

STANDING COMMITTEE ON CLIMATE CHANGE,
ENVIRONMENT AND WATER

Inquiry into the ecological carrying capacity of the ACT and region

MAY 2012

Report 6

Committee Membership

Ms Meredith Hunter MLA	Chair
Mr John Hargreaves MLA	Deputy Chair (from the beginning of the Inquiry until 1 July 2011 – Mr Hargreaves was not part of the Committee when the Committee deliberated on the contents of the Inquiry Report)
Ms Mary Porter AM MLA	Deputy Chair (from 1 July 2011)
Mr Zed Seselja MLA	Member

Secretariat

Ms Margie Morrison	Secretary (beginning of Inquiry until December 2010)
Mrs Nicola Kossek	Secretary (late December 2010 to 3 May 2011)
Dr Sandra Lilburn	Secretary (4 May 2011 to 28 April 2011 and 27 June 2011 to 13 July 2011)
Ms Veronica Strkalj	Secretary (29 April 2011 to 26 June 2011)
Dr Chris Beer	Research Officer (31 March 2011 to 22 June 2011)
Ms Sam Salvaneschi	Secretary (14 July 2011 to end of Inquiry)
Mr Paul Oliver	Administrative Assistant (14 September 2011 to 28 October 2011)
Ms Lydia Chung	Administrative Assistant (all of Inquiry, save 14 September 2011 to 28 October 2011)

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Contact information

Telephone:	02 6205 0136 (Australia) +61 2 05 0136 (international)
Facsimile:	02 6205 0432 (Australia) +61 2 05 0432 (international)
Post:	GPO Box 1020 Canberra ACT 2601 AUSTRALIA
Email:	committees@parliament.act.gov.au
Website:	www.parliament.act.gov.au

Resolution of Appointment

On 9 December 2008, the Legislative Assembly for the ACT agreed by resolution to establish standing committees to inquire into, and report on, matters referred to a committee by the Assembly or that a committee, itself, considers to be of community concern, 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.¹

Terms of Reference

To inquire into and report on the ecological carrying capacity of the ACT and region including the following matters:

- a) The resources available to the ACT in terms of water, energy, and food sourced from within the Territory and outside it;
- b) Effective measures for assessing ecological footprint and carrying capacity;
- c) Current levels of resource use by ACT residents, including:
 - i) The current size of the ACT urban, ecological and carbon footprints and how this compares to national averages and similar sized cities globally; and
 - ii) Trends in resource use in the ACT and the sustainability or otherwise of these trends continuing.
- d) A sustainable level of resource use, in terms of ACT urban, ecological and carbon footprints, for the ACT;
- e) Appropriate ecological carrying capacities based on current, higher and lower consumption models;
- f) Effective measures for reducing the ACT's ecological footprint;
- g) The environmental, economic and social impacts of reduced resource consumption and a sustainable population;
- h) The role of the ACT in the region in relation to population and resource use;
- i) Relevant infrastructure issues; and
- j) Any other relevant matter.²

¹ ACT Legislative Assembly, *Minutes of Proceedings no 2*, 9 December 2008, pp.15–18, <<http://www.parliament.act.gov.au/downloads/minutes-of-proceedings/08MoP02.pdf>>, accessed 14 July 2011.

² ACT Legislative Assembly, *Debates – Weekly Hansard*, 17 August 2010, pp.3363–3364 <<http://www.parliament.act.gov.au/downloads/minutes-of-proceedings/10MoP69.pdf>>, accessed 14 July 2011.

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Select Abbreviations and Glossary

ABS	Australian Bureau of Statistics
ACR	The Australian Capital Region refers, in this report, to the regional area encompassing the Australian Capital Territory, and 17 surrounding Local Government Areas (local government electorates) in New South Wales
CMCD	ACT Chief Minister and Cabinet Directorate
CSIRO	The Commonwealth Scientific and Industrial Research Organisation is Australia's national science research agency. Its functions are prescribed by the <i>Commonwealth Science and Industry Research Act 1949</i> .
gha	The global hectare is the unit of measurement for ecological footprints.
GFN	The Global Footprint Network is a not-for-profit organisation that researches ecological footprints of populations and methods for ascertaining them.
ISA	The Integrated Sustainability Analysis is a multi-disciplinary research unit of the University of Sydney, Australia.
LGA	A Local Government Area is an area within the boundaries of local government electorates in Australia. This term is used, in this report, in the context of the 14 Local Government Areas in NSW surrounding the ACT.
OECD	Organisation for Economic Cooperation and Development
OCSE	The Office of the Commissioner for Sustainability and the Environment is an ACT statutory authority.

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RECOMMENDATIONS

RECOMMENDATION 1

3.69 The Committee recommends that the ACT Commissioner for the *Environment Act 1993* be amended to incorporate a formal responsibility for biennial reporting on the ACT ecological footprint.

RECOMMENDATION 2

3.70 The Committee recommends that additional funding be provided to the OCSE, the Environment and Sustainable Development Directorate, and community environment organisations and groups to promote a more sustainable use of resources, including reducing food waste and energy inefficiency, to reduce the ACT and ACR ecological footprints.

RECOMMENDATION 3

4.77 The Committee recommends that the ACT Government utilise data on demographic and environmental dynamics in published modelling of the ecological, amenity, and other impacts of proposed urban developments.

RECOMMENDATION 4

5.79 The Committee recommends that ACTEW and the ACT Government consider integrating into their water management relevant recommendations of the Commissioner for Sustainability and the Environment's *Report on Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores Investigation* (2011) (Reserves Report) and the *ACT State of the Environment Report 2011* (2012).

RECOMMENDATION 5

5.80 The Committee recommends that the ACT Government prioritise in its management of water:

- a) reporting publicly, at least annually, on the progress of the *Think water, act water* strategy.
- b) implementing the measures needed to achieve the strategy's target of reducing mains water consumption by 25 per cent per person by the year 2023.

RECOMMENDATION 6

5.81 The Committee recommends that the ACT Government and ACTEW continue to monitor Commonwealth Scientific and Industrial Research Organisation (CSIRO), Wentworth Group of Concerned Scientists, and other expert research evidence on water management.

RECOMMENDATION 7

5.82 The Committee recommends that the ACT Government:

- a) implement, to the extent that it agreed to them, the recommendations of the *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives* and the *ACT Auditor-General's Report No. 3 of 2011 The North Weston Pond Project*.
- b) factor Recommendation 6 of the *ACT Auditor-General's Report No. 3 of 2011 The North Weston Pond Project* into the Government's forthcoming review of the *ACT Environment Protection Act 1997*.
- c) incorporate the lessons learnt from those Reports into its integrated water management projects.

RECOMMENDATION 8

5.83 The Committee recommends that the ACT Government examines the current situation whereby ACTEW is responsible for water conservation measures while at the same time being obliged as a Territory Owned Corporation to profit from the sale of water.

RECOMMENDATION 9

6.160 The Committee recommends that the ACT Government:

- a) monitor and incorporate developments in transport biofuels into its planning and operations.
- b) continue its active support of electric vehicle infrastructure planning and roll-out in the ACT.
- c) continue to implement and evaluate its measures to improve public transport infrastructure and increase public transport patronage within the ACT.

RECOMMENDATION 10

6.161 The Committee recommends that the Government continue to implement and evaluate its measures to increase active travel.

RECOMMENDATION 11

6.162 The Committee recommends that the ACT Government examine ways that built infrastructure proposals can be subjected to triple bottom line assessments that include robust ecological footprint analyses of the proposals' full life cycles.

RECOMMENDATION 12

6.163 The Committee recommends that the ACT Government continue its efforts to collaborate with ACR governance bodies to develop:

- a) rapid, reliable, and environmentally sustainable public transport between the ACT and wider ACR, particularly routes along which there is and/or is forecast to be, the highest amount of private motor vehicle use.
- b) cost-effective and environmentally sensitive renewable energy generators in suitable locations throughout the ACR.

RECOMMENDATION 13

6.164 The Committee recommends that the ACT Government consider implementing those recommendations of the *ACT State of the Environment Report 2011* that relate to transport and/or stationary energy uses.

RECOMMENDATION 14

7.72 The Committee recommends that the ACT Government maintain its support for well-coordinated community gardens in locations that are highly accessible to people who walk or use public transport.

RECOMMENDATION 15

7.73 The Committee recommends that the ACT Government play a leadership role in ACR land use planning that preserves arable land suitable for food production throughout the ACR.

RECOMMENDATION 16

7.74 The Committee recommends that the ACT Government inform its participation in ACR land use planning, by consulting with the:

- a) ACR groups interested in the ecological carrying capacity implications of food production, supply, and consumption, in the context of peak oil, climate change, and consumer interest in locally produced food.
- b) NSW Government about the NSW Office of Food Security and Agriculture Sustainability and NSW Strategic Regional Land Use Plans that identify the best land for agricultural uses.
- c) Commonwealth Government about evidence the National Food Plan process gathered which may underpin financially and environmentally sustainable improvements to ACR food security.

RECOMMENDATION 17

7.112 The Committee recommends that the ACT Government:

- a) review the evidence on providing services that collect and compost food waste and distribute the compost to soils that most need conditioning.
- b) confer with the NSW Government and the Commonwealth Department of Climate Change and Energy Efficiency about crediting compost on farmlands as greenhouse gas abatement in the Carbon Farming Initiative.
- c) collaborate with the NSW and Commonwealth Governments to make food wastes more marketable as per the *National Waste Policy: Less Waste, More Resources Implementation Plan* (2010).
- d) consider implementing those recommendations of the ACT State of the Environment Report 2011 that relate to preventing and recycling food waste.

RECOMMENDATION 18

8.62 The Committee recommends that the ACT Government considers creating an independent body to advise the Government on how to transition the ACT economy into one that reduces natural resources uses and greenhouse gas emissions and makes net returns to the ACT's ecological carrying capacity.

RECOMMENDATION 19

9.41 The Committee recommends that the ACT Government sets short and long term targets for a reduction in the size of the ACT ecological footprint.

RECOMMENDATION 20

9.42 The Committee recommends that the ACT Government conduct a communications campaign to raise community awareness of the impacts of purchasing decisions on the ACT and ACT ecological footprints.

RECOMMENDATION 21

9.63 The Committee recommends that the ACT Government:

- a) reviews its response to Recommendation 18 of the *Inquiry into ACT Government Procurement: Report 13* (2010) by the Legislative Assembly's Standing Committee on Public Accounts.
- b) develops, implements, and reports on, a procurement system that bases its decisions to purchase goods, services and capital works on, among other things, whole of life cycle environmental costing.
- c) develops a triple bottom line assessment policy that is predicated on, among other methods, whole of life cycle environmental costing of Government procurements.

RECOMMENDATION 22

10.101 The Committee recommends that the ACT Government, engage with the NSW Cross-Border Commissioner and ACR organisations and groups, especially Queanbeyan City, Yass Valley and Palerang Councils, to:

- a) reduce the size and the growth rate of the ACT and ACR ecological footprints and effect net gains in ecological carrying capacity.
- b) prevent and mitigate the adverse environmental impacts of population growth recorded in ACT and regional state of the environment reports.
- c) consider developing settlement strategies on the respective population corridors between Canberra and Yass Valley, Palerang and Queanbeyan City LGAs.

RECOMMENDATION 23

10.102 The Committee recommends that:

- a) the ACT Government develop ideas for improving cross-ACR collaboration and discuss implementation of them with ACR leaders.
- b) the Commissioner for Sustainability and the Environment address in the 'progressing sustainability' sections of the ACT and regional state of the environment reports the extent to which cross-ACR collaboration is enabling net gains to ecological carrying capacity.

14 STANDING COMMITTEE ON CLIMATE CHANGE, ENVIRONMENT AND
WATER

1 INTRODUCTION

- 1.1 The Committee resolved at a private meeting on 28 July 2010 to inquire into the ecological carrying capacity of the ACT and region.³ The Chair of the Committee advised the Legislative Assembly of the Committee's intention to conduct the inquiry on 17 August 2010.⁴

Conduct of the inquiry

- 1.2 Electronic networks were also utilised to publicise the inquiry. Further, submissions were sought via written invitations to a range of stakeholders in matters that are directly related to the Inquiry's Terms of Reference.
- 1.3 The Committee invited submissions from the public addressing any or all of the Terms of Reference by 12 November 2010. It made this invitation on the Inquiry webpage on the Legislative Assembly's website⁵ and in a widely distributed media release.
- 1.4 The Committee also placed notices of the invitation in the 1 and 11 September 2010 editions of a local newspaper, *The Canberra Times*, and in the 14 September 2010 edition of another local newspaper, *The Chronicle*.
- 1.5 On 19 September 2010, the Committee tabled, in the Legislative Assembly, the Inquiry's Discussion Paper. In it, the Committee repeated its invitation to the

³ Appendix 2, para. 11.8, of *Parliamentary Agreement—For the 7th Legislative Assembly for the ACT—Agreement between Mr Jon Stanhope, Leader of the Australian Labor Party, ACT Branch and Ms Meredith Hunter, Parliamentary Convenor of the ACT Greens* (31 October 2008). This Agreement was tabled in the ACT Legislative Assembly (Assembly) on 9 December (Dec.) 2008, as can be seen in the Assembly (2008) *Debates Weekly – Hansard – 9 December 2008*, p.80

<<http://www.hansard.act.gov.au/hansard/2009/pdfs/20081209.pdf>>, accessed 14 July 2011.

⁴ Assembly (2010) *Minutes of Proceedings* No. 69, 17 August (Aug.) 2010, p.791, <<http://www.parliament.act.gov.au/downloads/minutes-of-proceedings/10MoP69.pdf>> and Assembly (2010) *Minutes of Proceedings* No. 72, 24 Aug. 2010, p. 826, <<http://www.parliament.act.gov.au/downloads/minutes-of-proceedings/10MoP72.pdf>>, *Debates Weekly – Hansard – 17 August 2010*, pp. 3363-3364.

<<http://www.hansard.act.gov.au/hansard/2010/pdfs/20100817.pdf>>, accessed 14 July 2011

⁵ Assembly's Inquiry into ecological carrying capacity of the ACT and region webpage <<http://www.legassembly.act.gov.au/committees/index1.asp?committee=112&inquiry=975>>, accessed 14 July 2011.

public to make submissions to the Committee by 12 November 2010.⁶

- 1.6 The Committee received 36 submissions.⁷ The Committee also heard the evidence of 25 witnesses at nine public hearings.⁸ The Committee thanks everyone who contributed to the Inquiry.
- 1.7 On 14 December 2010, the Committee received a briefing on *The 2008-09 Ecological Footprint of the population of the ACT* report (2010).⁹ This Report was commissioned by the Office of the ACT Commissioner for Sustainability and the Environment¹⁰ from the Integrated Sustainability Analysis, a University of Sydney research group (ISA). The briefing was from one of the Report's authors, Dr Christopher Dey, a member of the ISA. The briefing addressed the findings of the report and the potential uses and limitations of methods for measuring ecological footprints. This Report is discussed at length, in Chapter 3, and frequently referred to throughout the other Chapters.

Structure of the report

- 1.8 The structure and content of the Report respond to the Inquiry Terms Of Reference where the Committee was able to do so.
- 1.9 At the end of each Chapter, the Committee has made 'key findings' and 'recommendations'. The purpose of the 'key findings' is to inform the reader what major findings the Committee has made on the basis of its review of the

⁶ Assembly (2010) *Debates Weekly – Hansard – 19 September 2010*, pp. 4553-4

<<http://www.hansard.act.gov.au/hansard/2010/pdfs/20101019.pdf>>, accessed 14 July 2011.

⁷ The submissions (Sub.) are listed in Appendix D of this Report and posted in full on the Inquiry webpage <

<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=14>>, accessed 28 October (Oct.) 2011.

⁸ A list of the witnesses, and the dates of the hearings at which they gave evidence, is at Appendix E of this Report. The hearing transcripts are in the Assembly Hansard on the Inquiry webpage <<http://www.hansard.act.gov.au/hansard/2009/comms/default.htm#climate>>, accessed 14 July 2011.

⁹ Integrated Sustainability Analysis University of Sydney (ISA) (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*

<http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0015/211182/ACT_Ecological_Footprint_08-09_final_report.pdf>, accessed 17 Oct. 2011.

¹⁰ The Commissioner for Sustainability and the Environment is appointed under, and has their functions prescribed by, the ACT *Environment Commissioner Act 1993*

<<http://www.legislation.act.gov.au/a/1993-37/default.asp>>, accessed 17 Oct. 2011.

evidence.

- 1.10 Chapter 2 explains what is meant by terms that are commonly used in almost all of the Chapters.
- 1.11 Chapter 3 outlines researchers' documentation of the size and principal constituents of the ACT ecological footprint and the Australian Capital Region (ACR) ecological footprint. The Chapter then canvasses the general usefulness of ecological footprint measurements and analyses and how the ACT Government, statutory authorities, and other organisations are currently using them.
- 1.12 Chapter 4 presents the current evidence on the status of population growth in the ACT and ACR and what changes to demographic data collection would assist in the development of programs that increase the ACR's ecological carrying capacity.
- 1.13 Chapter 5 and 6 discuss the management of water and energy, respectively, in the ACT and associated actions that would improve the ACR's ecological carrying capacity.
- 1.14 Chapter 7 covers the relationship between the ACT's food consumption and the ACR's ecological carrying capacity.
- 1.15 Chapter 8 discusses the potential for reductions in the ACR's ecological footprint and the likely social, economic and environmental impacts of any reductions.
- 1.16 Chapter 9 and 10 highlight some of the optimal ways in which the ACT Government can show leadership to reduce the ACR's ecological footprint and increase its ecological carrying capacity.

2 CENTRAL CONCEPTS OF THE REPORT

- 2.1 This Chapter is intended to clarify the meanings of some of the words and phrases that are most frequently used throughout this Report.

Australian Capital Region

- 2.2 The 'Australian Capital Region' (ACR) is used, in this Report, to refer to the ACT and the 17 surrounding New South Wales (NSW) Local Government Areas (LGAs). Appendix A provides a map of the entire ACR. Appendix B provides an alphabetical list of the websites of the governments, and the maps, of these LGAs.¹¹
- 2.3 In alphabetical order, the 17 LGAs are Bega Valley Shire, Bombala, Boorowa, Cooma-Monaro Shire, Cootamundra Shire, Eurobodalla Shire, Goulburn Mulwaree, Gundagai Shire, Harden Shire, Palerang, Queanbeyan City, Snowy River Shire, Tumbarumba Shire, Tumut Shire, Upper Lachlan Shire, Yass Valley, and Young Shire.
- 2.4 All but three of these LGAs are in what the Local Government Division of the NSW Premier and Cabinet Department (LGD) refers to as the South Eastern Region, which is comprised of the far south coast of NSW, the southern tablelands, and the Snowy Mountains and the Clyde, Moruya, Tuross and Bega river valleys.¹²
- 2.5 Tumbarumba, Gundagai and Cootamundra Shires are in other LGD Regions. Tumbarumba Shire is the most eastern LGA in the Murray Region. The southern boundary of this Region is the Murray River, on the NSW border, and its main urban centre is Albury. Gundagai and Cootamundra Shires are the most eastern LGAs of the Murrumbidgee Region. This Region contains the Murrumbidgee and other irrigation areas and its major urban centre is Wagga Wagga.¹³
- 2.6 According to the best data available, the ACT is 2, 358 square kilometres;¹⁴ the

¹¹ NSW Department (Dept.) of Premier and Cabinet Division of Local Government webpage <http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=0>, accessed 28 Oct. 2011.

¹² *ibid.*

¹³ *ibid.*

¹⁴ GeoScience Australia's calculation: <<http://www.ga.gov.au/education/geoscience->

ACR excluding the ACT is 64, 559.8 square kilometres;¹⁵ and the ACR, including the ACT, is 66, 917.8 square kilometres¹⁶.

- 2.7 The latest Australian Bureau of Statistics (ABS)¹⁷ population data, which is for the year ended 30 June 2010, shows the ACR, not including the ACT, had a population of 246, 531. The ACT's population was 365, 400.¹⁸ The total population of the ACR, including the ACT, was 611, 931 residents. The most populous local government areas of the ACR were Queanbeyan City at 41, 430 residents; the Eurobodalla Shire at 37, 714; the Bega Valley Shire at 33, 925; and Goulburn Mulwaree at 28, 702.¹⁹
- 2.8 According to the ABS, the three greatest contributors of gross value added²⁰ to the ACT's economy were public administration and safety, which added \$8, 724 million; construction, which added \$2, 716 million; and professional, scientific and technical services, which added \$2, 698 million.²¹
- 2.9 Further, the ACT's fastest growing sector of employment, at 5.3 per cent, was personal services, such as hairdressing, beauty, diet and weight control, funerals, religion and domestic cleaning.²² The second fastest, at 4.4 per cent,

[basics/dimensions/area-of-australia-states-and-territories.html](http://www.ga.gov.au/basics/dimensions/area-of-australia-states-and-territories.html)>, accessed 1 Dec. 2011. The calculation is based on data in Geoscience Australia's *GEODATA Coast 100K 2004* (cat. no. 61395) <https://www.ga.gov.au/products/servlet/controller?event=GEOCAT_DETAILS&catno=61395>, accessed 1 Dec. 2011. According to Geoscience Australia that data is sourced primarily from the 1:100 000 scale National Topographic Map Series and, is 'the most authoritative data source currently available to calculate the area of Australia' (see first webpage listed in this footnote).

¹⁵ NSW Division of Local Government, Dept. of Premier and Cabinet (2011) *Snapshot of NSW Local Government: Comparative Information on NSW Local Government Councils 2009/10* <http://www.dlg.nsw.gov.au/dlg/dlghome/documents/Comparatives/Comparatives_2009_10.pdf>, p. 15.

¹⁶ GeoScience Australia's calculation: <<http://www.ga.gov.au/education/geoscience-basics/dimensions/area-of-australia-states-and-territories.html>>, accessed 1 Dec. 2011. For more explanation, see footnote 14.

¹⁷ The Australian Bureau of Statistics (ABS) is Australia's national statistical agency. The *Census and Statistics Act 1905* charges it with conducting statistical collections and publishing compilations and analyses of them.

¹⁸ ABS (2011) *Australian Demographic Statistics, June 2011* (cat. no. 3101.0) (released 19 Dec. 2011).

¹⁹ ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011).

²⁰ *ibid.*, for detailed explanation of 'Gross Value Added' or any industry sector categories.

²¹ ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011).

²² The ABS groups these personal services into a category called 'other services', in ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011).

was public administration and safety.²³

- 2.10 The ABS South Eastern Statistical Division (SESD) includes all NSW local government areas of the ACR, apart from Tumbarumba, Cootamundra, and Gundagai. At the time of the 2006 Census, the SESD had 11.9 per cent of employed people in public administration and safety; 11.7 per cent in retail trade; and 8.5 per cent in construction.²⁴
- 2.11 An analysis of the jobs that were held by the residents of Queanbeyan LGA, at that time, shows that the three industry sectors that employed the most people were public administration and safety, at 24.1 per cent; retail trade, at 9.9 per cent; and construction, at 9.1 per cent. These three industries combined employed 43.0 per cent of Queanbeyan's employed resident population.²⁵

Ecological carrying capacity

- 2.12 William E. Rees, who is widely acknowledged to be the co-founder of the concept and methods for measuring 'ecological carrying capacity',²⁶ has defined it in this way:

Ecologists define 'carrying capacity' as the population of a given species that can be supported indefinitely in a given habitat without permanently damaging the ecosystem upon which it depends. For human beings, 'carrying capacity' can be interpreted as the maximum rate of resource consumption and waste discharge that can be sustained indefinitely in a given region without progressively impairing the functional integrity and productivity of relevant ecosystems.²⁷

²³ ABS (2011) *Australian National Accounts – State Accounts 2010-11* (cat. no. 5220.0) (released 23 November (Nov.) 2011).

²⁴ ABS (2008) *Canberra – A Social Atlas – 2006 Census of Population and Housing* (cat. no. 2030.8) (released March 2008). Up-to-date data on the occupations of Australians according to where they live is available only for the capital city and for all of the remainder of the state or territory. For sub-groupings of states and territories apart from capital cities, the most up-to-date data is the 2006 Census data for ABS Statistical Divisions.

²⁵ ABS (2008) *2006 Census Community Profile Series : New South Wales* (released 29 February (Feb.) 2008).

²⁶ See, for example, the Post-Carbon Institute's description of him as an Institute Fellow <<http://www.postcarbon.org/person/36225-william-rees>>, accessed 14 July 2011.

²⁷ Rees, W. E. (1992) 'Ecological footprints and appropriated carrying capacity: what urban economics leaves out', in *Environment and Urbanization*, vol. 4, no. 2, Oct. 1992, p. 125.

- 2.13 This concept is ultimately a way of understanding the problem of natural resource scarcity, or that all of the Earth's natural resources are limited to a greater or lesser extent.²⁸
- 2.14 It is well documented that livestock farming was one of the main sources of the idea of 'carrying capacity'. In that business, it's been used to conceptualise the number of cattle a farm can support given its capacity to provide feed and access to water, in various scenarios, such as different climatic and ground cover situations.²⁹
- 2.15 Farms' carrying capacities can be increased by adding resources sourced from elsewhere, such as fertilisers, or decreased through poor management or environmental changes that lead to soil degradation.³⁰ Similarly, the relative levels of plenitude or scarcity of the resources that any human settlement uses, rather than farm uses, are amenable to changes, which may then significantly alter the carrying capacity of the geographical area the settlement occupies.
- 2.16 Several of the submissions to the Inquiry, including the ACT Government's, pointed out that modelling resource scarcity within the confines of any area of land and human settlement is a fraught exercise. They suggested this is due to a diverse array of pricing and technological factors that influence resource levels and the environmental sustainability of their production and delivery and the waste products of production, delivery and consumption.³¹

²⁸ See, also, Day Jr., J.W. et al (2009) 'Ecology in Times of Scarcity', *BioScience*, April 2009, vol. 59, no. 4, pp.231-331.

²⁹ See, for example, McKeon, G.M. et al (2009) *Climate change impacts on Australia's rangeland livestock carrying capacity: A review of challenges. Report for Land and Water Australia Senior Research Fellowship (QNR46)* and Saul, G.R. and Kearney, G.A. (2002) 'Potential carrying capacity of grazed paddocks in southern Australia', *Wool Tech. Sheep Breed*, vol. 50, no. 3, pp. 492-498.

³⁰ As discussed by Dr Robert Dyball, Senior Lecturer, Fenner School of the Environment and Society, Australian National University (ANU), in a public hearing, on 15 Sept. 2011, p.145, Hansard *Transcript of Evidence (Transcript of Evidence)*. This point is also documented in research literature from across the world. See, for example, Ash, A.J. et al. (2002) 'The Ecograzing Project: Developing Guidelines to Better Manage Grazing Country.' Commonwealth Science and Industrial Research Organisation (CSIRO) Sustainable Ecosystems, Townsville, Australia and Sakai, N. and Nakachi, S. (2003) 'Prerequisites for sustainable agriculture in subtropical island regions: Productivity and environmental problems in postwar Okinawa [Japan] agriculture', *Japanese Journal of Farm Management*, no.117, pp. 1-12.

³¹ This is emphasised by ACT Gov. (Sub. 32), Mr Tom Gosling (Sub. 18), and IPA ACT (Sub. 16).

- 2.17 For example, innovation in farming or manufacturing processes may increase or decrease demand for certain resources. Improved recycling processes, transport fuelled by renewable sources, and other technological advances may boost the efficiency with which resources and wastes are used.³²
- 2.18 While the ACT's land was historically used for pastoral purposes,³³ today, agriculture and other primary industries play a very small role in the local economy³⁴. Further, unlike other Australian cities, Canberra has never had significant industries producing electricity and transforming natural resources into goods via manufacturing processes. Its economy has, instead, been one that has predominantly produced services, particularly government ones. It has relied on economies outside the ACT to manufacture the retail products that ACT residents buy, such as clothes.³⁵
- 2.19 The supply of goods and services to the ACT and wider ACR from other Australian jurisdictions is substantially assured by those provisions of the Australian Constitution protecting interstate trade³⁶ and legislation on 'mutual recognition'³⁷. The flow of certain resources, such as energy and water, into the ACT, is facilitated by well-established policy frameworks and agreements between the ACT and the Commonwealth of Australia (the Commonwealth) and NSW and other Australian jurisdictions.³⁸ Further, the supply of goods

³² See, for example, Blackman, S. and Baumol, W.J. (2008) 'Natural resources', in *The Concise Encyclopaedia of Economics* <<http://www.econlib.org/library/Enc/NaturalResources.html>>, accessed 11 July 2011, and Arrow, K. et al (1995) 'Economic Growth, Carrying Capacity, and the Environment', *Science*, vol. 268, pp.520-521.

³³ See Brennan, F. (1971) *Canberra in crisis: a history of land tenure and leasehold administration*, Dalton Publishing Co., Canberra. However, agriculture remains a significant part of ACT industry according to the ABS (2011) *State and Territory Statistical Indicators 2011* (cat. no. 1367.0) <<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by+Subject/1367.0~2011~Main+Features~Industry+Gross+Value+Added~9.23>>, accessed 11 Nov. 2011.

³⁴ This is clearly shown under the subject heading 'Industry Gross Value Added', in ABS (2011) *State and Territory Statistical Indicators 2011* (cat. no. 1367.0).

³⁵ The Friends of Grasslands (Sub. 9) and Mr Mark O'Connor (Sub. 22) discuss this.

³⁶ See Chapter IV of the Commonwealth of Australia (Commonwealth) Constitution Act <http://www.austlii.edu.au/au/legis/cth/consol_act/coaca430/>, accessed 11 Nov. 2011.

³⁷ See, generally, Council Of Australian Governments' (COAG) webpage <http://www.coag.gov.au/mutual_recognition/legislation_rev/introduction.cfm>, accessed 14 July 2011.

³⁸ Exhibits 4 and 4a-4f cited in Appendix E of this Report and reproduced in full on the Inquiry Exhibits webpage <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>>, accessed 14 July 2011.

and services between Australia and other nation-states is supported by a range of international agreements.³⁹

- 2.20 These national and transnational interdependencies are emphasised by a number of the submissions to the Inquiry⁴⁰ and was referred to in several of the Inquiry's public hearings.⁴¹ It was also well evidenced in an Exhibit received by the Committee, namely Dr Sarah Ryan's 2011 paper *Buying Choices for a More Sustainable Canberra, Report for the ACT Commissioner for Sustainability and the Environment*.⁴² This paper highlights, among other things, how most of the components of 18 items typically consumed by people in the ACT, such as coffee and batteries, are sourced from outside the ACT.⁴³
- 2.21 It also provides a life-cycle assessment of each of the 18 items as it is purchased, used, and disposed of, in the ACT to determine how much it contributes to the ACT ecological footprint.⁴⁴ Life cycle assessments are one standardised way that researchers have established for calculating the specific contributions of particular products, services, or processes to an ecological footprint.⁴⁵
- 2.22 By 'life cycle', what is meant is all the natural resources consumed for the producer of the product to make and store the product and deliver it to the

³⁹ See Commonwealth Dept. of Foreign Affairs and Trade's list of international trade agreements <<http://www.dfat.gov.au/fta/>>, accessed 11 Nov. 2011.

⁴⁰ See Canberra Division of Engineers Australia (Sub. 34), IPA ACT Energy and Climate Group (IPA ACT) (Sub. 16), Mr Keith Ross (Sub. 14), Dr John Schooneveldt (Sub. 2), and Dr Chris L. Watson (Sub. 25).

