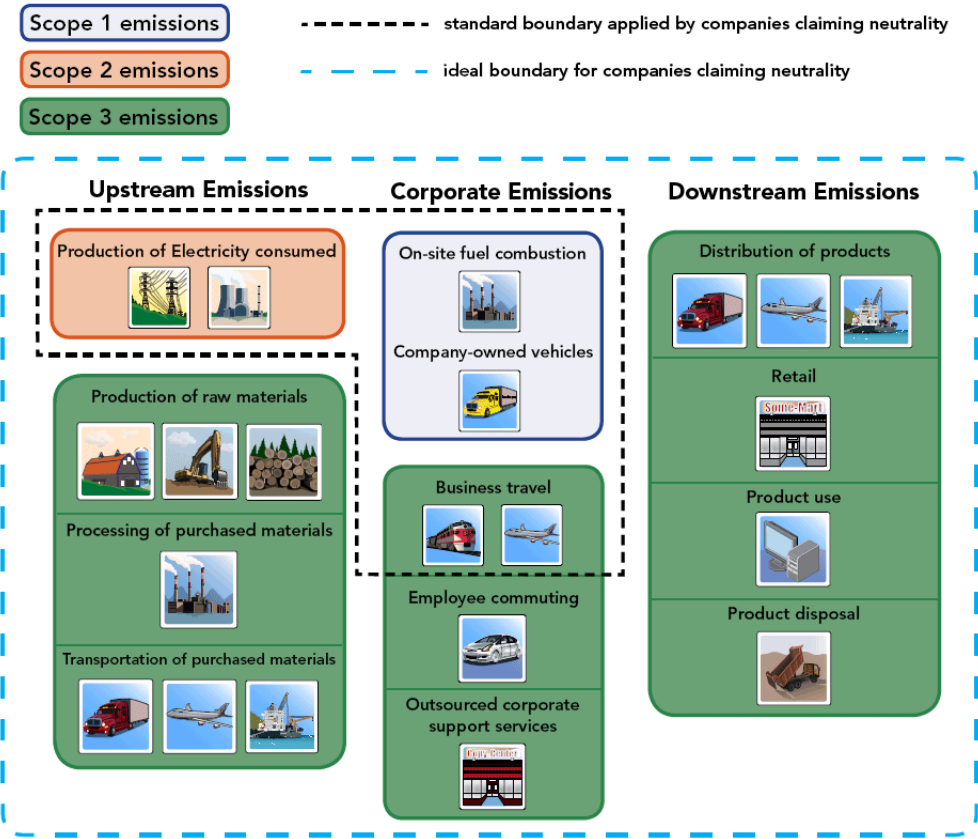
³³⁴ See for example: E Haites, Margaree Consultants, 'Linking Existing and Proposed Greenhouse Gas Emissions Trading Schemes in North America', <<http://www.climatestrategies.org/our-research/category/33/127.html>>; F Jotzo and R Betz, 'Linking the Australian Emissions Trading Schemes', <<http://www.climatestrategies.org/our-research/category/33/128.html>>

³³⁵ <http://www.cascadegreen.com.au/default.aspx> viewed 22 August 2009

³³⁶ <http://www.impactpub.com.au/micebtn/index.php?option=com_content&task=view&id=1547&Itemid=49>, viewed 22 August 2009

³³⁷ See for example <<http://www.qantas.com.au/travel/airlines/fly-carbon-neutral/global/en>>, viewed 22 August 2009

- 10.4 A key component of defining an activity, product, organisation or community as zero net emissions or carbon neutral requires determining what is included in determining emissions in order to calculate the size of the offset. Equally important is determining what emissions are to be covered.
- 10.5 Traditionally offsets apply to fossil fuel energy use, company travel – fleet and air travel. Items generally not included in offsets are: emissions arising from production of raw materials, processing of goods, transport of goods, employees commuting to work, product use, outsourced corporate services, and product disposal. The following chart produced by the City of Sydney for its operations, highlights this break down between the standard boundary and the ideal boundary of emissions to be measured.³³⁸



Setting the Boundary for Neutrality

Source:
Getting to Zero: Defining Corporate Carbon Neutrality
Clean Air-Cool Planet < www.cleanair-coolplanet.org >
Forum for the Future < www.forumforthefuture.org.uk >

10.6

³³⁸ <<http://cityofsydney.nsw.gov.au/Environment/images/carbon-neutral-scope.gif>>

Carbon Pollution Reduction Scheme and offsets

- 10.7 The scope for voluntary offsets in Australia might be limited by the breadth and design of the proposed national Carbon Pollution Reduction Scheme. The final shape of an ETS remains uncertain due to the ongoing debate in the Commonwealth Parliament. In December 2008 the Commonwealth Department of Climate Change released a National Carbon Offset Standard Discussion Paper and a Draft National Carbon Offset Standard,³³⁹ but in August 2009 final decisions had not yet been made following consideration of the feedback from a national consultation process. The purpose of the proposed national minimum standard includes providing national consistency for accredited carbon offset products, including verification and validation protocols.
- 10.8 The Commonwealth proposes that voluntary carbon offsetting will be accepted through the trading of any of the following types of units:
- Australian carbon pollution permits under the Carbon Pollution Reduction Scheme
 - Certified Emissions Reductions (CERs) except long term (ICERs) and temporary (tCERS)
 - Emission Reduction Units (ERUs), and
 - Removal Units (RMUs).
- 10.9 Voluntary carbon offsetting through trade or surrender of permits under the proposed CPRS will be permitted by any legal or natural person, regardless of their liabilities under the Scheme. If permits are acquired and surrendered, this will reduce the availability of permits and probably increase their price. Such voluntary action is recommended by some as a way of improving Australia's commitment to global emissions reduction. The Commonwealth is also developing arrangements with countries in the region to encourage offset trading to reduce emissions from deforestation and forest degradation (REDD).³⁴⁰
- 10.10 The draft Standard proposes that domestic abatement or offset projects may be considered valid if they are:

³³⁹ For more information see: <<http://www.climatechange.gov.au/carbonoffsetting/ncos/ncos.html>>, viewed 30 July 2009

³⁴⁰ See for example the Australia-Indonesia Roadmap for Access to International Carbon Markets

- *Additional*, i.e. the abatement generated would not have occurred under a business-as-usual scenario or investment, or be required by regulation. This is explained under the Kyoto Protocol's Clean Development Mechanism and the Commonwealth's Greenhouse Friendly guidelines³⁴¹
- *Permanent*, i.e. the emissions sequestered must not be released into the atmosphere in the future
- *Measureable*, i.e. the methodologies used to quantify the emissions offset must be robust
- *Transparent*, i.e. stakeholders must be able to examine information on projects via a publicly-accessible website
- *Independently verified*, i.e. an independent third party must validate the eligibility of the project and the abatement
- *Registered*, i.e. the units generated must be registered and tracked in a publicly transparent registry.³⁴²

10.11 The draft Standard may also provide 'standard carbon neutral calculations'. The Commonwealth expects that the CPRS will provide a disincentive for additional voluntary offsets, because entities liable under the scheme will have to buy permits or 'emission units' for every tonne of GHGs that they emit, and surrender those units at the end of each year. Across the economy prices will go up as the price of carbon flows through into goods and services, and this might discourage the purchase of additional voluntary offsets.

10.12 The proposed national standard is also likely to deal with one or more verification mechanisms for validating carbon offsets, and to provide for a national registry of offset credits.³⁴³

10.13 Some of the emissions sources not covered by the proposed CPRS that may be the focus of carbon offset projects include land use and avoided deforestation, revegetation/reforestation and afforestation, livestock

³⁴¹ 'Guidance on Additionality for the Approval of Abatement Projects under the Greenhouse Friendly™ Initiative',
<http://www.climatechange.gov.au/greenhousefriendly/publications/pubs/additionality-guidance.pdf>, viewed 30 July 2009; see also the fact sheet for the Clean Development Mechanism (CDM) of the Kyoto Protocol,
http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality_tool.pdf.

³⁴² Australian Government Department of Climate Change, *Draft National Carbon Offset Standard*, December 2008, pp15–16

³⁴³ Australian Government Department of Climate Change, *National Carbon Offset Standard Discussion Paper*, pp 30–31

management, savannah burning, and waste management.³⁴⁴ The CSIRO suggests that there is a lot of potential in carbon offset projects on Indigenous land, which amounts to about 16% of the Australian land mass, and 13% of Australia's forests. A CSIRO report suggests that carbon offsets on Indigenous land could create up to 1 029 new jobs and generate an annual income of A\$52 million per year.³⁴⁵ Offset projects could involve fire management, reforestation and grazing land management.

- 10.14 There are a range of offset schemes and standards that the proposed national standard will not affect, but which may be used to accredit offset projects undertaken overseas. These include the Gold Standard, Voluntary Carbon Standard, VER+, Voluntary Offset Standard, Chicago Climate Exchange, The Climate, Community and Biodiversity Standard, the Plan Vivo System, ISO 14064-2 and the Greenhouse Gas Protocol for Project Accounting.³⁴⁶

Stakeholder comments on offsets

- 10.15 The Chief Executive Officer of ActewAGL, Mr Michael Costello, expressed the view that offsets is an 'underdeveloped area of policy, both nationally and internationally',³⁴⁷ but that ActewAGL supports offsets in principle.³⁴⁸ There were challenges in the offsets area for defining additionality, and with securing permanency for the offset project.³⁴⁹
- 10.16 The Actew Corporation board requires the organisation to abate GHGs generated by new water security projects and it had been examining a range of abatement opportunities. For example, Actew has committed to offset the emissions associated with its Water Security Major Projects and is evaluating possible abatement opportunities such as the use of biodiesel and investment in carbon sink forestry.³⁵⁰ It applied offset criteria that were objective and

³⁴⁴ Australian Government Department of Climate Change, *National Carbon Offset Standard Discussion Paper*, p 24

³⁴⁵ CSIRO, 'Media Release: Carbon offset industries for Indigenous communities', Ref 08/236, 19 December 2008, viewed 7 August 2009, <<http://www.csiro.au/news/New-Carbon-Offsetting-Industry.html>>

³⁴⁶ Australian Government Department of Climate Change, *National Carbon Offset Standard Discussion Paper*, pp 19–20

³⁴⁷ *Transcript of Evidence*, 8 May 2009, p 160

³⁴⁸ Submission 27

³⁴⁹ Ms Dickson, *Transcript of Evidence*, 8 May 2009, pp 185–186

³⁵⁰ *Transcript of Evidence*, 8 May 2009, pp 171–2

independently verifiable. Offset projects have to be long-term and stable because the repayment period for infrastructure can be 30 to 40 years.³⁵¹

10.17 ActewAGL told the Committee that it was very interested in exploring soil carbon sequestration and some of the work that CSIRO have done, i.e. 'the char option'. ActewAGL hopes to use some of the land that Actew has acquired at Williamsdale to do some of that work.³⁵²

10.18 ActewAGL advised that it had received offset proposals from eight of the 12 providers offering offsets in Australia, but that many had different measurement methodologies for calculating emissions offset.³⁵³

10.19 Greening Australia described biosequestration and landscape-scale restoration work as having the potential to make a very positive impact, but also saw offsets as a last resort option.³⁵⁴ It was already engaged in offset work in Crace, and was negotiating with Actew on a program to offset emissions from the construction and operation of a new water infrastructure project such as the new Cotter Dam, and the Murrumbidgee to Googong water transfer. It has an internal offset standard, and accredited landscapes in Victoria, South Australia, Tasmania and Western Australia, and was moving towards a project in southern-Queensland. Some of the policy issues for the ACT Government included the implications of the ACT leasehold system for offsets, and whether cleared land in the Territory fell within Kyoto Protocol criteria.³⁵⁵

10.20 Greening Australia suggested that energy efficiency and alternative energy sources be used before offsets are pursued as a means of mitigating GHGs in the ACT.³⁵⁶ Dr David Freudenberger suggested that offsets were 'a transitional product' but were a legitimate part of the process of reducing overall net emissions over the next 20 years.³⁵⁷ Greening Australia was less concerned about declining offset value, suggesting that permanent biodiverse native forests 'can withstand the inevitable droughts, fires and floods that

³⁵¹ *Transcript of Evidence*, 8 May 2009, p 185

³⁵² Mr Costello, *Transcript of Evidence*, 8 May 2009, pp 184–185

³⁵³ Ms Dickson, *Transcript of Evidence*, 8 May 2009, pp 185–186

³⁵⁴ Submission 32

³⁵⁵ *Transcript of Evidence*, 1 July 2009, pp 258–9, 260, 262

³⁵⁶ Submission 33

³⁵⁷ *Transcript of Evidence*, 1 July 2009, p 259

periodically affect all regions of Australia'. If income is generated through biodiverse carbon sinks, this can deliver the double benefit of emissions reductions and landscape restoration.³⁵⁸

- 10.21 Some other community groups supported offshore offsets. Climate Action Canberra for example, suggested that offshore offsets could deliver opportunities for ecologically sustainable development in other jurisdictions. Ms Eiritz said:

climate change is reflective of a number of areas within our global dynamic that have opportunities for improvement.... Until we can share some of the resources a little more equitably, we are not going to get agreement at the global level....

[I]n terms of offshore offsets, if we have got the money to share—and we do, within this community—it is actually reasonable to be able to support some of those communities and to help them to find their way. Even if we come up with the perfect solution here in the ACT, that is not going to stop the global situation. So I think it can only be looked at as a global problem and we cannot be isolationist in that perspective....