⁴¹ This was especially so in the public hearing at which Dr Robert Dyball and Mr David Dumaresq appeared (15 Sept. 2011) and the public hearing at which Associate Professor (A/Prof.) David Pearson appeared (21 Oct. 2011). See the *Transcripts of Evidence* for these hearings: <<http://www.hansard.act.gov.au/hansard/2009/comms/default.htm#climate>>, accessed 11 July 2011.

⁴² Exhibit 2b, Ryan, S. (2011) *Buying Choices for a More Sustainable Canberra*. Report for the ACT Commissioner for Sustainability and the Environment. ACT Gov., Canberra Inquiry exhibits webpage, <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>>, accessed 1 Dec. 2011.

⁴³ *ibid.*, pp.5-45.

⁴⁴ The 2008-09 ecological footprint is documented in ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment* <[http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0015/211182/ACT Ecological Footprint 08-09 final report.pdf](http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0015/211182/ACT_Ecological_Footprint_08-09_final_report.pdf)>, accessed 17 Oct. 2011.

⁴⁵ Kitzes, J. et al (2009) 'A research agenda for improving national Ecological Footprint accounts', *Ecological Economics*, vol. 68, pp.1991-2007.

retailer; for the retailer to store and sell the product; and for the consumer to purchase the product and consume or dispose of it.⁴⁶

- 2.23 Assessments of ecological carrying capacity necessarily involve factoring in that natural resources sourced in and outside the ACR are used in the production, transport and waste absorption involved in producing and consuming any product or service. The concept of 'ecological footprint' can assist people to think about the ecosystems that are not on the land they live on, but which nevertheless produce the natural resources that are inputs into products and services that they consume.

Ecological footprint

- 2.24 An 'ecological footprint' of a population is a measure of the area of land needed to supply all the resources, and absorb all the waste, of the consumption of an average person in a defined population of humans, such as those people living in the ACT. Ecological footprints are sometimes expressed in terms of the 'numbers of planets' that would be required to support the consumption pattern of a population, if all humans consumed at the same level.⁴⁷
- 2.25 Where a human settlement that consumes a good or service needs the land of other population groups to supply those natural resources and absorb those wastes, it is said to be 'overshooting'⁴⁸ its ecological carrying capacity or 'appropriating' the ecological carrying capacity of other settlements.⁴⁹
- 2.26 Ecological footprint estimates are typically of the 'bioproductive land area that is required to support the resource demands of a given population' using the

⁴⁶ Exhibit 2b, Ryan, S. (2011) *Buying Choices for a More Sustainable Canberra*. Report for the ACT Commissioner for Sustainability and the Environment, pp.2-3, Inquiry exhibits webpage, <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>>, accessed 1 Dec. 2011.

⁴⁷ Mcmanus, P. and Haughton, G. (2006) 'Planning with Ecological Footprints: a sympathetic critique of theory and practice', *Environment and Urbanization*, vol. 18, no. 1, pp.113-127.

⁴⁸ Catton Jr, W.R. (1980) *Overshoot: The Ecological Basis of Revolutionary Change*, Urbana, University of Illinois Press, USA.

⁴⁹ Rees, W.E. (1996) 'Revisiting carrying capacity: Area-based indicators of sustainability', *Population and Environment*, vol. 17, issue 3, Jan. 1996, p.215.

measure of 'global hectares (gha)' required per person.⁵⁰ Such hectares 'represent the average yield of all biologically productive [non-oceanic] areas on earth'.⁵¹ Some widely recognised methods⁵² and standards⁵³ for making these estimates have emerged.

Carbon footprint

- 2.27 It is commonly understood that the term 'carbon footprints' was derived from literature regarding 'ecological footprints'. There are widely divergent definitions of the concept 'carbon footprint' in the research literature. Applications of the concept include carbon footprint calculators, promoted by organisations advocating for individuals and organisations to reduce their greenhouse gas emissions⁵⁴ and businesses selling 'carbon footprinting' services⁵⁵ or delivering free carbon footprint calculators as part of their public relations communications⁵⁶.
- 2.28 In essence, 'carbon footprints' typically represent the amount of gaseous emissions, which produce climate change, that are created by the production or consumption activities of a geographical territory, organisation, household or individual. However, there is no consensus on carbon footprint

⁵⁰ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.6.

⁵¹ *ibid.*

⁵² Lenzen, M. and Murray, S. (2001) 'A modified Ecological Footprint method and its application to Australia, in *Ecological Economics*, vol. 37, no. 2, pp. 229–255 and Wackernagel, M. et al (2004) 'Calculating national and global Ecological Footprint time series: resolving conceptual challenges', *Land Use Policy*, vol. 21, pp.271–278.

⁵³ See the standards researched and promulgated by the Global Footprint Network (GFN): <http://www.footprintnetwork.org/en/index.php/GFN/page/application_standards/>, accessed 14 July 2011.

⁵⁴ See, for example, the Cool Climate Network, a non-government, government and uni. partnership based at Berkley University (Uni), United States of America (USA) <<http://coolclimate.berkeley.edu/uscalc>> and World Wildlife Fund (WWF), an international foundation <http://www.wwfmaps.org/CC/carbon_calc.php#>, accessed 14 July 2011.

⁵⁵ See, for example, the United Kingdom (UK)-based business called 'Carbon Footprint', which lists as customers Deutsche Bank, Hoover, and other multinational businesses <<http://www.carbonfootprint.com/index.html>> and Carbon View <<http://www.carbon-view.com/>>, which lists 'customers and partners', Accenture and other businesses, accessed 1 July 2011.

⁵⁶ See, for instance, AGL's free calculator <<http://www.agl.com.au/home/energy-efficiency/Pages/carbon-calculator.aspx>> or News Limited's free calculator <http://www.1degree.com.au/carbon_calculator>, both accessed 1 Nov. 2001.

measurement units or methods. Consequently, the definitions range from counts of direct CO₂ emissions to counts of full life-cycle emissions.

2.29 Some researchers have reviewed the relative merits and drawbacks of some standard definitions of the term. One of the most cited of these reviews, published in 2008, was conducted by the researchers, Thomas Wiedmann and Jan Minx. After assessing various definitions, they propose 'The carbon footprint is a measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product'.⁵⁷

2.30 Another much-cited review, conducted by Laurence Wright and others and published in 2011, ventures that a carbon footprint should not be a measure of carbon dioxide emissions, but, rather:

*A measure of the total amount of carbon dioxide (CO₂) and methane (CH₄) emissions of a defined population, system or activity, considering all relevant sources, sinks and storage within the spatial and temporal boundary of the population, system or activity....calculated as carbon dioxide equivalent (CO₂e) using the relevant 100-year global warming potential (GWP100).*⁵⁸

2.31 The ISA 2010 study refers to 'carbon footprints' in terms of the land 'required to sequester carbon emissions through photosynthesis. This land has been called 'energy land' in the past and is now sometimes referred to as the 'carbon footprint' component of the ecological footprint'. In saying this, the ISA makes clear that '...this is not the same as...the term carbon footprint which refers to the actual greenhouse gas emissions in CO₂-equivalents'.⁵⁹ The ISA's findings on 'energy land' are discussed in the next Chapter.

2.32 While this kind of definition of 'carbon footprint' is used by some other

⁵⁷ Wiedmann, T. and Minx, J. (2008) 'A Definition of 'Carbon Footprint', in C. C. Pertsova (editor) *Ecological Economics Research Trends*, Nova Science Publishers, New York (NY), USA, Chapt. 1, pp.1-11.

⁵⁸ Wright, L. et al (2011) 'Carbon footprinting': towards a universally accepted definition', *Carbon Management*, Feb. 2011, vol. 2, no. 1, pp.61-72.

⁵⁹ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.14.

organisations,⁶⁰ the common understanding of the 'carbon footprint' remains that it is a measure of carbon dioxide emissions or carbon dioxide equivalents.

2.33 The ACT Government uses the term 'carbon footprint', in the Government's *Draft ACT Planning Strategy: Planning for a sustainable city*⁶¹ and its *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*.⁶²

2.34 In a submission to the Inquiry, the ACT Commissioner for Sustainability and the Environment states that public understanding of challenges outlined in the *ACT State of the Environment Report 2007/08* could be promoted by deploying 'carbon footprint', along with ecological footprint, and other measurements.⁶³

2.35 The Committee is also aware that in accordance with the *ACT Climate Change and Greenhouse Gas Reduction Act 2010*,⁶⁴ the Independent Competition and

⁶⁰ See, for example, Scottish Executive (2006) *Changing Our Ways: Scotland's Climate Change Programme* and Global Footprint Network (2007) *Ecological Footprint Glossary*, GFN, Oakland, CA, US.

⁶¹ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.29
<http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf>, accessed 1 Nov. 2011.

⁶² ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, pp.9, 29 and 32
<<http://timetotalk.act.gov.au/storage/Climate%20Change%20Strategy%20Action%20Plan%202%20FINAL.pdf>>, accessed 23 Dec. 2011. ACT (2007) *Weathering the Change: ACT Climate Change Strategy 2007-2025* refers to 'greenhouse effect'
<http://www.environment.act.gov.au/_data/assets/pdf_file/0007/144529/Climate_Change_Strategy.pdf> and all the following refer to 'carbon neutrality': ACT (2011) *Sustainable Energy Policy 2011-2020: Energy for a sustainable city*
<http://www.environment.act.gov.au/_data/assets/pdf_file/0003/232284/EDS_ACT_Sustainable_Energy_Policy_FA_web_A.PDF>, ACT (2010) *ACT Climate Change Strategy: Weathering the Change Action Plan 1 Review* (Jan. 2010) and ACT 2007) *Weathering the Change Action Plan 1 2007-2011*, and ACT (2011) *Transport for Canberra – Transport for a sustainable city 2011-2031: Draft for public comment* and ACT Minister for Environment, Climate Change and Water (2009) *Government Response to the Interim Report of the Legislative Assembly Inquiry on Greenhouse Gas Reduction Targets – Tabling Statement*
<http://www.environment.act.gov.au/_data/assets/pdf_file/0019/172153/Tabling_Statement.pdf>. Further, the Minister's tabling statement refers to a 'greenhouse footprint'. The Home Energy Advice Team, which describes itself as funded by 'ACT Government to provide free, independent, expert advice on how to improve the energy efficiency of your home', has used the term 'carbon footprint', but in doing so cited a breakdown of 'household greenhouse gas emissions', not a 'carbon footprint', from Australian Greenhouse Office (2007) *Global Warming – Cool It!*, p.3
<http://www.environmentcommissioner.act.gov.au/_data/assets/powerpoint_doc/0008/169298/Sustainable_Actions_at_Home_070909.ppt>, all accessed 12 Dec. 2011.

⁶³ ACT Commissioner for Sustainability and the Environment (OCSE) (Sub. 8, p. 2).

⁶⁴ Section 12 of Act <<http://www.legislation.act.gov.au/a/2010-41/default.asp>>, accessed 14 July 2011.

Regulatory Commission (ICRC), an ACT statutory authority, published an ACT Greenhouse Gas Inventory Report for 2008-09, in September 2011.⁶⁵ This Report is discussed in Chapter 6.

⁶⁵ Independent Competition and Regulatory Commission (ICRC) (2011) *ACT Greenhouse Gas Inventory Report for 2008-09 Report 7 of 2011* <http://www.icrc.act.gov.au/_data/assets/pdf_file/0009/235719/ACT_Greenhouse_Gas_Inventory_Report_2009_Final.pdf>, accessed 1 Nov. 2011. The ICRC is established by the ACT *Independent Competition and Regulatory Commission Act 1997* <<http://www.legislation.act.gov.au/a/1997-77/default.asp>>, accessed 1 Nov. 2011.

3 THE AUSTRALIAN CAPITAL REGION'S ECOLOGICAL FOOTPRINT ESTIMATES

- 3.1 This chapter canvasses research findings on the ACT's and wider ACR's ecological footprints; how they compare with the respective ecological footprints of other places; the usefulness of these ecological footprint estimates and analyses; the potential for reducing the ACT and wider ACR ecological footprints; and the social and economic changes such reductions might entail.

Size of the ACT ecological footprint

- 3.2 The ISA study commissioned by the OCSE referred to in Chapter 1, estimated and analysed the ACT's ecological footprint for 1998-99, 2003-04 and 2008-09.
- 3.3 It was the only evidence received by the Inquiry, which estimates the size of the ACT's size ecological footprint and the respective quantities of each of its components. The study provides a comprehensive statement of its methodology, including its data sources.⁶⁶
- 3.4 The study estimates that in 1998-99 the ecological footprint was 7.4 gha per person (pp); in 2003-04, it was 8.5 gha pp; and in 2008-09, it was 9.2 gha pp. As the ISA puts it, 9.2 gha pp means that 'With a population of 349,000 people, this amounts to a total area of 3,200,000 global hectares, roughly fourteen times the area of the ACT'.⁶⁷ Alternatively, as the OCSE explains it, 'If everyone in

⁶⁶ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, pp.8-14 and pp.25-31

⁶⁷ *ibid.*, p.4. To improve its understanding of this figure of 'roughly fourteen times the area of the ACT', the Committee conducted its own calculation, using the latest ABS population figure for the ACT (see Chapt. 4) and the area of the ACT calculated by GeoScience Australia, namely 2358 square kilometres: Geoscience Australia webpage 'Area of Australia – States and Territories' <<http://www.ga.gov.au/education/geoscience-basics/dimensions/area-of-australia-states-and-territories.html>>, accessed 1 Dec. 2011. The calculation is based on data explained in Geoscience Australia's *GEODATA Coast 100K 2004* (cat. no. 61395). See <https://www.ga.gov.au/products/servlet/controller?event=GEOCAT_DETAILS&catno=61395>, accessed 1 Dec. 2011. According to Geoscience Australia the data is sourced primarily from the 1:100 000 scale National Topographic Map Series and, is 'the most authoritative data source currently

the world lived in the same way as the average person in the ACT, we would need 5 Earths to give us enough land (and surface water) to provide our resources and absorb our wastes'.⁶⁸

- 3.5 The ISA study also estimates that the 2008-09 ecological footprint for the ACT, 9.2 gha pp, is 13 per cent more than the Australian average for 2008-09, which was 8.1 gha pp, and 15 per cent more than the ACT ecological footprint was in 1998-99, which was 7.4 gha pp.⁶⁹
- 3.6 The study notes that in 2006, there was only an average of 1.8 gha available pp globally, and that global average consumption was 2.6 gha pp.⁷⁰ These are figures estimated by the Global Footprint Network (GFN), a not-for-profit organisation that conducts and publishes ecological footprint research.⁷¹ According to the GFN latest ecological footprint accounts, published in 2010, the average availability of gha pp remains 1.8 gha pp.⁷²
- 3.7 Therefore, the ACT population has overshoot⁷³ its ecological carrying capacity and is appropriating⁷⁴ ecological carrying capacity from land elsewhere.
- 3.8 In 2007, the ISA published for the Australian Conservation Foundation the average ecological footprints of householders, in all ABS 'statistical local areas' of Australia, which are approximately equivalent to suburbs and sometimes clusters of suburbs. Unlike the 2010 study for the OCSE, this study was of householder consumption, only, not consumption by householders, businesses

available to calculate the area of Australia' (see first webpage listed in this footnote).

⁶⁸ OCSE [no date] *Ecological Footprint for the ACT: Our Challenge* <http://www.envcomm.act.gov.au/_data/assets/pdf_file/0016/211183/ACT_Ecological_Footprint_Summary.pdf>, accessed 1 Dec. 2011. This must have been published after ISA 2010 study of the ACT ecological footprint, because it refers to its findings.

⁶⁹ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.4.

⁷⁰ *ibid.*, pp.6-7.

⁷¹ See the Global Footprint Network (GFN) website, <<http://www.footprintnetwork.org/en/index.php/GFN/>>, accessed 14 July 2011.

⁷² GFN (2010) *Ecological Footprint Atlas 2010*, GFN, San Francisco, USA, p.21 <http://www.footprintnetwork.org/images/uploads/Ecological_Footprint_Atlas_2010.pdf>, accessed 14 July 2011.

⁷³ Catton Jr, W.R. (1980) *Overshoot: The Ecological Basis of Revolutionary Change*, Urbana, University of Illinois Press, USA.

⁷⁴ Rees, W.E. (1992) 'Ecological footprints and appropriated carrying capacity: what urban economics leaves out', in *Environment and Urbanization*, vol. 4, no. 2, Oct. 1992.

and other organisations.

- 3.9 A comprehensive statement of the data sources and methodology used for this ISA study can be found on the Australian Conservation Foundation Consumption Atlas website.⁷⁵
- 3.10 The Australian Conservation Foundation Atlas, based on the ISA householder consumption study of 2007, shows that the ACT householders' ecological footprint is 6.99 gha pp. This is smaller than the footprint estimated by the ISA 2010 study, because the ISA 2007 study and Australian Conservation Foundation Atlas based on it captures householders' consumption only, whereas the ISA 2010 study estimate is based on all organisations' consumption as well as householders' consumption.
- 3.11 The ISA 2007 study and Australian Conservation Foundation Atlas allow comparisons between the average ecological footprints of ACT householders and the householders of other Australian states and territories, as well as the average ecological footprints of the householders of each of the statistical local areas of all Australian states and territories.
- 3.12 In 2007, ACT householders had an ecological footprint of 6.99 gha pp, while Western Australian householders had one of 7.21 gha pp; Queensland householders 6.55 gha pp; NSW householders 6.33 gha pp; Victorian householders 6.03 gha pp; Tasmanian householders 5.5 gha pp; South Australian householders 3.25 gha pp; and Northern Territory householders 3.15 gha pp.⁷⁶
- 3.13 The ISA 2007 study and the Australian Conservation Foundation Atlas clearly show that, in each state and territory, the population in the centre and inner suburbs of the capital city are contributing the most per person to the ecological footprint.⁷⁷ For instance, within Canberra the ecological footprints of the householders of the inner suburbs of Braddon and Yarralumla were 8.59

⁷⁵ Dey, C. et al (2007) *Data Sources and Methodology*, p.308, on Australian Conservation Foundation Consumption Atlas website <<http://acfonline.org.au/consumptionatlas/>>, accessed 14 July 2011.

⁷⁶ Australian Conservation Foundation (2007) *Australian Conservation Foundation Consumption Atlas* <<http://www.acfonline.org.au/consumptionatlas>>, accessed 16 July 2011.

⁷⁷ Dey, C. et al (2007) *Data Sources and Methodology*, p.308 and Australian Conservation Foundation (2007) *Australian Conservation Foundation Consumption Atlas*.

gha pp and 8.05 gha pp, respectively, and the outer areas of Tuggeranong and Banks were 6.15 gha pp and 6.07 gha pp, respectively.⁷⁸

Components of the ACT ecological footprint

3.14 The ISA 2010 study for the OCSE shows the top ten commodities contributing to the ACT's ecological footprint in 2008-09, and the relative contributions of them.⁷⁹ These items are tabulated below.

Table 1: Top Ten Commodities Contributing to the ACT Ecological Footprint, 2008 – 09

Rank	Commodity	gha per person	% of total
1	Electricity supply	1.07	12
2	Residential building construction	0.56	6
3	Retail trade	0.51	6
4	Hotels, clubs, restaurants and cafés	0.44	5
5	Air and space transport	0.35	4
6	Petrol	0.32	4
7	Other food products	0.29	3
8	Wooden furniture	0.25	3
9	Dwellings ownership	0.24	3
10	Clothing	0.21	2

Source: ISA (2010) *2008-09 Ecological Footprint of the population of the ACT*

3.15 The consumption of electricity by the people of the ACT contributes the most to the ACT ecological footprint per person. This is because almost all of this electricity is generated by burning coal and generating electricity in this way produces more carbon dioxide emissions than almost any other form of electricity generation.⁸⁰

⁷⁸ *ibid.* Similarly, Melbourne's inner suburbs of Southbank-Docklands and Yarra-Richmond were 8.19 gha pp and 7.32 gha pp respectively and the outer areas of Broadmeadows and Cardinia-South Melbourne were 5.61 gha pp and 5.57 gha pp, respectively.

⁷⁹ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.19.

⁸⁰ See, for example, USA EPA (2006) *Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies*. EPA-600/R-06/006. USA EPA, National

- 3.16 In the 2007-08 financial year, each electricity customer – including residential and non-residential customers – in the ACT consumed, on average, 18.6 megawatt hours (MWh). This was lower than the average for each financial year back to 2003-04. The averages in those years ranged from 19.2 MWh to 18.7 MWh per residential and non-residential customer.⁸¹
- 3.17 Construction of residential properties accounts for the second-largest component of the ACT ecological footprint. The ISA study states that it contributes approximately half a global hectare to each ACT resident's ecological footprint every year.
- 3.18 It also states that most of this contribution is due to the uses in construction of wood from forests and energy to power transport, light, building tools and other devices.⁸²
- 3.19 The third-largest part of the ACT ecological footprint stems from the retail trade. The ISA study comments that this is principally due to the transport fuel used in distributing the retail goods and services, as well as the electricity consumed in the retail facilities, such as shops and warehouses.⁸³
- 3.20 The commodity that is ranked fourth as a contributor to the ecological footprint is hotels, clubs, restaurants and cafés. The ISA study states that this is due to the food consumption in these establishments.
- 3.21 The commodities ranked fifth and sixth are air travel and petrol use. The study states that this is because both entail the consumption of fossil fuels.⁸⁴
- 3.22 The study provides no detail on the remaining commodities. However, it points out that the constituents of the 2003-04 ecological footprint are the same,

Risk Management Research Laboratory. Research Triangle Park, NC. July 2006
 <http://www.epa.gov/oar/caaac/coaltech/2007_01_epaigcc.pdf>, accessed 14 July 2011.

⁸¹ ICRC (2009) *Licensed Electricity, Gas and Water and Sewerage Utilities Compliance and Performance Report for 2007–08*, Table 2.5, p.4
 <http://www.icrc.act.gov.au/_data/assets/pdf_file/0019/156016/Compliance_and_Performance_Report_2007-08_Web.pdf>, accessed 14 July 2011.

⁸² ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.19
 <http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0015/211182/ACT_Ecological_Footprint_08-09_final_report.pdf>, accessed 17 Oct. 2011.

⁸³ *ibid.*, p.20.

⁸⁴ *ibid.*

except that the contribution of electronic goods was marginally higher than clothing in the 2008-09 ecological footprint.⁸⁵ Further, it characterises the ‘top ten’ commodity lists for 2002-03 and 2008-09 as ‘broadly similar’ with the ‘main difference’ being that:

*the direct contributions of electricity and petrol are slightly less important: a result of real achievements in limiting electricity use and vehicle kilometres. However, these contributions amount to less than 20% of the total footprint.*⁸⁶

3.23 The ISA study also explains the components of the ACT ecological footprint for 1998-99, 2003-04 and 2008-09 in terms of broader consumption categories.⁸⁷

3.24 This explanation shows that food and services consumption are most significantly contributing to the ACT ecological footprint. The study states that the food category includes plant- and animal-based products⁸⁸ and the services category includes, among others, telecommunication, financial, medical, entertainment and government services⁸⁹.

3.25 The study characterises the patterns of consumption portrayed by the above graph as reasonably similar to the national average, with a slightly lower percentage of food and shelter impacts, and higher impacts in the other categories. It also points out that energy use impacts are falling both in absolute terms, and in proportional ones, as per person incomes continue to rise in the ACT.⁹⁰

3.26 The study also uses the capacity of ecological footprint methods to distinguish different types of bioproductive areas of land that a human settlement is using to source the natural resources needed for its consumption.

⁸⁵ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.20
<http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0015/211182/ACT_Ecological_Footprint_08-09_final_report.pdf>, accessed 17 Oct. 2011.

⁸⁶ *ibid.*

⁸⁷ ISA (2010) *2008-09 Ecological Footprint of the population of the ACT*, Figure 4, p.17.

⁸⁸ *ibid.*

⁸⁹ *ibid.*

⁹⁰ *ibid.*

- 3.27 In this typology, cropland has the greatest average bioproductivity per hectare of any of the land types. 'Cropland' is, as might be expected, that land used for growing crops for food, animal feed, fibre, oils and biofuels. Similarly, 'pasture' is land on which animals are raised for their meat, hides, wool, and milk. 'Forests' are natural or plantation ones from which timber products and fuel wood are harvested.⁹¹
- 3.28 Energy land is the woodland and forest area needed to absorb all CO₂ emissions from the burning fossil fuels. 'Built-up land' is occupied by infrastructure for housing, transportation, and industry. This land is assumed to have replaced cropland area, as human settlements are predominantly situated in fertile country. Water includes lakes and rivers used for recreation, freshwater supply, hydropower, fishing, and freshwater aquaculture.⁹²
- 3.29 These types of bioproductive land being used to source the natural resources needed for consumption are depicted in Table 2.

Table 2: Ecological Footprints of the ACT and Australia for 2008-09 by Land Type

Thousands of global hectares	ACT 09					
	Ecological Footprint ('000 gha)					
	Cropland	Pasture	Forests	Energy land	Built land	Water
	329	344	610	1,828	87	1
	TOTAL					
	3,200					
	AUS 09					
	Ecological Footprint ('000 gha)					
	Cropland	Pasture	Forests	Energy land	Built land	Water
	18,054	20,031	36,006	97,229	4,610	47
	TOTAL					
	175,977					
gha per person	ACT 09					
	Ecological Footprint (gha)					
	Cropland	Pasture	Forests	Energy land	Built land	Water
	0.94	0.99	1.75	5.24	0.25	0.00
	TOTAL					
	9.2					
	AUS 09					
	Ecological Footprint (gha)					
	Cropland	Pasture	Forests	Energy land	Built land	Water
	0.83	0.92	1.66	4.47	0.21	0.00
	TOTAL					
	8.1					

Source: ISA (2010) *2008-09 Ecological Footprint of the population of the ACT*, Table 1, p.15

⁹¹ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.13.

⁹² *ibid.*

- 3.30 As can be seen in Table 2, the ACT ecological footprint estimate, like all ecological footprint estimates, consists of the 'energy land' needed to absorb the carbon dioxide emitted by the ACT's consumption and real land comprised of pasture, forests, and the other remaining categories. The ISA study makes the point, when describing this land breakdown, that most of the ACT ecological footprint is 'located in other parts of the world that provide the wide range of goods and services consumed by ACT residents'.⁹³
- 3.31 Over half of the ACT ecological footprint estimate, at 57 per cent, is 'energy land', as can be seen in Table 2. The ISA study explains that this is due to the ACT's use of fossil fuels mostly in household electricity consumption, which constitutes 12 per cent of the energy land, and flights and petrol-fuelled cars, both 4 per cent each of the energy land.⁹⁴
- 3.32 19 per cent of the real land is forest land. The study states this is an outcome of the wood consumed in the ACT's heating and construction of new houses.⁹⁵ The study also states that the ACT crop and pasture land combined is slightly higher than the Australian average due to the ACT's higher than average consumption of foodstuffs and of fibres found in clothing and housing.⁹⁶
- 3.33 Built land contributes only three per cent to the ecological footprint of the average ACT resident. The ISA underlines that this is a mark of how little of the ACT's ecological footprint occupies land inside the ACT.⁹⁷
- 3.34 Some of the components of the ACT's ecological footprint are explored in some more detail at Chapters 6 and 7 on energy and food, respectively.

Australian Capital Region's ecological footprint

- 3.35 The only ecological footprint data that the Committee could find for the ACR was measured by the ISA using data it collected and analysed in its 2007 study

⁹³ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.16.

⁹⁴ *ibid.*, p.15.

⁹⁵ *ibid.*, p.16.

⁹⁶ *ibid.*

⁹⁷ *ibid.*

of the ecological footprints of householders, only, not all individuals and entities in the ACR.⁹⁸ That ISA 2007 study shows that the ecological footprint of ACR householders including the ACT's householders was 6.0 gha pp, 0.4 gha pp below the national average of 6.4 gha pp.⁹⁹

- 3.36 In its conclusions about the data gathered during this study, including the data on the ACR, the ISA states:

*In each state and territory, the centre of the capital city is the area with the highest environmental impacts, followed by the inner suburban areas. Rural and regional areas tend to have noticeably lower levels of impact. Affluence is the dominant effect, even though urban living patterns offer many opportunities for efficiency and reduced environmental impacts...*¹⁰⁰

- 3.37 Without including the ACT in the ACR, the ecological footprint per householder was 5.94 gha, 0.46 gha below the national average. Without including Queanbeyan householders, but including ACT householders, in the ACR, the average ACR householder's ecological footprint was 5.94 gha pp, 0.46 gha pp below the national average. Without including the householders of the ACT and Queanbeyan in the ACR, the average ACR householder's footprint was 5.88 gha pp, 0.5 below the national average.¹⁰¹
- 3.38 The average householder ecological footprint for Queanbeyan was 7 gha pp, the highest of all the ACR's NSW local government areas, with Palerang the next highest at 6.7 gha pp, then Yass at 6.2 gha pp. It was also slightly higher than the average ACT householder's, which was 6.99 gha pp.¹⁰²
- 3.39 Hence, Queanbeyan's average householder ecological footprint was 1.0 gha above the average householder ecological footprint for the whole of the ACR excluding the ACT and 0.6 gha above the national householder average; Palerang's was 0.7 gha above the average for the ACR excluding the ACT and

⁹⁸ Australian Conservation Foundation (2007) *Australian Conservation Foundation Consumption Atlas* <<http://www.acfonline.org.au/consumptionatlas>>, accessed 14 July 2011.

⁹⁹ Calculations based on Dey, C. et al (2007) *Data Sources and Methodology*, p.308, on Australian Conservation Foundation Consumption Atlas website <<http://acfonline.org.au/consumptionatlas/>>, accessed 14 July 2011.

¹⁰⁰ *ibid.*, p.306.

¹⁰¹ *ibid.*

¹⁰² *ibid.*

0.3 gha above the national average; and Yass was 0.2 gha above the average for the ACR householder excluding ACT householders and 0.2 below the average for Australian householders.¹⁰³

- 3.40 As will be further explored, in later Chapters of this Report, researchers on ecological footprints are all in agreement about high population growth rates¹⁰⁴ and high employment and income rates¹⁰⁵ being strongly and positively correlated with large ecological footprints.
- 3.41 Accordingly, there is a characteristic of the populations of all three of the Queanbeyan City, Yass Valley and Palerang LGAs that is relevant to how the average ecological footprint of their householders was found to be relatively large as compared to the average ecological footprint of all other ACR householders. That is, they all have high population growth rates.
- 3.42 The average annual growth rate, from 2002 to 2007, for Palerang was 3.5 per cent; for Yass Valley it was 2.5 per cent; and for Queanbeyan it was 2.1 per cent.¹⁰⁶ That was 2.7, 1.7, and 1.3 per cent, respectively, above the NSW average population growth rate for 2002 to 2007, which was 0.8 per cent and 1.9, 0.9, and 0.5 per cent above the Australian rate of population growth at the end of the December quarter for 2007, which was 1.6 per cent.¹⁰⁷

¹⁰³ *ibid.*

¹⁰⁴ Lenzen, M. et al (2007) *Forecasting the Ecological Footprint of Nations: a blueprint for a dynamic approach*, ISA Research Report 07-01, Uni. of Sydney's ISA and Biology and Chemistry Schools, Uni. of York's Stockholm Environment Institute and Dept. of Biology, p. 47 <

<http://www.isa.org.usyd.edu.au/publications/DEF.pdf>>; UN Dept. of Economic and Social Affairs Division for Sustainable Development (2010) *TRENDS IN SUSTAINABLE DEVELOPMENT: Towards Sustainable Consumption and Production*, pp.5-6.