We need to work out how to get the technology so that we can support those countries to be able to leapfrog past the industrial age, which was probably a cultural mal-adaptation in the scheme of things, and get to a renewable energy economy that they can run.³⁵⁹

- 10.22 Several submissions discouraged policy reliance on offsets. Mr Sutton suggested that offsets were only useful as a temporary measure and should not be used to avoid serious behavioural change. He suggested that using re-vegetation projects were restoring pre-industrial vegetation and reducing the carbon dioxide debt from earlier clearing, and did not offset industrial emissions. He also suggested that forests were unlikely to be effective carbon sinks in the long term because of the increasing risk of bushfires.³⁶⁰
- 10.23 Climate Action Canberra suggested that offsets 'should not be seen as an acceptable way to justify avoidable emissions'.³⁶¹

³⁵⁸ Submission 32

³⁵⁹ *Transcript of Evidence*, 29 April 2009, p 135

³⁶⁰ *Transcript of Evidence*, 1 July 2009, pp 254–5

³⁶¹ Submission 15A

- 10.24 The ACT Environmental Defender's Office was of the view that offsets 'fall at the bottom of the climate action hierarchy'. The ACT must seek to reduce emissions rather than rely on local or offshore offsets. The EDO submitted that 'allowable offsets should be limited to projects for which there is a high level of certainty as to the accuracy of measurement methodologies, and those that are additional, permanent and ecologically sustainable'. It referred to concerns about 'the permanence of forestry offsets, the measurement of carbon actually sequestered, and the ecological sustainability of such projects especially in a drying climate'. It suggested that 'forestry offsets should be treated with much caution and should be subject to rigorous assessment prior to being accepted as valid offset projects'.³⁶²
- 10.25 The Conservation Council's submission similarly identified a range of limitations in using Territory vegetation as an offset mechanism, including the risks that it will become diseased or die or may burn, releasing carbon back into the atmosphere; water use and biodiversity decline impacts; and time limitations. The Conservation Council also noted that offsets are less desirable than preventing growth in emissions.³⁶³ The Council also suggested that 'carbon neutrality' should not 'involve continuing on in a largely business as usual manner and calling the Arboretum an offset'. The Council preferred reducing energy use and generating/purchasing 100% renewable energy, and offsetting appropriately (through investments in renewable energy) for goods and services that cannot be supplied sustainably.³⁶⁴
- 10.26 The Conservation Council suggested that since substantial reductions in greenhouse gas emissions could be achieved relatively quickly and easily in a short time-frame through energy efficiency initiatives, there was no need for additional ACT offsets to achieve a 50% reduction in GHGEs by 2020. Offsets can inhibit the delivery of essential reductions in emissions. The Council suggested that a better approach would be to aim for the use of 100% renewable energy for the stationary energy used in the Territory, and to work towards achieving zero-emissions.³⁶⁵

³⁶² Submission 17

³⁶³ Submission 4

³⁶⁴ Submission 4

³⁶⁵ Submission 4

- 10.27 The Property Council of Australia expressed qualified support for offsets policy for domestic initiatives, but also recognised the limited scope for offsets under the Carbon Pollution Reduction Scheme. It suggested that local investment in the solar energy industry and technology should be encouraged, and more attention given to energy efficiency and building refurbishment opportunities.³⁶⁶
- 10.28 The Institute of Applied Ecology suggested that development proponents should be required to show that their developments would not increase the ecological footprint of the ACT, including its GHGs. This could be achieved through innovative designs that improved on the development being replaced, or through effective offsets.³⁶⁷
- 10.29 Climate Action Canberra suggested that offset policy should be developed in relation to new residential developments, and that greenfield suburban blocks should be large enough to enable its vegetation to offset the emissions produced by the household. The new compact block size would probably be inadequate for this unless housing designs were radically changed.³⁶⁸ Climate Action Canberra also suggested that East Lake development should be carbon neutral, possibly by including carbon offsets onsite through a community garden, herb garden, orchard or native gardens.³⁶⁹ Climate Action Canberra also suggested that by restoring the former natural microbial processes for transforming litter into stable soil humates within ACT forests, urban emissions could be reduced and offset. There would also be fire risk management benefits and enhance bio-diversity, water yields and ecological values in the Territory.³⁷⁰
- 10.30 Permaculture ACT suggested that people could contribute to offsetting their emissions by growing their own vegetables.³⁷¹

³⁶⁶ Submission 20

³⁶⁷ Submission 14

³⁶⁸ Submission 15A

³⁶⁹ Submission 15A

³⁷⁰ Submission 15A

³⁷¹ *Transcript of Evidence*, 29 April 2009, p 131

Carbon sequestration audit of the ACT

- 10.31 In 2009 the Minister for Climate Change, Environment and Water released a carbon sequestration audit of vegetation biomass in the Territory. The report found that street trees in Canberra's urban forest will capture 48% of projected carbon sequestration or 98 000 tonnes by 2015. The report, written by the Fenner School of Environment and Society at the Australian National University, estimated that 28 438 000 tonnes of carbon was contained (sequestered) in the Territory's vegetation in 2008. This comprised 28 153 000 tonnes in the non-urban estate and 285 000 tonnes in the urban estate. The urban forest provided environmental services, such as contributing to lower temperatures, reduced energy consumption, improved water quality and cleaner air. The value of these services was estimated at \$23 564 000 per year, in 2008.³⁷²
- 10.32 This monetary valuation was based on United States research and estimates. Although it would be useful to have further Australian or ACT specific research, the report does indicate that the urban forest has a range of valuable benefits.
- 10.33 Notwithstanding the value of the carbon stored in ACT urban and non-urban trees, the contribution of the ACT vegetation to offset the ACT emissions is limited given that annual total ACT emissions are in the order of 4 million tonnes and the annual take-up of CO₂ by the vegetation is about 0.7% of the total emissions.
- 10.34 To offset the total 2005–06 ACT GHGs from vegetation would require the equivalent of over 130 ACT biomasses each year, and that biomass would have to meet proposed offset criteria (such as being additional and permanent).

Zero net emissions for the ACT and offsets

- 10.35 The ACT Government submission acknowledged that in order to achieve its 'visionary goal' of zero net GHGs for the ACT, emissions will have to be

³⁷² P Killey, C Brack, C McElhinny, G Cary and K King, A Carbon Sequestration Audit of Vegetation Biomass in the Australian Capital Territory, Australian National University, 2009; Simon Corbell, MLA, 'Media Releases, Street Trees to Play a Key Role in Capturing Carbon Emissions', 25 June 2009

reduced to every extent possible, and any residual emissions offset by investments in domestic and international carbon offset projects such as carbon sequestration, tree planting, renewable energy generation and possibly even geosequestration.³⁷³ Carbon neutrality in ACT Government operations will only be able to be achieved through efficiencies and offsets.³⁷⁴

- 10.36 The ACT Government already has committed to offset some emissions from its own operations. Since 2004 has committed to offsetting its fleet emissions, and in 2009 committed to increasing its purchase of Greenpower from 23% to 30%.³⁷⁵ Initially the offset of the government car fleet was undertaken with Greenfleet, with the tree plantings being completed this year. A new arrangement is being discussed with the current fleet contract provider sgfleet who use a fleet Intelligence online fleet management tool, which can be used for offset calculations.³⁷⁶ This policy is outlined in the *ACTPS Non-Executive Passenger and Light Commercial Vehicle Management Policy*.³⁷⁷ This policy was under review in 2009.

Committee comments

- 10.37 The Committee sees a need to distinguish between offset projects which are simply repaying the carbon debt created by earlier land clearing or logging activities, and terrestrial and marine projects which provide incentives for the restoration of ecosystem services (such as biosequestration and climate regulation, pollination, pollination of crops and native vegetation and marine plants, provision of shade and shelter, maintenance of fertile soil and clean water). The Committee recognises the value of the green carbon stored in native forests, but also notes that the remnant amount of native forests globally is insufficient to offset rising global GHGs. Also, as noted above,

³⁷³ Submission 30

³⁷⁴ Submission 30

³⁷⁵ \$3.3 million has been budgeted for GreenPower purchases 2009–12: ACT Government, Budget 2009–10, *Budget Paper 2*, p 45. For fleet emissions see Jon Stanhope MLA, Media Release 14 November 2006; Jon Stanhope MLA, Media Release 23 September 2005

³⁷⁶ Select Committee on Estimates, Answer to question on notice E09-273

³⁷⁷ <http://www.cmd.act.gov.au/__data/assets/pdf_file/0019/568/actpsvehiclenonex.pdf>, viewed 31 July 2009

repaying a carbon debt is not a genuine offset.³⁷⁸ The Committee does not support the use of monoculture plantations as an offset mechanism.

- 10.38 The Committee notes that best practice in offsetting should require that organisations or households in seeking zero net emissions or carbon neutrality status should focus first on reducing or avoiding GHGEs so that only residual emissions are minimised and only unavoidable emissions are offset.
- 10.39 The Committee notes that in order to achieve the ACT Government's proposed target of zero-net emissions, it will be necessary to offset unavoidable emissions. Some offsetting could be achieved through the purchase of accredited offset projects, but it is unlikely that sufficient offsets could be generated within the borders of the ACT to achieve carbon neutrality. Notwithstanding this the Committee on the evidence before it supports local renewable energy offsetting ahead of overseas or tree based offset projects.
- 10.40 In the Committee's view, it is unlikely that any current urban forest plantings or current Territory revegetation projects will be eligible for accreditation as an offset project under the proposed national standard. Such projects are unlikely to satisfy the additionality requirement that the plantings would not have been undertaken under a business-as-usual scenario, given the recognition of the urban forest and non-urban estate in urban design documents linked to the National Capital Plan and the Territory Plan, and the centrality of landscape architecture to the national capital.³⁷⁹ New 'additional' projects not associated with post-2001/2003 bushfire restoration plans or established urban design projects may be eligible for accreditation as an offset project however.
- 10.41 The Committee's preference would be that offset projects be completed in the ACT or the Australian Capital Region before any projects are commissioned further afield. The Regional State of the Environment Report 2004–2008 identified a range of abatement actions that could be, or already are being undertaken, in the region. These include reducing land clearing

³⁷⁸ M Blakers, comment in presentation to Biodiversity Summit 2009, Canberra, 8 August 2009

³⁷⁹ JCG Banks and CL Brack, 'Canberra's Urban Forest: Evolution and planning for future landscapes', *Urban For Urban Green*, Vol 1, 2003, pp 151–160

and soil disturbance and replacing fire hazard reduction burning with other biological fuel reduction.³⁸⁰ The Committee will not comment further on particular offset products and processes until it has considered the Australian Government's decision on the proposed national standard on carbon offsets and its interrelationship with the proposed Carbon Pollution Reduction Scheme.

RECOMMENDATION 30

- 10.42 **The Committee recommends that the ACT Government develop an offset policy in relation to emissions from the ACT Government sector, as well as broader community emissions, as part of its roadmap to zero net emissions, noting ongoing developments in regard to the proposed Carbon Pollution Reduction Scheme.**

³⁸⁰ J Schooneveldt, 'Regional State of the Environment Report 2004–2008: Regional Sustainability', Attachment to submission 33, section 5.1

11 ENERGY POLICY FOR THE ACT

- 11.1 The terms of reference for the inquiry provide that the Committee will inquire into and report on the ACT's future energy supplies, taking into account the draft Interim Energy Policy and options for sourcing or producing sufficient renewable energy to meet the needs of the ACT.
- 11.2 A draft Energy Policy was released in early 2006 for public comment, at the same time as the release of the draft climate change strategy. A final energy policy has not been released although the *Climate Change Strategy – Weathering the Change* was released in July 2007. The Committee understands that an energy policy was still in preparation by the Department of Environment, Climate Change, Energy and Water, and that it will be the subject of public consultation.
- 11.3 The ACT Energy Minister, Mr Corbell MLA, advised the Committee that the draft Interim Energy Policy would be released in the third quarter of 2009.³⁸¹ The primary focus of the policy would be to reduce emissions associated with energy use, security of energy supply, and equitable provision of energy. The Energy Policy will complement *Weathering the Change*, and address energy issues across all sectors, including commercial buildings. It will address local or district level power generation through renewable technologies such as solar and mini-hydro plants, and combined heat power plants.³⁸²
- 11.4 The draft Interim Energy Policy is expected to examine the following issues including:
- mandating passive solar orientation for all new residential homes and subdivisions, and legislating for improved solar access rights.

Existing energy policy commitments

- 11.5 **ACT Solar Plant** – In August 2009 Minister Corbell advised there were 19 international, national and local expressions of interest for a proposed solar farm in the Territory. A decision would be made in September 2009 on the

³⁸¹ *Transcript of Evidence*, 13 May 2009, p 194

³⁸² *Transcript of Evidence*, 13 February 2009, p 193

shortlist of applicants who will be invited to submit detailed proposals. The plant is intended to have a generating capacity of approximately 86,000 MWh/annum to power 10,000 homes. The ACT Government's has indicated that the \$30 million contribution to the solar farm could be a direct financial grant, land or assistance such as commitment to purchase power.³⁸³

11.6 **Feed-in-tariff** – The ACT solar feed-in tariff (stage one) commenced on 1 March 2009.³⁸⁴ The model provides for the payment of a premium price of 50.05 cents/kWh for electricity generated from systems between 0-10kW and 40.04 cents/kWh for electricity generated from systems between 10-30kW. There is no provision for premium prices for electricity generated from systems with a nameplate capacity over 30kW. Figures released in August 2009 indicated that 221 446 kilowatt hours of electricity had been produced from solar installations between 30 March and 30 June 2009, saving 238 tonnes of GHG and thereby reducing the ACT's dependence on non-renewable energy sources.³⁸⁵ The Government has indicated that it will extend the feed-in-tariff (stage two) to allow larger installations to benefit from premium rates, but has not yet given an indication of the scope of the tariff.³⁸⁶

11.7 **GreenPower – non-government** – under ACT regulations all ACT electricity providers must provide an option for electricity consumers to purchase GreenPower, an accredited product. ActewAGL, the largest energy retailer in the ACT as of August 2009, had more than 15 000 GreenChoice customers (its Green power product) who contributed to saving 62 000 tonnes of GHGEs in 2009, or the equivalent of taking 13 777 cars off the road for a year.³⁸⁷ Since 1 April 2009 it is a requirement that electricity retailers offer to new or reconnecting consumers a GreenPower product, ahead of non GreenPower products. Consumers have the choice to 'opt-out' of GreenPower if they chose

³⁸³ J Thistleton, '\$100m solar hub for Canberra attracts 18 bids', *The Canberra Times*, 14 July 2009, p 2 <www.abc.net.au/news/stories/2009/12/2653110.htm>