<http://www.un.org/esa/dsd/resources/res_pdfs/publications/trends/trends_sustainable_consumption_production/Trends_in_sustainable_consumption_and_production.pdf>, pp. 11-12; World Economic Forum (2010) *Redesigning Business Value: A Roadmap for Sustainable Consumption Report*, Deloitte Touche Tohmatsu and the World Economic Forum, Jan. 2010, p.7.

<<http://www.weforum.org/pdf/sustainableconsumption/DrivingSustainableConsumptionreport.pdf>>; Galli, A. et al (2011) 'Assessing the global environmental consequences of economic growth through the Ecological Footprint: A focus on China and India', in *Ecological Indicators*, 18 May 2011, p.1 <<http://www.sciencedirect.com/science/article/pii/S1470160X11001038>>, all accessed 14 July 2011.

¹⁰⁵ Galli, A. et al (2011), *ibid.*, p.1; UN Department of Economic and Social Affairs Division for Sustainable Development (2010), *ibid.*, p.10 and Lenzen, M. et al (2007), *ibid.*, p.9.

¹⁰⁶ ABS (2008) *Regional Population Growth, Australia, 2006-07* (cat. no. 3218.0) (released 31 March 2008).

¹⁰⁷ ABS (2008) *Australian Demographic Statistics, December 2007* (cat. no. 3101.0) (released 24 June 2008).

- 3.43 Further, during 2006 to 2007, Palerang was the second fastest growing LGA in all of NSW, while Yass Valley was the sixth fastest growing and Queanbeyan was the fourteenth.¹⁰⁸
- 3.44 According to the ABS, at 30 June 2010, the fastest-growing inland local government areas in NSW were the Yass Valley at 2.8 per cent, Palerang at 2.2 per cent, and Queanbeyan at 2.0 per cent.¹⁰⁹ They were, respectively, 1.2 per cent, 0.6 per cent, and 0.4 per cent above Australia's total rate of population growth.¹¹⁰
- 3.45 As far as the size of the ISA 2007 estimate for Queanbeyan is concerned, there are other pertinent characteristics of the Queanbeyan population, the most populous of the three LGAs, in 2007,¹¹¹ as it is now. That is that, in 2007, Queanbeyan had relatively high average incomes and employment rates and a relatively high proportion of people of working age.
- 3.46 The average wage and salary income for Queanbeyan, in the year ended 30 June 2007 was \$48, 213.¹¹² This was high as compared to the average wage and salary income for the SESD, which was \$38, 445 per year;¹¹³ the average for Cootamundra, which was \$34, 611;¹¹⁴ the average for Gundagai, which was \$31, 761;¹¹⁵ the average for Tumbarumba, which was \$33, 869;¹¹⁶ and the average for Australia, which was \$42, 081¹¹⁷.
- 3.47 Similarly, in the year ended 30 June 2007, Queanbeyan's unemployment rate was a low 2.0 per cent,¹¹⁸ while the SESD's was 4.0 per cent;¹¹⁹ Cootamundra's

¹⁰⁸ ABS (2008) *Regional Population Growth, Australia, 2006-07* (cat. no. 3218.0) (released 31 March 2008).

¹⁰⁹ ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011).

¹¹⁰ *ibid.* The latest ABS statistics on this matter are for the twelve months up to 30 June 2010.

¹¹¹ ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011).

¹¹² ABS (2011) *National Regional Profile: Queanbeyan (C) (Statistical Local Area)* (released 4 Nov. 2011). For explanation of 'average wage and salary income', in this context, see this ABS publication or any provided via the ABS (2011) *National Regional Profile 2006-2010*.

¹¹³ ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

¹¹⁴ ABS (2011) *National Regional Profile: Cootamundra (A) (Local Government Area)* (released 4 Nov. 2011).

¹¹⁵ ABS (2011) *National Regional Profile: Gundagai (A) (Local Government Area)* (released 4 Nov. 2011).

¹¹⁶ ABS (2011) *National Regional Profile: Tumbarumba (A) (Local Government Area)* (released 4 Nov. 2011).

¹¹⁷ ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

¹¹⁸ ABS (2011) *National Regional Profile: Queanbeyan (C) (Statistical Local Area)* (released 4 Nov. 2011).

¹¹⁹ ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

was 5.1 per cent;¹²⁰ Gundagai's was 3.5 per cent;¹²¹ Tumbarumba's was 3.1 per cent;¹²² and Australia's was 4.5 per cent¹²³.

- 3.48 According to the latest ABS statistics, the income, unemployment and population growth rate for Queanbeyan in the year ending June 2009 was broadly similar to how it was in 2007. At 30 June 2009, the average wage and salary income for Queanbeyan was \$53, 602.¹²⁴ This was high compared to the average wage and salary income for the SESD, which was \$51, 565 per year¹²⁵; Cootamundra's, which was \$37, 462¹²⁶; Gundagai's, which was \$36, 983¹²⁷; and Tumbarumba's, which was \$38 099¹²⁸.
- 3.49 Similarly, the unemployment rate in Queanbeyan, in the June quarter of 2010, was 2.3 per cent.¹²⁹ This is significantly lower than the SESD unemployment rate of that time, which was 5.4 per cent¹³⁰. In Cootamundra, it was 6.4 per cent¹³¹; in Gundagai, 3.5 per cent¹³²; in Tumbarumba, 3.2 per cent¹³³. Meanwhile, Australia's unemployment rate was 5.5 per cent.¹³⁴
- 3.50 At 30 June 2007, 70 per cent of the Queanbeyan population that was 15 to 64 years old, which the ABS refers to as 'working age'.¹³⁵ This was significantly higher than the then SESD proportion of 64.6 per cent¹³⁶; the then Cootamundra proportion of 59.7 per cent¹³⁷; the then Gundagai proportion of

¹²⁰ ABS (2011) *National Regional Profile: Cootamundra (A) (Local Government Area)* (released 4 Nov. 2011).

¹²¹ ABS (2011) *National Regional Profile: Gundagai (A) (Local Government Area)* (released 4 Nov. 2011).

¹²² ABS (2011) *National Regional Profile: Tumbarumba (A) (Local Government Area)* (released 4 Nov. 2011).

¹²³ ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

¹²⁴ ABS (2011) *National Regional Profile: Queanbeyan (C) (Statistical Local Area)* (released 4 Nov. 2011).

¹²⁵ ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

¹²⁶ ABS (2011) *National Regional Profile: Cootamundra (A) (Local Government Area)* (released 4 Nov. 2011).

¹²⁷ ABS (2011) *National Regional Profile: Gundagai (A) (Local Government Area)* (released 4 Nov. 2011).

¹²⁸ ABS (2011) *National Regional Profile: Tumbarumba (A) (Local Government Area)* (released 4 Nov. 2011).

¹²⁹ ABS (2011) *National Regional Profile: Queanbeyan (C) (Statistical Local Area)* (released 4 Nov. 2011).

¹³⁰ ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

¹³¹ ABS (2011) *National Regional Profile: Cootamundra (A) (Local Government Area)* (released 4 Nov. 2011).

¹³² ABS (2011) *National Regional Profile: Gundagai (A) (Local Government Area)* (released 4 Nov. 2011).

¹³³ ABS (2011) *National Regional Profile: Tumbarumba (A) (Local Government Area)* (released 4 Nov. 2011).

¹³⁴ ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

¹³⁵ ABS (2011) *National Regional Profile: Queanbeyan (C) (Statistical Local Area)* (released 4 Nov. 2011).

¹³⁶ ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

¹³⁷ ABS (2011) *National Regional Profile: Cootamundra (A) (Local Government Area)* (released 4 Nov. 2011).

60.3 per cent¹³⁸; the then Tumbarumba proportion of 63 per cent¹³⁹; and the then Australian proportion of 67.5 per cent¹⁴⁰.

- 3.51 As noted earlier, including the ACT ecological footprint in the ISA's 2007 estimations for ACR householders lifted the average ecological footprint for an ACR householder to 6.0 gha, from the average of 5.94 gha that it was without including the ACT in the ACR. This is a statistically significant elevation.
- 3.52 Three characteristics of the ACT's householders, in 2007, explain this increase.
- 3.53 In the year ended 30 June 2007, the average ACT wage and salary income was a high \$49, 116,¹⁴¹ while the SESD average was \$38, 445,¹⁴² and the Australian average was \$42, 081¹⁴³. At the same time, the ACT unemployment rate was 3.0 per cent,¹⁴⁴ while the SESD average was 4.0 per cent¹⁴⁵ and the Australian average was 4.5 per cent.¹⁴⁶
- 3.54 At 30 June 2007, 71.6 per cent of the ACT's total population was aged 15 to 64, and, therefore, what the ABS describes as 'working age'.¹⁴⁷ This was high as compared to the then average proportion of 15 to 64 year olds in the SESD, which was 64.6 per cent,¹⁴⁸ and in Australia, which was 67.5 per cent.¹⁴⁹
- 3.55 The ACT picture has proven to be broadly the same in more recent years.¹⁵⁰

¹³⁸ ABS (2011) *National Regional Profile: Gundagai (A) (Local Government Area)* (released 4 Nov. 2011).

¹³⁹ ABS (2011) *National Regional Profile: Tumbarumba (A) (Local Government Area)* (released 4 Nov. 2011).

¹⁴⁰ ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

¹⁴¹ ABS (2011) *National Regional Profile: Australian Capital Territory* (released 4 Nov. 2011).

¹⁴² ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

¹⁴³ ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

¹⁴⁴ ABS (2011) *National Regional Profile: Australian Capital Territory* (released 4 Nov. 2011).

¹⁴⁵ ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

¹⁴⁶ ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

¹⁴⁷ ABS (2011) *National Regional Profile: Australian Capital Territory* (released 4 Nov. 2011).

¹⁴⁸ ABS (2011) *National Regional Profile: South Eastern (Statistical Division)* (released 4 Nov. 2011).

¹⁴⁹ ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

¹⁵⁰ ABS (2011) *Australian Demographic Statistics, June 2011* (cat. no. 3101.0) (released 19 Dec. 2011); ABS (2011) *National Regional Profile: Australian Capital Territory* (released 4 Nov. 2011); ABS (2011) *National Regional Profile: Australian Capital Territory* (released 4 Nov. 2011); and ABS (2011) *National Regional Profile: Australia (Statistical Division)* (released 4 Nov. 2011).

Utility of Australian Capital Region ecological footprint estimates and analyses

- 3.56 Mr Corbell, in his capacity as Minister for the Environment and Sustainable Development, stated during one of the Inquiry's public hearings:

*We [the ACT Government] certainly have an objective to reduce it [the ecological footprint]... we have not quantified a particular number... Our focus has been at the next level down... that is, our performance in a range of sectors such as greenhouse gas emissions, water use, energy use and waste generation...*¹⁵¹

- 3.57 Many submissions to the Inquiry argued that ecological footprint estimates and analyses are a useful means of communicating the unsustainable environmental impact of current consumption levels in the ACT.

- 3.58 For example, the ACT Natural Resource Management Council suggests that 'the strength of an integrated ecological footprint measure is that people generally grasp the concept quickly and do not need to understand the detail in order to get the message'.¹⁵² The ACT Commissioner for Sustainability and the Environment expresses a similar view.¹⁵³

- 3.59 On viewing the ISA 2007 and 2010 studies, as well as the Australian Conservation Foundation Consumption Atlas constructed from the 2007 study, the Committee found that the methodologies used to produce the ecological footprints are robust. This is because it is well documented¹⁵⁴ that many researchers have rigorously developed, and tested each other's, methodologies for measuring ecological footprints, since 1996¹⁵⁵.

¹⁵¹ *Transcript of Evidence* (public hearing) 24 July 2011, pp. 40-41.

¹⁵² Sub. 26, p.3.

¹⁵³ Sub. 8, pp.1-3.

¹⁵⁴ See, for example, the GFN standards for estimating ecological footprints cited by the ISA 2007 and 2010 studies <http://www.footprintnetwork.org/en/index.php/GFN/page/application_standards/>, accessed 14 July 2011. See, also, Wiedmann, T. et al. (2006) 'Allocating ecological footprints to final consumption categories with input-output analysis', in *Ecological Economics*, vol. 56, no. 1, pp.28-48; Wood, R. and M. Lenzen (2003) 'An application of an improved ecological footprint method and structural path analysis in a comparative institutional study', in *Local Environment*, vol. 8, no. 4, pp. 365-386; and Bicknell, K. B. et al. (1998) 'New methodology for the ecological footprint with an application to the New Zealand economy', in *Ecological Economics*, vol. 27, no. 2, pp.149-160.

¹⁵⁵ It is widely accepted that the first tool for measuring ecological footprints was published in Wackernagel, M. and Rees, W. (1996) *Our Ecological Footprint: Reducing Human Impact on the Earth*,

- 3.60 Third, the disaggregation and quantification of the kinds of consumption and land contributing to ecological footprints enables design of targeted policy and program responses and post-implementation measurement of their efficacy.
- 3.61 However, the Committee has seriously considered the cautions, expressed in some submissions, about the use of ecological footprint estimates and analyses, or the sole use of these, as indicators of human impacts on ecosystems. The Committee believes that these cautions should be heeded in any deployment of ecological footprint estimates and analyses.
- 3.62 For example, the Canberra Division of Engineers Australia agrees ‘that simple messages are essential to begin the conversation about the need for change’, but raises concerns that the use of ecological footprint estimates may lead to public debates about measurement methods that divert focus away from pursuing decreases in ecological footprints.¹⁵⁶
- 3.63 The Canberra Division of Engineers Australia also notes that most existing footprint calculators ‘convey doom-sayer scenarios’ that do not support growth of people’s environmentally sustainable behaviours, because they do not give adequate recognition to those behaviours.¹⁵⁷ The Canberra Division of Engineers Australia commends to the Inquiry several critiques of the ‘simplifying assumptions and statistical protocols’ used in ecological footprint estimates.¹⁵⁸ It nominates, for example, that such estimates assume current levels of land use productivity, whereas land productivity sometimes increases.¹⁵⁹
- 3.64 The Canberra Division of Engineers Australia also states that ecological footprint estimates assume that all greenhouse gases need to be sequestered and this may not be the case ‘to maintain the sustainable capacity of the

New Society Publishers. See, for example, references to Mathis Wackernagel being the creator of ‘the ecological footprint’ Cornell Uni., USA <http://cornell.localist.com/event/the_ecological_footprint> and Monash Uni., Australia <<http://www.monash.edu.au/news/releases/show/693>>, accessed 1 July 2011.

¹⁵⁶ Sub. 34, p.1.

¹⁵⁷ Sub. 34, pp.1 and 3.

¹⁵⁸ *ibid.*, p.3.

¹⁵⁹ Sub. 34, Appendix A, p.1.

earth'.¹⁶⁰ In this connection, it is pertinent to note that, according to the ISA study, 57 per cent of the ACT's footprint, or approximately 5.24 gha, is so-called 'energy land' or land required to absorb carbon dioxide emissions.¹⁶¹

- 3.65 Dr John Schooneveldt argues, in his submission, that the 'greatest weakness' of footprint analysis 'is that it is a linear measurement. It assumes the economy is an extractive machine'. In contrast, he believes that more emphasis should be placed on efficiency in the recycling of organic and non-organic resources.¹⁶² The Committee notes that the footprint impacts of the ACT's substantial recycling programs are not explicit in the ISA study.¹⁶³
- 3.66 In its submission, the Environmental Defender's Office of the ACT (EDO ACT) points out that ecological footprint estimates often draws on 'standard national data', such as ABS Household Expenditure Survey data, and that these data are not sensitive to local consumption choices and impacts. For example, an area with a larger proportion of subscribers of electricity produced through the use of renewable resources would have a lower footprint than estimates produced from standardised national data would show.¹⁶⁴
- 3.67 The EDO ACT also highlights that indices of the state of the environment, such as air quality and drinking water quality, are typically overlooked by ecological footprint estimates and urges that the ACT Government continue to use ecological footprint estimates of the ACT with other environmental sustainability indicators.¹⁶⁵

Key findings

- 3.68 The Committee finds that:
- a. The ACT Government currently has an objective of reducing the ACT ecological footprint.

¹⁶⁰ *ibid.*

¹⁶¹ *op cit*, p.15.

¹⁶² Sub. 2, p.6.

¹⁶³ There is no mention of 'recycling', 'reuse', or cognate words in the ISA 2010 study.

¹⁶⁴ Sub. 31, p.3.

¹⁶⁵ Sub. 31., pp.3-4.

- b. With direct energy use decreasing in the last five years, the bulk of the ACT ecological footprint of the ACT and ACR is due to steadily increasing consumption of food, goods and services per person.
- c. The ISA 2010 study provides a clear picture of the ACT's whole ecological footprint, not just that of its householders, as well as the constituent parts of that footprint.
- d. The disaggregation and quantification of types of consumption and land contributing to ecological footprints enables the design of targeted policy and program initiatives and post-implementation measurement of how they have reduced the size and growth rates of those footprints.
- e. Any estimation of the ACT's and the wider ACR's ecological footprints should comprehensively expose its methodology, including its assumptions and limits. The ISA 2007 and 2010 studies each provide an easily located and rigorous statement of their respective methodologies, including their data sources, assumptions, and limitations, and how these methodologies were derived from improved methodologies.
- f. Use of other indicators of the environmental sustainability of activities can significantly complement ecological footprint estimates and analyses and should be used.

RECOMMENDATION 1

- 3.69 **The Committee recommends that the ACT Commissioner for the *Environment Act 1993* be amended to incorporate a formal responsibility for biennial reporting on the ACT ecological footprint.**

RECOMMENDATION 2

- 3.70 **The Committee recommends that additional funding be provided to the OCSE, the Environment and Sustainable Development Directorate, and community environment organisations and groups to promote a more sustainable use of resources, including reducing food waste and energy inefficiency, to reduce the ACT and ACR ecological footprints.**

4 POPULATION GROWTH

- 4.1 Researchers with relevant expertise broadly agree that the size of a human population on any area of land is treated as one of the most important factors affecting ecological sustainability,¹⁶⁶ ecological carrying capacity, and ecological footprints.¹⁶⁷
- 4.2 Further, population matters were one of the themes most emphasised in the overwhelming majority of submissions to the Inquiry. Many opposed further population growth of the ACT and argued that the ACT should be seeking a steady or reduced population because growing populations increase the ecological footprint of the ACT and wider ACR or generally degrade the environment.¹⁶⁸

Connections between population growth and ecological footprints

- 4.3 The *World Wildlife Fund Living Planet Report 2010* summarises the pressures on ecosystems of population growth and the consumptions rates of populations in this way:

*All human activities make use of ecosystem services — but can also put pressure on the biodiversity that supports these services... The scale of their impact on biodiversity depends on three factors: the total number of consumers, or population; the amount each person is consuming; and the efficiency with which natural resources are converted into goods and services.*¹⁶⁹

¹⁶⁶ See, for example, Birrell, B. (2010) 'Population growth and sustainability', Pre-Election Policy Unit, Parliamentary Library, Parliament of Australia, 8 Dec. 2010.

¹⁶⁷ See, for example, Cork, S. (2010) 'Ways forward in the population and environment debate', Pre-Election Policy Unit, Parliamentary Library, Parliament of Australia, 13 Jan. 2010.

¹⁶⁸ These include the submissions of Mr John Burke (Sub. 19), Mr Greg Delaney (Sub. 7), A/Prof. Kieran Fallon (Sub. 6), Ms Jenny Goldie (Sub. 15), Mr Tom Gosling (Sub. 18), Mr Mark O'Connor (Sub. 22), Ms Julia Richards (Sub. 11), Mr Keith Ross (Sub. 14), Mr Keith Sayers (Sub. 36), Sustainable Population Australia (Sub. 35), Mr David Turbayne (Sub. 21), and Dr Chris L. Watson (Sub. 25).

¹⁶⁹ WWF (2010) *Living Planet Report 2010*, p.12 <<http://awsassets.panda.org/downloads/lpr2010.pdf>>, accessed 1 Aug. 2011. This is a peer-reviewed study that draws much of its data from the United Nations and university research institutes.

- 4.4 A number of submissions raised the issue of the city's population causing a diminution in its biodiversity. These included the submissions of the Canberra Ornithological Group, the Friends of Grasslands, the Conservation Council ACT Region, Mr Richard Sharp, and Ms Jenny Goldie.¹⁷⁰
- 4.5 As is cited in the submission of the ACT Branch of Sustainable Population Australia,¹⁷¹ the Australian Conservation Foundation has nominated human population growth as a 'key threatening process' to Australia's biodiversity under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.¹⁷²
- 4.6 The Global Footprint Network's 2010 account of the global ecological footprint points to Paul R. Ehrlich's and John P. Holdren's 1971 equation¹⁷³ for modeling the human-made driving forces of environmental degradation, or what the GFN calls 'natural capital appropriation'¹⁷⁴. This equation distilled those forces into three variables interacting in this way: Environmental Impact = Population x Affluence x Technology.
- 4.7 Many researchers¹⁷⁵ and others, including Associate Professor Kieran Fallon and Mr Tom Gosling, who made submissions to the Inquiry¹⁷⁶, observe that this equation continues to be key to understanding the effects of human activities on environments.
- 4.8 It is important to establish what the ACT and wider ACR's population dynamics are; how population policy is viewed by the ACT and NSW Governments, and the NSW local governments in the ACR; and what the ACT

¹⁷⁰ See Sub. 10, 9, 13, 1, and 15, respectively.

¹⁷¹ Sub. 35, pp.3-4.

¹⁷² Australian Conservation Foundation (2010) 'Population growth a threat to biodiversity', Media Release, 23 March 2010 <http://www.acfonline.org.au/articles/news.asp?news_id=2749&eid=18273>, accessed 14 July 2011.

¹⁷³ Ehrlich, P. and J. Holdren (1971) 'Impact of population growth', *Science*, vol. 171, pp.1212-1217.

¹⁷⁴ GFN (2010) *Ecological Footprint Atlas*, Oakland, U.S.A, 13 October 2010.

¹⁷⁵ See, for example, Zagheni, E. Z. and F. C. Billari (2006) *An IPAT-type Model of Environmental Impact Based on Stochastic Differential Equations*, Population Association of America Annual Meeting, Los Angeles, March 30 - April 1, 2006 <http://www.demog.berkeley.edu/~emilioz/IPAT_present.pdf>, accessed 14 July 2011, and Dietz, T. and Rosa, E. (1994) 'Rethinking the Environmental Impacts of Population, Affluence and Technology', *Human Ecology Review*, Summer/Autumn, 1, 1994.

¹⁷⁶ Sub. 6, p.1 and Sub. 18, pp.1-2, respectively.

Government's optimal outlook on population policy could be in terms of human welfare and the ACR's ecological carrying capacity.

Snap-shot of the ACT's and wider region's populations

- 4.9 As noted in Chapter 2, the ABS has estimated that the resident population of the ACR, including the ACT, is 596, 535 residents and the ACT's is 365,400.¹⁷⁷
- 4.10 The most populous of the 17 local government areas surrounding the ACT are Queanbeyan City at 41, 430 residents; the Eurobodalla Shire at 37, 714; the Bega Valley Shire at 33, 925; and Goulburn Mulwaree at 28, 702.¹⁷⁸
- 4.11 However, according to the latest issue of ABS statistics on regional population growth, in the twelve months up to June 30 2010, the fastest-growing inland local government areas in NSW were the Yass Valley at 2.8 per cent, Palerang at 2.2 per cent, and Queanbeyan at 2.0 per cent.¹⁷⁹ These local government areas are all in the ACR and very near the ACT.

ACT's current population growth

- 4.12 According to the ABS, the ACT's estimated residential population, for the year ended 30 June 2011, was 365,400.¹⁸⁰
- 4.13 The ACT's population growth rate in the year up to June 30 2011 was 1.9 per cent, 0.5 per cent more than Australia's rate of population growth.¹⁸¹

¹⁷⁷ ABS (2011) *Australian Demographic Statistics, June 2011* (cat. no. 3101.0) (released 19 Dec. 2011). This means that not including the ACT, the ABS estimated resident population for the ACR is 231, 135.

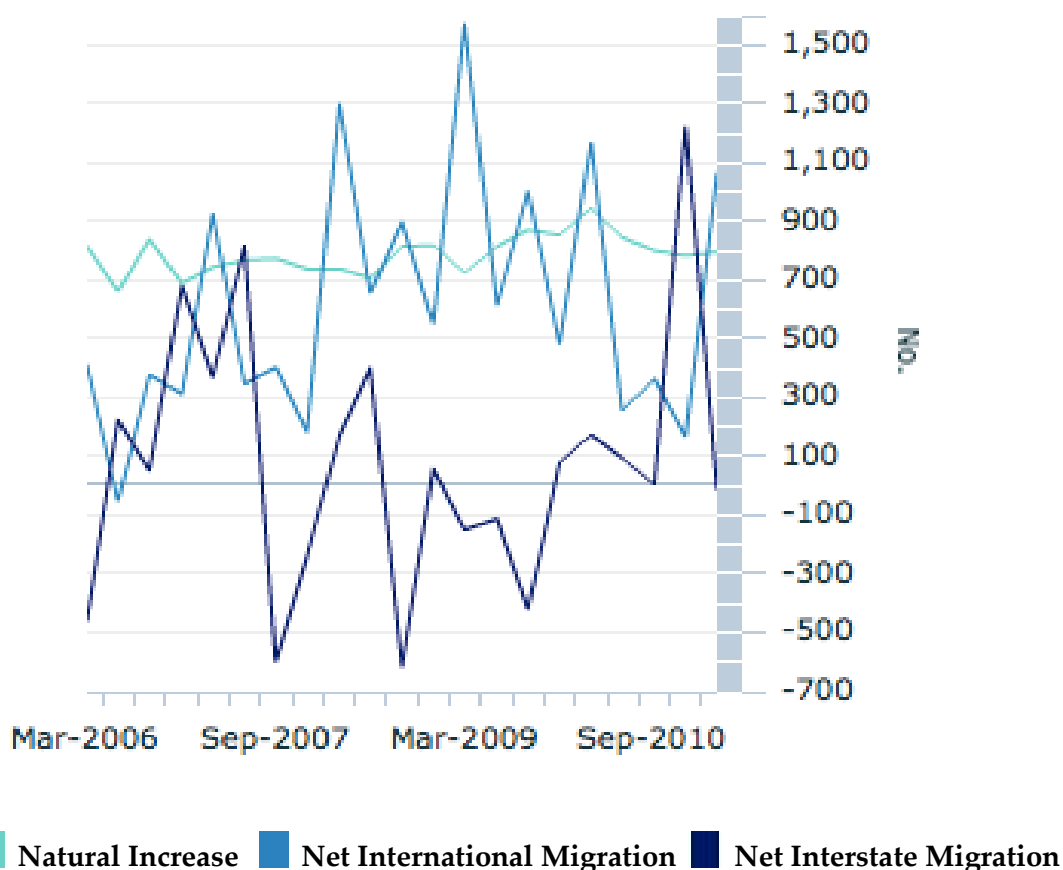
¹⁷⁸ ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011).

¹⁷⁹ ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011).

¹⁸⁰ ABS (2011) *Australian Demographic Statistics, June 2011* (cat. no. 3101.0) (released 19 Dec. 2011).

¹⁸¹ *ibid.*

Figure 1: Components of Estimated Residential Population of the ACT, March 2006 – September 2010



Source: ABS (2011) *State and Territory Statistical Indicators, 2011* (cat. no. 1367.0)

- 4.14 As can be seen in the Figure 1, above, the major component of the ACT's population growth for that year was 'natural increase'. This is increase that can be attributed to births and deaths and not interstate or overseas migration.¹⁸²
- 4.15 This was so for two main reasons. First, the rest of the country receives a relatively larger population boost from international migration. Second, the ACT's growth is lowered marginally by net interstate migration outflow. While the ACT's interstate migration levels are large in each direction, they are

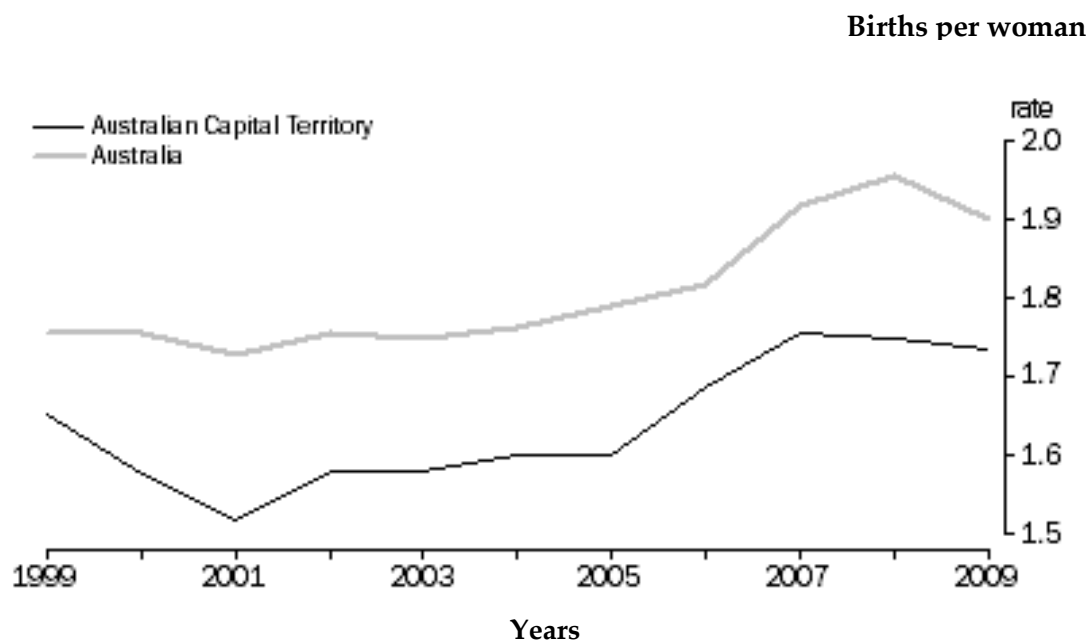
¹⁸² ABS (2011) *Australian Demographic Statistics, June 2011* (cat. no. 3101.0) (released 19 Dec. 2011).

small in net terms.¹⁸³

Australian Bureau of Statistics projections of the ACT population

4.16 From 1999 to 2009, the total fertility rate¹⁸⁴ for the ACT was consistently lower than the national average. The ACT's total fertility rate for women has gradually increased from 1.52 in 2001 to 1.74 in 2009. The ACT's crude birth rate¹⁸⁵ has risen from a low in the year 2005 of 12.7 to 13.8 births per 1,000 population in the year 2009.¹⁸⁶ This is represented in the below ABS graph.

Figure 2: Comparison of ACT's and Australia's Total Fertility Rate, 1999 – 2009



Source: ABS (2011), *In fACT - Statistical Information on the ACT and Region*

¹⁸³ *ibid.*

¹⁸⁴ Total fertility rate represents the number of children a woman would bear during her lifetime, if at each year of her reproductive life, she experienced the age-specific fertility rates of the current year. See ABS (2010) *Births Australia* (cat. no. 3301.0) < <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3301.0> >, accessed 12 Nov. 2011.