³⁸⁴ *Electricity Feed-in (Renewable Energy Premium) Act 2008* (ACT); Jon Stanhope MLA Media release Feed-in Tariff to Help Make Canberra the Solar Capital, <10/02/2009 <http://www.chiefminister.act.gov.au/media.php?v=7721>>

³⁸⁵ Minister for the Environment, Climate Change, Energy and Water, Mr Simon Corbell MLA, Media Release: 238 Tonnes of Greenhouse Gases Saved under ACT Feed-In Tariff, 11 August 2009

³⁸⁶ Minister for the Environment, Climate Change, Energy and Water, Mr Simon Corbell MLA, Media Release: 238 Tonnes of Greenhouse Gases Saved under ACT Feed-In Tariff, 11 August 2009

³⁸⁷ ActewAGL, 'What is Greenchoide?', viewed 26 August 2009, <http://www.actewagl.com.au/Greenchoice/about_greenchoice.aspx>

to.³⁸⁸

- 11.8 **GreenPower – Government** – As noted above, the ACT Government purchases GreenPower as part of the whole of government electricity contract with ActewAGL, and pursuant to the Labor–Greens Parliamentary Agreement the % is to increase over time.³⁸⁹ Under the contract ActewAGL measures green and black power consumption of kWhs of electricity used per ACT Government site and equalises this to the whole-of-Government purchase of GreenPower purchase, currently 30% for 2009–10. In 2008–2009 the target for GreenPower purchase by the ACT Government was 23%.³⁹⁰ Minister Corbell advised the Committee that the ACT Government had increased its purchase of GreenPower for government operations to 30% of its power purchase, at an additional cost of \$3.3 million over four years³⁹¹. It is intended that Government GreenPower purchase will increase by 10% each year.
- 11.9 **Greenhouse Gas Abatement Scheme** – The ACT Greenhouse Gas Abatement Scheme requires electricity retailers in the ACT to purchase a certain proportion of electricity from accredited renewable or low emission sources, linked to an emissions target of 7.27 tonnes per capita in 2007. This equates to approximately a 2% reduction in GHGs per year. The scheme is created by the *Electricity (Greenhouse Gas Emissions) Act 2004 (ACT)*. It commenced on 1 January 2005 and is legislated to run until 2020. it is expected to be phased out once the proposed CPRS is operational.
- 11.10 **Renewable Energy Target** – *Weathering the Change Action Plan 1* committed to legislate an ACT renewable energy target of 10% by 2010 and 15% by 2020. This proposal has been dropped in light of the likely introduction of the proposed Carbon Pollution Reduction Scheme and the federal Mandatory Renewable Energy Target.
- 11.11 **Energy efficiency measures** – the ACT has a number of policies intended to facilitate energy efficiency in the building sector such as the mandatory

³⁸⁸ *Transcript of Evidence*, 13 May 2009, p 192

³⁸⁹ The percentage purchased increased from 23% to 30% initially, and will then increase by 10% each year from 2009.

³⁹⁰ Information provided by Ms Maria Mangeruca, DLO, Office of Minister Corbell, 15 April 2009, p 289, Budget No 4 Budget Estimates 2008–09)

³⁹¹ *ACT Government, 2009–10 Budget Paper no 4*, p 68; \$3.3 million has been budgeted for GreenPower purchases 2009–12: ACT Government Budget 2009–10, *Budget Paper 2*, p 45

building code, point of sale disclosure, incentives to retrofit commercial buildings, energy performance standards for new residential and commercial building. The Government has had a programme to provide a rebate of \$500 on expenses over \$2000 to improve household efficiency, and has indicated that it will extend rebates for a small number of households for solar hot water. The Committee notes that these will be enhanced through the recently adopted National Strategy on Energy Efficiency.

- 11.12 **Transport** – The Minister for Energy advised the Committee that DECCEW would be developing policy settings around the use of transport fuels, including ‘around achieving modal shift from motor vehicles to public transport, walking, cycling and so on’, price impacts, and increased use of renewable transport fuels by ACTION, as part of its energy policy.³⁹²

Alternative energy supply options for the ACT

- 11.13 The Committee heard evidence regarding a number of potential alternative energy supply options for the ACT.

- 11.14 **Geothermal** – Geoscience Australia (GA), an Australian Government agency within the Resources, Energy and Tourism portfolio, agreed to assist the Committee by assessing submissions,³⁹³ transcript evidence³⁹⁴ and a consultancy report³⁹⁵ on the potential of geothermal energy, and installing and/or retrofitting geothermal heat pumps in large buildings.
- 11.15 Dr James Johnson, Chief of GA’s Onshore Energy and Minerals Division, advised the Committee that ground source heat pumps (GSHP) ‘have significant applicability in the ACT’ with demonstrated economic and environmental benefits. Dr Johnson described GSHP as under-utilised technology which was ‘inherently versatile and robust’, and that the ACT climate was ‘ideal’ for this technology, which could displace emissions from non-renewable sources. The building design phase was best for incorporating GSHP. Dr Johnson advised that it was unlikely that geothermal electricity could be generated from the ACT region in the near

³⁹² *Transcript of Evidence*, 5 February 2009, pp 39, 42

³⁹³ Submissions 5, 26

³⁹⁴ *Transcript of Evidence*, 8 May 2009

³⁹⁵ 2009 consultancy report by Papp Consultancy, commissioned by Actew Corporation

future, if at all.³⁹⁶ Geoscience Australia has reported favourably on the energy savings delivered by the geoexchange technology in its building at Symondston, Canberra.³⁹⁷

- 11.16 **Wind** – Mr Wright, a clean energy advocate for Beyond Zero-Emissions, advised the Committee that the electricity needs of the ACT could be met through a combination of clean energy sources, including 341 Vestas V90 wind turbines (or 453 Vestas V90 wind turbines if clean energy for transport is included). He suggested wind power was the most available and accessible option at this stage, and that a 10-year timeframe would be needed to switch to renewable energy.³⁹⁸ inviting community investment in collective large wind farm turbines³⁹⁹
- 11.17 **Solar** – Mr Wright, of Beyond Zero-Emissions, also advised the Committee that the electricity needs of the ACT could be met through a solar thermal farm with tower and storage, or large-scale solar mirrors in combination with a range of wind turbines, with a range of ground-source and air-source heat pumps across the Territory providing additional support.⁴⁰⁰ Mr Wright suggested that wind power was the most available and accessible option at this stage, and that a 10-year timeframe would be needed to switch to renewable energy.⁴⁰¹
- 11.18 **Gas** – ACTEW has bought a large block of land near the ACT/NSW border, where its subsidiary, ActewAGL, plans to build a 500-megawatt gas-fired power plant.⁴⁰² Gas-generated power is cleaner than coal, but is not renewable, and supply could be unreliable.⁴⁰³ Several witnesses criticised the proposed ACT gas-fired power plant as a short-sighted investment which could inhibit the achievement of zero-net emissions in the longer term.⁴⁰⁴

³⁹⁶ Dr J Johnson, Chief of GA's Onshore Energy and Minerals Division, letter to Chair, 14 August 2009

³⁹⁷ Australian Government Geoscience Australia, *Geoscience Australia Building, Canberra, Geothermal Air Conditioning: 10 Year Review*, 2007

³⁹⁸ *Transcript of Evidence*, 1 July 2009, p277

³⁹⁹ Submission 7

⁴⁰⁰ *Transcript of Evidence*, 1 July 2009, pp 270–273, 275–279

⁴⁰¹ *Transcript of Evidence*, 1 July 2009, p 277

⁴⁰² John Thistleton, 'Actew buys land for gas power plant' *The Canberra Times*, 23 January 2009, p 3

⁴⁰³ *Transcript of Evidence*, 8 May 2009, p 179

⁴⁰⁴ *Transcript of Evidence*, 1 July 2009, pp 255; 271–2, 280

11.19 Issues relating to these various options include:⁴⁰⁵

- obstacles facing investors in large-scale renewable energy projects, including environmental, planning and other regulations and how the ACT compares with other jurisdictions, and
- renewable energy is currently about 50% more expensive than coal-based power purchases.⁴⁰⁶

11.20 ActewAGL is concerned that as renewable energy is significantly more expensive than coal-sourced power, a substantial increase in a renewable energy in the ACT would be reflected in significantly higher energy prices which would impact on business and other stakeholders in the ACT.⁴⁰⁷

11.21 However, ActewAGL also welcomed the prospect of the ACT becoming an electricity generator, particularly of green solar electricity as there are no environmentally suitable sites for wind power in the ACT. Mr Costello suggested that increased investment in renewable energies will lead to improvements in technologies.⁴⁰⁸

11.22 One of the Climate Action Canberra representatives noted that GreenPower is a less expensive abatement measure than feed-in tariff solar power, at about \$60 per tonne compared with about \$500 per tonne.⁴⁰⁹ The Committee notes an important part of the ACT Government roadmap to zero net emissions and the energy policy will be to provide a consistent analysis of the costs and other benefits of various energy supply options.

11.23 Dr Kevin Cox suggested that the Australian Government invest \$600m per year for 10 years in GHG reduction infrastructure and measures.⁴¹⁰ He suggested that this investment be achieved through the free distribution of zero interest currency called Energy Rewards, by the Reserve Bank⁴¹¹ to all in Australia, which could be invested in renewable energy infrastructure.

⁴⁰⁵ The Victorian Parliament's Environment and Natural Resources Committee is due to report by 31 December 2009 on opportunities to reduce red tape associated with the approvals process for renewable energy projects in Victoria

⁴⁰⁶ *Transcript of Evidence*, 8 May 2009, p 164

⁴⁰⁷ *Transcript of Evidence*, 8 May 2009, p 181

⁴⁰⁸ *Transcript of Evidence*, 8 May 2009, pp 162, 165

⁴⁰⁹ *Transcript of Evidence*, 3 June 2009, p 233; other submissions made similar points

⁴¹⁰ Submission 8, Exhibit 3

⁴¹¹ *Hansard*, 22 April 2009, p 73, and Exhibit 3

ACT renewable energy target

- 11.24 The Committee notes the passage of amendments to the national Mandatory Renewable Energy Target which will now require a 20% purchase of renewable energy by 2020.
- 11.25 The Committee notes that the ACT Government in *Weathering the Change* had previously indicated an ACT specific renewable energy target of 10% by 2012 and 15% by 2020.
- 11.26 Although the Government has indicated that in light of the COAG processes that it will not proceed with an ACT specific renewable energy target,⁴¹² the Committee suggests a re-consideration of this issue in the Energy Policy, as well as other policy signals to encourage the faster development of renewable energy, and specifically on a local ACT renewable energy sector.
- 11.27 Some stakeholders prefer higher targets. The Conservation Council ACT Region, the Environmental Defenders' Office (ACT) and some individuals⁴¹³ argued that the ACT should move towards a target of 100% renewable energy, which would assist in ensuring that the ACT does not transfer its GHGs to other jurisdictions.⁴¹⁴

Energy security

- 11.28 The ACT currently purchases more than 98% of its electricity from sources outside the ACT's borders. Most of this electricity comes from coal-fired generators in Victoria and NSW. The less than 2% generated inside the ACT come from methane gas generation plants at Mugga Way landfill tips and mini-hydro-generation plants at Stromlo.⁴¹⁵
- 11.29 Electricity to the ACT comes from the NSW transmission grid through two bulk supply substations located in Holt and Oaks Estate. Electricity is purchased from the National Electricity Market.

⁴¹²<http://www.environment.act.gov.au/climate_change/weathering_the_change/climate_change_new_s/CC_Fact_sheets_2008.pdf>

⁴¹³ Ms Eiritz suggested that the target should be 100% over 10 years: *Transcript of Evidence*, 29 April 2009, p 136

⁴¹⁴ Submission 17, p 11

⁴¹⁵ ICRC, Licensed utilities compliance and performance report 2007–08, p 1

Committee comments

- 11.30 The Committee is concerned about the ongoing delay in the production of the draft Interim Energy Policy for the ACT and seeks an explanation for this delay.
- 11.31 The Committee notes it is unable to fully address the issues surrounding energy policy directions for the ACT in the absence of seeing the ACT draft Interim Energy Policy or the ACT Roadmap towards zero net emissions.
- 11.32 The Committee is concerned however that substantive policy decisions regarding energy supply are taking place in the absence of a coherent energy policy.
- 11.33 The Committee suggests that the decisions regarding substantial changes to energy supply in the ACT need to be thoughtfully considered in regard to costs and benefits, inter-relationship with national policy, notably the CPRS and the MRET, as well as economic benefits that may arise from an increase in locally supplied energy sources, impacts on energy prices, social equity issues in addition to likely GHG abatement.
- 11.34 The Committee is of the view that energy supply changes will be the key to delivering longer term emissions reductions than the 40% by 2020 which the Committee suggests can be met predominantly through energy efficiency in buildings and transport.
- 11.35 As noted elsewhere in the report the Committee recommends that the ACT Government consider energy policies that will significantly reduce the energy demand from both residential and commercial building sectors, as well as efficiencies in the transport sector as a matter of immediate priority.
- 11.36 The Committee proposes that in the first instance, the ACT's energy demand should be cut through cost-effective energy efficiency measures.
- 11.37 On the basis of energy security and reducing GHGEs the Committee broadly supports a decentralised approach to replacing the ACT's energy system– ie local, diverse and low carbon approach.
- 11.38 The Committee notes decisions regarding the choice of energy supply should also consider a range of issues aside from GHG abatement, such as local employment potential, reduced risks of supply failure, other environmental

benefits, resource efficiency and social impacts.

- 11.39 That the ACT Government include energy policies that increase and improve the ACT's energy security and resilience, and take into particular consideration increasing electricity and oil prices, as well as increasing population and decreasing access to resources for manufacturing (such as oil.)
- 11.40 The Committee welcomes the ACT Government commitment that it will consult widely with the community on the draft Interim Energy Policy, as well as the ACT Roadmap to zero net emissions.