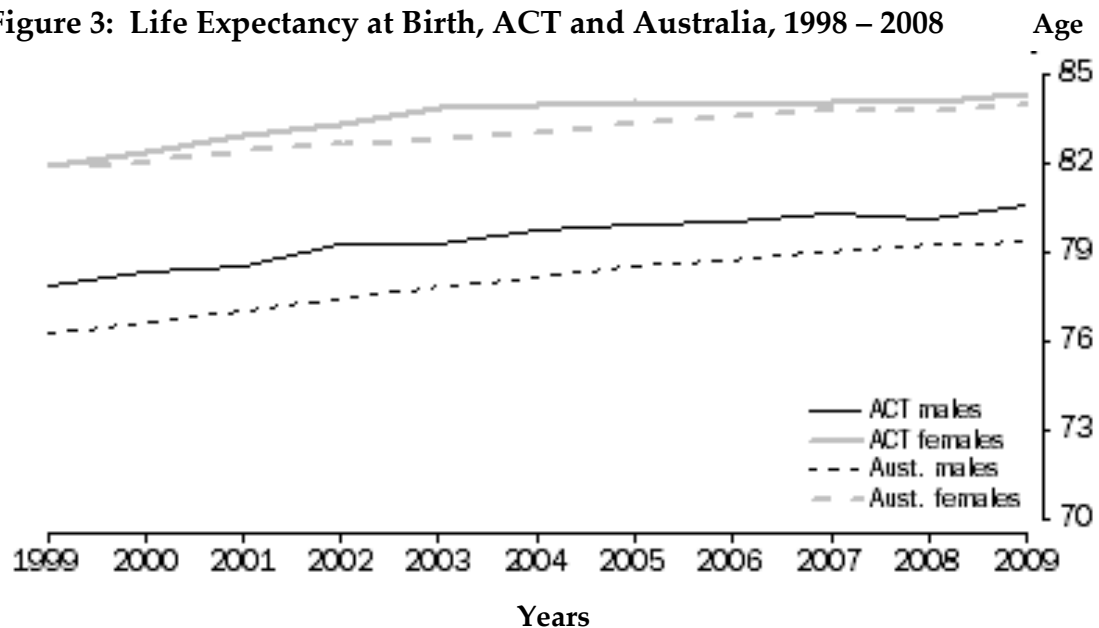
¹⁸⁵ The crude birth rate is the number of births registered during the calendar year per 1,000 ERP at 30 June of that year. See ABS (2010) *Births Australia* (cat. no. 3301.0) < <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3301.0> >, accessed 12 Nov. 2011.

¹⁸⁶ For more information on statistics and terms related to births, refer to ABS (2010) *Births Australia* (cat. no. 3301.0) < <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3301.0> >, accessed 14 July 2011.

(cat. no. 1308.8)

- 4.17 Between the years 1999 and 2009, the standardised death rate¹⁸⁷ for the ACT decreased from 6.5 to 5.4 deaths per 1,000 standard population. This resulted in the ACT consistently having one of the lowest standardised death rates of all Australian states and territories.¹⁸⁸

Figure 3: Life Expectancy at Birth, ACT and Australia, 1998 – 2008



Source: ABS (2010) *Deaths, Australia* (cat. no. 3302.0)

- 4.18 As can be seen in the above graph, in 2009, life expectancy at birth for boys born in the ACT was 80.5 years and 84.3 years for girls.¹⁸⁹
- 4.19 The ABS' highest set of population projections has ongoing population growth for the ACT at a rate of 1 to 1.2 per cent, and populations of approximately 413, 808 by 2019; 483, 722 by 2029; 554, 216 by 2039; 628, 097 by 2049; and 683, 277 by 2056.¹⁹⁰ The ABS projects that the national rate of population

¹⁸⁷ These standardized death rates account for the effect of changes in the age structure over time. Standardised death rates use total persons in the 2001 Australian population as the standard population. For more explanation, see ABS (2010) *Deaths, Australia* (cat. no. 3302.0). <<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3302.0>>, accessed 12 Nov. 2011.

¹⁸⁸ Standardised death rates use total persons in the 2001 Australian population as the standard population. For more explanation, see ABS (2010) *Deaths, Australia* (cat. no. 3302.0) <<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3302.0>>, accessed 12 Nov. 2011.

¹⁸⁹ ABS (2011) *In fACT - Statistical Information on the ACT and Region* (cat. no. 1308.8).

¹⁹⁰ Series B data of ABS (2008) *Population Projections, Australia, 2006 to 2101* (cat. no. 3222.0) <<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3222.0>>, accessed 12 Nov. 2011.

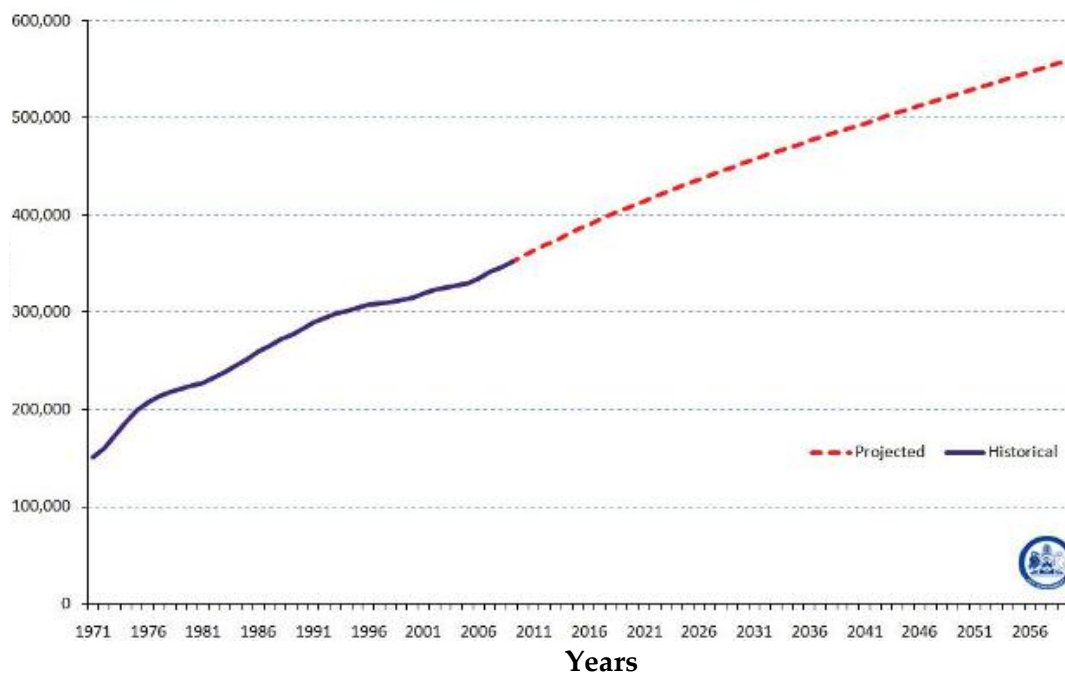
growth over the same period will be in the range of 1.2 to 1.7 per cent.¹⁹¹

ACT Demographer's projections of the ACT population

- 4.20 The ACT Demographer has made population projections for the ACT since 2007.¹⁹² These are published on the Chief Minister and Cabinet Directorate (CMCD) website.
- 4.21 As depicted in the below graph,¹⁹³ the ACT Demographer's projections are that the ACT population will be 379,791 by 2014; 404,958 by 2019; 449,304 by 2029; 487,161 by 2039; 523,132 by 2049; and 557,443 by 2059.

Figure 4: Historical and Projected Population of the ACT, 1971 – 2056

Population



Source: CMCD webpage 'ACT Population Projections: 2009 to 2059' [dated 27 June 2011]

¹⁹¹ Series A data of ABS (2008) *Population Projections, Australia, 2006 to 2101* (cat. no. 3222.0).

¹⁹² ACT Chief Minister and Cabinet Directorate (CMCD) webpage entitled *ACT Population Projections: 2009 to 2059* <<http://www.cmd.act.gov.au/policystrategic/actstats/projections>> [webpage dated 27 June 2011], accessed 25 Oct. 2011.

¹⁹³ *ibid.*

- 4.22 The CMCD website states that these projections 'take into account Estimated Resident Population data, as released by the Australian Bureau of Statistics (ABS), as well as the most recent assumptions on fertility, mortality and migration'.¹⁹⁴
- 4.23 The analysis published for the ACT Government's 2009 projections show that natural increase is the major component of ACT population growth for the years out to 2056.

The Australian Capital Region's population

- 4.24 As noted earlier, in the twelve months up to June 30 2010, the fastest-growing inland local government areas in NSW were the Yass Valley at 2.8 per cent, Palerang at 2.2 per cent, and Queanbeyan at 2.0 per cent.¹⁹⁵ The whole-of-NSW growth rate was 1.5 per cent.¹⁹⁶
- 4.25 Queanbeyan City Council developed its own population projections, in 2010, and these have the Queanbeyan population increasing from 40, 303 in 2012, to 58, 023 in 2031.¹⁹⁷
- 4.26 Further, the NSW Department of Planning made projections for all local government areas of NSW, in 2010. These project that Queanbeyan is 42, 400 now and will be 60,900 in 2031. They also project that its growth rate for the years 2011 to 2031, inclusive, will range from 1.42 per cent to 2.14 per cent.
- 4.27 The Department also states that Yass Valley has a population of 15, 000; that it will be 21, 100 in 2031; and that its growth rate for 2011 to 2031, inclusive, will range from 1.3 per cent to 1.69 per cent. For Palerang, the Department projects

¹⁹⁴ ACT Chief Minister and Cabinet Directorate (CMCD) webpage [dated 27 June 2011] entitled *ACT Population Projections: 2009 to 2059* <<http://www.cmd.act.gov.au/policystrategic/actstats/projections>>, accessed 25 Oct. 2011.

¹⁹⁵ ABS (2011) *Regional Population Growth, Australia, 2009-10* (cat. no. 3218.0) (released 31 March 2011)

¹⁹⁶ *ibid.* The ACT Demographer has not published population projections for the ACR beyond the ACT (ABS (2008) *Population Projections, Australia, 2006 to 2101* (cat. no. 3222.0)). The ABS only makes population projections for Sydney and the rest of NSW¹⁹⁶ and not for sub-groupings of NSW outside Sydney. This was confirmed by the ABS Sydney Office on 16 January 2012 in a telephone conversation with the Committee Secretary.

¹⁹⁷ Queanbeyan City Council webpage [dated 27 Sept. 2010] <<http://forecast2.id.com.au/Default.aspx?id=288&pg=5000>>, accessed 14 July 2011.

that the population there now is 14, 300, that in 2031 it will be 20, 300, and that from 2011 to 2031, inclusive, its growth rate will range from 1.47 per cent to 2.03 per cent.¹⁹⁸

- 4.28 The most reliable, published statistics for cross-border movements of population from the ACR to the ACT are those that the ABS collected in the 2006 Census.¹⁹⁹ At that time 11,115 Queanbeyan residents worked in the ACT. That was just under two-thirds of the employed people resident in Queanbeyan.
- 4.29 At the same time, 3.1 per cent or 5,283, of employed ACT residents worked in NSW, mostly in Queanbeyan. Just under 40 per cent of these residents lived in Tuggeranong.²⁰⁰
- 4.30 Several reports have also estimated the dollar amounts of services, such as hospital and school services, used by residents of the wider ACR in the ACT. These also give some indication of the numbers of people frequently visiting the ACT from the wider ACR.
- 4.31 For example, the ACT Government's submission to the Commonwealth Grants Commission for its 2010 review states that:
- While cross-border services flow in both directions...the flow of ACT services to NSW residents far exceeds the flow of NSW services to ACT residents. Given the size of the ACT's population, the impact is material at around \$172-182 million p.a. in gross costs (around \$515 - \$545 per capita).*²⁰¹
- 4.32 The Commonwealth Grants Commission, in its 2010 report on 'goods and service tax relativities', states that 'in the absence of better data', it has used

¹⁹⁸ NSW Dept. of Planning (2010) *New South Wales Statistical Local Area Population Projections, 2006-2036 Including projections for: Local Government Areas, Department of Planning Regional Strategy areas, Department of Planning Sydney Metropolitan Strategy subregions*

<<http://www.planning.nsw.gov.au/LinkClick.aspx?fileticket=yvzXybG72TA%3d&tabid=124&language=en-AU>>, accessed 14 July 2011.

¹⁹⁹ ABS (2006) *Canberra Social Atlas* (cat. no. 2030.8), p.35.

²⁰⁰ *ibid.*

²⁰¹ ACT (2010) *Commonwealth Grants Commission 2010 review Australian Capital Territory State Visit 10-12 June 2008 Briefing Notes*

<http://cgc.gov.au/data/assets/file/0008/18296/Final_Briefing_Notes_for_ACT_State_Visit_08.pdf>, accessed 14 July 2011.

calculated, on the basis of ABS population data that:

*With an ACT population of 342 000 and national average use rates, a seven to ten per cent cross-border use of ACT services is equivalent to approximately 32 000 extra residents. This equates to about 30 per cent of the population of the following...surrounding parts of New South Wales...Queanbeyan; Palerang; Cooma-Monaro; Goulburn-Mulwaree; and Yass Valley...chosen on the basis that they are within around an hour's drive of the ACT and it is not unreasonable to assume that many of their residents travel to the ACT on a daily or weekly basis...While many NSW residents from outside this catchment area may also use ACT services, they would tend to do so on a less frequent basis.*²⁰²

Value of regional population and environment data

4.33 The office of the ACT Demographer is located in CMCD. While that office has published useful analyses of the ABS demographic data on the ACT, it has not published any on ACT population growth and population growth in human settlements surrounding the ACT, or how population dynamics interact with the state of the environment in the ACT or the ACR.²⁰³

4.34 The testimony of Ms Pam Davoren, the CMCD Deputy Director-General, pointed to how work by the ACT Demographer on the ACR population is forthcoming:

...the priority...has been releasing ACT population projections, which we do every two years. Every other year, we have another project. This year the project is regional demography. We will be looking at the issue of how we...look at population growth in the region...

A few years ago we did some work on the economic footprint...So it is continuing that work around...what is a service footprint, just to try to nail the interrelationship

²⁰² Commonwealth Grants Commission (2010) *Report on GST Revenue Sharing Relativities — 2010 Review Volume 1 — Main Report*, Chapter 27 'Cross-border costs', pp.546-547.

²⁰³ This is indicated by the oral testimony of the CMCD Deputy Director-General, Ms Pam Davoren (*Transcript of Evidence* (public hearing) 8 Sept. 2011, p.107) and the absence of such information from the CMCD demographics website.

*between the ACT and the region statistically...*²⁰⁴

4.35 The need for clear, easily accessible analysis of this sort is increasingly pressing. As previously noted, much of the population increases in the Southern NSW forecast by the ABS are expected to occur in Queanbeyan, Palerang, and the Yass Valley, the three local government areas just outside the ACT.

4.36 The need for demographers to be working to explain this kind of emerging picture is reflected, somewhat, in a quite recent submission from the Australian Population Association (APA). The APA made a submission to the advisory panels that the Commonwealth Government instituted, in July 2010, to advise on sustainable population.²⁰⁵

4.37 In its submission, the APA argued that:

*In light of the objectives of the Sustainable Population Strategy for Australia, there is a need for better data on regional population trends such as population mobility and regional settlement patterns... Continued government funding is essential for the collection of good quality population data at the national, State/Territory and local government levels, for research on Australia's population, and for the training of Australian demographers and population analysts.*²⁰⁶

4.38 The Committee has observed that it is common for governments throughout Australia to employ statisticians and demographers who establish systems for the professional collection of accurate data, for testing its integrity, analysing it, and delivering to governments and the general public easy-to-navigate and easy-to-understand analyses of that data.²⁰⁷

²⁰⁴ *Transcript of Evidence* (public hearing) 8 Sept. 2011, p.107.

²⁰⁵ Commonwealth (2011) *Sustainable Australia – Sustainable Communities: A Sustainable Population Strategy for Australia*, launched 13 May 2011
<<http://www.environment.gov.au/sustainability/population/index.html#strategy>>, accessed 1 Dec. 2011.

²⁰⁶ APA [no date] *Australian Population Association - Submission made to the Sustainable Population Strategy for Australia*, [no date], p.2. The APA is an organisation that describes itself as 'mostly comprising professional demographers and population analysts working in government, academia and the private sector' (APA [no date] *Australian Population Association - Submission made to the Sustainable Population Strategy for Australia*, p.1).

²⁰⁷ See, for example, these government websites containing government demographers and statisticians' work: Queensland Gov. Office of Economic and Statistical Research webpage [dated 2

- 4.39 The vigorous debate among demographers on these methods shows that there is not a consensus on the 'best' population projection method. For example, some²⁰⁸ argue for the use of simple exponential extrapolation, some for full cohort-component projections,²⁰⁹ and some for more complex methods involving economic-demographic models²¹⁰. These debates all turn on the question of how far into the future projections can be accurately made.²¹¹
- 4.40 Last year, the ABS recently published a paper by Professor Peter McDonald and Dr Rebecca Kippen, which describes a new methodology for estimation of future numbers of births. It incorporates more demographic parameters, such as the timing of a woman's first birth and the duration since the previous birth. The conventional estimation model uses the woman's age only. The paper demonstrates the increased accuracy of their proposed estimation model using data from the Australian Censuses of Population and Housing, which extends from 1981 to 2006.²¹²
- 4.41 The Committee notes that the ACT Office of the ABS has, in recent times, placed a 'Demographic Officer' in the Chief Minister's Department, as CMCD was then known, to collaborate with the ACT Demographer on demographic

Nov. 2011] <<http://www.oesr.qld.gov.au/our-office/our-history/index.php>>; NSW Gov. Planning and Infrastructure webpage [dated 30 March 2011] <<http://www.planning.nsw.gov.au/StrategicPlanning/Populationandhousingprojections/tabid/124/1anguage/en-AU/Default.aspx>>; and Gov. of South Australia Dept. of Planning, Infrastructure and Transport webpage [dated 15 Nov. 2011] <<http://www.planning.sa.gov.au/index.cfm?objectid=B2E288B3-96B8-CC2B-645AB731FF590176>>, all accessed 3 Dec. 2011.

²⁰⁸ Smith, S. K. and Sincich, T. (1992) 'Evaluating the Forecast Accuracy and Bias of Alternative Population Projections for States', in *International Journal of Forecasting, Special Issue*, vol. 8, no. 3, pp. 495–508.

²⁰⁹ Long, J. F. (1995) 'Complexity, Accuracy, and Utility of Official Population Projections', in *Mathematical Population Studies*, vol. 5, no. 3, pp. 203–216.

²¹⁰ Ahlburg, D. A. (1995) 'Simple Versus Complex Models: evaluation, accuracy, and combining', in *Mathematical Population Studies*, vol. 5, no. 2, pp. 281–290.

²¹¹ Hugo, G. (2011). 'Australia's contemporary population growth and the outlook: Challenges and opportunities', presentation to the Australia Academy of Science Annual Symposium 2011, *Australia 2050: Population Challenges to Sustainability*, Canberra, 6 May 2011 <<http://www.science.org.au/events/sats/sats2011/symposium.html>>, accessed 1 Aug. 2011.

²¹² ABS (2011) *Australian Census Analytic Program: Forecasting Births, 2006* (cat. no. 2051.0) <<http://www.abs.gov.au/ausstats/abs@.nsf/featurearticlesbyCatalogue/E13B06B46B86F486CA2578D30013C44A?OpenDocument>>, accessed 1 Aug. 2011.

projects.²¹³ The ABS website states these included projects on population ageing in the ACT; the Aboriginal and Torres Strait Islander population of the ACT and surrounding region; and issues that inform whole of government policies regarding children and youth, data collection, and data storage and sharing standards.²¹⁴

4.42 The Committee notes that the ABS reported that the ACT Demographer:

*...indicated that this outposting has been invaluable in providing assistance in data analysis and the preparation of the demographic reports soon to be published on the Chief Minister's Department website...*²¹⁵

4.43 The Committee notes that there is a large and growing body of evidence on the central role of demographers in working with urban ecologists and others collecting and analysing data on the environment to equip decision-makers with accurate information about the size and character of regional population and natural resources.²¹⁶

4.44 For example, evidence on the importance of this role clearly informed Agenda 21, the plan adopted, in June 1992, by more than 178 Governments, including Australia, at the United Nations Conference on Environment and Development, otherwise known as the 'Earth Summit'. Agenda 21 was reportedly the culmination of two years of research, drafting, and intense negotiations.²¹⁷

²¹³ ABS (2010) *ABSTRACT, Statistics News, Australian Capital Territory* (cat. no. 1344.8.55.002) <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyReleaseDate/6E3F76EE0A749C73CA25729D0009492A?OpenDocument>>, accessed 12 Nov. 2011.

²¹⁴ *ibid.* The Committee notes that these analyses are published on the CMCD website's 'Demographics and Statistics' webpage <<http://www.cmd.act.gov.au/policystrategic/actstats>>, accessed 1 Dec. 2011.

²¹⁵ ABS (2010) *ABSTRACT, Statistics News, Australian Capital Territory* (cat. no. 1344.8.55.002) <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyReleaseDate/6E3F76EE0A749C73CA25729D0009492A?OpenDocument>>, accessed 12 Nov. 2011.

²¹⁶ See, for example, Berger, I. E. (1997) 'The Demographics of Recycling and the Structure of Environmental Behavior', in *Environment and Behavior*, July 1997, vol. 29, no. 4, pp. 515-531; Committee for International Cooperation in National Geography (2007) *Urban Population, Development and Environment Dynamics* <<http://www.cicred.org/Eng/Publications/pdf/Polycypapers/PP3.pdf>>, accessed 14 July 2011; and Zagheni, E. (2009) 'The Demographic Dimension of Climate Change', in *Environmentalism, Environmental Strategies, and Environmental Sustainability*, edited by E. Kahraman and A. Baig, Nova Science Publishers, NY, US, pp. 191-209.

²¹⁷ UN Dept. of Economic and Social Affairs Division for Sustainable Development (2009) *Earth Summit - Agenda 21 - The United Nations Programme of Action from Rio*

- 4.45 Agenda 21 makes many explicit statements about the importance of local and municipal governments developing capabilities to model the impacts of demographic dynamics on the environment and analysing and using demographic data merged with data on the environment, because of local and municipal government's central role in delivering infrastructure.²¹⁸
- 4.46 It is impossible to model the effects of introducing or not introducing various urban developments, if there are not integrated analyses of data on the local environment and human population.²¹⁹
- 4.47 Ms Davoren stated that the forthcoming project of the ACT Demographer would be on regional demography. Ms Davoren went on to state that a 'service footprint', by which the Committee understood use of ACT services by people from outside the ACT, would be looked at with respect to regional demographics, but not a footprint of any ecological kind.²²⁰
- 4.48 The Committee notes the large body of research literature on how it is critical to publicly model the amenity and environmental impacts that urban developments and other natural resource uses will have on people and the rest of the environment. This research indicates the modelling is necessary to enable people to democratically consent to the choices that bring about or prevent the modelled scenarios. Sometimes this modelling is referred to as public planning analysis.²²¹

<<http://www.un.org/esa/dsd/agenda21/>>, accessed 1 Aug. 2011. Full implementation of *Agenda 21* and the *Programme for Further Implementation of Agenda 21*, were strongly reaffirmed at the World Summit on Sustainable Development held in Johannesburg, South Africa in 2002.

²¹⁸ *ibid.*, Chapt. 5 and para. 28.1, in particular.

²¹⁹ See, for example, Section 3 of Jowett, A. and Izazola, H. 'Population, Natural Resources and Environment', under 'DEMOGRAPHY', *Encyclopedia of Life Support Systems*, vol. II [no date] (peer-reviewed online encyclopaedia); Carr, D.L., Suter, L. and Barbieri, A. (2005) 'Population Dynamics and Tropical Deforestation: State of the Debate and Conceptual Challenges', *Population and Environment*, vol. 27, no. 6, 89- 113; De Sherbinin, A. and Dompka, V. (1997) *Water and Population Dynamics: Case Studies and Policy Implications*, IUCN-PRB-USAID-AAAS (collection of the papers presented at the Water and Population Dynamics-International Union for the Conservation of Nature World Conservation Congress in Oct. 1996).

²²⁰ *Transcript of Evidence* (public hearing), Ms Pam Davoren, 8 Sept. 2011, p.107.

²²¹ See, for example, Biggs, D. (2008) 'Box 38: Engaging the Public in Sustainability Planning', in J. Birkeland (editor) *Positive Development: From Vicious Circles to Virtuous Cycles Through Built Environment Designs*, Earthscan, London, UK; Birkeland, J. and Schooneveldt, J. (2003) *Mapping Regional Metabolism: A Decision-Support Tool for Natural Resource Management*, Land and Water Australia, Canberra; Hatzopoulou M. and Miller, E. (2010) 'Linking an activity-based travel demand model with traffic emission and dispersion models: Transport's contribution to air pollution in

- 4.49 The Committee also notes the immense body of evidence on how it is imperative to publicly model the environmental, financial and other costs of not introducing measures that will reduce consumption and waste and that will increase a region's ecological carrying capacity. Sometimes these are referred to as cost-of-inaction analysis tools.²²²
- 4.50 The Committee also observes that relevant research literature indicates there are well-developed digital and accounting tools that present human population and environment data in ways that enable public planning and cost-of-inaction analyses.²²³
- 4.51 For example, the Wentworth Group of Concerned Scientists has developed an environmental accounting system for rural and urban areas. It allows the production of annual environment accounts on national, state/territory-wide, and regional scales that can be used in land use planning and catchment management decisions.²²⁴
- 4.52 Many cities, including ones in Australia, Canada, New Zealand, Malaysia, China, India and Mexico, have used a digital public planning tool, called MetroQuest, which was developed on the basis of work conducted by the

Toronto', in *Transportation Research Part D*, vol. 15, pp. 315–325; Noth, M., Borning, A. and Waddell, P. (2003) 'An Extensible, Modular Architecture for Simulating Urban Development, Transportation, and Environmental Impacts', *Computers, Environment and Urban Systems*, vol. 27, no. 2, pp. 181–203; and Venkat, Kumar (2008) 'Box 33: Enhancing Supply Chain Performance', in J. Birkeland (editor) *Positive Development: From Vicious Circles to Virtuous Cycles Through Built Environment Designs*, Earthscan, London, UK.

²²² See cost-of-inaction analysis tools in Chapter 7 of J. Birkeland (2008) *Positive Development: From Vicious Circles to Virtuous Cycles Through Built Environment Designs*, Earthscan, London, UK and in The Natural Edge Project (supported by Griffith Uni. Business School) (2008) Sub. to the Garnaut Climate Review <<http://www.naturaledgeproject.net/Documents/TNEPSubmission.pdf>>, accessed 14 Dec. 2011.

²²³ Drogemuller, R. and Frazer, J (2008) 'Box 23: Digital Modelling for Sustainability', in J. Birkeland (editor) *Positive Development: From Vicious Circles to Virtuous Cycles Through Built Environment Designs*, Earthscan, London, UK and the Uni. of British Columbia's MetroQuest <<http://www.QuestForTheFuture.com>>, accessed 18 July 2011.

²²⁴ Wentworth Group of Concerned Scientists (2008) *Accounting for Nature: A Model for Building the National Environmental Accounts of Australia*, May 2008 <<http://www.wentworthgroup.org/uploads/Accounting%20for%20Nature%202nd%20Ed.pdf>> and Wentworth Group of Concerned Scientists, *Accounting Metrics for Building Regionally Based National Environmental Accounts* [no date, but after 2008, because it is presented as a paper building on *Accounting for Nature*] <<http://www.wentworthgroup.org/uploads/Regional%20Based%20Accounting%20Metrics%20Final.pdf>>, both accessed 14 July 2011.

University of British Columbia's Sustainable Development Research Institute. MetroQuest allows visual, interactive presentations of alternative city planning futures on kiosk and large screens and on the internet.²²⁵

- 4.53 More specifically, it enables projection of different forty-year scenarios from choices citizens enter about natural resource management, land-use, housing, and transport. The projections show the consequences of the choices in terms of ecological footprint, air quality, water conservation, greenhouse gas emissions, waste management, green space, traffic congestion, taxes, and other variables.²²⁶
- 4.54 This evidence was generally referred to in Dr Schooneveldt's submission, which refers to how 'material flows analysis and systems mapping techniques enable scientists to track the movements of people, materials and energy'.²²⁷
- 4.55 Several other submissions suggest that governments and developers are not sufficiently accounting for, and modelling to the public, the 'externalities' of development, such as loss of green spaces and biodiversity, if certain land use decisions are made.²²⁸ Some expressly call for this accounting and modelling to be conducted transparently, long before the final approvals are granted.²²⁹
- 4.56 None of this accounting can be performed in a meaningful, clear and accurate way without the synthesis of robust data on the human population and the environment and studies of what the data show about the impacts of the growing human population on the environment.²³⁰

²²⁵ Schlaikjer, E. (2009) *MetroQuest: Sim City for the Real World*, 18 May 2009 on 'TheCityFix blog' by the World Resources Institute (non-profit organisation) <<http://thecityfix.com/blog/metroquest-sim-city-for-the-real-world/>>, accessed 1 Dec. 2011.

²²⁶ Biggs, D. (2008) 'Box 38: Engaging the Public in Sustainability Planning', in J. Birkeland (editor) *Positive Development: From Vicious Circles to Virtuous Cycles Through Built Environment Designs*, Earthscan, London, UK.

²²⁷ Dr John Schooneveldt (Sub. 2, p. 2).

²²⁸ Conservation Council ACT Region (Sub. 13, p.2); Mr Greg Cornwell (Sub. 3, pp. 4-5); Mr Greg Delaney (Sub. 7, p.1); Mr Tom Gosling (Sub. 18, p. 3); Mr Mark O'Connor (Sub. 22, p.4 and pp. 16-18); Palerang Council (Sub. 30, para. h, pp. 6-7); Ms Julia Richard (Sub.11, p. 2); Mr Colin Samundsett (Sub. 12, p.1); and SEE-Change (Sub. 23, para. 5, pp. 1-2).

²²⁹ Canberra Division of Engineers Australia (Sub. 34, p.5); Canberra Ornithologists Group (Sub. 10, p.2); EDO ACT (Sub. 31, Recommendations 1 and 2, p. 1; Friends of the Grasslands (Sub. 9, pp. 2-3); and Mr David Turbayne (Sub. 21, p.2).