RECOMMENDATION 31

- 11.41 **The Committee recommends the ACT Government take into account when developing an energy policy: greenhouse gas abatement costs (cost benefit analysis of energy supply), local employment incentives, energy security and energy resilience, education and research opportunities, and mitigation of future costs for energy consumers.**

12 CONCLUSIONS

- 12.1 The Committee noted above that the deliberations of this Inquiry have been made difficult given the range of complex policy developments taking place regarding climate change, particularly in regard to the proposed CPRS and other COAG processes, as well as the ongoing negotiations ahead of the 15th Meeting of Parties to the UNFCCC in Copenhagen in December 2009.
- 12.2 As a result of that uncertainty, the Committee has agreed that this inquiry should be ongoing, and that this report is an interim report only.
- 12.3 The Committee wants to see emissions reduction target legislation introduced in 2010, believing that the legislation will be an important symbol to motivate the ACT community towards creating a zero net sustainable city. It will also provide a focus for the Government to deliver on programs that make achievements in reducing GHGs.
- 12.4 In addition and importantly, the Committee proposes the legislation will codify regular monitoring and reporting mechanisms.
- 12.5 The Committee cannot under-estimate the importance it places on putting in place the processes and methodology to ensure the most cost-effective and efficient policies and programs are put in place to reduce our GHGs. In that regard the Committee remains disappointed that to date that the ACT Government has not demonstrated the use of a rigorous methodology regarding its decision making about important climate change policies and programs, or processes to evaluate their effectiveness.
- 12.6 The Committee welcomes the wide range of views put into the Inquiry which it feels in turn reflects the passion, creativity and analysis of so many of the ACT community who want a sustainable ACT.
- 12.7 The evidence before the Committee was that in the context of our emissions profile, with 73 per cent of our GHG from our buildings, and 23% from transport – the opportunities both economic and in GHG reduction are in putting in place the policy and program mix for the ACT community to take up energy efficiency and modal shift in transport, with gusto.

- 12.8 The Committee recommends that the ACT take leadership and demonstrate to the community how it is tackling and reducing emissions in its own operations as a matter of priority.
- 12.9 The Committee is asking the ACT Government to take many of the policy and program suggestions made during this Inquiry and to consider them – using a consistent methodology in the context of the visionary Roadmap proposed by the ACT Government – to take the ACT to a zero net emissions community.
- 12.10 The Committee recommends the forthcoming Roadmap to zero net emissions very clearly identify the GHGs reductions expected to be delivered by each action. The Committee also suggests that a few well targeted programs that deliver big emissions reductions may be better than a wide variety of actions.
- 12.11 The Committee welcomes and looks forward to the public consultations on the Roadmap to zero net emissions and energy policy.

Meredith Hunter MLA
Chair
September 2009

APPENDIX A: Abbreviations and glossary

Table of abbreviations

ACT GGAS	ACT Greenhouse Gas Abatement Scheme
ACTHERS	Energy rating scheme administered by ACTPLA
ACTPLA	ACT Planning and Land Authority
ASBEC	Australian Sustainable Built Environment Council
AsSSI	Australian Sustainable Schools Initiative
AR4	Fourth Assessment Report by the Intergovernmental Panel on Climate Change
BASIX	Building Sustainability Index
BCA	Building Code of Australia
CEC	Clean Energy Council
CER	Certified Emissions Reductions
CIT	Canberra Institute of Technology
CO ₂	Carbon dioxide
CO ₂ -e	Carbon dioxide equivalent
COAG	Council of Australian Governments
COP	Conference of the Parties
CPRS	Carbon Pollution Reduction Scheme
CPRS	Carbon Pollution Reduction Scheme
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DECCEW	ACT Department of Environment, Climate Change, Energy and Water
EEC	European Economic Community
EER	Energy efficiency rating: an assessment conducted by a registered assessor using approved software and issues under the <i>Civil Law (Sale of Residential Property) Act 2003 (ACT)</i>
EITE	emissions-intensive trade-exposed industries
GSHP	ground source heat pumps
ICRC	Independent Competition and Regulatory Commission
IPART	NSW Independent Pricing and Regulatory Tribunal
IPCC	Intergovernmental Panel on Climate Change
J	Joule – basic unit of energy
kW	Kilowatt 1kW = 3.6MJ/jr
kWh	Kilowatt hour

LDCs	Least developed countries
LPG	Liquefied petroleum gas
MCE	Ministerial Council on Energy
MEPS	Minimum Energy Performance Standards
MRET	Mandatory Renewable Energy Target
Mt	Megatonne (one million metric tonnes)
MW	megawatt
MWh	megawatt hour
NCAS	National Carbon Accounting System
NEMMCO	National Electricity Market Management Company
NFEE	National Framework for Energy Efficiency
NRMMC	Natural Resource Management Ministerial Council
OSCAR	Online System for Comprehensive Activity Reporting
PIA	Poverty impact analysis
ppm	parts per million of carbon dioxide equivalent
RET	Mandatory Renewable Energy Target
TFT	Transitional franchise tariff
TJ	Terajoule (10 ¹² joules)
UNFCC	United nations Framework Convention on Climate Change
Wh	Watt hour

12.12 Glossary of terms⁴¹⁶

abatement	Reduction of greenhouse gas emissions, or enhancement of greenhouse gas removal from the atmosphere by sinks
additionality	A project or activity provides benefits that are additional to any that would occur in the absence of the project or activity
advanced economies	Annex 1 parties to the UNFCCC and some other high/middle income economies
best-practice principles for regulation	Broadly speaking, these principles require regulation to be efficient, effective, equitable, administratively simple, transparent and subject to regular review.
carbon	Carbon is used in the issues paper to refer to the six major greenhouse gases and references to 'carbon' emissions have the same meaning as 'greenhouse gas' emissions.

⁴¹⁶ Most of this glossary has been reproduced directly from the glossary in the Australian Government Department of Climate Change 2008, White Paper; the glossary in the Review of NSW climate change mitigation measures IPART and United States National Oceanic and Atmospheric Administration (2009), *Climate Literacy: The Essential Principles of Climate Sciences*, A Guide for Individuals and Communities, March.

carbon dioxide (CO ₂)	A naturally occurring gas; it is also a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the earth's temperature.
carbon dioxide equivalent (CO ₂ -e)	A standard measure that takes account of the different global warming potentials of greenhouse gases and expresses the cumulative effect in a common unit.
carbon market	A generic term for a trading system in which countries or private organisations may buy or sell emission units in an effort to meet limits on emissions.
carbon neutrality or zero net emissions	A reduction in GHGEs to the greatest extent possible and offsetting residual emissions by investing in carbon offset projects. ⁴¹⁷
carbon price	The cost of emitting carbon into the atmosphere.
carbon sequestration	The long-term storage of carbon dioxide or other greenhouse gases in the forests, soils, oceans or underground in depleted oil and gas reservoirs, coal seams and saline aquifers.
climate forecast	A prediction about average or extreme climate conditions for a region in the long-term future (seasons to decades).
climate variability	Natural changes in climate that fall within the normal range of extremes for a particular region, as measured by temperature, precipitation, and frequency of events. Drivers of climate variability include the El Niño Southern Oscillation and other phenomena.
climate change	A significant and persistent change in the mean state of the climate or its variability in response to changes in some aspect of Earth's environment such as the Earth's orbit about the sun anthropogenic impacts on the atmosphere, and geological forces.
cost-effectiveness (of mitigation measure)	An appraisal of the amount of abatement achieved by a measure for a given level of cost.
deforestation	The conversion of forested land to an alternative, non-forest use.
design features	Refer to the parameters of the CPRS set or controlled by the Federal Government. They include, for example, scheme caps, scheme coverage, the method with which permits are allocated, banking and borrowing privileges, and price ceilings.
effectiveness of a measure	A measure is deemed effective if it achieves or is demonstrated to be capable of achieving its intended objectives.

⁴¹⁷ As discussed in submission no 30

efficiency of a measure	A measure is deemed efficient when it allocates society's scarce resources to their highest value use. This is often taken to mean that the measure generates more benefits to society than costs relative to alternative options (or is the most cost-effective).
emissions	The release of greenhouse gases into the atmosphere.
emissions-intensive, trade exposed industries	industries that are assessed to have an emissions intensity above a defined threshold and are trade exposed.
fossil fuels	energy sources such as petroleum, coal, and natural gas derived from living matter that existed during a previous geologic time period.
greenhouse gases (GHGs)	The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF ₆).
Kyoto Protocol	An international treaty created under the United Nations Framework Convention on Climate Change in 1997. It entered into force in 2005. Among other things, the Kyoto Protocol sets binding targets for the reduction of greenhouse gas emissions by developed countries. It includes individual emission reduction targets for specific countries to be met within the first commitment period of 2008-12.
major developing economies	Non-Annex 1 members of the Major Economies Forum
market failure	A situation where the market, left to itself, is not able to provide an efficient level of production and consumption of goods and services.
mitigation	A human intervention to reduce the sources of, or enhance the operation of sinks for greenhouse gases.
offsets	Activities such as tree planting, which offset the greenhouse gas emissions generated by other activities (e.g. such as using cars, planes and energy). Under the carbon pollution reduction scheme – credited reductions in emissions purchased by parties to enable them to increase their emissions
reforestation	Conversion of land used for purposes other than forestry to forested land. Under the Kyoto Protocol, afforestation is defined as the direct human-induced conversion to forested land of land that did not contain forest on 31 December 1989
Registered assessor	A person currently on ACTPLA's register of energy assessors
renewable energy source	can include solar, wind, geothermal, wave and tidal, wind and bioenergy. In the ACT the main source is solar energy.

scheme cap	The scheme cap determines the number of carbon permits that will be issued by the Federal Government. Allowable emissions from sources covered by the scheme will be able to exceed the cap only if the excess is matched by the surrender eligible international units, additional domestic permits issued as a result of forestry activities, additional permits issued under the price cap mechanism or, if allowed, scheme offsets.
stationary energy emissions	Includes emissions from fuel consumption for electricity generation; fuels consumed in the manufacturing, construction and commercial sectors; and other sources such as domestic heating.
trade exposed industries	Industries that are constrained in their ability to pass through carbon costs due to actual or potential international competition.

APPENDIX B: Other national emissions reductions targets

Some Annex 1 parties have officially announced their national policy commitments or intentions in relation to GHG emission reduction targets in context of UNFCCC negotiations. These are summarised in the table below, which has been reproduced from a draft United Nations document.⁴¹⁸

Table#:

Party	Information relating to possible QELROs		Inclusion of LULUCF	Status
	Range or single value by 2020, percentage	Reference year		
Australia	-5% up to -15% or -25%	2000	Y	Officially announced
Belarus	-5% to -10% ¹	1990	TBD	Officially announced
Canada	-20%	2006	TBD	Officially announced
European Union	-20 to -30%	1990	N for -20% Y for -30%	Adopted by legislation
Iceland	-15%	1990	Y	Officially announced
Japan	-15% ²	2005	N	Officially announced
Liechtenstein	-20 to -30%	1990	N	Officially announced
Monaco	-20%	1990	--	Officially announced
New Zealand	-10 to -20%	1990	Y	Officially announced
Norway	-30%	1990	Y ³	Officially announced
Russian Federation	-10 to -15%	1990	TBD	Officially announced
Switzerland	-20 to -30%	1990	Y	Consultations in progress
Ukraine	-20%	1990	TBD	Under consideration

⁴¹⁸ United Nations Framework Convention on Climate Change, Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol, Ninth session, Bangkok, 28 September to 9 October 2009, and Barcelona, 2–6 November 2009, 'Information on possible quantified emission limitation and reduction objectives from Annex I Parties: Submissions from Parties', 19 August 2009, UN Doc No FCCC/KP/AWG/2009/MISC.15

APPENDIX C: Committee consultations

List of submissions

The submissions received and authorised for publication are listed here:

No.	Author
1	Dr Kevin McCue and Ms Sonja Lenz
2	Mr Peter White
3	Ms Wendy Rainbird
4	Conservation Council ACT Region
5	Dr Chris Klootwijk
6	Mr Matthew Frawley
7	Mr Don Young
8	Dr Kevin Cox
9	Dr Andrew Glikson
10	Sustainable Population Australia
11	ACT Transit Group
12	Professor Andrew Blakers
13	Mr Gerard De Ruyter
14	Institute for Applied Ecology, University of Canberra
15	Climate Action Canberra
16	ACT Council of Social Service Inc
17	Environmental Defender's Office ACT Inc
18	Mr Leon Arundell
19	Action for Public Transport ACT
20	Property Council of Australia
21	Permaculture ACT

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- 22 ACT Council of P&C Associations Inc
- 23 See-Change ACT
- 24 Mr Peter Overton RAIA
- 25 Ms Cindy Eiritz
- 26 ACTEW Corporation Ltd
- 27 ActewAGL
- 28 Mr Ross Morton
- 29 Ms Christine Watson and Mr John Pratt
- 30 ACT Government
- 31 Ms Diane Johnson and Ms Vivienne Pearce
- 32 Greening Australia Ltd
- 33 Commissioner for Sustainability and the Environment
- 34 Independent Competition and Regulatory Commission
- 35 Deane's Transit Group
- 36 Dr Robin Tennant-Wood, Mr Walter Jehne, Ms Cindy Eiritz
- 37 Australian Institute of Architects, ACT Chapter

APPENDIX D: List of exhibits – ACT Greenhouse Gas Reduction Targets Inquiry

The following exhibits were tabled during the inquiry:

No	Exhibit
1	Presentation to Committee by Dr Michael Coughlan, Chief Climatologist and Mr Perry Wiles, NSW Regional Climate Service Centre, 'Climate Change and Variability', 18 February 2009, Powerpoint
2	Ian Anderson, Short story: 'From the archives of the UNESCO Australian Capital Territory biosphere reserve', Journal of the Nature and Society Forum, February–March 2009, pp14–16
3	Dr Kevin Cox, PowerPoint presentation
4	Dr Andrew Glikson, images of climate change & Arctic & Antarctic ice sheet concentrations
5	Dr Andrew Glikson, PowerPoint presentation
6	Energy Imaging, PowerPoint presentation and other information
7	Mr Neil Savery, ACTPLA PowerPoint presentation
8	Papp Consulting, consultancy report on ACT and Queanbeyan Geothermal Resources, March 2009
9	Climate Action Canberra, PowerPoint presentations and other information
10	Presentation by Mr Matthew Wright, Beyond Carbon Neutral