²³⁰ For evidence of this, see, for example, Gill, S. E. et al (2008) 'Characterising the urban environment

- 4.57 The Committee notes that there is currently cross-regional data on the state of the ACR environment in the Commissioner for Sustainability and the Environment's Regional State of the Environment reports. However, as the Commissioner states in the *Regional State of the Environment Report 2004-2009*:
*...One of the challenges of reporting at a local government area level is the limited available data; many of the 17 Local Government Shires/Councils do not have the available resources to collect comprehensive data for their areas...*²³¹
- 4.58 Similarly, in the *ACT State of the Environment Report*, the Commissioner recommends, in Recommendation 18, that the ACT needs to be 'collaborating with NSW Government and regional organisations to contribute to regional and national biodiversity data sets'.²³²
- 4.59 The *ACT State of the Environment Report 2007-08* has 'population', as one of its Indicators, but the Report includes no discussion of what the growing population has meant for the environment in terms of statistically significant correlations between population and environment data, over time.
- 4.60 Further, in the *ACT State of the Environment Report 2011*, the Commissioner treats population as one of the four 'driving forces' pressuring the environment. There, the Commissioner briefly comments on the natural resources of the ACT and wider region that a growing population will impact on.²³³
- 4.61 The Committee expects that cross-jurisdictional projects to accurately synthesise population and environment data for the ACR may provide some impetus for ACT, NSW and Commonwealth Government actions to improve

of UK cities and towns: A template for landscape planning', *Landscape and Urban Planning*, vol. 87, issue 3, 15 Sept. 2008, pp. 210-222; Schmid, W.A. (2001) 'The emerging role of visual resource assessment and visualisation in landscape planning in Switzerland', *Landscape and Urban Planning*, vol. 54, issue 3, 25 May 2001, pp. 213-221; and Barbanente, A. et al (1992) 'Automatically acquiring knowledge by digital maps in artificial intelligence planning techniques', *Lecture Notes In Computer Science*, vol. 639, 1992, pp.379-401.

²³¹ OSCE (2009) *Regional State of the Environment Report 2004-2009*
 <<http://www.envcomm.act.gov.au/soe/rsoe2009/observations.shtml>>, accessed 14 July 2011.

²³² OSCE (2012) *Regional State of the Environment Report 2011*
 <http://www.envcomm.act.gov.au/actsoe2011/executive_summary.html>, accessed 6 May 2012.

²³³ OCSE (2012) *ACT State of the Environment Report 2011*
 <<http://www.envcomm.act.gov.au/actsoe2011/driving-forces.html>>, accessed 6 May 2012

the quality of environmental data available on the ACR. The ACT Government has a role to play in advocating for this improvement to those governments.

Population targets and NSW and ACT governments on population growth

- 4.62 A quarter of the submissions to the Inquiry expressed an expectation that the Committee might orient the Inquiry towards proposing a maximum ‘carrying capacity’ population for the ACT.²³⁴ Some also unambiguously argued that the ACT’s population should be limited.²³⁵
- 4.63 Mr Corbell, speaking in one of the Inquiry’s public hearings, in his capacity as the ACT Minister for the Environment and Sustainable Development, summed up the population policy of the ACT Government, in this way:
- ...we rely on demographic projections to plan for a city which, on every indication, will continue to grow. The government does not have a specific target or objective in relation to population, and...has recently reiterated that, based on current projections, the city is going to continue to grow significantly...reaching half a million people by the middle of this century.*²³⁶
- 4.64 All three submissions from governments in NSW referred to population matters.
- 4.65 The then NSW Minister for Planning, Mr Tony Kelly, simply states ‘I wish to ensure that the Inquiry acknowledges the future population (26, 100 additional population/14, 200 additional dwellings)...’.²³⁷ The Palerang Council similarly says that it has high population growth and that ‘the major driver’ of this

²³⁴ These include those submissions of Mr John Burke (Sub. 19), Mr Greg Delaney (Sub. 7), A/Prof. Kieran Fallon (Sub. 6), Ms Jenny Goldie (Sub. 15), Mr Tom Gosling (Sub. 18), Mr Mark O’Connor (Sub. 22), Ms Julie Richards (Sub. 11), Sustainable Population Australia (Sub. 35), Mr David Turbayne (Sub. 21), and Dr Chris L. Watson (Sub. 25).

²³⁵ These include those submissions of Mr John Burke (Sub. 19), Mr Greg Delaney (Sub. 7), A/Prof. Kieran Fallon (Sub. 6), Ms Jenny Goldie (Sub. 15), Mr Tom Gosling (Sub. 18), Mr Mark O’Connor (Sub. 22), Ms Julia Richards (Sub. 11), Mr Keith Ross (Sub. 14), Mr Keith Sayers (Sub. 36), Sustainable Population Australia (Sub. 35), Mr David Turbayne (Sub. 21), and Dr Chris L. Watson (Sub. 25).

²³⁶ *Transcript of Evidence* (public hearing), 24 March 2011, p. 26.

²³⁷ The then NSW Minister for Planning, Mr Tony Kelly MLC (Sub. 33, p.1).

growth has been the proximity of the Palerang area to Canberra.²³⁸ The Cooma-Monaro Shire notes that the growing population of Canberra would increase the demand for ‘life-style’ type landholdings’, in the Shire.²³⁹

- 4.66 Having considered all of the submissions and the ABS, ACT Demographer’s and other evidence on population, laid out earlier in this Chapter, the Committee decided to focus the Inquiry on how individuals and organisations can systemically contribute to accommodating the population growth of the ACR by increasing the ACR’s ecological carrying capacity, while meeting the needs of people who live in the region. The Committee determined to do this for five main reasons.
- 4.67 First, the Committee understands that the consumption patterns and environmentally sustainable behaviours of individuals are likely to change over time. This makes problematic linking population size and the ecological carrying capacity of the ACT and wider ACR. Case studies, including Australian ones, have shown that populations sometimes significantly reduce their rates of consumption and, in turn, their ecological footprints.²⁴⁰
- 4.68 As noted in Chapter 3, the main contributions to the increasing overall footprint are steadily rising consumption of food, goods, and services per person. As the Friends of Grasslands, an ACT community group, put it in their submission to the Inquiry:

²³⁸ Sub. 30 (Palerang Council, para. h, p.6).

²³⁹ Sub. 20 (Cooma-Monaro Shire Council, p.2).

²⁴⁰ For example, see demonstration project of the NSW local government, the Mosman Council, which Mosman Council states reduced the ecological footprint of several households, described on the Mosman Council website <<http://www.mosman.nsw.gov.au/environment/sustainability/ecological-footprint>> [webpage dated 2012]; City of Port Phillip’s reported reductions in its ecological footprint on the Victorian Environment Protection Authority (EPA) website <<http://www.epa.vic.gov.au/ecologicalfootprint/caseStudies/portphillip.asp>>; ecological footprint reductions in Calgary, Canada described in City of Calgary (2007) *Towards a Preferred Footprint: Understanding Calgary’s Ecological Footprint* <http://www.footprintnetwork.org/images/uploads/Calgary_Ecological_Footprint_Report.pdf>; and Tinsley, S. and George, H. (2006) *Ecological Footprint of the Findhorn Foundation and Community* <<http://www.ecovillagefindhorn.com/docs/FF%20Footprint.pdf>>, a study by GEN-Europe, Sustainable Development Research Centre in Moray, Scotland, and the Stockholm Environment Institute at the Uni. of York, UK, which found that the Findhorn Ecovillage in Moray, a community with very high standards of health and well-being, has recorded the lowest-ever ecological footprint anywhere in the industrialised world. All websites accessed 1 Dec. 2011.

*One could imagine that the region could support a much higher human population which actually has a much reduced ecological footprint and lives without encroaching on non-human life forms...the current population with its existing patterns of consumption is clearly not sustainable...*²⁴¹

4.69 Second, the relevant ABS data analysis indicates that 73 per cent of the ACT's anticipated population growth over the next 40 years is expected to come from an excess of births over deaths. The other 27 per cent of the ACT's projected population growth is from net overseas migration. Migration is the exclusive responsibility of the Commonwealth Government, and, therefore, beyond the ACT Government's control.²⁴²

4.70 This is reflected in Mr Corbell's testimony that:

*... the city is going to continue to grow...reaching half a million people by the middle of this century. That population projection is driven by a range of factors that the government believes are not significantly impacted upon by ACT government... Primarily, the increase in population is driven by...extension of the average life expectancy and at the same time an increase in the number of people being born... Short of draconian and dictatorial measures to...control that...which the government...does not support in a democratic society, we simply have to plan for that inevitable increase...*²⁴³

4.71 Third, as the Chief Minister of the ACT, Ms Katy Gallagher MLA, stated in her testimony, '...we are not going to put the borders up and lock everybody out once we reach a certain point. We cannot'.²⁴⁴ Moreover, as previously discussed, thousands of people visit the ACT on a daily basis for employment, health or education purposes and many people move here from interstate or overseas for employment, education and other opportunities.

4.72 Fourth, neither the submission from the NSW Planning Minister²⁴⁵ nor

²⁴¹ Sub. 9, p.2.

²⁴² *Constitution Act*, Section 51 (xxvii)

<http://www.austlii.edu.au/au/legis/cth/consol_act/coaca430/s51.html>, accessed 12 Nov. 2011.

²⁴³ *Transcript of Evidence* (public hearing) 25 March 2011, p.26.

²⁴⁴ *Transcript of Evidence* (public hearing) 8 Sept. 2011, p.108. It is the case that this cannot occur under current Australian constitutional law. See rights of interstate movement founded in section 92 of the *Constitution*: see *R v Smithers; Ex parte Benson* (1912) 16 CLR 99.

²⁴⁵ Sub. 33, p.1.

Palerang Council,²⁴⁶ both of which substantially refer to the burgeoning population on the NSW side of the ACT border, propose reducing population growth. Further, the Committee could not find any evidence that the NSW Government, or any local government in the ACR, is seeking to reduce this growth. Fifth, the Committee also could not find evidence of a movement for reduced population, with any critical mass, in NSW or the ACT.

- 4.73 Fifth, neither the Commonwealth government nor Parliament has set, suggested, or recommended, any population target, or provisional target, for Australia.
- 4.74 In May 2011, the Commonwealth Government released a national sustainable population strategy. While the strategy supports improving the liveability of Australian cities, including their environments, and allocating more of the national population to regional areas, it does not propose that national or regional population targets be established now or later.²⁴⁷
- 4.75 None of this is to say that not having a maximum population target is a reason to not monitor the causes of the ACR's population growth and the impact of this growth on the environment. To the contrary, such monitoring is imperative, as is ACT Government leadership on ACR population matters.

²⁴⁶ Sub. 30, pp.3-4.

²⁴⁷ Commonwealth (2011) *Sustainable Australia – Sustainable Communities: A Sustainable Population Strategy for Australia*, launched 13 May 2011
 <<http://www.environment.gov.au/sustainability/population/index.html>>, accessed 16 July 2011. In 1994, the Commonwealth House of Representatives' Standing Committee for Long Term Strategies conducted an inquiry into Australia's Population Carrying Capacity. In its recommendations, the Inquiry called on the Commonwealth Government to establish various administrative arrangements to effectively manage population issues. It did not propose national or regional population targets or suggest that they should be proposed at some later time (Commonwealth House of Representatives Standing Committee for Long Term Strategies (1994) *Australia's Population Carrying Capacity: One Nation – Two Ecologies*
 <http://www.aph.gov.au/house/committee/reports/1994/1994_PP457.pdf>, accessed 14 July 2011).

Key findings

4.76 The Committee finds that:

- a. The ACT Government has a limited role in controlling the population size, and there will be a significant rise in the population by the year 2050, irrespective of ACT Government actions.
- b. According to the ABS, the major component of the ACT's current and projected population growth is from natural increase. This is confirmed by the ACT Demographer's work. 73 per cent of the ACT's anticipated population growth over the next 40 years is expected to come from an excess of births over deaths. The other 27 per cent of the ACT's projected population growth is from net overseas migration.
- c. The highest set of ABS population projections has ongoing population growth for the ACT, at a rate of 1 to 1.2 per cent, and populations at approximately 483, 722 by 2029; 628, 097 by 2049; and 683, 277 by 2056. The ACT Demographer's projections are that the ACT population will be 449,304 by 2029; 523,132 by 2049; and 557,443 by 2059.
- d. The Committee concludes that the forthcoming work of the ACT Demographer on population growth in the ACT has the potential to provide essential information to key decision-makers and others in the ACT.
- e. The fastest-growing inland local government areas in NSW, in descending order, are Yass Valley, Palerang, and Queanbeyan.
- f. The Committee has found no evidence that warrants expecting that there will not be fast growth in the numbers of frequent visitors to the ACT from the wider ACT, with the current fast population growth in Yass Valley, Palerang, and Queanbeyan.
- g. It is crucial that the ACT has accurate demographic data and population projections as this information is essential to any estimation of ecological footprints and carrying capacity in the ACT for informing sustainable development in the ACT.
- h. It is critical that the ACT Demographer and the OCSE collaborate with experts across disciplines, such as urban ecologists and meteorologists, about integrating data sets on demographic and environmental dynamics and the best methods for this integration.

RECOMMENDATION 3

- 4.77 **The Committee recommends that the ACT Government utilise data on demographic and environmental dynamics in published modelling of the ecological, amenity, and other impacts of proposed urban developments.**

5 WATER

- 5.1 Like food, water is essential to human life and, consequently, it is often described as a human right.²⁴⁸
- 5.2 As was noted in Chapter 3, with direct energy use decreasing in the ACT in the last 5 years, the main contributor to the ACR ecological footprint is the steady rise in consumption of food, goods, and services. Water is needed to create all food, goods and services, as is reflected in the 'full cycle' methods researchers have developed to estimate ecological footprints.²⁴⁹ These methods are discussed in Chapters 2 and 3.
- 5.3 The ACR is also emerging from drought since at least 2006.²⁵⁰ Hence, it is not surprising that just over 70 per cent of the authors of submissions to the Inquiry chose to expressly address matters regarding water.²⁵¹
- 5.4 The ACT and its surrounding water catchment are in the Upper Murrumbidgee catchment of the Murray-Darling Basin. The ACT-NSW border

²⁴⁸ See clear evidence of this throughout ANU – University of NSW (2010) *Australian Capital Territory Economic, Social And Cultural Rights Research Project*, Australian Research Council Linkage Project Lp0989167 Report
<http://acthra.anu.edu.au/PESCR/Final%20report/Final%20Report%20of%20the%20ACT%20ESCR%20Research%20Project_9%20December%202010.pdf>, accessed 14 July 2011.

²⁴⁹ See, for example, Dey, C. et al (2007) *Data Sources and Methodology*, p.285
<<http://acfonline.org.au/consumptionatlas/>>, accessed 14 July 2011 and ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.28.

²⁵⁰ Ms Katy Gallagher MLA, Chief Minister of the ACT (2010) 'Drought declaration lifted in rural ACT', Media Release, 16 July 2010, and NSW Dept. of Primary Industries agricultural conditions tables and maps webpage:
<<http://www.dpi.nsw.gov.au/agriculture/emergency/drought/situation/drought-maps>>, accessed 14 Nov. 2011.

²⁵¹ This is to say 26 out of the 35 submissions referred to water, which is not to say that the authors of the other submissions did not have water in mind when they broadly refer to 'resources' in their respective submissions. ACT Gov. (Sub. 32), Canberra Division of Engineers Australia (Sub. 34), Canberra Environment and Sustainability Resource Centre (Sub. 29), Canberra Ornithologists Group (Sub. 10), Conservation Council of the ACT (Sub. 13), Cooma Monaro Shire Council (Sub. 20), Mr Kevin Cox (Sub. 5), Mr Greg Cornwell (Sub. 3), Mr Greg Delaney (Sub. 7), A/Prof. Kieran Fallon (Sub. 6), Friends of Grasslands (Sub. 9), Ms Jenny Goldie (Sub. 15), IPA ACT (Sub. 16), Natural Resource Management Council ACT (Sub. 26), Mr Mark O'Connor (Sub. 22), Palerang Council (Sub. 30), Julia Richards (Sub. 11), Mr Keith Sayers (Sub. 36), Mr Richard Sharp (Sub. 1), Sustainable Population Australia (Sub. 35), Dr John Schooneveldt (Sub. 2), Mr David Turbayne (Sub. 21), Upper Murrumbidgee Catchment Coordinating Committee (Sub. 24), Dr Chris L. Watson (Sub. 25), and Yass Valley Council (Sub. 4).

was an outcome, in large part, of the need to ensure that the national capital had an adequate water catchment within its frontiers. Since 1909, the *Commonwealth Seat of Government Act 1909* has given Canberra the right to extract water from the Queanbeyan and Molonglo Rivers in NSW, for the purposes of water supply.²⁵²

- 5.5 In most of the rest of the Murray-Darling Basin, agriculture is a major user of water.²⁵³ This is not the case in the ACT, where households and service industries are overwhelmingly the consumers of water.²⁵⁴

Current arrangements for water supply in the Australian Capital Region

- 5.6 ACTEW Corporation Limited (ACTEW) is a Territory owned corporation²⁵⁵ that delivers, among other things, the ACT's and Queanbeyan's water supply. It sources this water from dams on the Cotter River, the Googong dam on the Queanbeyan River, and from the Murrumbidgee River in the ACT.²⁵⁶ According to ACTEW, this water extraction has averaged 65 gegalitres (GL) per year over the last 20 years.²⁵⁷
- 5.7 While Queanbeyan's water supply is provided by ACTEW, the local councils provide the water supply in Goulburn Mulwaree, Palerang, Yass Valley²⁵⁸, and all other local government areas of the ACR.²⁵⁹

²⁵² *Seat of Government Act 1909*, First Schedule, para. 3

<<http://www.comlaw.gov.au/Details/C2004C00608>>, accessed 14 July 2011.

²⁵³ ABS (2008) *Water and the Murray-Darling Basin – a statistical profile, 2000-01 to 2005-06* (cat. no. 4610.0.55.007).

²⁵⁴ ABS (2010) *Water Account Australia 2008-09* (cat. no. 4610.0).

²⁵⁵ The *ACT Territory-owned Corporations Act 1990* provides for such corporations <<http://www.legislation.act.gov.au/a/1990-53/default.asp>>, accessed 1 December 2011.

²⁵⁶ There is a very clear, easy-to-read map showing the water supply and treatment system across the ACT, reaching into NSW, on the ACTEW website here:

<<http://www.actew.com.au/Water%20and%20Sewerage%20Systems/Water%20Supply%20System/ACT%20Water%20Supply%20Map.aspx>>, accessed 14 December 2011.

²⁵⁷ Sub. 28, p.6, Inquiry Submissions webpage

<<http://www.parliament.act.gov.au/downloads/submissions/28%20ACTEW.pdf>>, accessed 14 July 2011.

²⁵⁸ See this mentioned in NSW Dept. of Planning (2008) *Sydney-Canberra Regional Corridor Strategy 2006-31*, p. 47

- 5.8 Drought conditions in these areas, among other factors, have caused serious difficulties with accessing sufficient water. For example, in 2010, the Federal Government and the Goulburn Mulwaree Council funded the construction of an emergency water pipeline from the Wingecarribee Reservoir, which is near Moss Vale in NSW.²⁶⁰
- 5.9 In its submission, ACTEW sums up its role as a water supplier in the ACR:
*ACTEW currently supplies Queanbeyan with water, and has a history of discussion with neighbouring regions regarding water supply...Any such supply would need to meet the agreed ACT/NSW planning requirements, and be set out in the MOU between the ACT and NSW...in accord with the MOU, ACT water can be supplied to neighbouring communities, so long as those communities pay the full price...(i.e. there is no cross-subsidy by ACT residents). To date no proposed scheme has been able to meet these criteria and also be the best financial and economic outcome for the proposing entity.*²⁶¹
- 5.10 The *Memorandum Of Understanding between the Australian Capital Territory and New South Wales and the Commonwealth of Australia on Australian Capital Territory and New South Wales Cross Border Water Resources 2006* (Water Resources MOU) was signed in 2006. Its term is 30 years.²⁶²
- 5.11 The area the MOU covers includes the ACT and the NSW LGAs of

<http://www.planning.nsw.gov.au/plansforaction/pdf/sydcancorridor_regional_strategy_final.pdf>, accessed 14 July 2011. The Strategy applies to LGAs of Wingecarribee, Goulburn Mulwaree, Upper Lachlan, Yass Valley, Palerang and Queanbeyan, all of which are in the ACR, apart from Wingecarribee.

²⁵⁹ See, for example, Cootamundra Shire Council website <<http://www.cootamundra.nsw.gov.au/>>, accessed 14 Dec. 2011.

²⁶⁰ Commonwealth Dept. of Sustainability, Environment, Water, Population and Communities (2010) 'Emergency Wingecarribee to Goulburn Pipeline' <<http://www.environment.gov.au/water/policy-programs/water-smart/projects/nsw19.html>>, accessed 11 Nov. 2011.

²⁶¹ ACTEW submission (Sub. 28, p.30). In his oral testimony, Mr Sullivan, the Managing Director of ACTEW, confirmed this was ACTEW's current role in the ACR (*Transcript of Evidence* (public hearing), Mr Mark Sullivan, 13 July 2011, pp. 93-94).

²⁶² Exhibit 4c, *Memorandum Of Understanding between the Australian Capital Territory and New South Wales and the Commonwealth of Australia on Australian Capital Territory and New South Wales Cross Border Water Resources 2006* <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>> and also on the CMCD website <http://www.cmd.act.gov.au/functions/publications/intergovernmental_agreements>, accessed 1 Dec. 2011.

Queanbeyan City, Yass Valley, and Palerang.²⁶³

- 5.12 This MOU allows for the ACT to enter into a written agreement with NSW to provide water to Queanbeyan City, Palerang or the Yass Valley, so long as certain conditions obtain. The conditions include that Queanbeyan City, Palerang and the Yass Valley LGAs meet the costs of them ACT supplying the water; that their catchment management embraces emerging best practice to protect down stream flows and water quality; that they adopt comparable water demand management initiatives, such as permanent water conservation measures, to those being implemented by the ACT.²⁶⁴
- 5.13 The MOU also makes all agreements conditional on the ACT 'allowing for necessary environmental flows'.²⁶⁵ The MOU also requires that agreements are only made for the supply of NSW settlements that are consistent with the ACT-NSW Cross Border Region Settlement MOU and subsequent ACT-NSW Cross Border Region Settlement Strategy.²⁶⁶
- 5.14 The *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory – New South Wales Cross Border Region Settlement Agreement 2006* (Settlement MOU) was signed in 2006 and has a term of 30 years.²⁶⁷
- 5.15 No ACT-NSW Cross Border Region Settlement Strategy was created.²⁶⁸ The Settlement MOU is linked to the ACT Government's Canberra Spatial Plan²⁶⁹

²⁶³ *ibid.*, para. 3.4.

²⁶⁴ Exhibit 4c, *Memorandum Of Understanding between the Australian Capital Territory and New South Wales and the Commonwealth of Australia on Australian Capital Territory and New South Wales Cross Border Water Resources 2006*, para. 6.3.

²⁶⁵ *ibid.*, para. 6.3.1.

²⁶⁶ *ibid.*, para. 6.3.5.

²⁶⁷ Exhibit 4b, *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory – New South Wales Cross Border Region Settlement Agreement 2006*
<<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>> and also on the CMCD website
<http://www.cmd.act.gov.au/functions/publications/intergovernmental_agreements>, accessed 1 Dec. 2011.

²⁶⁸ *Transcript of Evidence* (public hearing), Ms Katy Gallagher MLA, 8 Sept. 2011, p.106 and in Exhibit 4.

²⁶⁹ *Canberra Spatial Plan* <http://apps.actpla.act.gov.au/spatialplan/1_future/1B_context/index.htm>, accessed 11 Nov. 2011.

and Territory Plan;²⁷⁰ the NSW Government's Sydney-Canberra Corridor Regional Strategy²⁷¹ (the Corridor Strategy); and the respective Local Environment Plans (LEPs) of Queanbeyan City,²⁷² Palerang Council²⁷³ and Yass Valley Councils²⁷⁴.

- 5.16 The Settlement MOU states that new NSW developments, asking for water supply from the ACT, must be in 'sustainable' locations across the border, and wherever possible use existing water supply infrastructure.²⁷⁵
- 5.17 Under the framework provided by the Water Resources MOU and section 12(2) of the Commonwealth *Canberra Water Supply (Googong Dam) Act 1974*, in 2008, the ACT, NSW and Commonwealth executed a deed for the supply of water to Queanbeyan. This Deed is referred to as the Queanbeyan Water Supply Agreement. Its term is 150 years or when it is terminated by agreement or when the lease between the Commonwealth and the ACT for the Googong Dam terminates, whichever happens soonest.²⁷⁶
- 5.18 This Deed contains the same kinds of conditions about costs,²⁷⁷ water conservation,²⁷⁸ and new settlements needing to accord with the 'sustainable

²⁷⁰ *Territory Plan 2008* <<http://www.legislation.act.gov.au/ni/2008-27/default.asp>>, accessed 11 Nov. 2011.

²⁷¹ NSW Dept. of Planning (2008) *Sydney-Canberra Corridor Regional Strategy 2006-2031* <http://www.planning.nsw.gov.au/plansforaction/pdf/sydcancorridor_regional_strategy_final.pdf>, accessed 11 Nov. 2011.

²⁷² Queanbeyan City Council Local Environment Plan (LEP) webpage <<http://www.qcc.nsw.gov.au/Growing-Our-City/Local-Environmental-Plans/Local-Environmental-Plans>>, accessed 11 Nov. 2011.

²⁷³ Palerang Council LEP webpage <http://palerang-new.local-e.nsw.gov.au/index.php?option=com_jentlacontent&view=category&id=2352&Itemid=2842>, accessed 11 Nov. 2011.

²⁷⁴ Yass Valley Council LEP webpage <http://www.yass.nsw.gov.au/index.php?option=com_jentlacontent&view=enhanced&id=486980&Itemid=2218>, accessed 11 Nov. 2011.

²⁷⁵ Exhibit 4b, *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory – New South Wales Cross Border Region Settlement Agreement 2006*, para. 8.3 and 8.6, p. 6.

²⁷⁶ Exhibit 4e, *Queanbeyan Water Supply Agreement – Commonwealth of Australia. State of New South Wales, Australian Capital Territory*, para. 2.1, p.4. <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>>, accessed 11 Nov. 2011.

²⁷⁷ *ibid.*, para. 5.2 and 6.2., p.7.

²⁷⁸ Exhibit 4e, *Queanbeyan Water Supply Agreement – Commonwealth of Australia. State of New South Wales, Australian Capital Territory*, para. 8., p.8.

settlement patterns' provided for in the Sydney-Canberra Corridor Regional Strategy²⁷⁹. It also states that the water supplied under the Deed is attributed against the ACT cap or allocation under the Murray-Darling Basin Agreement and subsequent such agreements under the Commonwealth *Water Resources Act 2007*.²⁸⁰

- 5.19 The Managing Director of ACTEW, Mr Mark Sullivan, summarised how the implementation of these agreements for ACT water supply to the ACR in this way:

*I think the ACT government did well in terms of once that Sydney to Canberra corridor planning document was produced, they basically said: "...as long as your developments are in line with that, we commit to supplying water to Queanbeyan City Council in respect of developments that take place." So in respect of Googong township, we are committed to providing water. There will be no negotiation... It is covered because it is within the plan and Queanbeyan are progressing it. There is not a similar document in respect of the corridor west.*²⁸¹

- 5.20 There is no settlement planning document, such as the Sydney-Canberra Corridor Regional Strategy, declaring how sustainable settlement patterns might be established between Canberra and Yass.²⁸²

Water quantity and quality in the Australian Capital Region

- 5.21 The Cooma-Monaro Shire Council states in its submission that it is concerned to see that the ACT's water uses do not adversely impact on residential uses, within towns such as Cooma, or on agricultural uses and that it greatly appreciates how ACTEW has kept it informed of 'cross border issues including catchment and source water protection issues'.²⁸³

²⁷⁹ Exhibit 4e, *Queanbeyan Water Supply Agreement – Commonwealth of Australia. State of New South Wales, Australian Capital Territory*, para. 5.1, p.7.

²⁸⁰ *ibid.*, para. 3.4, p.5.

²⁸¹ *Transcript of Evidence* (public hearing), Mr Mark Sullivan, 13 July 2011, p.96.

²⁸² *ibid.*, p.94.

²⁸³ *ibid.*, p.2.

5.22 Palerang Council emphasises that:

*Increased water conservation and recycling measures will be a major factor in ensuring that a sustainable population and natural environment will exist in the ACT and surrounding region into the future.*²⁸⁴

5.23 The Yass Valley Council urges the Inquiry to examine ‘how the ACT impacts water usage cross border in the Yass LGA and further downstream’ in terms of both quality and quantity.²⁸⁵ Similarly, the Upper Murrumbidgee Catchment Coordinating Committee registers ‘the problems such as cyanobacteria (blue-green algae) in Lake Burley Griffin which reflect catchment management issues upstream of the ACT’.²⁸⁶

5.24 With respect to water quality, on 27 May 2011, Mr Simon Corbell MLA, the Minister for the Environment and Sustainable Development, directed the Commissioner for Sustainability and the Environment to investigate the state of the water courses and catchments for Lake Burley Griffin including:

1. *possible improvements for managing water quality and the appropriateness of the current protocols for lake closures;*
2. *identifying the causes of lower water quality, including possible resource implications of addressing them;*
3. *jurisdictional implications for water quality management of the lake; and*
4. *the implication of these findings for the ACT’s other major recreational waterways, such as Lake Ginninderra and Lake Tuggeranong.*²⁸⁷

5.25 The Commissioner made an invitation for submissions from the public, which closed on 30 September 2011.²⁸⁸

5.26 The Commissioner also established a reference group comprised of members with ‘expertise in a range of relevant matters, including urban water management, hydrology, ecology, recreation, communication and

²⁸⁴ Sub. 30, p.3.

²⁸⁵ Sub. 4, p.2.

²⁸⁶ Sub. 24, p.1.

²⁸⁷ OCSE webpage ‘Investigation into the state of the water courses and catchments for Lake Burley Griffin’ <http://www.envcomm.act.gov.au/investigations/lake_burley_griffin_investigation>, accessed 14 Dec. 2011.

²⁸⁸ *ibid.*

consultation' and an advisory group comprised of members with 'expertise in health, recreation, environment protection regulation and water policy, management and research'.²⁸⁹

- 5.27 The Committee notes that the Commissioner completed, in July 2011, its *Report on Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores Investigation*. The Commissioner released the report on 18 October 2011.²⁹⁰ The Committee notes that this Report was also informed by advice from an 'expert panel consisting of members with expertise in natural resource management, ecology, flora, fauna and recreation'.²⁹¹ The Government has not yet publicly responded to it.
- 5.28 After careful consideration of the Report, the Committee has concluded that implementation of its Recommendations is highly likely to significantly contribute to water quality in the ACR as it is affected by the condition of the nature reserves and Googong Foreshores.
- 5.29 The Committee considers this to be the case especially with respect to the Report's recommendations regarding:
- a. restoration of the condition and resilience of the nature reserves 'guided by independent strategic and scientific ecological advice and monitored by one of the existing advisory committees (such as the Flora and Fauna Committee, Natural Resource Management Advisory Committee or the Natural Resource Management Council)';²⁹²

²⁸⁹ OCSE (2011) *Office of the Commissioner for Sustainability and the Environment Annual Report 2010-2011*, p.5 <http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0016/233260/2010-11_OCSE_annual_report_for_Web.pdf>, accessed 13 Nov. 2011. It is expected that the report on this investigation will be furnished to the Minister during 2012 (OCSE (2011) *Office of the Commissioner for Sustainability and the Environment Annual Report 2010-2011*, p.6).

²⁹⁰ OCSE (2011) *Report on Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores Investigation* <http://www.envcomm.act.gov.au/investigations/nature_reserves_investigation>, accessed 14 Nov. 2011.

²⁹¹ OCSE (2011) *Office of the Commissioner for Sustainability and the Environment Annual Report 2010-2011*, p.5.

²⁹² OCSE (2011) *Facing the challenges – positioning our nature reserves for the 21st century – Report on Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores Investigation – Summary and Recommendations*, July 2011, Recommendation 2, p.11, <http://www.envcomm.act.gov.au/investigations/nature_reserves_investigation>, accessed 14 Nov. 2011.

- b. increased funding of this restoration;²⁹³
 - c. preparation of a nature reserve plan operational plan for each nature reserve and a nature reserve monitoring strategy, including priority actions and research for addressing ecological threats;²⁹⁴
 - d. amendment of the *ACT Nature Conservation Act 1980* and review of the Canberra Nature Park Management Plan 1999 to account for the climate change science research on the reserves as well as the ACT Government's Action Plan. No 29 - ACT Aquatic Species and Riparian Zone Conservation;²⁹⁵ and
 - e. environmental offsets in the reserves being based on the principle of net environmental gain to the ecological communities.²⁹⁶
- 5.30 Apart from the submission from Dr Schooneveldt, which expresses unqualified confidence in the available volumes of the ACR's water supply, even during drought,²⁹⁷ the evidence presented to the Inquiry indicates that the Government, ACTEW, researchers, and others, have shared serious concern about water security in the ACR for at least the last decade.
- 5.31 In 2007, a report entitled *Next Steps to Ensure Water Security for the ACT Region* was developed and published by the Water Security Taskforce with the Water Security Taskforce Advisory Panel.²⁹⁸
- 5.32 One of the report's major findings was that CSIRO modelling, in 2003,²⁹⁹ of 'worst case' average inflows by the year 2030 were 105 GL per year and 2070 of 48 GL per year, while the actual average Canberra dam in-flows, between 2001

²⁹³ *ibid.*, Recommendation 6, p.24.

²⁹⁴ *ibid.*, Recommendation 3, p.14.

²⁹⁵ *ibid.*, Recommendation 4, pp.17-19.

²⁹⁶ *ibid.*, Recommendation 4, p.18.

²⁹⁷ Sub. 2, p.4. In saying this, Dr Schooneveldt cited research from the year 2003, at footnote 5 on p.4 of Sub 2.

²⁹⁸ Water Security Taskforce Advisory Panel (2007) *Next Steps to Ensure Water Security for the ACT Region* <<http://www.legassembly.act.gov.au/downloads/submissions/12%20Water%20use%20-%20Attachment.pdf>>, accessed 1 Dec. 2011. Both the Taskforce and the Advisory Panel were instituted by the then Chief Minister for the ACT. The Advisory Panel included, among others, highly reputable researchers on climate and hydrology.

²⁹⁹ Bates, B. C. et al (2003) *Climate change projections and the effects on water yield and water demand for the Australian Capital Territory*. CSIRO consultancy for ACTEW.

and 2007, were 70 GL. That is, by 2007, the inflows were 33 per cent or 35 GL below the CSIRO 'worst-case' average for the years up to 2030.³⁰⁰

5.33 Research conducted by the South Eastern Australian Climate Initiative (SEACI), in 2008, indicates that over the previous 12 years, the climate throughout South Eastern Australia, including the ACT, had not only become a warmer and drier one, but also became a warmer one earlier and to a larger degree, than scientists had expected.³⁰¹

5.34 Similarly, the CSIRO-Australian Bureau of Meteorology report *State of the Climate 2012*, released in March 2012, concludes that:

*The previous State of the Climate, released in March 2010, highlighted a multi-decadal warming trend over Australia's land and oceans, an increase in record hot days...a decrease in rainfall in southwest and southeast Australia...long-term warming has not changed, with each decade having been warmer than the previous since the 1950s...There has been a general trend towards...decreased late autumn and winter rainfall across southern Australia.*³⁰²

5.35 This report points out that while there was record rainfall in 2010 and 2011 in spring and summer in the south-east of Australia, due to a 'very strong La Niña event'³⁰³ in both of those years, these were 'natural weather variations',³⁰⁴ rather than the long-term climate change reflected in how rainfall was 'below

³⁰⁰ Water Security Taskforce Advisory Panel (2007) *Next Steps to Ensure Water Security for the ACT Region*, pp. viii and pp.4-6 <http://pandora.nla.gov.au/pan/80575/20080118-1237/www.thinkwater.act.gov.au/more_information/documents/WaterSecurityreportweb.pdf>, accessed 1 Dec. 2011.

³⁰¹ South Eastern Australia Initiative (SEACI) (2008) *South Eastern Australia Initiative: Answering questions about climate change in South Eastern Australia* <http://www.seaci.org/publications/documents/SEACI-1%20Reports/SEACI-1_Flyer.pdf>, accessed 1 Dec. 2011. SEACI is a research group comprised of CSIRO, the Commonwealth Department of Climate Change and Energy Efficiency, the Murray–Darling Basin Authority (MDBA), the Commonwealth Bureau of Meteorology, and the Victorian Department of Sustainability and Environment (SEACI webpage <<http://www.seaci.org/about.html>>, accessed 1 Dec. 2011). ACTEW (Sub 28, p. 11), Ms Jenny Goldie (Sub. 15, p. 2), and Ms Julia Richards (Sub. 11, p.2) all refer to this SEACI research.

³⁰² Australian Bureau of Meteorology and CSIRO (2012) *State of the Climate 2012* <<http://www.csiro.au/Outcomes/Climate/Understanding/%7E/media/8E59FBA4F8A94FE4B84F01E271226316.pdf>>, accessed 30 March 2012.

³⁰³ *ibid.*, p.5.

³⁰⁴ Australian Bureau of Meteorology and CSIRO (2012) *State of the Climate 2012*, p.10.

average for the period April to July 2011, continuing the longer-term drying trend'.³⁰⁵ It also states:

*Climate models suggest long-term drying over southern areas during winter and over southern and south-eastern areas during spring...Droughts are expected to become more frequent in southern Australia...For Australia as a whole, an increase in the number of dry days is expected...*³⁰⁶

- 5.36 In June 2011, the *Memorandum Of Understanding between the Australian Capital Territory and NSW Office of Environment and Heritage – NSW and ACT Regional Climate Model (NARClIM)* was agreed by the ACT and NSW Governments. In it, the ACT Government has committed funding to obtaining from the NSW Office of Environment and Heritage climate modeling projections that will assist the ACT to understand 'the causes and impacts of climate change likely to occur in the ACT region'.³⁰⁷
- 5.37 In its submission to the Inquiry, ACTEW states that 'Climate is by far the most significant modelling variable in determining the amount of water available for potable water supply.'³⁰⁸ Mr Sullivan confirmed this, in his testimony to the Committee, when he offered that 'Climate change is our biggest threat. We firmly believe that climate change is real and happening, and we take account of it.'³⁰⁹
- 5.38 In its submission, ACTEW relies on the SEACI research and some CSIRO predictions for climate until the year 2030,³¹⁰ as well as ABS population projections³¹¹ and other data, to estimate that the ACT water supply is able to

³⁰⁵ *ibid.*, p.5.

³⁰⁶ Australian Bureau of Meteorology and CSIRO (2012) *State of the Climate 2012*, p.11.

³⁰⁷ Exhibit 4f, *Memorandum Of Understanding between the Australian Capital Territory and NSW Office of Environment and Heritage – NSW and ACT Regional Climate Model (NARClIM)*, under B. in the 'Background' [no page numbers]. See this Memorandum reproduced in full on the Inquiry Exhibits webpage.

³⁰⁸ Sub. 28, p. 10.

³⁰⁹ *Transcript of Evidence* (public hearing) 13 July 2011, p.89.

³¹⁰ Bates, B. C. et al (2003) *Climate change projections and the effects on water yield and water demand for the Australian Capital Territory*. CSIRO consultancy for ACTEW.

³¹¹ See these ABS population projections cited in the planning variables review documents from which the submission refers to as having drawn its assumptions: ACTEW (2011) *Review of Planning Variables for Water Supply and Demand Assessment*
<<http://www.actew.com.au/News%20and%20Publications/Reports/Key%20Publications.aspx>>

support a population of approximately one million people.³¹²

5.39 ACTEW stresses that this estimate is predicated on ‘a great number of assumptions’.³¹³ These assumptions, drawn from the SEACI and CSIRO research, are detailed in ACTEW’s submission³¹⁴ as well as in its public report on its 2010 review of planning variables for water supply and demand assessment³¹⁵.

5.40 Further, in his oral testimony, Mr. Sullivan said this of the target reductions of mains water consumption of 12 per cent per person by 2013 and 25 per cent per person by 2023 in the ACT Government’s *Think water, act water* strategy:³¹⁶

*We were sailing along to meeting those targets extraordinarily well under restrictions. The risk was always, when you lifted the restrictions, whether the behaviour would change back and we would see that maybe meeting those targets would be difficult. To date, the experience is that we seem to have seen a long-term, if not permanent, alteration in people’s behaviour.*³¹⁷

accessed 14 Jan. 2012; ACTEW (2010) *Review of Planning Variables for Water Supply and Demand Assessment* <<http://www.actew.com.au/News%20and%20Publications/Reports/Key%20Publications.aspx>>, accessed 14 Dec. 2011; and ACTEW (2009) *Review of Planning Variables for Water Supply and Demand Assessment* <<http://www.actew.com.au/News%20and%20Publications/Reports/Reports%20Archive.aspx>>, accessed 14 Dec. 2011.

³¹² Sub. 28, p. 21 <<http://www.legassembly.act.gov.au/downloads/submissions/28%20ACTEW.pdf>>, accessed 14 July 2011. Further, in late Aug. 2011, the Managing Director of ACTEW, Mr Mark Sullivan, stated in the media that between the rainfall of 2011 and the expansion of the Cotter Dam and the Googong pipe projects, Canberra may be free of water restrictions for up to twenty years provided there continues to be regular rain: <<http://www.abc.net.au/news/2011-08-22/water-supply-secured-for-20-years-actew/2848574/?site=canberra>>, accessed 11 Nov. 2011.

³¹³ Sub. 28, p.21.

³¹⁴ *ibid.*, pp.20-21 and 23.

³¹⁵ ACTEW (2010) *Review of Planning Variables for Water Supply and Demand Assessment*. ACTEW publishes such a review yearly to account for changes in rainfall levels, population growth rates, and other relevant factors. These assumptions and conclusions were confirmed by ACTEW in its oral testimony to the Committee (*Transcript of Evidence* (public hearing) 13 July 2011 <<http://www.hansard.act.gov.au/hansard/2009/comms/climate22.pdf>>, accessed 20 Aug. 2011).

³¹⁶ ACT (2004) *Think water, act water* Volume 1: *Strategy for sustainable water resource management in the ACT*, p.3 <http://www.thinkwater.act.gov.au/documents/Vol1screen_000.pdf>, accessed 14 July 2011.

³¹⁷ *Transcript of Evidence* (public hearing) 13 July 2011, p.92.

ACT water management strategy

- 5.41 On 5 June 2002, the Legislative Assembly for the ACT resolved that:
- a. *as far as possible, the building of further water dams in the ACT should be avoided.*
 - b. *water leaving the ACT via the Murrumbidgee River should be of no less quality than the water flowing into the ACT.*
 - c. *adequate flows should be maintained in the ACT's waterways to maintain their environmental values.*
 - d. *an ACT water conservation and reuse strategy should be developed to ensure that the water needs of any increase in population can be met, as far as possible, within existing resources.*³¹⁸
- 5.42 In 2004, the ACT Government issued the *Think water, act water* strategy. This strategy articulates the targets of the people of the ACT reducing consumption of mains water per person by 25 per cent by the year 2023 and increasing the use of reclaimed water from five to 20 per cent by 2013.³¹⁹ The Government commenced reviewing this strategy in 2009 and continues to do so in light of the MDBA's *Proposed Basin Plan*, released in late 2011, among other developments.³²⁰
- 5.43 As is provided for in the *Think water, act water* strategy, ACTEW has rolled out several infrastructure projects, since 2007. These projects include a twenty-fold expansion of the capacity of the Cotter Dam; the construction of a pipeline for transfer of water from the Murrumbidgee River to the Googong Reservoir in the ACT; the purchase and transfer to the ACT of water from the Tantangara Reservoir in NSW; and the design of a demonstration water purification plant.³²¹

³¹⁸ See Assembly's *Debates Weekly – Hansard – 5 June 2002*, pp.1958 – 1976

<<http://www.hansard.act.gov.au/hansard/2002/pdfs/20020605.pdf>>, accessed 14 July 2011.

³¹⁹ ACT (2004) *Think water, act water* Volume 1: *Strategy for sustainable water resource management in the ACT*, p.3 <http://www.thinkwater.act.gov.au/documents/Vol1screen_000.pdf>, accessed 14 July 2011

³²⁰ *ibid.*

³²¹ For details, see ACTEW's 'Major Projects' webpage

<<http://www.actew.com.au/Our%20Projects.aspx>>, accessed 14 July 2011.

- 5.44 These projects boost and diversify the ACT's water supply sources.³²²
- 5.45 The Commissioner for Sustainability and the Environment's ACT State of the Environment Reports for 2007-08³²³ and 2011,³²⁴ the ACT Government's *Think water, act water* progress reports,³²⁵ ACTEW's evidence to the Committee,³²⁶ and the ACT Auditor-General's Report No. 4 of 2010 *Water Demand Management: Administration of Selected Initiatives*³²⁷ suggest that the ACT population has overwhelmingly complied with ACTEW's water restrictions and permanent conservation measures and that the Government's water demand management initiatives have complemented ACTEW's³²⁸.

³²² The ACTEW Maps and Diagrams' webpage provides a schematic that shows the respective locations of current sources and ones for which the infrastructure will soon be complete: <<http://www.actew.com.au/~media/Files/ACTEW/Cotter%20Dam%20Education%20Kit/Maps%20and%20diagrams/ACT%20water%20supply%20diagram.ashx?dl=true>>, accessed 1 Dec. 2011. The Sub. of IPA ACT, which describes itself as 'a self-funded group under the broad auspices of the Institute of Public Affairs', stresses, in its submission, the importance of a diversity of water supplies (Sub. 16, p.8).

³²³ OCSE (2008) *ACT State of the Environment Report 2007-08*: 'In an effort to reduce water consumption and extend the availability of water during the continuing drought, a suite of water demand management strategies has moderated water consumption for the ACT during the reporting period. During the reporting period, demand management strategies have saved approximately 93 GL.' <<http://www.envcomm.act.gov.au/publications/soe/2007actreport/indicators/wateruse07>>, accessed 14 July 2011.

³²⁴ OCSE (2012) *ACT State of the Environment Report 2011*: 'Between 2005-06 and 2009-10, potable water use within the ACT decreased by approximately 7 GL per year (Figure 2), primarily because of a decrease in household water use. Household water use, the main use of water in the ACT (66.3%), decreased by 17% between 2006-07 and 2009-10 in response to the drought and associated water conservation measures. As ACT residents have only recently been allowed to adopt the more relaxed Permanent Water Conservation Measures, it is yet to be seen whether water-efficient behaviour is now embedded in the behaviour of Canberrans, or if water use will once again increase.' <http://www.envcomm.act.gov.au/actsoe2011/land-water_theme.html>, accessed 6 May 2012.

³²⁵ ACT Gov. *Think water, act water* progress reports webpage <http://www.thinkwater.act.gov.au/permanent_measures/progress_report.shtml>, accessed 12 Dec. 2011.

³²⁶ Sub. 28, p.22 <<http://www.parliament.act.gov.au/downloads/submissions/28%20ACTEW.pdf>> and *Transcript of Evidence* (public hearing), Mr Mark Sullivan and Mr Leigh Crocker, 13 July 2011, p. 92 <<http://www.hansard.act.gov.au/hansard/2009/comms/climate22.pdf>>, both accessed 1 Dec. 2011.

³²⁷ ACT Auditor-General (2010) *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives*, tabled in the Assembly on 29 June 2010, pp. 41, 43, and 55 <<http://www.audit.act.gov.au/auditreports/reports2010/Water%20Demand%20Mgt%20-%20Final%20report.pdf>>, accessed 14 July 2011.

³²⁸ *ibid.*, p.53. Further, the ABS, in its December 2011 report on ACT water consumption, shows that that total water consumption marginally decreased to 47 GL in 2009-10 compared with 48 GL in 2008-09, with a marginal increase in household consumption from 27 GL in 2008-09 to 28 GL in 2009-10. It also indicates that the ACT's household water use per person was 2009-10 was 77 kL in 2009-

- 5.46 ACTEW, in its Annual Report to the ACT Government for the year ending 30 June 2011, states that water consumption during the year amounted to 40.9 GL 'a saving of 20.9 GL, compared to estimated consumption without restrictions, conservation measures and demand management initiatives by ACTEW and the ACT Government' and that 'An effluent reuse volume of 4.3GL was achieved, equating to a total reuse of 16.7% since July 2010'.³²⁹
- 5.47 However, the Committee notes that the Government's *Think water, act water 2009 Demand Management Report*, published last year, concludes that 'meeting the 2023 target of a 25 per cent reduction per capita will require increased savings, and investigation and evaluation of further water efficiency measures, if these savings are to be achieved in the most cost-effective way'.³³⁰ The Report makes the general statement that 'Future population growth and residential development and expansion will need to be considered in implementing current and future measures.'³³¹
- 5.48 The *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives* states that certain improvements can be made to how both ACTEW and the Government measure, evaluate, and notify the public about water savings.³³² The Government responded to this Auditor-General's Report in a submission to the Legislative Assembly's Standing Committee on Public Accounts³³³ and in late January 2012, the Government provided the Committee with a short, written update on its implementation of

10 compared with 78 kL in 2008-09 (ABS (2011) *State and Territory Statistical Indicators, 2011* (released 12 Dec. 2011).

³²⁹ ACTEW (2011) *ACTEW Corporation Limited 2010-11 Annual Report to the ACT Government*, p.11 <<http://www.actew.com.au/News%20and%20Publications/Reports/Annual%20Reports.aspx>>, accessed 14 Oct. 2011.

³³⁰ ACT (2011) *Think water, act water 2009 Demand Management Report*, pp.1 and 25 <http://www.thinkwater.act.gov.au/permanent_measures/documents/2009_DemandMgmtReport.pdf>, accessed 12 Dec. 2011.

³³¹ *ibid.*, p.25.

³³² ACT Auditor-General (2010) *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives*, pp. 14-19. The ACTEW Submission (Sub. 28, p.27) refers the Committee to this Report.

³³³ ACT (2010) *Government Submission to the Public Accounts Committee on the Auditor-General's Report No.4 of 2010 – Water Demand Management* <<http://www.parliament.act.gov.au/committees/submissionNo4of10.pdf>>, accessed 14 July 2011. This submission was authorised for publication on 8 April 2011.

the Auditor-General's recommendations³³⁴.

- 5.49 Recommendation 1 of the Auditor-General's Report called on the then Department for Environment, Climate Change, Energy and Water, in consultation with ACTEW, to improve the method for assessing the outcomes of water consumption targets in *Think water, act water* and 'provide relevant information to the public' on this assessment method.³³⁵
- 5.50 Recommendation 4 recommends that ACTEW consider measuring water savings against a new consumption baseline that excludes savings already achieved from the permanent water conservation measures. It also recommends that while ACTEW considers this recommendation, it make clear to the public that the water savings are a combined result of temporary water restrictions and the ACT Government's water demand management program.³³⁶
- 5.51 In this connection, the submission from the Canberra Division of Engineers Australia points out that:
- Although the 'Measuring Our Progress' website clearly acknowledges that water restrictions were in place for most of the reporting period, the evident fall in water consumption is reported as improved sustainability...The decline in water use is not a measure of sustainability and should not be so represented...*³³⁷
- 5.52 Recommendation 7 of the same Auditor-General's Report recommends that the then Department for Environment, Climate Change, Energy and Water ensure that up-to-date and verifiable data and assumptions are used for the estimates of water savings accruing from the Government's water efficiency programs for people's homes, such as the ToiletSmart³³⁸ and GardenSmart³³⁹.

³³⁴ ACT Gov. update to Standing Committee on Public Accounts (24 Jan. 2012) <<http://www.parliament.act.gov.au/committees/AGReportNo4of2010-update.pdf>>, accessed 5 Feb. 2012.

³³⁵ ACT Auditor-General (2010) *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives*, tabled in the Assembly on 29 June 2010, pp. 15 and 28.

³³⁶ ACT Auditor-General (2010) *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives*, tabled in the Assembly on 29 June 2010, pp. 17 and 50.

³³⁷ Sub. 34, p. 7.

³³⁸ ACT Gov. ToiletSmart webpage <http://www.thinkwater.act.gov.au/tune-ups_rebates/ToiletSmart.shtml>, accessed 12 Dec. 2011.

- 5.53 The Committee notes that the Government agreed to Recommendations 1³⁴⁰ and 4,³⁴¹ and agreed in part to Recommendation 7³⁴². In agreeing in part to Recommendation 7, the Government stated that it would consider the provision of up-to-date and verifiable data in its review of *Think water, act water*.³⁴³
- 5.54 The Committee commends the Government's constructive response to the recommendations and urges that the Government prioritise full implementation of the ones to which it agreed and the part of Recommendation 7 to which it agreed.
- 5.55 As is provided for in the *Think water, act water* strategy, the Government has implemented some integrated urban water management projects to improve the quality of water flowing into Lake Burley Griffin and other areas and to harvest stormwater to water outdoor recreation areas so that they need not be watered with potable water. These projects increase flood protection, public access to green space, and habitat for aquatic flora and fauna.³⁴⁴
- 5.56 However, the *ACT Auditor-General's Report No. 3 of 2011 The North Weston Pond Project*³⁴⁵ and the *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives* indicate several problems with some of the largest of these integrated urban water management projects.
- 5.57 For example, Recommendation 6 of the Report on the North Weston Pond Project recommends that the ACT Environment Protection Authority (EPA)

³³⁹ ACT Gov. GardenSmart webpage <http://www.thinkwater.act.gov.au/tune-ups/rebates/outdoor_water_tune-up.shtml>, accessed 12 Dec. 2011.

³⁴⁰ ACT (2010) *Government Submission to the Public Accounts Committee on the Auditor-General's Report No.4 of 2010 – Water Demand Management*, p. 2.

³⁴¹ *ibid.*, p. 5.

³⁴² ACT (2010) *Government Submission to the Public Accounts Committee on the Auditor-General's Report No.4 of 2010 – Water Demand Management*, p. 7.

³⁴³ *ibid.*

³⁴⁴ ACT (2011) *Think water, act water - Strategy for sustainable water management in the ACT – 2009 Progress Report*, p. 2
<http://www.thinkwater.act.gov.au/permanent_measures/documents/2009ProgressReport1_web.pdf>, accessed 22 Dec. 2011.

³⁴⁵ ACT Auditor-General (2011) *ACT Auditor-General's Report No. 3 of 2011 The North Weston Pond Project* <http://www.audit.act.gov.au/auditreports/reports2011/Report_3-2011_North_Weston_Pond_Project%20-%20post%20tabling%20revised.pdf>, accessed 12 Dec. 2011.

review the *Contaminated Sites Environment Protection Policy* to clarify who has which responsibilities for the management of contaminated sites and to allow for increased EPA involvement in infrastructure projects with such sites.³⁴⁶

5.58 The Committee notes that while the Government has not responded to that Report in a submission to the Public Accounts Committee, Recommendation 6 was agreed to by the then ACT Department of Territory and Municipal Services and the then ACT Department of Climate Change, Environment and Water, when the Auditor-General provided the proposed Report to them.³⁴⁷ The Committee also notes that the Government agreed, or part agreed, to the rest of the Report's recommendations.

5.59 Again, the Committee urges the Government to implement the agreed or part agreed recommendations. The Committee also suggests that the Report's findings and recommendation about contaminated sites be considered by the Government in its forthcoming review of the ACT *Environment Protection Act 1997*.³⁴⁸

5.60 Similarly, the ACT Auditor-General's Report No. 4 of 2010 *Water Demand Management: Administration of Selected Initiatives* highlights problems with the implementation of the Flemington Ponds project. The Government has agreed to the recommendation about that project in its submission on the Report. The Committee urges the Government to prioritise the implementation of this recommendation.

The Murray-Darling Basin environment

5.61 The Murray-Darling Basin Agreement is the Commonwealth legal instrument that caps the ACT uptake of water from the Basin to 40 GL of water, with

³⁴⁶ *ibid.*, Recommendation 6.

³⁴⁷ ACT Auditor-General (2011) *ACT Auditor-General's Report No. 3 of 2011 The North Weston Pond Project*, p. 16.

³⁴⁸ ACT (2011) *Environment and Sustainable Directorate Annual Report 2010-11*, p. 8 <http://www.environment.act.gov.au/_data/assets/pdf_file/0006/233286/1027-DECCEW_AnnualReport2011_web.pdf>, accessed 1 Oct. 2011.

credits and debits accruing annually. It also allows for adjustments to the cap on the basis of population growth and climate variability.³⁴⁹

- 5.62 Over the last decade, the Commonwealth Government has taken an increasing interest in the Murray-Darling Basin through new legislation, programs, and the establishment of the Murray-Darling Basin Authority (MDBA).
- 5.63 The ACT Minister for the Environment and Sustainable Development has participated on the Murray-Darling Basin Ministerial Council. This Council is an advisory body on the preparation of the Murray-Darling Basin Plan by the MDBA.³⁵⁰ This Plan will be the outcome of the MDBA's current review of the Murray-Darling Basin Agreement.
- 5.64 On 8 October 2010, the MDBA released³⁵¹ its *Guide to the proposed Basin Plan*³⁵² (the Guide). A key dimension of the plan envisaged by the Guide was increasing the flows of water available for the environment, and in so doing, decreasing the water available for agriculture and household uses. The ACT Government furnished an extensive submission to the MDBA that disputed the Guide's provisions for the ACT.³⁵³
- 5.65 Following protests against the Guide, across the Basin, there was a House of Representatives Standing Committee on Regional Australia inquiry into the potential impact of the Guide's proposed plan on regional Australia. The Committee's report, *Of drought and flooding rains*, was released on 2 June 2011. In it, the Committee criticised MDBA's consultations process with Basin

³⁴⁹ The Murray-Darling Basin Agreement is Schedule 1 to the Commonwealth *Water Act 2007* <http://www.comlaw.gov.au/Details/C2011C00160/Html/Text#_Toc289261269>, accessed 12 Nov. 2011.

³⁵⁰ See Commonwealth *Water Act 2007* <<http://www.comlaw.gov.au/Details/C2012C00229>>, accessed 1 Jan. 2012 and MDBA 'Ministerial Council' webpage <http://www.mdba.gov.au/about/governance/ministerial_council>, accessed 1 December 2011.

³⁵¹ For MDBA media launch see <http://www.mdba.gov.au/media_centre/media_releases/basin-plan-guide-released-for-public-discussion>, accessed 14 July 2011.

³⁵² MDBA (2010) *Guide to the proposed Basin Plan* <<http://www.mdba.gov.au/bpkid/guide/>>, accessed 14 July 2011.

³⁵³ ACT Dept. of Environment, Climate Change, Energy and Water [no date] *ACT Government Submission to the Murray-Darling Basin Authority on the Guide to the Proposed Basin Plan* <http://www.mdba.gov.au/files/submissions/ACT%20Government_2%20of%205.pdf> and for most of the history of the ACT's contributions towards the Murray-Darling Basin's restoration, see Chapt. 4 of the National Water Commission (2010) *Australian environmental management report 2010* <http://www.nwc.gov.au/data/assets/pdf_file/0006/11310/Chapter_4.pdf>, both accessed 15 July 2011.

- stakeholders and made a number of related recommendations.³⁵⁴
- 5.66 On 28 November 2011, the MDBA released a *Proposed Basin Plan*, a legal instrument made under the *Commonwealth Water Act 2007*.³⁵⁵ It proposes caps that the MDBA will not enforce until 2019.³⁵⁶
- 5.67 As was widely reported,³⁵⁷ the *Proposed Basin Plan* exempts the ACT from making any reductions to its current 40GL cap on water it draws from the Basin,³⁵⁸ but requires the ACT, along with every other jurisdiction in the Basin, to prepare a detailed water resource plan.³⁵⁹ It mandates that each water resources plan ‘take into account the water resources of an adjacent water resource plan area and any other water resources that have a significant hydrologic connection to the resources of the plan area’ and ‘describe how these factors were taken into account’.³⁶⁰
- 5.68 The MDBA called for written submissions on the *Proposed Basin Plan* by 16 April 2012.³⁶¹ The MDBA states that its development of the Basin Plan, which will also be made under the *Water Act 2007*, will be informed by the results of the consultation process.³⁶²
- 5.69 At the time of writing, the ACT Government had not made a submission.³⁶³

³⁵⁴ Commonwealth (2011) *Of drought and flooding rains: Inquiry into the impact of the Guide to the Murray Darling Basin Plan*, House of Representatives Standing Committee on Regional Australia, May 2011 <<http://www.aph.gov.au/house/committee/ra/murraydarling/index.htm>>, accessed 14 July 2011.

³⁵⁵ MDBA (2011) *Proposed Basin Plan* <<http://www.mdba.gov.au/draft-basin-plan>>, accessed 14 July 2011.

³⁵⁶ *ibid.*, Chapt. 9, Part 3.

³⁵⁷ See, for example, ABC News, ‘ACT avoids water cuts’, 28 Nov. 2011 <<http://www.abc.net.au/news/2011-11-28/act-avoids-murray-darling-basin-cuts/3698612>> accessed 14 Dec. 2011.

³⁵⁸ MDBA (2011) *Proposed Basin Plan*, Schedule 2—Matters relating to surface water SDL resource units.

³⁵⁹ MDBA (2011) *Proposed Basin Plan* Chapter 7, Part 4.

³⁶⁰ MDBA (2011) *Plain English summary of the proposed Basin Plan — including explanatory notes November 2011*, p. vii <http://download.mdba.gov.au/proposed/plain_english_summary.pdf>, accessed 28 Nov. 2011.

³⁶¹ MDBA, ‘Make a submission’ webpage <<http://www.mdba.gov.au/have-your-say/make-submission>>, accessed 28 Nov. 2011.

³⁶² MDBA (2011) *Plain English summary of the proposed Basin Plan — including explanatory notes November 2011*, p. 46.

³⁶³ See MDBA webpage providing access to submissions on the *Proposed Basin Plan* <<http://www.mdba.gov.au/have-your-say/view-submission>>, accessed 20 Dec. 2011.

However, in its Draft Planning Strategy, released in late 2011, the Government states that:

*As with all river systems in Australia, the Molonglo and Murrumbidgee river corridors are under pressure from the effects of development and climate change. We must continue to be vigilant in protecting the ecology and water quality of our river systems.*³⁶⁴

- 5.70 In its submission to the MDBA Guide in 2010,³⁶⁵ and in its submission to this Inquiry,³⁶⁶ the ACT Government states that the ACT has a long history of being, and is, a prudent manager of water and that it allows sufficient environmental flows for Basin watercourses before allocating water for consumption. More specifically, in its submission to the MDBA Guide, the Government states that:

*In the Basin context, the ACT is a very low volume water user and returns about 40-50 per cent of the water it extracts for consumptive use to the Basin river system in the form of highly treated sewage effluent. The ACT on average only uses 0.1 per cent of long term average water inflows into the Basin and 0.8 per cent of available water in the Murrumbidgee catchment...the ACT has ensured appropriate environmental flows and successfully managed consumptive water extractions from the balance, even during the recent drought...*³⁶⁷

- 5.71 The ACTEW submission to this Inquiry³⁶⁸ specifies some of its aquatic ecosystem protection procedures. ACTEW's submission³⁶⁹ and testimony³⁷⁰ referred to some of the science underpinning its ecosystem protection

³⁶⁴ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.56
<http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf>, accessed 1 Nov. 2011.