APPENDIX E: Witnesses attending public hearings

The following witnesses attended the Committee's public hearings for the inquiry and responded to Members' questions:

18 February 2009:

- Dr Michael James Coughlan, a/g Chief Climatologist, Bureau of Meteorology
- Mr Perry Robert Wiles, Manager, NSW Climate Services Centre, Bureau of Meteorology

4 March 2009:

- Dr Heinz Schandl, Senior Science Leader, Sustainable Ecosystems CSIRO
- Mr Jeff House, ACT State Manager and National Government Relations Manager, Green Building Council of Australia

8 April 2009:

- Dr Richard Denniss, Executive Director, The Australia Institute
- Mr Ian Anderson, Board Member, Nature and Society Forum
- Mr Geoff Pryor, Director, Pryor Knowledge Pty Ltd

22 April 2009:

- Dr Kevin Cox, private individual
- Dr Andrew Glikson, Visiting Fellow (Earth and paleoclimate science), ANU
- Ms Catherine Carter, Executive Director, Property Council of Australia (ACT)
- Mr Tony Hedley, President, ACT Division, Property Council of Australia (ACT)
- Ms Gesa Ruge, Chair, ACT Sustainable Development Committee, Property Council of Australia (ACT)

28 April 2009:

- Mr Neil Savery, Chief Planning Executive, ACTPLA

29 April 2009:

- Ms Cindy Eiritz, private individual
- Ms Vanessa Morris, Executive Officer member central c'tee, See Change Canberra
- Em Prof Bob Douglas AO, chair, See Change Canberra
- Dr Vivienne Teoh, member central c'tee, See Change Canberra

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- Ms Cindy Eiritz, member central c'tee, See Change Canberra
- Ms Jenny Edwards, Managing Director, Energy Imaging
- Mr Andrew Cleary, Director, Energy Imaging

8 May 2009:

- Mr Michael Costello, Chief Executive Officer, ActewAGL
- Mrs Dianne O'Hara, General Manager Business Development and Strategy, ActewAGL
- Mr Ric Simes, Chief Strategist, Access Economics
- Mr Cameron O'Neill, Principal Economist, Access Economics
- Ms Kirilly Dickson, Manager, Sustainability Manager, ACTEW Corporation
- Mr Mark Sullivan, Managing Director, ACTEW Corporation
- Mr Ross Knee, Principal Strategic Planner, ACTEW Corporation

13 May 2009:

- Mr Simon Corbell MLA, Minister for Climate Change Environment and Water
- Mr David Papps, Chief Executive Officer, Department of the Environment, Climate Change, Energy and Water
- Ms Penny Farnsworth, Acting Executive Director, Department of the Environment, Climate Change, Energy and Water
- Mr David Butt, Director Policy, Department of the Environment, Climate Change, Energy and Water

3 June 2009:

- Mr Leigh Hughes, Co-convenor, Climate Action Canberra
- Ms Margaret Corcoran, Policy Convenor, Climate Action Canberra
- Dr Peter Wood, private individual
- Mr Bill Tully, Action for Public Transport
- Dr Chris Watson, Action for Public Transport

1 July 2009:

- Mr Philip Sutton, co-author of Climate Code Red, Director of Strategy Greenleap Strategic Institute [attended by speakerphone]
- Ms Diane Dibley, Director, Program and Policy Development, Greening Australia
- Dr David Freudenberger, Director of Science and Major projects, Greening Australia
- Dr Michael Rooney National Carbon Systems Manager Greening Australia

- Mr Matt Wright, campaigner Beyond Zero Emissions [attended by speakerphone]
- Mrs Elizabeth Singer President ACT Council of P&C Associations
- Ms Diane Johnson, parent
- Ms Vivienne Pearce, co-convenor of P&C Council's Sustainable Working Party ACT Council of P&C Associations, ACT Council of P&C Associations, member of P&C Council Executive Assistant Secretary P&C Council

22 July 2009:

- Prof Andrew Blakers , Director , ARC Centre for Solar Energy Systems, ANU & Centre for Sustainable Energy Systems, ANU
- Mr Graham Anderson, Senior consultant – climate change, Pitt & Sherry
- Mr Paul Baxter, Senior Commissioner, ACT Independent Competition and Regulatory Commission
- Mr Ian Primrose, a/g Chief Executive Officer, ACT Independent Competition and Regulatory Commission

Site Visits:**18 March 2009: Site visit to Bruce Campus of the Canberra Institute of Technology**

The Committee, two Members' staff, WIN TV staff and the secretary visited the Bruce campus of the Canberra Institute of Technology on 18 March 2009.

Staff of the Canberra Institute of Technology (CIT) who participated in the visit were: Dr Colin Adrian, Ms Tracey Hayne, Mr Peter Kowald, Mr Geoff Bell, Ms Jane Cottee, Mr Ivan Radic, Mr Bill Martin, Mr Lee Madden Dr Nicole Stenlake, Mr Glenn Carter, and Mr Rod Brightman.

A student representative: Ms Alexi Williams, also met with the Committee.

29 July 2009: Site visit to Canberra Airport Trigeneration Facility and Blackwater Treatment Plant

The Committee, a Member's adviser, WIN TV and the *Canberra Chronicle* staff and an assistant secretary visited the Canberra Airport Trigeneration Facility and Blackwater Treatment Plant. Staff of the Canberra Airport who participated in the visit were: Ms Michelle Knighton, Ms Karen Emms and Mr Noel McCann.

APPENDIX F: Commonwealth climate change programs

The following tables are reproduced from Attachment 2 'Response to Program Recommendations' to the 'Commonwealth Government Response to Recommendations of the Strategic Review of Australian Government Climate Change Programs'.

12.12.1 Programs agreed as complementary¹ to the CPRS and to continue (15)

Program	Additional Comment
Action on Energy Efficiency	Superseded by the National Strategy on Energy Efficiency measures included in the 2009-10 Budget.
Asia Pacific Partnership on Clean Development and Climate (APP)	-
Climate Change Adaptation Program (previously the Australian Centre for Climate Change Adaptation)	-
Climate Change Research Program	-
Energy Efficiency of Electrical Appliances	Superseded by the Expansion of Minimum Performance Standards for Appliances and Equipment and Enhanced Energy Efficiency Labelling measures. These measures will invest \$16.6 million over four years to significantly expand the current minimum energy performance standards.
Green Vehicle Guide	-
Hot Water System Phase Out	Superseded by the National Strategy on Energy Efficiency measures included in the 2009-10 Budget.
International Adaptation to Climate Change Initiative	-
International Forest Carbon Initiative	-
Low Emissions Plan for Renters – Insulation Rebate	Superseded by the Energy Efficient Homes package which will provide ceiling insulation for up to 2.9 million Australian homes.
National Solar Schools Plan	Program focus has been modified in line with the Wilkins Review recommendation.
One Stop Green Shop	-
Phase out inefficient light globes	Superseded by the National Strategy on Energy Efficiency measures included in the 2009-10 Budget.

Renewable Energy Target
(RET) – funding for Office of
the Renewable Energy
Regulator

Solar Hot Water Rebates Energy Efficient Homes Package increased rebate from \$1,000
to \$1,600 per home.

¹ The Government considers these programs are transitional also as they will assist in
Australia's transition towards a low emissions economy over the medium term.

12.12.2 Programs agreed as complementary and to continue as Government core business (7)

Program	Additional Comment
Carbon Dioxide Capture and Geological Storage – Offshore Regulatory Framework	Legislation was agreed in November 2008. Funding has been fully expended and ongoing work is being delivered as core business.
Climate Change Science Program	The Departmental element of these programs will continue as Government core business. Administration funding arrangements for these programs will continue unchanged.
Emissions Measurement and Analysis	-
Geothermal and Hydrogen Technology Roadmaps	Roadmaps were launched in 2008 and funding fully expended. The policy objectives are now core business of the Government.
International Climate Change Strategy (Influencing International Climate Change)	The Departmental element of these programs will continue as Government core business. Administration funding arrangements for these programs will continue unchanged.
National Greenhouse and Energy Reporting Scheme	-
Strategic National Response	-

12.12.3 Programs agreed as transitional to the CPRS and to continue (14)

Program	Additional Comment
Carbon Sink Forests	The tax deductibility arrangements for carbon sink establishment costs to revert to less accelerated write off arrangements from 2011–12 as reflected in existing tax legislation.
Clean Business Australia – Climate Ready	-
Clean Business Australia - Green Building Fund	Program objectives have been modified in line with Wilkins Review recommendation.
Clean Business Australia - Retooling for Climate Change	-
Clean Energy Innovation Centre	Continue as planned and be reviewed as part of the

	evaluation of Enterprise Connect in 2009–10.
Energy Efficiency Opportunities	This program will continue to 2012 with the verification and data analysis elements of this measure to be enhanced.
Energy Innovation Fund	-
Green Loans	This program has been refocussed and the number of subsidised low-interest loans has been reduced from 200,000 to 75,000 over five years
Green Precincts	-
National Clean Coal Fund (renamed the National Low Emissions Coal Fund)	-
Renewable Energy Fund	Subsumed within Renewables Australia and the Solar Flagships Program under the Clean Energy Initiative.
Renewable Remote Power Generation Program	Program objectives have been modified in line with Wilkins Review recommendation.
Solar Cities	-
Solar Homes and Communities Plan (formerly known as the Photovoltaic Rebate Programme)	Program to terminate on commencement of expanded RET legislation and the introduction of 'Solar Credits' for small generation units.

12.12.4 Programs referred to other processes (9)

Program	Relevant Process
ARC Centre of Excellence for Advanced Silicon Photovoltaics and Photonics	The Review of Australia's National Innovation System
Australian Research Council (ARC) Centre of Excellence for Solar Energy Systems	The Review of Australia's National Innovation System
Climate Change Adaptation Partnerships Program	The National Review of Drought Policy
Climate Change Adjustment Program	The National Review of Drought Policy
Cooperative Research Centre for Greenhouse Gas Technologies	The Review of Australia's National Innovation System
CSIRO Climate Adaptation Flagship	The Review of Australia's National Innovation System
CSIRO Energy Transformed National Research Flagship	The Review of Australia's National Innovation System
Green Car Innovation Fund	The Review of Australia's Automotive Industry
Managing Climate Variability	The National Review of Drought Policy and no longer designated as a climate change measure

12.12.5 Programs to cease (13)

Program	Additional Comment
Advanced Electricity Storage Technologies	To cease June 2010. Program now closed and funding fully committed. All contractual obligations to be honoured. Superseded by other renewable energy support programs.
Coal Mine Methane Reduction	To cease June 2009. All contractual obligations to be

Greenhouse Action in Regional Australia	honoured. To cease June 2009. Superseded by the Climate Change Adaptation program.
Greenhouse Challenge Plus (including Generator Efficiency Standards and Greenhouse Friendly)	To cease June 2009. Key business, local government and community engagement elements of the program are being incorporated into the Climate Change Action Fund (CCAF). The Greenhouse Friendly program in its current form will cease in 2010. New arrangements to support the offset market and carbon neutrality will be developed as part of the national carbon offset standard.
Greenhouse Gas Abatement Program	To cease June 2009. All contractual obligations to be honoured.
Local Greenhouse Action	To cease June 2009. Key business, local government and community engagement elements of the program are being incorporated into CCAF.
Low Emissions Technology and Abatement	To cease June 2009.
Low Emissions Technology Demonstration Fund	To cease June 2015. Program now closed and funding fully committed. All contractual obligations to be honoured.
National Climate Change Adaptation Program	To cease June 2009. Superseded by the Climate Change Adaptation program.
Renewable Energy Development Initiative	To cease June 2011. Program now closed and funding fully committed. All contractual obligations to be honoured.
Renewable Energy Equity Fund	To cease June 2010. Program now closed and funding fully committed. All contractual obligations to be honoured.
Small Business and Household Action Initiative	To cease June 2009. Objectives met through the energy efficiency measures included in the 2009-10 Budget and other programs.
Wind Energy Forecasting Capability	To cease June 2009 as planned.