³⁶⁵ ACT (2010) *ACT Government Submission to the Murray-Darling Basin Authority on the Guide to the Proposed Plan* [no date], p.4
<http://www.environment.act.gov.au/data/assets/pdf_file/0015/212622/ACT_submission_to_MDBA_Guide2010.pdf>, accessed 1 Dec. 2011.

³⁶⁶ Sub. 32, p.26.

³⁶⁷ ACT Dept. of Environment, Climate Change, Energy and Water [no date] *ACT Government Submission to the Murray-Darling Basin Authority on the Guide to the Proposed Basin Plan*, p.4
<<http://www.mdba.gov.au/files/submissions/ACT%20Government%20of%205.pdf>>, accessed 1 Dec. 2011.

³⁶⁸ ACTEW (Sub. 28, pp.24-26).

³⁶⁹ ACTEW (Sub. 28, p.19 and pp.24-26).

³⁷⁰ *Transcript of Evidence* (public hearing) 13 July 2011, pp. 86-87 and p.90.

procedures. ACTEW's submission also highlights some uncertainties about the effects of its operations on the Basin³⁷¹ and where the effects are beneficial in some ways to the environment but not in others³⁷².

- 5.72 ACTEW³⁷³, and others³⁷⁴ welcomed the provisions for the ACT in the MDBA's recent *Proposed Basin Plan*. However, some peak farm groups³⁷⁵ and others³⁷⁶ have raised serious concerns about how, under the provisions of the *Proposed Basin Plan*, the ACT and other human settlements in the Basin³⁷⁷ would not be returning enough water to the Basin to significantly contribute to its restoration.
- 5.73 Many researchers with relevant expertise have said that their studies of the *Proposed Basin Plan* show that it is not underpinned by accurate science and proposes insufficient environmental flows.³⁷⁸

³⁷¹ ACTEW (Sub. 28, pp.18-19).

³⁷² ACTEW (Sub. 28, p.17 and p.23).

³⁷³ ABC News (2011) 'ACT avoids water cuts', 28 Nov. 2011 <<http://www.abc.net.au/news/2011-11-28/act-avoids-murray-darling-basin-cuts/3698612>>, accessed 29 Nov. 2011.

³⁷⁴ See, for example, Bromhead, John (2011) 'Letter to the editor', *The Canberra Times* <<http://www.canberratimes.com.au/news/opinion/letters/general/ideas-on-saving-water-in-the-murraydarling-basin/2376002.aspx>>, accessed 11 Dec. 2011.

³⁷⁵ 'Water plan terrible for bush', *The Canberra Times*, 27 Nov. 2011 <<http://www.canberratimes.com.au/news/national/national/general/water-plan-terrible-for-bush/2372319.aspx?storypage=0>>, accessed 12 Dec. 2011.

³⁷⁶ See, for example, Sandilands, John (2011) 'Letter to the editor', *The Canberra Times* <<http://www.canberratimes.com.au/news/opinion/letters/general/ideas-on-saving-water-in-the-murraydarling-basin/2376002.aspx>>, accessed 12 Dec. 2011.

³⁷⁷ See comments of Macquarie Marshes Environmental Landholders Association and the Australian Floodplain Association in Locke, Sarina (2011) 'Graziers groups seeks more environmental flows', 23 Dec. 2011, ABC Rural website, <<http://www.abc.net.au/rural/news/content/201112/s3397150.htm?site=canberra>> and comments of Southern Fishermen's Association, the Australian Conservation Foundation, the Wilderness Society and the Conservation Council SA in Australian Conservation Foundation (2011) 'Lifeblood Alliance calls on the Federal Minister to send the Basin Plan back', Media Release, 1 Dec. 2011 <http://acfonline.org.au/articles/news.asp?news_id=3577>, both accessed 12 Dec. 2011.

³⁷⁸ Dr Bill Young and Prof. Paul Martin quoted in 'CSIRO hits out at lack of science in water plan', *The Canberra Times*, 29 Nov. 2011 <<http://www.canberratimes.com.au/news/national/national/general/csiro-hits-out-at-lack-of-science-in-water-plan/2375461.aspx?storypage=0>>; Mr Jamie Pittock, a water management researcher at the ANU Crawford School of Economics and Government in Pittock, J. (2011) 'Plan leaves basin high and dry', *The Canberra Times*, 28 Nov. 2011 <<http://www.canberratimes.com.au/news/opinion/editorial/general/plan-leaves-basin-high-and-dry/2374319.aspx?storypage=0>>; Prof. Chris Miller, a researcher on water management, among other things, at Flinders University, Miller, C. (2011) 'Murray Murmurings: invented numbers please no-

- 5.74 No one who made submissions or oral testimony to the Inquiry could comment on the *Proposed Basin Plan* or the ACT Government's response to it, because neither existed at the time the Committee was receiving evidence. However, just over a third of the submissions explicitly registered concern about the Basin's environmental health.³⁷⁹ For instance, ACTEW in its submission states that 'in the greater Murrumbidgee River system, the demand for water exceeds the supply, and there are major concerns about the environmental impact of excessive abstraction of water'.³⁸⁰

ACT State of the Environment Report 2011 on water

- 5.75 The Committee notes that the *ACT State of the Environment Report 2011* reports on 'groundwater', 'river lakes and wetland health', 'water supply', and 'water quality' indicators.³⁸¹ The Committee also notes that the Commissioner has

one in basin plan', *Crikey*, 6 Dec. 2011 <<http://blogs.crikey.com.au/rooted/2011/12/06/murray-murmurings-invented-numbers-please-no-one-in-basin-plan/>>, all accessed 1 Dec. 2011. See, also, Wentworth Group of Concerned Scientists (2012) *Statement on the 2011 Draft Management Plan for the Murray-Darling Basin*, released 18 Jan. 2012 <<http://www.wentworthgroup.org/uploads/Wentworth%20Group%20Statement%20on%20the%202011%20Draft%20Murray-Darling%20Basin%20Plan.pdf>>, accessed 18 Jan. 2012. The Committee has observed that the Wentworth Group of Concerned Scientists and CSIRO have published research on sustainable diversion limits for the Murray-Darling Basin³⁷⁸ and CSIRO has published research on the full spectrum of water-sensitive planning and design for human settlements. Wentworth Group of Concerned Scientists (2010) *Sustainable Diversions in the Murray-Darling Basin: An analysis of the options for achieving a sustainable diversion limit in the Murray-Darling Basin*, June 2010 <<http://www.wentworthgroup.org/blueprints/sustainable-diversions-in-the-murray-darling-basin>>, accessed 1 Dec. 2011 and CSIRO (2008) *Water Availability in the Murray-Darling Basin A report from CSIRO to the Australian Government*, Oct. 2008 <<http://www.clw.csiro.au/publications/waterforahealthycountry/mdbsy/pdf/WaterAvailabilityInTheMDB-FinalReport.pdf>> and CSIRO Water for a Healthy Country National Research Flagship webpage <<http://www.clw.csiro.au/publications/waterforahealthycountry/>>, both accessed 14 July 2011.

³⁷⁹ Canberra Division of Engineers Australia (Sub. 34, p.7), Mr Greg Delaney (Sub. 7, p.3), A/Prof. Kieran Fallon (Sub. 6, p.2), Ms Jenny Goldie (Sub. 15, pp.2-3), Cooma Monaro (Sub. 20, p.2), Mark O'Connor (Sub. 22, p.17), Palerang Council (Sub. 30, p.4), Ms Julia Richards (Sub. 11, p.2), Mr David Turbayne (Sub. 21, p.2), Sustainable Population Australia (Sub. 35, p.6), Mr Keith Sayers (Sub. 36, p.1), and Mr Dr Chris L. Watson (Sub. 25, p.2).

³⁸⁰ Sub. 28, p.16.

³⁸¹ OCSE (2012) *ACT State of the Environment Report 2011* <http://www.envcomm.act.gov.au/actsoe2011/land-water_theme.html>, accessed 6 May 2012.

made five recommendations about the management of water resources in the ACT that are broadly consistent with the Committee's observations in this Chapter.

5.76 These recommendations are:

1. *Establish cross-boundary management of the ACT's water resources including:*
 - i. *developing catchment policy and an integrated water supply catchment management strategy, as recommended in previous State of Environment reports; and*
 - ii. *strengthening integrated management action by facilitating improved exchange and use of information, such as spatial information, between government agencies, Natural Resource Management groups and Catchment Management Authorities, and by promoting sustainable catchment management with landholders and the community.*
2. *Complete assessment of the ACT's at risk groundwater resources.*
3. *Update water management, monitoring and reporting programs to inform:*
 - a. *actions to mitigate the impacts of urban development on water quality;*
 - b. *the efficacy of Water Sensitive Urban Design measures;*
 - c. *improvements in sediment and erosion mitigation actions; and*
 - d. *management of ACT lakes.*
4. *Improve monitoring to assess the impact of erosion on local land and water resources, and to help to understand the interactions between the ACT's catchment and ecosystem services...*
5. *Management of knowledge and the coordination of scientific research, data collection, monitoring and reporting (including public information)...³⁸²*

³⁸² OCSE (2012) ACT State of the Environment Report 2011 <
http://www.envcomm.act.gov.au/actsoe2011/executive_summary.html>, accessed 6 May 2012.

- 5.77 The Commissioner is also investigating water quality issues affecting Lake Burley Griffin. The Commissioner is expected to report on that investigation to the Minister for the Environment and Sustainable Development in 2012.³⁸³

Key findings

- 5.78 The Committee finds that the ACT Government and ACTEW have implemented effective water savings and efficiency measures and secured new water supply sources. However:
- a. There remains a critical need for the ACT Government and ACTEW to:
 - i. plan for, and achieve, increased water savings and efficiencies and integrated water management systems.
 - ii. continue to monitor the effects on environmental flows, and water quality and quantity, of climate change, and shifts in the ACT-Queanbeyan population and that population's water consumption.
 - iii. integrally factor the scientific evidence on those effects into its responses to proposed and established Murray-Darling Basin and ACT water management strategies.
 - b. The Government's implementation of the Recommendations in the Commissioner for Sustainability and the Environment's *Report on Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores Investigation (2011)* will contribute to the water quality in the ACR.
 - c. The Commissioner's *ACT State of the Environment Report 2011* is, and the Commissioner's forthcoming report on the *Investigation into the state of the water courses and catchments for Lake Burley Griffin* will be, a useful basis of information for improved water management for the environment.

RECOMMENDATION 4

- 5.79 **The Committee recommends that ACTEW and the ACT Government consider integrating into their water management relevant**

³⁸³ OCSE (2011) *Office of the Commissioner for Sustainability and the Environment Annual Report 2010-11*, p. 6.

recommendations of the Commissioner for Sustainability and the Environment's *Report on Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores Investigation* (2011) (Reserves Report) and the *ACT State of the Environment Report 2011* (2012).

RECOMMENDATION 5

5.80 The Committee recommends that the ACT Government prioritise in its management of water:

- a) reporting publicly, at least annually, on the progress of the *Think water, act water* strategy.
- b) implementing the measures needed to achieve the strategy's target of reducing mains water consumption by 25 per cent per person by the year 2023.

RECOMMENDATION 6

5.81 The Committee recommends that the ACT Government and ACTEW continue to monitor Commonwealth Scientific and Industrial Research Organisation (CSIRO), Wentworth Group of Concerned Scientists, and other expert research evidence on water management.

RECOMMENDATION 7

5.82 The Committee recommends that the ACT Government:

- a) implement, to the extent that it agreed to them, the recommendations of the *ACT Auditor-General's Report No. 4 of 2010 Water Demand Management: Administration of Selected Initiatives* and the *ACT Auditor-General's Report No. 3 of 2011 The North Weston Pond Project*.
- b) factor Recommendation 6 of the *ACT Auditor-General's Report No. 3 of 2011 The North Weston Pond Project* into the Government's forthcoming review of the *ACT Environment Protection Act 1997*.
- c) incorporate the lessons learnt from those Reports into its integrated water management projects.

RECOMMENDATION 8

- 5.83 **The Committee recommends that the ACT Government examines the current situation whereby ACTEW is responsible for water conservation measures while at the same time being obliged as a Territory Owned Corporation to profit from the sale of water.**

6 ENERGY

- 6.1 The ACT's energy use takes two main forms. One is consumption of fuels, and more rarely, electricity, to drive vehicles. The other is so-called 'stationary' use of electricity by households, businesses and others.
- 6.2 As is explained later in this Chapter, both forms of energy are primarily produced outside of the ACT from non-renewable sources. Both kinds of energy production and consumption cause certain negative environmental impacts, including the emission of substantial quantities of greenhouse gases.
- 6.3 As discussed in Chapter 3, the ISA 2010 study of the ACT ecological footprint shows that stationary and transport energy uses constitute highly significant proportions of the ACT ecological footprint. According to the ISA 2007 and 2010 studies, the ACT ecological footprint constitutes the bulk of the ACR ecological footprint.
- 6.4 Chapter 3 notes that the ACT Government's 2011 triple bottom line assessment discussion paper describes how some governments are using their activities' contributions to the ecological footprint as an assessment criterion in their decision-making. The paper then suggests that ACT Government 'proposals' are assessed for greenhouse gas emissions from vehicles, and from generation of electricity, used in the ACT.³⁸⁴

ACT energy uses and ecological and carbon footprints

- 6.5 According to the ISA 2010 study of the ACT ecological footprint, the ACT's consumption of electricity contributed the most of any commodity to the 2008-09 footprint, at 12 per cent per person. This was because almost all of this electricity was generated by burning coal.³⁸⁵

³⁸⁴ ACT (2011) *Triple Bottom Line Assessment For The ACT Government Discussion Paper*, June 2011 <http://www.cmd.act.gov.au/_data/assets/pdf_file/0006/217392/TBL_Assessment_Framework_Discussion_Paper.pdf>, accessed 14 July 2011.

³⁸⁵ See, generally, US EPA (2006) *Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies*. EPA. EPA-600/R-06/006. US EPA, National Risk

- 6.6 The ISA study shows that the construction of residential properties accounted for the second-largest component of the 2008-09 ACT ecological footprint at six per cent or half a global hectare of each ACT resident's footprint each year.³⁸⁶
- 6.7 Apart from the consumption of timber from forests, this was due to energy use to power transport, lights, and other construction work equipment.³⁸⁷
- 6.8 The third-largest component of the 2008-09 footprint stems from retail trade. The study comments that this is principally due to the electricity consumed in retail properties, as well as the transport fuel expended in distributing retail goods and services.³⁸⁸
- 6.9 The commodities that contributed the fifth and sixth most of the 2008-09 footprint were air travel and petrol use, respectively.³⁸⁹
- 6.10 The study compares the 'top ten' commodity lists for 2002-03 and 2008-09 and states they are 'broadly similar' with the 'main difference' being that electricity and petrol are 'slightly less important' due to reductions in electricity and transport fuel use.³⁹⁰ It also points out that energy use impacts are falling both in absolute terms, and in proportional ones, as per person incomes continue to rise in the ACT.³⁹¹
- 6.11 As discussed in Chapter 3, analyses of a population's ecological footprint usually estimate the 'energy land' needed to absorb all the CO₂ emissions from the fossil fuel burning that occurs to service the population's consumption. The ISA study estimates that 57 per cent of the 2008-09 footprint is 'energy land'. The study explains that this land is over half of the footprint due to the ACT's draw on fossil fuels mostly in household electricity consumption, which

Management Research Laboratory, NC. July 2006 <
http://www.epa.gov/oar/caaac/coaltech/2007_01_epaigcc.pdf>, accessed 1 Aug. 2011 and ACT (2011)
ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020, p.6
<http://www.environment.act.gov.au/_data/assets/pdf_file/0003/232284/EDS_ACT_Sustainable_Energy_Policy_FA_web_A.PDF>, accessed 23 Dec. 2011.

³⁸⁶ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.19.

³⁸⁷ *ibid.*

³⁸⁸ *ibid.*, p. 20.

³⁸⁹ *ibid.*

³⁹⁰ *ibid.*

³⁹¹ *ibid.*

forms 12 per cent of the energy land, and in flights and petrol-fuelled vehicle travel, which collectively constitute eight per cent of that land, at 4 per cent each.³⁹²

- 6.12 A refined picture of which carbon emissions are attributable to what kinds of stationary and transport energy combustion can be found in the ACT Greenhouse Gas Inventory Report for the financial year 2008-09. This report also shows how the emissions are tracking against the ACT's greenhouse gas reduction targets.³⁹³
- 6.13 The report was produced because, in 2010, the ACT Legislative Assembly enacted the *ACT Climate Change and Greenhouse Gas Reduction Act 2010* and that Act,³⁹⁴ requires the independent statutory authority, the ACT Independent Competition and Regulatory Commission (ICRC),³⁹⁵ to do so.
- 6.14 The Act sets a 'principal target' to reduce greenhouse gas emissions in the ACT to achieve zero net emissions by 30 June 2060³⁹⁶ and sets 'interim targets'³⁹⁷. These are to reduce greenhouse gas emissions in the ACT to 40% less than 1990 emissions by 30 June 2020 and 80 per cent less than 1990 emissions by 30 June 2050.³⁹⁸
- 6.15 According to the ICRC report, the ACT's total carbon dioxide equivalent (CO_{2e}) emissions for the 2008-09 financial year was 4,183 kilotonnes or 4.183 megatonnes.³⁹⁹ The 2020 target is a total net emissions of 1,915 kilotonnes of CO_{2e}. According to the ICRC, this means that to meet it, the ACT needs to reduce these emissions by an average of 206 kilotonnes per year, an annual

³⁹² ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.15.

³⁹³ ICRC (2011) *ACT Greenhouse Gas Inventory Report for 2008-09 Report 7 of 2011* <http://www.icrc.act.gov.au/_data/assets/pdf_file/0009/235719/ACT_Greenhouse_Gas_Inventory_Report_2009_Final.pdf>, accessed 1 Nov. 2011.

³⁹⁴ Section 12 of the *Climate Change and Greenhouse Gas Reduction Act 2010*. <<http://www.legislation.act.gov.au/a/2010-41/default.asp>>, accessed 14 July 2011.

³⁹⁵ The ICRC is established by the *ACT Independent Competition and Regulatory Commission Act 1997* <<http://www.legislation.act.gov.au/a/1997-77/default.asp>>, accessed 1 Nov. 2011.

³⁹⁶ Section 6 of the *Climate Change and Greenhouse Gas Reduction Act 2010*.

³⁹⁷ Subsection 7(1) of the *Climate Change and Greenhouse Gas Reduction Act 2010*.

³⁹⁸ Subsection 7(4) of the *Climate Change and Greenhouse Gas Reduction Act 2010* defines '1990 emissions' as the amount of greenhouse gas emissions in the ACT for the year ending on 30 June 1990.

³⁹⁹ ICRC (2011) *ACT Greenhouse Gas Inventory Report for 2008-09 Report 7 of 2011*, p.v.

rate of 6.9 per cent per annum.⁴⁰⁰

- 6.16 Energy use accounted for 93.2 per cent of the total emissions for the 2008-09 financial year. Electricity consumption was responsible for 62.6 per cent of total emissions, and the second and third largest contributors were transport fuels, at 21.8 per cent, and natural gas, at 8.5 per cent.⁴⁰¹
- 6.17 The transport fuel emissions counted in this ICRC report are only those from road transport.⁴⁰² They do not include emissions from aviation and water transport activities occurring in the ACT, which are not reported under current arrangements.⁴⁰³
- 6.18 The Committee is aware that the Commonwealth Government also released, in 2011, a report that inventories, for the calendar year 2009, the greenhouse gases of the ACT and all the other states and territories of Australia. This inventory estimates that, in 2009, the ACT produced 1.2 per cent of Australia's greenhouse gas emissions, while NSW produced 28.4 per cent, Queensland 27.5 per cent, Victoria 21.6 per cent, and Western Australia 12.4 per cent, South Australia 5.1 per cent, the NT 3.1 per cent, and Tasmania 1.5 per cent.⁴⁰⁴
- 6.19 The ICRC inventory's estimates are far more comprehensive than the Commonwealth inventory's. One of the reasons for this is that while the Commonwealth inventory does not,⁴⁰⁵ the ICRC inventory does account for emissions attributable to goods and services produced outside the ACT when they were consumed within the ACT, as well as the emissions arising from the

⁴⁰⁰ ICRC (2011) *ACT Greenhouse Gas Inventory Report for 2008-09 Report 7 of 2011*, p.3.

⁴⁰¹ *ibid.*, p.6.

⁴⁰² *ibid.*, footnote 2, p.4.

⁴⁰³ *ibid.*, footnote 3, p.6.

⁴⁰⁴ Commonwealth Dept. of Climate Change and Energy Efficiency (2011) *State and Territory Greenhouse Gas Inventories 2009*, pp.16-17
<<http://www.climatechange.gov.au/en/publications/greenhouse-acctg/state-territory-inventory-2009.aspx>>, accessed 1 Nov. 2011. This includes emissions from land use, land use change, and forestry. The Commonwealth inventory defines 'stationary energy' as 'mainly greenhouse gas emissions from the production of electricity and other direct combustion of fossil fuels in industry such as manufacturing and construction' (Commonwealth Dept. of Climate Change and Energy Efficiency (2011) *State and Territory Greenhouse Gas Inventories 2009*, p.12).

⁴⁰⁵ *ibid.*, p.12. The Commonwealth report clearly indicates that it includes all ACT emissions from stationary energy uses, apart from lawnmower use, in the NSW inventory, not the ACT one (*ibid.*, p.10).

ACT's production activities. As the ICRC report explains:

*Accounting for indirect emissions in this way allocates emissions that occur outside the ACT's geographic region to within the territory if that is where the consumption activity responsible for the emissions is located.*⁴⁰⁶

ACT transport energy

- 6.20 According to the ICRC Report for the financial year 2008-09, since the mid-1990s, the greenhouse gas emissions from transport fuels have remained relatively stable.⁴⁰⁷
- 6.21 The same report shows that petrol combustion accounted for 80.3 per cent of the ACT's greenhouse gas emissions attributable to the combustion of transport fuels.⁴⁰⁸
- 6.22 The Commonwealth Treasury's 2011 report modeling the effects of a carbon price states unequivocally that 'Road transport is the largest transport sector [in Australia], accounting for over 85 per cent of total transport emissions.'⁴⁰⁹
- 6.23 There is no production of petrol, diesel, or other non-renewable transport fuels or commercial production of biofuels in the ACT or ACR.⁴¹⁰
- 6.24 Over the last decade, world oil production has significantly decreased and will become increasingly scarce. This is well accepted in local,⁴¹¹ national⁴¹² and,

⁴⁰⁶ *ibid.*, p.1.

⁴⁰⁷ ICRC (2011) *ACT Greenhouse Gas Inventory Report for 2008-09 Report 7 of 2011*, p.6.

⁴⁰⁸ *ibid.*

⁴⁰⁹ Commonwealth (2011) *Strong Growth, Low Pollution: Modelling A Carbon Price*, p.75
<http://www.treasury.gov.au/carbonpricemodelling/content/report/downloads/Modelling_Report_Consolidated_update.pdf>, accessed 1 Dec. 2011.

⁴¹⁰ Commonwealth Department of Resources, Energy and Tourism (2011) *Energy in Australia 2011*, p.7
<<http://www.ret.gov.au/energy/Documents/facts-stats-pubs/Energy-in-Australia-2011.pdf>>, accessed 1 Aug. 2011.

⁴¹¹ North, P. (2010) 'Eco-localisation as a progressive response to peak oil and climate change – A sympathetic critique', *Geoforum*, vol. 41, issue 4, July 2010, pp.585–594 and Newman, P. and Beatley, T. and Boyer, H. (2009) *Resilient Cities: Responding to Peak Oil and Climate Change*, Island Press, Washington D.C..

⁴¹² Peak Oil Australia webpage <<http://www.peakoil.org.au/>>, accessed 1 Nov. 2011 and Wakeford, J. (2007) 'Peak Oil and South Africa: Impacts and Mitigation', Association for the Study of Peak Oil & Gas – South Africa <<http://www.economicwebinstitute.org/essays/climateza.pdf>>, accessed 1 Aug.

global debates and⁴¹³ in international fora⁴¹⁴. It is also recognised in research literature from a wide range of disciplines;⁴¹⁵ and the documents of many governments, including Australian ones⁴¹⁶. This increasing scarcity of oil is known as the 'peak oil' phenomenon.

- 6.25 In its 'World Energy Outlook 2010', the International Energy Agency⁴¹⁷ predicts that 'Crude oil output reaches an undulating plateau of around 68-69 mb/d [million barrels per day] by 2020, but never regains its all-time peak of 70 mb/d reached in 2006'.⁴¹⁸ The IEA sounds a warning that this prediction is an optimistic one that is based on:

...broad policy commitments and plans that have been announced by countries around the world, including the national pledges to reduce greenhouse- gas emissions and plans to phase out fossil-energy subsidies even where the measures to implement these

2012.

⁴¹³ Aleklett, K. et al (2010) 'The Peak of the Oil Age – Analyzing the world oil production Reference Scenario in World Energy Outlook 2008', *Energy Policy*, vol.38, issue 3, March 2010, pp.1398–1414.

⁴¹⁴ International Energy Agency (2010) *World Energy Outlook Executive Summary*, pp. 6-7. <http://www.worldenergyoutlook.org/docs/weo2010/WEO2010_es_english.pdf> and Aleklett, K. (2007) *Peak Oil and the Evolving Strategies of Oil Importing and Exporting Countries Facing the hard truth about an import decline for the OECD countries*, OECD International Transport Forum Joint Transport Research Centre Discussion Paper No. 2007-17, Dec. 2007 <<http://www.internationaltransportforum.org/jtrc/discussionpapers/DiscussionPaper17.pdf>>, accessed 1 Nov. 2011.

⁴¹⁵ Curtis, F. (2009) 'Peak globalization: Climate change, oil depletion and global trade', *Ecological Economics*, vol. 69, issue 2, 15 December 2009, pp.427-434; Smith, M.R. (2007) 'Is There a Painless Way to Fill the Oil Supply Gap?', *Petroleum Review*, February 2007; Duncan, R. (2003) 'Three World Oil Forecasts Predict Peak Oil Production', *Oil and Gas Journal*, May 26, pp.18-21.

⁴¹⁶ See, for example, Hirsch, R.L., Bezdeck, R. & Wendling, R. (2005) *Peaking of World Oil Production: Impacts, Mitigation and Risk Management*, Science Applications International Corporation (SAIC). Report commissioned by US Department of Energy, February 2005; Sunshine Coast Council Climate Change and Peak Oil Strategy <<http://www.sunshinecoast.qld.gov.au/sitePage.cfm?code=cc-strategy>>; Maribyrnong Council Peak Oil Policy and Action Plan <http://www.maribyrnong.vic.gov.au/Page/Page.asp?Page_Id=3395>; and Waller, M. (2008) *Oil Vulnerability Strategy/Action Plan For Queensland: Research Paper*, Report to the Minister for Sustainability, Climate Change and Innovation, Sept. 2008 <http://www.tmr.qld.gov.au/~media/cf0320b5-83d1-480d-af6f-1af808cd63c3/oil_vulnerability_strategy_action_plan_part1.pdf>, all accessed 1 Aug. 2011

⁴¹⁷ The International Energy Agency (IEA) describes itself as 'an autonomous agency' established in 1974 to promote, among other things, 'energy policies that spur economic growth and environmental protection...particularly in terms of reducing greenhouse-gas emissions that contribute to climate change'. It has 27 member countries, including Australia. Further, the Organisation for Economic Cooperation and Development (OECD) and European Commission participate in IEA work (OECD-IEA (2011) *World Energy Outlook 2011 Executive Summary*, p.2).

⁴¹⁸ OECD-IEA (2010) *World Energy Outlook 2010 Executive Summary*, p.6

*commitments have yet to be identified or announced...their non-binding character and, in many cases, the uncertainty shrouding how they are to be put into effect.*⁴¹⁹

- 6.26 The IEA then discusses that unconventional oils are very costly to extract, both in monetary and environmental terms.⁴²⁰ The IEA 'World Energy Outlook 2011' shows no change of the IEA's mind on how the world's oils are significantly diminishing. It predicts 'The cost of bringing oil to market rises as oil companies are forced to turn to more difficult and costly sources to replace lost capacity and meet rising demand'.⁴²¹
- 6.27 Peak oil is referred to as an impending risk for the ACR by Palerang Council⁴²² and Sustainable Population Australia,⁴²³ as well as by many of the individuals who made submissions to the Inquiry⁴²⁴.
- 6.28 It is difficult to estimate precisely how vulnerable the ACT and the wider ACR will be to peak oil, in the next few decades, given the complexities of the global flows of oil,⁴²⁵ and other contingencies such as geopolitical conflicts,⁴²⁶ the rate of increased demand for oil from rapidly growing economies,⁴²⁷ extraction and pricing of oil from unconventional sources,⁴²⁸ and advances in motor vehicles.⁴²⁹

⁴¹⁹ *ibid.*, p.4.

⁴²⁰ OECD-IEA (2010) *World Energy Outlook 2010 Executive Summary*, p.7.

⁴²¹ OECD-IEA (2011) *World Energy Outlook 2011 Executive Summary*, p.3.

⁴²² Sub. 30, p.10.

⁴²³ Sub. 35, p.9.

⁴²⁴ Several submissions suggest that Australia must plan for peak oil. These are the submissions from A/Prof. Kieran Fallon (Sub. 6, p.1), Ms Jenny Goldie (Sub. 15, pp.1, 3, 4 and 5), Mr Mark O'Connor (Sub. 22, pp.5, 13 and 14), Mr David Turbayne (Sub. 21, p.2), and Dr C.L.Watson (Sub. 25, p.2).

⁴²⁵ Feenstra, R.C. et al (2005) *World Trade Flows: 1962-2000*, National Bureau of Economic Research Working Paper 11040 <<http://www.nber.org/papers/w11040>>, accessed 1 Aug. 2011.

⁴²⁶ Fang, S. and Jaffe, A.M. (2012) *New Alignments? The Geopolitics Of Gas And Oil Cartels And The Changing Middle East*, January 2012 <<http://www.owlnet.rice.edu/~tl5/GasCartel.pdf>>, accessed 2 Aug. 2011.

⁴²⁷ Kerr, R.A. (2007) 'Even Oil Optimists Expect Energy Demand to Outstrip Supply', *Science*, 27 July 2007, p.437.

⁴²⁸ OECD-IEA (2010) *World Energy Outlook 2010 Executive Summary*, p.7.

⁴²⁹ Small, K.A. and Van Dender, K. (2007) 'Fuel Efficiency and Motor Vehicle Travel: The Declining Rebound Effect', *Energy Journal*, vol. 28, no. 1, pp.25-51 and Michelek, J.J. et al (2004) 'A Study of Fuel Efficiency and Emission Policy Impact on Optimal Vehicle Design Decisions', *Journal of Mechanical Design*, Nov. 2004, vol. 126, issue 6, pp.1062-1071.