APPENDIX G: Climate change advisory bodies

Jurisdiction	Climate change advisory body	Membership	Role and function
ACT	Climate Change Business Academic Roundtable	Cathy Hudson, DECCEW Paul Lewis, DECCEW Ronis Chapman, DECCEW Andy Hughes, DECCEW Alan Kearns, CSIRO Anita Del Gigante, ActewAGL Cameron Gordon, Uni of Canberra Catherine Carter, Property Council of Australia Chris Faulks, Canberra Business Council Geoff Pryor, Pryor Knowledge Gesa Ruge, Property Council of Australia Glenn Carter, CIT Graeme Chambers, Canberra Business Council Hugh Saddler, Energy Strategies Ian Cox, CMD Janette Lindesay, Fenner School ANU Jeff House, Green Building Council of Australia John Hibberd, Conservation Council Kath Wellman, Uni of Canberra Keith Lovegrove, ANU Engineering Malcolm Leslie, Canberra Investment Corporation Michael Nolan, Canberra Investment Corporation Phil Chynoweth, Kizmet Consulting Group Sean Rooney, CSIRO Warren Overton, Viridis3	The Roundtable is an action under the ACT Climate Change Strategy, <i>Weathering the Change</i>, which commits to facilitating business partnerships and opportunities to address the impacts of climate change. Further group discussions will be based around the following priority areas: 1. the importance of Government leadership in promoting partnerships between government and the business community 2. developing an enabling environment through government and building a strong business case that demonstrates the financial benefits to businesses of adopting sustainable practices 3. adopting guidelines and legislation that will promote improved design and management of the built environment 4. addressing shortages in skills and training – particularly in tradespeople understanding new energy saving technologies and 5. facilitating the sharing of practical solutions between government, business and researchers

ACT	Climate Change Business Academic Roundtable	Cathy Hudson, DECCEW Paul Lewis, DECCEW Ronis Chapman, DECCEW Andy Hughes, DECCEW Alan Kearns, CSIRO Anita Del Gigante, ActewAGL Cameron Gordon, Uni of Canberra Catherine Carter, Property Council of Australia Chris Faulks, Canberra Business Council Geoff Pryor, Pryor Knowledge Gesa Ruge, Property Council of Australia Glenn Carter, CIT Graeme Chambers, Canberra Business Council Hugh Saddler, Energy Strategies Ian Cox, CMD Janette Lindesay, Fenner School ANU Jeff House, Green Building Council of Australia John Hibberd, Conservation Council Kath Wellman, Uni of Canberra Keith Lovegrove, ANU Engineering Malcolm Leslie, Canberra Investment Corporation Michael Nolan, Canberra Investment Corporation Phil Chynoweth, Kizmet Consulting Group Sean Rooney, CSIRO Warren Overton, Viridis3	The Roundtable is an action under the ACT Climate Change Strategy, <i>Weathering the Change</i>, which commits to facilitating business partnerships and opportunities to address the impacts of climate change. Further group discussions will be based around the following priority areas: 1. the importance of Government leadership in promoting partnerships between government and the business community 2. developing an enabling environment through government and building a strong business case that demonstrates the financial benefits to businesses of adopting sustainable practices 3. adopting guidelines and legislation that will promote improved design and management of the built environment 4. addressing shortages in skills and training – particularly in tradespeople understanding new energy saving technologies and 5. facilitating the sharing of practical solutions between government, business and researchers
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New South Wales ⁴¹⁹	NSW Climate Change Council www.environment.n sw.gov.au/resources/ MinMedia/MinMedi a08091601.pdf	Martijn Wilder, Partner Baker & McKenzie (Chair) Maria Atkinson, Lend Lease Corporation Greg Bourne, WWF Australia John O'Connor, The Climate Change Institute Diana Gibbs, former Chair NSW Regional Communities Council Brooke Miller, BP Solar P/L Sam Mostyn, formerly with Insurance Australia Group Paul Orton, NSW Business Chamber Andy Pitman, UNSW Adam Spencer, journalist and broadcaster Lorraine Stephenson, Deloitte Touche Tohmatsu	– Oversee development of the state's first Climate Change Action Plan and drive the state's response to climate change
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⁴¹⁹ For a detailed description of NSW laws, policies and programs see NSW Independent Pricing and Regulatory Tribunal 2008, Review of NSW Climate Change Mitigation Measures, Other Industries: Issues Paper, December, pp 42–60; NSW Independent Pricing and Regulatory Tribunal 2009, 'Review of Climate Change Mitigation Measures: Transcript of Roundtable held 2 April', sections 10, 21, 24, accessed 9 April at <www.ipart.nsw.gov.au>

Northern Territory	NT Climate Change Focus Group http://www.dcm.nt.gov.au/strong_territory/climate_change/focus_group	Stuart Blanch, Environment Centre Northern Territory <i>Bronwyn Russell</i>, Engineers Australia Brendan Pearson, Minerals Council of Australia George Russos, Chamber of Commerce Peter McLinden, Local Government Association of the NT Luke Bowen, Northern Territory Cattlemen's Association Greg McNamara, NT Royal Institute of Architects Joe Morrison, North Australia Indigenous Land and Sea Management Alliance and Tropical Savannas Cooperative Research Centre TBA, Northern Land Council Kate Hadden, Tiwi Land Council Gavin Ennever, Anindilyakwa Land Council Naomi Porrovecchio, Unions NT Professor Stephen Garnett, Charles Darwin University Chris Salisbury, Northern Territory Resources Council	Develop and test new ideas and strategies to assist the development of the NT's climate change strategy. The Group represents a broad cross section of Territorians
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Queensland	Premier's Council on Climate Change http://www.climatechange.qld.gov.au/response/premiers_council.html http://www.climatechange.qld.gov.au/downloads/index.html#working_papers Members are appointed on the basis of their individual knowledge and expertise rather than as representatives of particular organisations or interest groups. Has produced a working paper on <i>Achieving early and affordable greenhouse gas reductions in Queensland: Strategies for voluntary household and lifestyle changes</i>.	Chris Cocklin, James Cook University Peter Cosier, Wentworth Group of Concerned Scientists and Land Repair Australia Dr Tim Flannery, scientist, researcher and writer. Peter Kenny, National Farmers' Federation Grant King, Origin Energy Professor Ian Lowe, Griffith University, Australian Conservation Foundation Jim McKnulty, Australian Green Development Forum and Greening Australia Tony Mooney, Local Government Association Sam Mostyn, Academic Advisory Board of the Australian Institute of Management (AIM) Molly Harriss, Eco Futures Pty Ltd Chris O'Connell, Network 10 Television, Brisbane Fiona Wain, Environment Business Australia Ross Willims, BHP Billiton Mitsubishi Alliance and Premier's Business Round Table and Clean Coal Council	Established in December 2007 to ensure Queensland's efforts in addressing climate change are informed by the best available local and national knowledge and experience and meets 3–4 times a year. Provides broad high-level advice about: ▪ priorities for Queensland Government action to reduce Queensland's greenhouse gas emissions, including sectoral responses such as sustainable energy options, transport strategies and built environment energy efficiency; ▪ adaptation measures relevant to Queensland, that assist communities and industries address the inevitable results of climate change; ▪ priority areas for investment from the \$430M Queensland Climate Change Fund; opportunities for innovation arising from climate change for communities and the private sector; ▪ and major implementation issues.
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South Australia	Premier's Climate Change Council http://www.climatechange.sa.gov.au/index.php?page=pccc	David Klingberg AM (Chair), engineer and former Chancellor – Uni of SA Julie Pettett, Conservation Council of SA John Kerr, business consultant Jim White, One Steel Dianne Davidson, agricultural scientist and Davidson Viticulture Consulting Service Don Bursill, Playford Trust, and adjunct research professor at Uni of SA Verity Sanders, Port of Adelaide Enfield Dr Suzanne Miller, SA Museum and geology/earth sciences expert Prof Caroline McMillen, Uni of SA John O'Brien, CleanTech	The Climate Change Greenhouse Emissions Reduction Act 2007 (Division 2) outlines the role and function of the Council. The primary function of the Council is to provide independent advice to the Minister about matters associated with reducing greenhouse gas emissions and adapting to climate change, including by achieving energy efficiencies, increasing the use of renewable energy, developing methods to remove greenhouse gases from the atmosphere, and establishing and achieving relevant targets.
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Victoria	Ministerial Reference Council http://www.climatechange.vic.gov.au/greenhouse/wcmn302.nsf/childdocs/-9440F41741A0AF31CA2571A80011CBB6-37457006D524B739CA257495000A49BF?open	16 members: Kate Auty (Chair) legal/academic background Deborah Hollingworth, legal/policy consultancy Alex Arbuthnot, farming, agribusiness Larissa Brown, Centre for Sustainable Leadership Dr Peter Christoff, University of Melbourne Christine Forster, professional history in natural resource management Professor David Griggs, Climateworks, physics/climate change science background Professor Ary Hoffman, Centre for Environmental Stress and Adaptation Research and a Federation Fellow at Melbourne University Sean Lucy, nabCapital, Helen Martin, geography, planning and public policy background Dr Chris Mitchell, CO2 Australia Ltd Tim Piper, Australian Industry Group Sean Silvey, ANZ Malcolm Sim, Monash University Centre for Occupational and Environmental Health Dr Janet Stanley, Monash Sustainability Institute Mark Wootton – Poola Charitable Foundation	Established in April 2008 to provide advice to the Minister in relation to building the capacity of Victoria to adapt to climate change across all sectors and regions. The Council also provides advice on adaptation research priorities and developments in adaptation initiatives both nationally and internationally. In summary, the Council provides advice to the Minister in relation to: 1 Building Victoria's capability to adapt to climate change across all sectors and regions 2 Research priorities for adaptation to climate change 3 Making the research findings accessible to policy makers and the public 4 The means of aligning research activities on climate change impact assessment and adaptation capacity 5 Developments in adaptation to climate change both nationally and internationally
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Western Australia	Agricultural Climate Change External Reference Group ⁴²⁰	chaired by Badgingarra farmer Dale Park, WAFarmers' spokesman on climate change Pastoralists and Graziers Association Forest Industries Federation (WA) Inc. Australian Association of Agricultural Consultants Grains Research and Development Corporation Meat and Livestock Australia Grain Industry Association of WA Wine Industry Association Western Dairy CSIRO	Advises Government on possible industry policies and risks associated with various policies and initiatives
Tasmania	Tasmanian Climate Action Council⁴²¹ http://www.climatechange.tas.gov.au/acti-on_council High calibre individuals from across science, business and government and the community. A communiqué was available on Tasmania Climate change office after its first meeting and the next meeting advertised.	Associate Professor Kate Crowley (Chair), University of Tasmania Dr John Church CSIRO in Hobart, and Sea Level Rise Program at the Antarctic Climate and Ecosystem Cooperative Research Centre Professor Rob Adams, Melbourne City Council Dr Noel Purcell, Simply Good Business Adam Kirkman, Protiviti James Walch, Tasmanian Farmers and Graziers Climate Change Taskforce Rhys Edwards, Department of Premier and Cabinet Roger Jaensch, Cradle Coast Authority Ben Kearney, 2005 Tasmanian of the Year Nel Smit, founded Woodbridge Whole School Sustainability Program and former coordinator of Whole Farm Planning for School Farms	Provide high level, independent advice to Premier David Bartlett on Tasmania's response to climate change. The Council met for the first time on Friday 27 March 2009. A biennial report is prepared for the Premier on progress

⁴²⁰ Western Australia, Minister for Agriculture and Food; Forestry, Media Release, 19 May 2009

⁴²¹ D. Bartlett 2009, 'New Tasmanian Climate Action Council', in *CCH Parliament, Climate Change & Environment Alert*, Issue: 11-2009 Date: 27 March 2009

APPENDIX H: Weathering the Change progress

Table A1: Progress report for *Weathering the Change* – Action Plan 1 2007–2011

Completed actions	
Action 5	Green Power legislation passed in early 2009. All new electricity customers are now offered Green Power. The ACT Government supports the national accreditation of GreenPower as the preferred Green energy product.
Action 7	Differential stamp duty for low emissions vehicles has been implemented providing an incentive for the purchase of low emissions vehicles and a disincentive for the purchase of cars with poor environmental performance.
Action 12	ACTION Compressed Natural Gas Bus Fleet Replacement is complete. The Government will also respond to research and evidence relating to the comparative merits of all fuel and technological alternatives.
Action 13	Energy efficient street light replacement completed, resulting in the replacement of 1,763 lights and a saving of 1.136 tonnes of GHGs annually.
Action 14	The ACT Government has introduced free bus travel for bicycle riders. The ACT Government is committed to the promotion of sustainable transport as a viable long term option for personal transport needs.
Action 16	A network and service design plan for buses has been developed. This plan will deliver immediate improvements to services and also ensure that the bus network becomes and remains as efficient and effective as possible.
Action 18	The <i>Electricity Feed-in (Renewable Energy Premium) Act 2008</i> was amended in February 2009 and the Scheme commenced on 1 March 2009. The Scheme requires electricity retailers to pay a premium tariff to ACT customers with a renewable energy system under 30kW in size for each unit of electricity produced.
Action 23	New home owner's allowance of \$110 towards to trees and shrubs in gardens has been doubled. This will promote the planting of species that are better suited to a changing climate and which contribute to improve performance of our buildings.
Action 29	The ACT Government, along with the Community Inclusion Board, delivered a social impact analysis of the effects of climate change on low incomes, disadvantaged, and vulnerable ACT residents in 2008.
Action 32	An assessment of climate change impacts on our urban areas has been undertaken. This will improve our understanding of climate change impacts, in combination with other key variables, on urban systems in the ACT and surrounding local government areas.

Completed actions	
Action 42	The ACT Government has collected fuel sales data for emissions monitoring in the 2007-08 financial period. New legislation, which was passed in the ACT Legislative Assembly in 2007, provided for the collection of this data from June 2008 and will allow for an accurate calculation of GHGs contributed by the transport sector.
Action 43	A carbon sequestration audit has been undertaken with a view to informing ACT Government tree-planting and eco-system management plans.
Ongoing actions	
Action 3	A \$1million Energy Efficiency Fund for ACT Government Agencies has been established. The loan fund gives agencies access to funds for energy efficiency improvements, subject to an audit and business case.
Action 4	The development and implementation of the Park-and-Ride Strategy is ongoing. Park & Ride usage has significant potential for growth and for reducing GHGs.
Action 8	Energy efficiency improvements in government housing are being implemented by DHCS. The ACT Government is committed to making public housing properties more energy efficient and importantly, more affordable for tenants to live in.
Action 9	A solar hot rebate is being provided to ACT residents based on the recommendations of a comprehensive energy audit. This program, implemented through ACT Energywise Energy and the HEAT team, creates a genuine incentive for the community to purchase solar hot water heaters.
Action 11	The ACT Government is assisting schools to become carbon neutral by 2017. All schools are developing a School Environmental Management Plan and will conduct energy audits and develop emission reduction and energy efficiency initiatives in line with that Plan. To date 8 schools have completed energy audits and 30 have environmental management plans in place.
Action 21	The development of integrated land use and transport planning requires that all new dwellings incorporate greenhouse-friendly appliances and technologies from a list of options including solar hot water and gas hot water systems.
Action 22	Environmentally sustainable design features are being integrated into all new public schools. The inclusion of Environmentally Sustainable design features will be mandatory for all new schools constructed by the ACT Government.
Action 25	The ACT Government is undertaking an Urban Forest Renewal Program. Canberra has well over a million trees in its urban forest, including more than 600,000 trees managed by the ACT Government. In order to maintain the quality and quantity of our urban forest, maintenance and replacement is necessary.
Action 26	East Lake is being established as a showcase for urban development. The ACT Government has partnered with the CSIRO in designing the East Lake area so that it becomes a national example of best practice in sustainable urban development.

Completed actions	
Action 31	The ACT Government is actively supporting the development of a National Adaption Framework, being developed under the auspices of COAG.
Action 38	The Implementation of sustainability in schools is ongoing. A step by step Best-Practice Guide covers the areas of waste, energy, water, biodiversity and curriculum. The guide provides actions a school can take to become sustainable.
In progress actions	
Action 1	The continued development of an ACT Energy Policy will complement the Climate Change Strategy and provide a clear direction for our energy future.
Action 2	Carbon Neutrality is being pursued in Government Buildings. Resource Management Plans are being developed by all ACT Government agencies to identify cost-saving opportunities, help agencies monitor energy use and implement energy efficiency activities. environmental resource efficiency and greenhouse gas emissions are reported in Departmental Annual Reports report.
Action 6	The Government legislation of Renewable Energy Target (RET) is currently on hold pending the outcome of the position of COAG on a national scheme.
Action 10	The ACT participates in the NSW Greenhouse Gas Abatement Scheme (GGAS). GGAS will remain in place until the CPRS commences.
Action 15	Investment in transport improvements will build on the \$16.445 million in capital funding and the \$2.0 million in new recurrent funding for ACTION allocated in the 2007/08 Budget. Among other things this will deliver an \$8 million replacement ticketing system that will allow better monitoring and review of services.
Action 17	DECCEW will investigate travelling to work options in the future depending upon outcomes from Climate Change Strategy review process. Options include increased use of public transport and cycling, car pooling and more flexible working arrangements, such as increased working from home options.
Action 19	The pursuit of energy efficiency ratings for all buildings is currently on hold. Where practical, the ACT Government will extend the residential Energy Rating Scheme to include commercial and rental properties and will introduce legislation implementing agreed national outcomes.
Action 20	The ACT Government will require all new dwellings to incorporate greenhouse-friendly appliances and technologies from a list of options including solar hot water and gas hot water systems.
Action 24	The ACT Government will report on tender assessment criteria as well as requirements for land to be released through a triple bottom line assessed tender process rather than an auction process.
Action 27	The ACT Government is in the process of establishing a \$1 million fund to enable

Completed actions	
	grants to be made to community and not-for-profit groups to assess and improve the energy performance of buildings they occupy and to promote energy efficiency to their stakeholders.
Action 28	All ACT Government agencies will conduct Vulnerability Assessments, reviews their operations and infrastructure, to identify climate change-related impacts/risks and develop strategies to address them.
Action 30	In partnership with NSW, the ACT Government is developing a vulnerability assessment of the ACT and surrounding region, with an emphasis on the natural environment.
Action 33	As part of the implementation of the woodland and grassland action plans, the ACT Government is identifying and protecting areas of high conservation value and remnant habitats to minimise human impact, particularly those impacts likely to be heightened by climate change.
Action 34	The development of an ecosystem connectivity map will allow the ACT to undertake actions to improve connectivity and ecosystem resilience. A final map will be produced by 2009.
Action 35	The Sphagnum Bog Mapping and Recovery Plan is currently underway. The sphagnum bogs exhibit intrinsic ecological values and are also an important part of our ground-water storage systems.
Action 36	The ACT Government is in the process of planting one million new trees. Trees play a major role in stabilising ground-soil and improving drainage. As such tree management is an important aspect of water catchment management.
Action 37	A community education program is underway to ensure that all Canberrans are aware of the potential impacts of climate change and how together we can meet this challenge head-on.
Action 39	The ACT Government is in the process of showcasing renewable and energy efficiency technologies at Tidbinbilla Visitor's Centre, Canberra Stadium and the Canberra Institute of Technology. This provides examples of how we can adapt older buildings to reduce energy impacts and incorporate new technology into new buildings. CIT also relies on these technologies for training purposes.
Action 40	A Climate Change Business Academia Roundtable to facilitate partnerships to address climate change impacts has been established and has met 4 times. The Roundtable provides advice and undertakes actions to focus on issues facing business and the options they have to address risk and reduce emissions.
Action 41	The ACT Government is in the process of established partnerships with key institutions to encourage research into climate change predictions, impacts and solutions.

APPENDIX I: Progress with the *Sustainable Transport Plan* and other transport initiatives

This attachment contains a response to a request from the Committee to Minister Stanhope for information related to the ACT Government's *Sustainable Transport Plan*. In addition, this attachment also provides information on other transport initiatives undertaken by the ACT Government.

The Sustainable Transport Plan

The Sustainable Transport Plan for the ACT aims to reduce the overall cost of the transport system while maintaining high levels of accessibility. Providing convenient alternatives to private cars will shift transport patterns towards more use of walking, cycling and public transport. This in turn will:

- reduce traffic congestion;
- provide health benefits such as reduced road accidents;
- provide environmental benefits such as reduced air pollution;
- provide the community with more transport options; and
- reduce the cost of building and maintaining transport infrastructure.

Progress report on key short term priorities within the *Sustainable Transport Plan*

PROJECT	DESCRIPTION	PROGRESS
Belconnen to Civic Bus Way	Construction of bus way, bus priority measures and stops. This project will connect the major activity nodes along this key route.	Completed Preliminary Assessment for a bus way system between Belconnen and City. Constructed bus priority measures at the ramp intersections of Gungahlin Drive Extension and Belconnen Way. Undertaken investigation and preliminary design of two intersections along Belconnen Way.
Gungahlin to Civic Bus Way	Construction of bus ways, bus priority measures and stations on Flemington Road and Northbourne Avenue. This will encourage land use development along the route and bus use by new residents of Gungahlin and inner north Canberra.	Constructed bus lane along Flemington Road between Sandford Street and Federal Highway. Completed feasibility study for transit lane along Northbourne Avenue.
Woden to Civic Bus Priority Measures	Measures to improve bus priority and travel times along this key route.	Undertaken feasibility investigation of bus priority measures on this corridor.

PROJECT	DESCRIPTION	PROGRESS
Tuggeranong to Woden Bus Priority Measures	Measures to improve bus priority and travel times along the route.	
Other Bus Priority Measures	Measures to improve bus priority at key 'choke points' throughout Canberra.	
Traffic signal management co-ordination	Active management of traffic signals during peak periods to optimise traffic flow and reduce congestion.	
Belconnen Interchange Upgrade	Integration of new bus interchange into town centre retail development to improve passenger comfort and security.	Progressing with the implementation of far side terminus concept providing four bus stations and one of them integrated with retail development. Reached agreement with Westfield and \$16.5 million allocated for the construction.
Woden Interchange Upgrade	Integration of new bus interchange into town centre retail development to improve passenger comfort and security.	Progressing with the implementation of the concept that integrates bus station with the retail development. Negotiation with Westfield has been well advanced to implement the scheme.
Gungahlin Bus Interchange	On-street interchange and stops in Gungahlin Town Centre.	Developed concept for on-street interchanges and stations.
Pensioner Concessions	Extend existing off-peak pensioner concessions to peak periods.	Providing concession travel for seniors on the new ACTION bus network with the funding commitment of \$1.773 million.
Additional Bus Services	Additional services, peak and off-peak, to meet demand and achieve The Sustainable Transport Plan targets.	Implementing additional services in the new ACTION network with funding commitment of \$38.15 million.
Accessible Public Transport	Continued transport infrastructure improvements to meet accessible transport standards.	Progressively upgrading the bus fleet to meet disability standards with the funding commitment of \$49.5 million.
Real time information	Implementation of a real-time information system for public transport. This will improve passenger information and encourage use by new and infrequent public transport users. Real-time information systems will be incorporated into new and existing interchanges and major stops. Customer access to the information will be through displays at stops and interchanges and also through the web and via SMS and WAP technology.	Completed conceptual design for the implementation of a real time information system. This project is now contingent on the implementation of new bus ticketing system.
SmartCard Ticketing	Use of smart card technology for public transport ticketing.	Replacing bus ticketing system with the funding commitment of \$ 8 million.
SMS text	Use SMS technology for accessing	Implemented.

PROJECT	DESCRIPTION	PROGRESS
messaging service	information on public transport services.	
Trunk Cycle Network Improvements	Construct cycle and walking paths identified as 'missing links' in the network. Further on-road cycle lanes will be provided on all new and upgraded arterial roads.	Completed a Ten Year Master Plan. Constructed cycle path facilities (\$350,000 per annum) as part of the Capital Upgrade program. Improving Cotter Road on-road cycle connections Budget 08 provided \$2.338 million. Completing Jerrabomberra wetlands cycling and walking path \$0.9 million in 2008-09. Improving cycling and walking path networks with \$0.638 million additional funds. As part of the 2nd appropriation further \$2.5m was provided for the maintenance of the community path network and works on this are progressing.
Suburban Cycle and Path Networks	Ensure new suburbs have safe, direct walking and cycling routes for local, district and trunk trips.	Developed cycle master plan for Gungahlin for the new suburbs of Gungahlin have safe, direct walking and cycling routes for local, district and trunk trips.
Walking Strategy	Develop a walking strategy for Canberra including transport, urban design, physical activity and recreation components.	
Bike Racks on Buses	Install bike racks on buses on some services to encourage cycling and use of public transport.	Installed bike racks on buses and implementing an initiative of free bus travel for users.
Mode Shift Initiatives	Implement TravelSmart and Pedestrian Access Plans for households, workplaces and schools. Related to new public transport, walking and cycling initiatives. A new cycling map will be produced and further investment will be made in promoting cycling.	Implemented large scale travelsmart program in Belconnen targeting about 11,000 households.
Road Safety Initiatives	Investments will be made to eliminate hazardous roadside objects, with highest priority given to road accident blackspots.	Continue to investing in road safety initiatives. As part of the recent Nation Building Program additional funds for the Black Spot program have been allocated for 2009/10 with some \$1.8m provided on top of the annual \$966,000. Projects have been identified and work will be progressing over the next 8 months.
Taxi and Hire Car Reform	Complete the reform of the taxi and hire car industries to remove barriers to entry and exit, increase competition, provide greater choice for customers and reduce the cost of services.	Completed the taxi licence release program of 40 licences released in 2006 and 2007 and an additional 50 taxi licences being released in 2008 which now brings the number of taxis per capita in the ACT into line with taxi numbers in other Australian capital cities.

PROJECT	DESCRIPTION	PROGRESS
		The ACT has two taxi networks.
Transport needs of the aging population	Investigate the transport needs of the aging population including private, public and community-based transport.	Providing concession travel for seniors on the new ACTION bus network with the funding commitment of \$1.773 million.
Parking Requirements	Revise the guidelines for parking requirements associated with development in Civic and the town centres to achieve sustainable transport goals as well as to support accessibility and the viability of centres.	Developed draft parking strategy within the framework of the Sustainable Transport Plan.
Bus patronage data	Survey of bus patronage to determine passenger loadings on specific sections of routes to facilitate better service planning.	Undertaken a comprehensive survey as part of the development of new bus network. Considering the capability of capturing bus usage data as part of the new smart ticketing system project.
Park and ride	Implementation of park and ride facilities to support bus ways and key public transport routes.	Completed a study on park & ride. Implementing park & ride and bike and ride facilities along Athllon Drive at the cost of \$0.53 million. Feasibility investigations for additional facilities have been planned.
Other projects	Investigation and implementation of demand responsive feeder services. Improved Park and Ride opportunities.	An investigation was undertaken by Booz Allen & Hamilton and lead to the implementation of flexi bus services. Further investigation on "opportunity driven" park & ride facilities that make best use of under utilised car parks for park & ride purpose is being planned.

ACTION buses and Sustainable Transport Plan: progress on key recommendations

RECOMMENDATION	RESPONSIBILITY	PROGRESS
4 The Committee recommends that the ACT Government continue to support the delivery of TravelSmart or equivalent programs in Canberra.	Office of Transport (OOT)	The ACT Government has completed Travelsmart programs involving 11,000 households, more than 6,000 employees and some 30 schools. The effectiveness of the Travelsmart household program has been evaluated by an independent consultant. The evaluation indicated an approximate 12.7% reduction in car travel in the targeted areas. Future programs will be considered in the context of competing priorities.
16 The Committee recommends that pay parking be introduced in all major employment areas in	OOT	Currently pay parking is in place in all the major town centres. The ACT Government has a "3 for Free" scheme operating in a number of ACT Government car parks which

RECOMMENDATION		RESPONSIBILITY	PROGRESS
	the ACT, with restrictions on long stay parking in nearby areas, but with incentives provided for multi-occupant vehicles. Where the Australian Government is responsible for pay parking policy, the Committee recommends that the ACT Government encourage the implementation of a pay parking regime.		encourages multi-occupant vehicles. The ACT has also been encouraging the Commonwealth to introduce pay parking in employment precincts that it controls through consultation and initiatives which may influence the Commonwealth on this issue.
26	The Committee recommends that the ACT Government's strategic policy documents better engage with and more explicitly address the challenges likely to arise from declining supplies of fossil fuels.	OOT	The ACT Government's Sustainable Transport Plan (STP) recognises the need to encourage higher use of sustainable transport modes. Future strategic transport planning will be undertaken in a way which ensures flexibility to adopt transport technologies which are less reliant on fossil fuels.
27	The Committee recommends that Park 'n Ride services be extended to new sites as a priority action under the Sustainable Transport Plan.	OOT	Work has been undertaken to identify potential sites for Park & Ride facilities and Bike and Ride facilities. A new Park & Ride and Bike & Ride facility is being constructed along the Athllon Drive transport corridor, near Mawson and is expected to be complete by late 2009.
33	The Committee recommends that the Sustainable Transportation Contribution Fund proposed in the ACT Government's 2007 Draft ACT Parking Strategy be progressed.	TaMS and Treasury	This is being considered as part of finalising the ACT Parking Strategy.
42	The Committee recommends that the Sustainable Transport Plan not be substantially amended in relation to its references to bus ways.	OOT	Agree. No amendment has been made to the Sustainable Transport Plan.
45	The Committee recommends that the ACT Government assess the	OOT	This will be considered in the context of competing priorities.

RECOMMENDATION	RESPONSIBILITY	PROGRESS
Adelaide, Melbourne and Sydney initiatives on inner-city cycling as part of an assessment of a possible trial of a free bike hire service for Canberra's town centres and universities.		

Linking transport infrastructure and urban development

One of the objectives of *Weathering the Change* is to design and plan our city to be more sustainable. Being sustainable in how we design our suburbs and infrastructure can help reduce our GHGs and our reliance on private vehicles.

The Canberra Spatial Plan is the key strategic planning document for managing urban growth and change and promotes the key principles of residential intensification within a 7.5 kilometre radius of the city centre, location of new residential areas close to transport routes and provision of employment opportunities close to residential areas and transport routes. An outcome of increased population density along transport routes is the potential for financially viable upgrading of public transport services with higher frequency and reliability of service.

Through the Sustainable Future Program, the ACT Planning and Land Authority will implement revisions to the Territory Plan which promote residential density and best service commuting modes along strategic transport routes ensuring downward pressure on per capita fuel consumption and emissions from commuting.

Other transport initiatives

- 1 The ACT Government is committed to the adoption of low-emission motor vehicles and will work to adapt its fleet accordingly. This will include investigating how the percentage of hybrid cars in the ACT Government car fleet can be increased from 3.5% to 5%.
- 2 The Government will continue to work with other jurisdictions to develop vehicle fuel-efficiency standards and measures which are appropriate for the ACT.
- 3 ACTION will continue to purchase buses with advanced engine technologies that will contribute to the overall fuel efficiency of the fleet.
- 4 The ACT Government will investigate how it can encourage businesses to innovate and improve their business systems to reduce their energy consumption.
- 5 The ACT will encourage industry introducing commercially-viable alternatives to petrol fuel.
- 6 The implementation of the Government's Integrated Transport Framework will include exploring options for a light rail system, making our road networks as efficient and effective as possible to reduce congestion and improving our public transport, cycling and walking networks to encourage greater use of these alternative modes of transport.

- 7 The Government will work with the Commonwealth and industry to investigate options for increasing the use of rail for freight. In addition, the Government will examine the feasibility of establishing a freight handling facility in the ACT.
- 8 Working towards carbon neutrality will require the ACT Government to continually assess ways to improve the use of energy for transportation and offset remaining emissions.

APPENDIX J: Green building initiatives

This attachment contains a response to a request from the Committee to Minister Barr for a comparison of the ACT's planning and sustainability legislation, policies and practices with green building initiatives announced recently by the Queensland Premier. The attachment also contains information about the Green Lease initiative undertaken jointly with the Australian and other State and Territory Governments.

Table C1: Comparison of ACT and Qld green building initiatives

ACT Law, Policy and Practice	Queensland initiatives
Through its involvement in the Australian Building Codes Board and the energy efficiency working groups under COAG, the ACT is pursuing an increase in the energy efficiency performance requirements for all residential buildings, including units, to 6 star or equivalent in the 2010 Building Code of Australia (BCA). It is anticipated that these changes will come into effect on 1 May 2010, which is the standard implementation date for the BCA. Should these changes not be included in the 2010 BCA the ACT will consider implementing these requirements separately. It should also be noted that while the ACT moved to 5 Star for Class 1 buildings in 2006 when it was first introduced through the BCA, Queensland did not call up this provision until 1 March 2009.	New residential dwellings (except units) required to meet six star or equivalent energy efficiency standards by the end of 2010.
	New units required to meet five star or equivalent energy efficiency standards by the end of 2010.
Major renovations in the ACT are required to comply with the BCA, including energy efficiency provisions. A general move to 6 Star or equivalent will capture major renovations.	Major renovations required to meet six star or equivalent energy efficiency standards by the end of 2010.
ACT legislation plumbing regulation prescribes requirements for all new installations, rather than delineating between requirements for new or existing residences. In 1994, the ACT brought in requirements for all new toilet suites regardless of whether installed in a new or existing residence to have a reduced flushing capacity (6/3L), and other water-efficiency requirements for replacement of system components. These	New houses and units are required to have: 4-star water efficiency and labelling scheme (WELS) rated toilets; 3-star WELS rated tap-ware; energy efficiency lighting for 80% of fixed internal lights.

ACT Law, Policy and Practice	Queensland initiatives
provisions are being reviewed to remove unnecessary clauses resulting from changes in the minimum water efficiency standards, which the ACT legislation pre-empted, and incorporation of new technologies. Any new requirements will be developed in consideration of the effect of reducing flushing volumes on drainage infrastructure. The Water and Sewerage Regulation 2000 was amended in 2005 to require minimum flow capacities for new and replacement shower roses and taps that mandated the equivalent of AAA water efficiency standards. The regulation does not require specific provisions for reduction in pressure as compliance with the legislation can only be achieved in high pressure areas by installing pressure-limiting devices as per AS/NZS 3500. Provisions for hot water systems are being investigated. The statement on lighting is very broad. Through the National Framework for Energy Efficiency, a phase-out of inefficient incandescent lights is already underway. Imports of a number of types of lights was implemented in February 2009 and it is anticipated that proposed minimum energy performance standards for incandescent lamps, compact fluorescent lamps and voltage converters will be agreed to shortly, with an anticipated implementation date of November 2009. This may negate the requirement for specific regulation as inefficient lighting. In addition the 80% requirement does not address the issue of lighting density in new homes, which is a significant influence on energy use. The ACT is exploring the restriction of lighting intensity in residential buildings in line with current provisions for commercial buildings.	From 1 March all new houses must have water efficient AAA-rated shower roses and pressure-limiting devices in areas with high water pressure, and greenhouse efficient hot water systems (solar, heat pump or gas hot water).
Sub-metering in office buildings has been raised, particularly in relation to mandatory disclosure of energy efficiency performance, which may encourage sub-metering as part of the most cost-effective method of compliance. At present there are no specific sub-metering requirements as there is a difficulty in applying blanket metering rules when commercial tenancies may cover part or a number of floors in a building.	New units and office buildings will be required to provide electricity sub-metering by the end of 2009.
ACT Energy Wise and the Home Energy Advisory Team (HEAT) provide advisory services, audits and rebates (of up to \$500 per household). Not for profit community groups will be able to apply for a grant of up to \$20,000 per establishment to improve energy efficiency. The current solar hot water rebate will be improved.	The Qld climate smart home service will provide energy reduction advice to 260,000 homes by 2010.
An assessment of the efficiency of light bulbs and the need for energy efficient replacements is incorporated in the audits/ rebates provided by ACT Energy Wise and HEAT.	One-million energy saving light bulbs will be provided to households across Qld
The ACT Government is currently investigating options for a	Qld solar homes will provide 1000

ACT Law, Policy and Practice	Queensland initiatives
business plan for the bulk purchase of solar electric systems. Some private bulk purchase arrangements exist in the ACT, such as through SEE-Change and New Energy.	homes with discounted solar panels following a government bulk purchase.
The ACT notes, with interest, the Queensland election commitment. The ACT is examining an option of establishing a major projects unit within ACTPLA to facilitate the assessment of development applications. This however does not take into account the Queensland 'Green Door' proposal.	Fast tracking for high quality eco-friendly developments by Ministerial direction, facilitated by 'green' case managers and following consideration of advice from a green door advisory committee.
The changes that have been made as part of the ACT's new planning system aim to ensure the close coordination of agency input to development assessment. Regular agency meetings are held to ensure that this is a continuing improvement process.	Sustainable development case managers' to be appointed in the Dept of Infrastructure and Planning as single point of entry contacts for all major sustainable developments. These officers will improve the coordination of state agency approvals and advice; liaise with councils and clear impediments.
The Canberra institute of Technology (CIT) and the Department of Territory and Municipal Services (TAMS) are jointly developing training options for plumbing apprentices as a response to the increased demand for skilled solar energy trade people. The proposed program will be a national first.	A partnership involving the Queensland Government, Green Building Council of Australia and Housing Industry Australia to deliver accredited Green building training courses. A Green Buildings Skills fund to create 3000 training places over four years, supported with a 50 per cent course fee subsidy for each participant.

Green Lease

The Commonwealth Government has recognised that there is a market failure associated with encouraging the efficient use of commercial offices and rented residential accommodation. Generally the landlord/owner of a building incurs the costs associated with energy use for the base building (eg the capital and maintenance costs associated with heating/air conditioning a building) while the tenant pays the recurrent costs associated with heating/ cooling, lighting and running appliances. Where the tenant and landlord are different entities, there is not necessarily an efficient outcome in terms of minimising energy use, eg the tenant and not the landlord could gain the savings from an investment in more efficient heating/air conditioning. As a result, there may be insufficient incentive for a landlord to undertake an investment that primarily benefits a tenant.

The ACT Government is contributing to a joint project with other jurisdictions including the Commonwealth to develop a Green Lease template for Government office buildings. One of the aims of this project is to ensure environmental issues are incorporated into new lease

arrangements for office buildings. A Green Lease can specify the expected energy performance of a building based on both landlord and tenant contributions.

The ACT Government is also working with the Government Property Group (GPG) (all jurisdictions are members of the GPG) to develop a National Framework for Sustainable Government Offices. At present, 97% of all office buildings are existing stock. One aim of the Framework is to encourage jurisdictions to upgrade their existing portfolios, where economic, rather than purchase new stock to improve overall energy efficiency. The demolition and construction of a building can create more carbon emissions than the net saving in emissions from utilisation of a new building.

The Commonwealth Government currently occupies around 65% of office accommodation in the ACT. Successful cooperation with the Commonwealth Government through activities such as the development of a Green Lease Policy and participation in the GPG represent major opportunities to reduce carbon emissions in the ACT.

The GPG at the request of COAG is developing a Government Office Buildings Sustainability Rating Policy. When agreed by COAG, the policy is likely to specify a minimum of 4 or 5 Green Star ratings for all new and existing buildings with a Net Lettable Area over 2,000 m². The policy is also likely to include a minimum of 4.

APPENDIX K: Additional Comments

Mr Zed Seselja MLA

Standing Committee on Climate Change, Environment and Water



Zed Seselja MLA

Australian Capital Territory

Leader of the Opposition

Member for Molonglo

Shadow Minister for Environment and Climate Change

Shadow Minister for Planning

Shadow Minister for Transport Planning

Shadow Minister for Housing Affordability

Shadow Minister for Human Rights

Shadow Minister for Ageing

Monday 14 September 2009

**ADDITIONAL COMMENTS: MR ZED SESELJA MLA
STANDING COMMITTEE ON CLIMATE CHANGE, ENVIRONMENT AND
WATER INQUIRY INTO ACT GREENHOUSE GAS REDUCTION TARGETS.**

I thank the Committee members and the Secretariat for their work in compiling this interim report. I would also like to express my thanks to the many individuals and groups who made contributions and submissions to the Committee's inquiry.

I would like to clearly state that I am a supporter of the need to set Greenhouse Gas Reduction Targets in the ACT, and my party has long been at the forefront of advocating substantial targets. The Canberra Liberals showed leadership by putting forward a 30% reduction target by 2020, as well as a strong renewable energy target. Since putting that target forward, we have seen the Rudd Government advocate a much lower than expected 2020 reduction target. This development, while regrettable, cannot be ignored in the final setting of an ACT target.

I also re-affirm my support for many of the inclusions and recommendations of the Committee's final report, and voted for the vast majority of those recommendations.

I must put on the record, however, that I believe there to be a fundamental problem of both logic and process in the resolution to set a pre-emptive target in this report.

The submissions received were valuable and wide ranging, but can only be assessed in any meaningful manner once the other factors, which are yet to be made available, can be assessed also. These factors are of such a magnitude that they must and inevitably will have a material impact on the Committee's final deliberations.

These include, but are not limited to, the finalisation of the recommendations from Copenhagen and the finalisation of the CPRS legislation, if any, from the Federal parliament and how that will impact upon any target set by the ACT

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Legislative Assembly. In this regard, it is important to note the evidence of the Australia Institute, that said that under the current proposed CPRS, any action over and above a national target would not lead to any reduction in Australia's emissions, but rather, it would simply allow other parts of Australia to pollute more.

It also became clear through the committee process that while there was a desire expressed for the ACT to show leadership in setting a target, setting a target which is well in excess of a national target has potential adverse economic impacts for the ACT, in addition to the problems identified by the Australia Institute.

It was because of external factors such as Copenhagen and the resolution of the CPRS as well as the need for detailed economic analysis that the Committee agreed that this report should, and indeed could only be, an interim report.

The inclusion of a 40% reduction target on 1990 levels, despite important information not yet being available, is therefore premature and could not correctly be in keeping with the agreement to hand down an interim report. It could be seen as making a de-facto final finding when all parties agreed a final finding could not yet be reached.

There is also a lack of apparent cohesion between some of the recommendations in the report. For instance, the Committee recommends a peaking of per capita emissions by 2013 and a 5% reduction by 2015, but then goes on to recommend a 40% reduction by 2020. It is unrealistic to expect that in just five years the ACT would move from a 5% reduction on 1990 levels to a 40% reduction.

As well as the undeniably relevant factors mentioned above, there is also the issue of addressing the economic impacts of the target set out in the interim report. While some economic submissions were received on general principles during hearings, it would be incumbent upon the Committee to undertake a full economic analysis to ensure the report was complete. This is particularly important once the global and federal impacts become clear, and especially so if the ACT target is far in excess of national targets, as may be the case with the current recommendation. Once again, therefore, the target set is premature and has not been economically considered as fully as the people of Canberra expect or deserve.

I must note my concern that the final draft has included several passages of language which I believe are unhelpful in what should be a critical, evidence based report. These passages tend towards jingoism and rhetoric rather than fact and reason.

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As much as I believe there is a serious challenge that needs to be addressed, I strongly urge the committee to eschew the extreme language of either side and respond strongly and sensibly with reasoned and supportable arguments, and support realistic and achievable targets.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Zed Seselja', written in a cursive style.

Zed Seselja MLA
Leader of the Opposition