- 6.29 A limited number of Australian local governments have published plans that make explicit that they are about preparing for peak oil.⁴³⁰ Some other Australian governments have commissioned and released reports on how their respective jurisdictions might adapt to peak oil⁴³¹. The Committee could not find any document in which the ACT Government or a body it commissioned has addressed peak oil, *per se*.
- 6.30 The *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020* (Sustainable Energy Policy), released in 2011, includes significant measures for reducing the dependence of the ACT transport fleet on oil, including infrastructure for running private passenger vehicles on electricity generated from renewable sources.⁴³²
- 6.31 People travelling in the ACT and to the ACT from the wider ACR are overwhelmingly dependant on private motor vehicles and private motor vehicles that run on oil-based fuels.
- 6.32 According to the latest ABS motor vehicle census, at 31 January 2011, the ACT was second, though only marginally, to Western Australia in its proportion of registered passenger vehicles. The ACT had 603, and Western Australia had 605, per 1000 residents. The ACT also had the third highest rate of registered motorcycle per 1000 residents, at 34, after Western Australia at 43 and Queensland at 35.⁴³³
- 6.33 According to the same Census, 2.5 per cent of vehicles registered in the ACT, as at 31 January 2011, fell within the ABS category of 'LPG/Dual fuel/Other'.⁴³⁴

⁴³⁰ Sunshine Coast Council Climate Change and Peak Oil Strategy webpage <<http://www.sunshinecoast.qld.gov.au/sitePage.cfm?code=cc-strategy>> and Maribyrnong Council Peak Oil Policy and Action Plan webpage <http://www.maribyrnong.vic.gov.au/Page/Page.asp?Page_Id=3395>, both accessed 1 Dec. 2011

⁴³¹ Waller, M. (2008) *Oil Vulnerability Strategy/Action Plan For Queensland: Research Paper*, Report to the Minister for Sustainability, Climate Change and Innovation, Sept. 2008 <http://www.tmr.qld.gov.au/~media/cf0320b5-83d1-480d-af6f-1af808cd63c3/oil_vulnerability_strategy_action_plan_part1.pdf>, accessed 1 Aug. 2011.

⁴³² ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, p.20.

⁴³³ ABS (2011) *Motor Vehicle Census, Australia, 31 January 2011* (cat. no. 9309.0) (released 28 July 2011) <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/9309.0Main+Features131%20Jan%202011?OpenDocument>>, accessed 1 Aug. 2011.

⁴³⁴ *ibid.* The Census does not disaggregate this category into what proportions of the registered vehicles had engines powered by LPG, or dual fuel, or another energy source. Further, the diesel category is

- 6.34 The growth in ACT registered vehicles not fuelled or fuelled solely by diesel or petrol between January 2006 and January 2011 was 0.38 per cent, while the growth in these vehicles in Australia was 0.79 per cent.⁴³⁵
- 6.35 Further, the January 2011, 2010 and 2006 numbers of ACT vehicles not fuelled, or not fuelled solely, by diesel or petrol, were all lower than the national proportions of these vehicles.⁴³⁶
- 6.36 According to the Commonwealth's Green Vehicle Guide:
*The major emerging charging infrastructure providers for electric vehicles in Australia have also committed to basing their systems on renewable energy. However, if a user chooses to simply recharge an electric vehicle from the grid without electing to use renewable energy, the emissions produced from recharging will be highly dependent on the location of the power source.*⁴³⁷
- 6.37 Recent studies on electric and hybrid vehicles indicate that the majority of primary energy consumption for electric vehicles occurs in their use, not in their manufacture, delivery and retail, and not in the production of the electricity and other fuels they use.⁴³⁸

not disaggregated to show what proportion, if any, were running on biodiesels. However, the Census does specify that its 'Other' category includes electric vehicles ((ABS (2011) *Motor Vehicle Census, Australia, 31 January 2011*). The ABS sales of new motor vehicles census of January 2012 has a state and territory breakdown of new vehicle sales, but does not cover what kind of energy source the vehicles were engineered for at the point of sale (ABS (2012) *Sales of New Motor Vehicles, Australia, January 2012* <<http://www.abs.gov.au/ausstats/abs@.nsf/mf/9314.0>>, accessed 14 Aug. 2011).

⁴³⁵ ABS (2011) *Motor Vehicle Census, Australia, 31 January 2011*.

⁴³⁶ *ibid.* The Australian proportions were 3.14 per cent in 2011, 3.18 per cent in 2010, and 2.34 per cent in 2006. For the ACT, they were 2.16 per cent, 2.56 per cent, and 2.54 per cent, respectively.

⁴³⁷ Commonwealth Green Vehicle Guide website's 'Estimating Non-road CO₂ Emissions' webpage: <<http://www.greenvehicleguide.gov.au/GVGPublicUI/Information.aspx?type=Nonroademissions>>, accessed 1 Aug. 2011.

⁴³⁸ Notter, N. et al (2010) 'Contribution of Li-Ion Batteries to the Environmental Impact of Electric Vehicles', *Environmental Science & Technology*, vol. 44, no. 17, pp. 6550-6556 <<http://pubs.acs.org/doi/abs/10.1021/es903729a>> and Patterson, J., Alexander, M. & Gurr, A. (2011) *Preparing for a Life Cycle CO₂ Measure: A report to inform the debate by identifying and establishing the viability of assessing a vehicle's life cycle CO₂e footprint*, Low Carbon Vehicle Partnership, 25 Aug. 2011 <http://www.lowcvp.org.uk/assets/reports/RD11_124801_5%20-%20LowCVP%20-%20Life%20Cycle%20CO2%20Measure%20-%20Final%20Report.pdf>, both accessed 30 Aug. 2011 The Low Carbon Vehicle Partnership describes itself as a 'public-private partnership that exists to accelerate a sustainable shift to lower carbon vehicles and fuels and create opportunities for UK

- 6.38 A recent rigorous lifecycle study of the production and use of so-called conventional vehicles estimated that, in total, around 90% of primary energy consumption occurs during the vehicle's use and fuel production phases. 78 per cent was for use and 12 per cent for fuel production, leaving 10 per cent in manufacture, delivery and retailing of the vehicle.⁴³⁹
- 6.39 No evidence was given to the Committee about the extent to which the uptake of electric vehicle infrastructure might increase the ecological carrying capacity of the ACR or decrease its ecological footprint or whether and how this uptake should be accelerated.
- 6.40 Dr Schooneveldt stated to the Committee in his submission that:
*The ACR is in a strong position to switch from unsustainable fossil fuels to biofuels for road transport. These can be produced from organic waste streams using pyrolysis, algae or other technologies...*⁴⁴⁰
- 6.41 No other evidence on the potential of biofuels was presented to the Committee.
- 6.42 Further, biofuels are not mentioned in any of the Government documents referred to in this Report, including the Government's submission and Sustainable Energy Policy, except for the 2011 *Transport for Canberra - Transport for a sustainable city 2011–2031 - Draft for public comment* (Draft Transport Plan). The Plan refers to biofuels in these terms:
In 2010 ACTION piloted a small trial of bio-fuel alternatives with positive results. In 2012–2013 ACTION proposes to expand this trial into a broader feasibility study of alternative fuels across the fleet. Based on ACTION's average fuel consumption figures, a transition to bio-fuels has the potential to see an annual offset of nearly 4000 tonnes of CO₂, reducing the ACT Government carbon output by approximately 2% in

businesses.' <<http://www.lowcvp.org.uk/about-lowcvp/index.asp>>, accessed 1 Aug. 2011.

⁴³⁹ Leduc, G. et al (2010) 'How can our cars become less polluting? An assessment of the environmental improvement potential of cars', *Transport Policy*, vol.17, 2010, pp.409-419 <http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VGG-500Y5D5-1&_user=10&_coverDate=11%2F30%2F2010&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=50ecc7a76be6cc9390f1bffb46f12d39&searchtype=a>, accessed 1 Aug. 2011.

⁴⁴⁰ Sub. 2, p.5.

2011 terms.⁴⁴¹

- 6.43 The Committee notes that Professor Ross Garnaut, in the Final Report on his 2008 Climate Change Review for the Commonwealth Government, concludes that:

*The path to low-carbon transport will be driven by variations in rates of technological progress across and within transport modes. Early emergence of low-cost biofuels that do not compete with food for agricultural land would reduce the need for structural change.*⁴⁴²

- 6.44 In the same Report, Professor Garnaut observes that one of the more interesting proposals for alternative transport fuels is ‘to produce biofuels from algae, the growth of which is enhanced by access to a constant stream of carbon dioxide from power stations or industrial process exhaust’.⁴⁴³
- 6.45 The Committee suggests that the Government adopt a watching brief on developments in the production of biofuels for transport in Australia.
- 6.46 The Committee notes that in July 2009, Better Place, the electric vehicle infrastructure and services provider, announced that it would roll out an electric car network in Canberra, in partnership with ActewAGL and the ACT government, before it conducted any roll-out in any other part of Australia. This partnership is committed to powering this car network with renewable energy delivered by ActewAGL.⁴⁴⁴
- 6.47 The Committee also notes that in October 2010, the first Better Place charge spot, was opened at the ACT’s Belconnen Fresh Food Markets.⁴⁴⁵ The Committee understands that in 2012, Better Place will be rolling out charge spots at people’s homes and public and office car parks, as well as stations

⁴⁴¹ ACT (2011) *Transport for Canberra - Transport for a sustainable city 2011–2031 - Draft for public comment*, p.20.

⁴⁴² Commonwealth (2008) *The Garnaut Climate Change Review Final Report*, Cambridge University Press, p.503.

⁴⁴³ *ibid.*, p.495.

⁴⁴⁴ Better Place company ‘Milestones’ webpage: <<http://www.betterplace.com.au/about-us/milestones.html>>, accessed 14 Aug. 2011.

⁴⁴⁵ Better Place (2011) ‘Better Place deploys first electric vehicle charge spot in Canberra’, Media Release, 28 Oct. 2011 <<http://www.betterplace.com.au/media/media-releases/better-place-deploys-first-electric-vehicle-charge-spot-in-canberra.html>>, accessed 1 Nov. 2011.

where drivers can rapidly replace a depleted battery with a fully charged one and continue travelling.⁴⁴⁶

- 6.48 The Committee notes that electric vehicle infrastructure is one of the central planks of the Government's Sustainable Energy Policy and also that the Government has committed, in that Plan, to introducing some electric vehicles into its fleet, in 2012.⁴⁴⁷
- 6.49 The Committee regards electric vehicles infrastructure as a highly promising solution to freeing the private motor vehicle fleet of the ACT from dependence on oil.
- 6.50 The Committee also considers it a solution that the ACT Government should promote in ACR governance bodies, such as the Regional Leaders Forum. The Committee believes this will help to encourage the NSW Government and other ACR governance bodies to prepare the ground for the roll-out of electric vehicle infrastructure in NSW areas of the ACR to the extent that they may not be already. This is necessary given the amount of cross-regional travel occurring via vehicles powered by oil-based fuels across the ACR, and to Canberra from parts of the wider ACR, in particular.
- 6.51 The Committee notes the ACT Green Vehicles Duty Scheme is not specifically about electric vehicles, but it subsidises the stamp duty costs of low emission vehicles, including electric vehicles. Vehicles with an A rating attract nil stamp duty. For purchasers of, say, a Toyota Prius, this means a saving of around \$1122. Further, purchasers of category D vehicles face higher stamp duty costs than what was incurred prior to the Scheme.⁴⁴⁸
- 6.52 The Scheme is one of the 'Actions' the ACT Government committed to in Action Plan 1 2007-2011 of its climate change strategy, *Weathering the Change*.⁴⁴⁹

⁴⁴⁶ ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, p.21.

⁴⁴⁷ *ibid.*, p.20.

⁴⁴⁸ ACT Fact-Sheet [no date] *ACT Government Green Vehicles Duty Scheme - Green Vehicles Come in Many Shapes and Sizes* <http://www.rego.act.gov.au/assets/PDFs/Green_Vehicles_Fact_Sheet_270808.pdf>, accessed 1 Aug. 2011.

⁴⁴⁹ ACT (2007) *Weathering the Change - Action Plan 1 2007-2011*, Action 8 <http://www.environment.act.gov.au/data/assets/pdf_file/0014/240332/Action_Plan3.pdf>, accessed 1 Aug. 2011.

- 6.53 While acknowledging the importance of a shift to electric private vehicles, the Final Report of the 2008 Garnaut Climate Review concludes, after a rigorous survey of the available evidence, that:

*Governments have a major role to play in lowering the economic costs of adjustment to higher oil prices, an emissions price and population growth, through planning for more...public transport. Mode shift [to public transport] may account for a quarter of emissions reductions in urban passenger transport, lowering the cost of transition and delivering multiple benefits to the community.*⁴⁵⁰

- 6.54 The 2009 ABS *Environmental Issues: Waste Management and Transport Use Survey* shows that in March 2009, for 84.5 per cent of ACT adults, a private motor vehicle was the main form of transport they usually took to work or full-time study, as compared to an average of 79.6 per cent of adults Australia-wide. The 2009 ACT result was a slight increase on its March 2006 proportion of 81.9 per cent of adults.⁴⁵¹

- 6.55 In March 2009, 3.4 per cent of ACT adults cycled as the main form of transport they usually took to work or full-time study, as compared to an Australia-wide average of 1.5 per cent.

- 6.56 At the same point in time, 2.8 per cent of ACT adults walked as compared to an Australia-wide average proportion of 4.0 per cent.⁴⁵²

- 6.57 The 2009 ABS survey of adults travelling to work or full-time study in the ACT found that the lower cost of public transport relative to owning and maintaining a private motor vehicle was the main reason for taking public transport.⁴⁵³ This suggests that, conversely, the high incomes of most ACT adults, evidenced in Chapter 4, makes it more difficult to realise widespread adoption of public transport use.

- 6.58 The ABS motor vehicles census states that from January 2006 to January 2011, the ACT had a 3.0 per cent annual growth in registered vehicles, after the NT

⁴⁵⁰ Garnaut, R. (2008) *Garnaut Climate Review 2008 Final Report*, p. 503.

<http://www.garnautreview.org.au/pdf/Garnaut_Chapter21.pdf>, accessed 1 Aug. 2011

⁴⁵¹ *ibid.*

⁴⁵² ABS (2009) *Environmental Issues: Waste Management and Transport Use, March 2009* (cat. no. 4602.0.55.002).

⁴⁵³ *ibid.*

at 3.9 per cent and Western Australia at 3.8 per cent.⁴⁵⁴

- 6.59 Last year, ACT Health published a review of ACT and other literature on ACT children's participation in 'active transport'; that is walking or cycling.⁴⁵⁵ It indicates that in contrast to many European and Asian countries, the rates of Australian and the ACT children's active travel to school, and other destinations, are low and decreasing. It also points to how these low and declining rates cannot be accounted for by trip distances being comparatively longer in the ACT or wider Australia.⁴⁵⁶
- 6.60 The review shows that in many 'high active travel' countries, children walk and cycle to school at distances predominantly travelled by car in countries such as Australia. It also suggests that the children of high active travel countries achieve much higher levels of incidental physical activity, and at lower costs of time and money relative to other physical recreation.⁴⁵⁷
- 6.61 The Committee notes that the ACT Government's Draft Transport Plan quite comprehensively addresses how the Government will seek to increase active travel in the ACT.⁴⁵⁸ The Committee also notes that the National Partnership Agreement for Preventive Health⁴⁵⁹ and the ACT Government's Healthy Futures, Healthy Children Program,⁴⁶⁰ provide structured practical programs for increasing children's active travel.

⁴⁵⁴ ABS (2011) *Motor Vehicle Census, Australia, 31 January 2011* (released 28 July 2011) <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/9309.031%20Jan%202011?OpenDocument>>, accessed 14 Aug. 2011.

⁴⁵⁵ Garrard, J. (2011) *Active travel to school: literature review*, ACT Health, July 2011 <<http://timetotalk.act.gov.au/storage/Active%20travel%20to%20school%20Literature%20Review.pdf>>, accessed 1 Aug. 2011.

⁴⁵⁶ *ibid.*, p.7.

⁴⁵⁷ *ibid.*, p.13.

⁴⁵⁸ ACT (2011) *Transport for Canberra - Transport for a sustainable city 2011–2031 - Draft for public comment*, Chapt. 3 <<http://www.transport.act.gov.au/policy.html>>, accessed 1 Dec. 2011.

⁴⁵⁹ Commonwealth Dept. of Health and Ageing's National Partnership Agreement on Preventive Health webpage <<http://www.health.gov.au/internet/main/publishing.nsf/Content/phd-prevention-np>>, accessed 1 Dec. 2011.

⁴⁶⁰ ACT Health [dated 20 April 2012] 'About the ACT Healthy Children's Initiative 2010/11 to 2014/15' webpage <<http://www.health.act.gov.au/c/health?a=da&did=10132614&pid=1299456155&template=25>>, accessed 1 Dec. 2011.

- 6.62 The ABS study on public transport use, referred to above, not only confines itself to adults; it also sheds no light on public transport use between the ACT and NSW. As was comprehensively evidenced in Chapter 4, thousands of people have been commuting to the ACT for employment and other opportunities on a weekly basis, for many years, and the numbers of these commuters is likely to significantly grow, for decades to come.
- 6.63 As is stated in the Government's Draft Transport Plan: 'At present, the major regional public transport services are provided by private bus operators and rail services, with some regional bus connections by Countrylink.'⁴⁶¹
- 6.64 The Committee's study of ACR bus and train timetables reveals that the daily number of public transport services operating on week-days between the ACT and the rest of the ACR generally decreases with distance. It also shows that Queanbeyan has the greatest number of public transport services and that these are overwhelmingly bus services, complemented by some train services.⁴⁶²
- 6.65 The convenience of a private motor vehicle and shorter journey duration may currently outweigh the financial benefits of patronising public transport. However, the ACR population is an ageing one, as discussed in Chapter 4. This means reliance on the ACR's public transport infrastructure seems likely to increase.
- 6.66 The Committee observes that a number of ACT-based organisations, in their submissions to the Inquiry, argue for improvements to public transport. These include the Canberra Division of Engineers Australia,⁴⁶³ the Canberra Environment and Sustainability Resource Centre,⁴⁶⁴ the Conservation Council ACT Region,⁴⁶⁵ the ACT Natural Resource Management Council,⁴⁶⁶ and the

⁴⁶¹ ACT (2011) *Transport for Canberra - Transport for a sustainable city 2011–2031 - Draft for public comment*, p.24.

⁴⁶² See timetables of Countrylink <<http://www.countrylink.info/>>, Murrays buses <<http://www.murrays.com.au/>>, Deane's transit group <<http://www.deanesbuslines.com.au/>>, Greyhound Australia <<http://www.greyhound.com.au/>>, all accessed 1 Nov. 2011.

⁴⁶³ Sub. 34, p.9.

⁴⁶⁴ Sub. 29, pp. 2, 3, 5 and 7.

⁴⁶⁵ Sub. 13, pp. 2, 3, 4 and 5.

⁴⁶⁶ Sub. 26, p.6.

Friends of Grasslands⁴⁶⁷. A number of individuals put the same argument in their submissions.⁴⁶⁸

- 6.67 Some of the submissions referring to public transport were notably regional in emphasis. For example, Palerang Council advocates for 'less hydrocarbon intensive' transport and regional public transport services.⁴⁶⁹ Similarly Yass Valley Council suggests that 'effective measures [for reducing the ACR ecological footprint] could include more public transport between NSW and the ACT'.⁴⁷⁰
- 6.68 Dr Schooneveldt urges that 'the region should make a start' on establishing adequate public transport.⁴⁷¹ Mr David Turbayne observes 'Transport is a significant greenhouse emitter in the ACT and region' and that car usage must be reduced 'through better public transport'.⁴⁷²
- 6.69 Testimony given by witnesses in Inquiry hearings also called for significantly improved ACT⁴⁷³ and region-wide⁴⁷⁴ public transport.
- 6.70 The Committee notes that the Government's Draft Transport Plan,⁴⁷⁵ Draft Planning Strategy,⁴⁷⁶ the Draft Weathering the Change: Action Plan 2,⁴⁷⁷ and

⁴⁶⁷ Sub. 9, p.3.

⁴⁶⁸ Mr Kevin Cox (Sub. 5, p.4), Ms Jenny Goldie (Sub. 2, p.4), and Dr John Schooneveldt (Sub. 2, p.10).

⁴⁶⁹ Sub. 30, p.10.

⁴⁷⁰ Sub. 4, p.2.

⁴⁷¹ Sub. 2, p.10.

⁴⁷² Sub. 21, p.2.

⁴⁷³ *Transcript of Evidence* (public hearing), Ms Sheila Hughes (ACT Chapter President, Australian Institute of Architects), 23 March 2011, pp.14 and 21.

⁴⁷⁴ *Transcript of Evidence* (public hearing), Dr John Schooneveldt, 23 March 2011, p.10 and *Transcript of Evidence* (public hearing), Prof. Barbara Norman, 14 Sept. 2011, p.131

⁴⁷⁵ See, generally, ACT (2011) *Transport for Canberra - Transport for a sustainable city 2011–2031 - Draft for public comment*.

⁴⁷⁶ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.29
<http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf>, accessed 1 Nov. 2011.

⁴⁷⁷ ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, p.10.
<<http://timetotalk.act.gov.au/storage/Climate%20Change%20Strategy%20Action%20Plan%20%20FINAL.pdf>>, accessed 23 Dec. 2011.

Sustainable Energy Policy,⁴⁷⁸ all released in 2011, make various commitments to urban design and other measures to encourage people to adopt walking, cycling and use of public transport in the ACT.

- 6.71 The Committee also notes that the Government has implemented many of these commitments via its policies, plans, and budgets.⁴⁷⁹
- 6.72 There is no mention of improvements in, or increased use of, public transport, between the ACT and wider ACR, in the Draft Weathering the Change: Action Plan 2⁴⁸⁰ or Sustainable Energy Policy⁴⁸¹. This is notwithstanding both these documents address public transport and, with well-considered thought about some aspects of integrating public transport, land use planning, and minimising carbon emissions.
- 6.73 The *Sydney-Canberra Regional Corridor Strategy 2006-31* does not address public transport links between the ACT and the east of the ACR in these documents.⁴⁸² Instead, the Strategy states that ‘public transport networks that link bus services into the rail system and major regional centres’⁴⁸³ is a planning principle and refers to the need for ‘public transport connections between the major regional centres of Bowral, Goulburn and Queanbeyan with their supporting network of towns and villages’⁴⁸⁴. It does not set out public transport solutions for the Queanbeyan-ACT or any other route between the ACT and the wider ACR.
- 6.74 The *ACT Government Infrastructure Plan 2011-2021*, released in July 2011, flags

⁴⁷⁸ ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020* <http://www.environment.act.gov.au/_data/assets/pdf_file/0003/232284/EDS_ACT_Sustainable_Energy_Policy_FA_web_A.PDF>, accessed 23 Dec. 2011.

⁴⁷⁹ See Sub. 32, pp. 34, 38 and 45 and *Transcript of Evidence* (public hearing), Mr Corbell, 24 March 2011, p. 42.

⁴⁸⁰ ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, p.10.
<<http://timetotalk.act.gov.au/storage/Climate%20Change%20Strategy%20Action%20Plan%202%20FINAL.pdf>>, accessed 23 Dec. 2011.

⁴⁸¹ ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020* <http://www.environment.act.gov.au/_data/assets/pdf_file/0003/232284/EDS_ACT_Sustainable_Energy_Policy_FA_web_A.PDF>, accessed 23 Dec. 2011.

⁴⁸² NSW (2006) *Sydney-Canberra Regional Corridor Strategy 2006-31*.

⁴⁸³ *ibid.*, p.37.

⁴⁸⁴ NSW (2006) *Sydney-Canberra Regional Corridor Strategy 2006-31*, p.31.

that 'Cross-border transport, to the east of Canberra, particularly from Queanbeyan, is an important driver of transport demand for the Territory,'⁴⁸⁵ but then proposes neither public transport solutions nor processes for considering them.

6.75 The Government's Draft Transport Plan discusses the large numbers of people who daily travel between Canberra and Queanbeyan, as well as the few bus and rail public transport services between the two destinations. It also states that 'By 2016...The existing Red Rapid service will extend from Gungahlin to...Fyshwick via the City, Russell, Barton, Kingston...and on to Queanbeyan'.⁴⁸⁶

6.76 It proposes no other ACT-Queanbeyan public transport measure except to say that:

*By 2031, a network of transitways will link Gungahlin to the City, Woden to the City, Woden to Tuggeranong, Molonglo Valley to Belconnen, Woden to the City, and Queanbeyan to Canberra. The transitways will...ensure more reliable services and faster public-transport...*⁴⁸⁷

6.77 The Draft Transport Plan states, in a number of places, that the Government is seeking solutions through liaison with Queanbeyan City Council and its work on the Eastern Regional Transport Taskforce.⁴⁸⁸

6.78 The Chief Minister, Ms Gallagher, informed the Committee that the Eastern Regional Transport Taskforce was established in March 2010 to work on Canberra-Queanbeyan transport issues. In that correspondence, Ms Gallagher states that the Taskforce's membership includes representatives from the NSW and ACT Governments and Queanbeyan City Council and that one of its two working groups is for progressing 'issues relating to the NSW and ACT goals of seamless public transport'.⁴⁸⁹

⁴⁸⁵ ACT (2011) *ACT Government Infrastructure Plan 2011-2021*, p.31.

⁴⁸⁶ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.23.

⁴⁸⁷ *ibid.*

⁴⁸⁸ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, pp.11, 24 and 47.

⁴⁸⁹ Ms Katy Gallagher MLA (2011) *Overview of ACT Regional Engagement Arrangements*, Exhibit 4g, Inquiry Exhibits webpage.

6.79 The work of the Taskforce and the extent of its inter-regional dimensions was explained during an Inquiry hearing, by Mr Daniel Stewart, CMCD officer, who stated:

*That group has been tasked with looking at opportunities for improving public transport connections between the two cities and also exploring the transport impacts of those proposed developments in nearby New South Wales, most particularly...Tralee and Googong...I guess as those other settlements — Yass, Bungendore and so forth — continue to grow, that would be an area for further work...*⁴⁹⁰

6.80 During an Inquiry hearing, the Committee asked Mr Corbell, the Minister for the Environment and Sustainable Development, about the Taskforce's work on public transport. Mr Corbell took the question on notice and answered:

The Taskforce has considered issues like:

- *the need for public transport priority on Canberra Avenue to help increase the Queanbeyan to Canberra public transport share from less than 2% of trips;*
- *the need for better public transport service options between the two jurisdictions;*
- *the need for park and ride options to support public transport mode choice for commuters...*⁴⁹¹

6.81 In the same hearing, the Committee also asked Minister Corbell whether there was a timeline for producing improved public transport outcomes between Queanbeyan and the ACT. In response, the Minister wrote: 'There is no timeline, and work is ongoing'.⁴⁹²

ACT State of the Environment Report 2011 on transport energy

6.82 The Committee notes that the Commissioner for Sustainability and the Environment's *ACT State of the Environment Report 2011* makes a number of

⁴⁹⁰ *Transcript of Evidence* (public hearing), Mr Daniel Stewart, 24 March 2011, p.35.

⁴⁹¹ Mr Corbell MLA, Answers to question taken on notice during Inquiry hearing of 24 March 2011, p.1, dated 3 May 2011, Inquiry webpage <<http://www.legassembly.act.gov.au/downloads/issues-papers/EEC%20QTONs%20on%2024%20Mar11.pdf>>, accessed 14 Dec. 2011.

⁴⁹² *ibid.*, p.2.

recommendations which address transport energy. These are:

17. Finalise and implement the draft Sustainable Transport Action Plan to provide an integrated approach to transport and urban planning. In doing so:

- i. obtain additional non-work related travel data, similar to the annual Sydney Household Travel Survey, to ensure a more complete understanding of Canberra's transport habits;*
- ii. focus on strategies and targets to improve access to sustainable forms of transport outside of transport corridors;*
- iii. develop targets for;*
 - i. reducing in greenhouse gas emissions from transport;*
 - ii. increase sustainable transport usage for non-work travel to complement the existing targets for work travel; and*
- iv. track progress towards Sustainable Transport targets on an annual basis.*

...

22. Strengthen community engagement in sustainability by:

...

- ii. Fostering behaviour change through community engagement to reduce our ecological footprint with a particular focus on:*
 - i. sustainable transport...⁴⁹³*

ACT stationary energy

6.83 ACT electricity consumption fell 6 per cent between the financial year 2003-04 and 2007-08. The overwhelming majority of the ACT electricity market's customers are residential ones. As of June 2008, they were just over 90 per cent of all the customers. The average consumption per residential customer was 8.3 MWh in 2007-08, only marginally less than the averages of previous financial years.⁴⁹⁴

⁴⁹³ OCSE (2012) *ACT State of the Environment Report 2011*
<http://www.envcomm.act.gov.au/actsoe2011/executive_summary.html>, accessed 6 May 2012.

⁴⁹⁴ ICRC (2009) *Licensed Electricity, Gas and Water and Sewerage Utilities Compliance and Performance Report for 2007-08*, Table 2.5, p.4

- 6.84 The ICRC greenhouse gas emissions report for the 2008-09 financial year shows that electricity consumption has been the main contributor to emissions growth in the ACT since 1990.⁴⁹⁵ It also indicates that, since 1990, ACT greenhouse gas emissions attributable to electricity have increased at an annualised rate of 1.4 per cent, which aligns with the rate of increase in the ACT's total greenhouse gas emissions.⁴⁹⁶
- 6.85 This report also indicates that, in the 2008-09 financial year, non-residential electricity use was responsible for 58.7 per cent of total emissions attributable to electricity consumption and that it was the largest contributor to the total emissions from all forms of energy use, at 36.8 per cent. The next largest contributor to these total energy emissions was residential electricity use at 25.8 per cent.⁴⁹⁷
- 6.86 The individual and combined contributions of residential and non-residential electricity use to total energy emissions were significantly larger than the contributions of petrol and residential natural gas at 17.6 per cent and 5.6 per cent, respectively.⁴⁹⁸
- 6.87 The ACT Climate Change and Greenhouse Gas Reduction (Renewable Energy Targets) Determination 2011 (No 1) sets renewable energy targets under the ACT Greenhouse Gas Reductions Act. The targets are for 15 per cent of the total amount of electricity used to be from renewable energy by 2012 and 25 per cent by 2020.⁴⁹⁹
- 6.88 Under the Commonwealth *Renewable Energy (Electricity) Act 2000*, the Commonwealth Renewable Energy Target sets a mandatory Renewable Power Percentage for liable entities of 3.14 per cent and 3.64 per cent for 2008 and

<http://www.icrc.act.gov.au/_data/assets/pdf_file/0019/156016/Compliance_and_Performance_Report_2007-08_Web.pdf>, accessed 15 July 2011.

⁴⁹⁵ ICRC (2011) *ACT Greenhouse Gas Inventory Report for 2008-09 Report 7 of 2011*, p.v..

⁴⁹⁶ *ibid.*, p.6.

⁴⁹⁷ *ibid.*

⁴⁹⁸ *ibid.*

⁴⁹⁹ ACT Climate Change and Greenhouse Gas Reduction (Renewable Energy Targets) Determination 2011 (No 1) <<http://www.legislation.act.gov.au/di/2011-81/default.asp>>, accessed 1 Dec. 2011.

2009, respectively.⁵⁰⁰ GreenPower is a voluntary program that allows electricity retailers to purchase renewable energy on behalf of customers.⁵⁰¹

- 6.89 According to the ICRC report, in the 2008-09 financial year, electricity from renewable energy sources accounted for 7.1 per cent of the ACT's electricity consumption.⁵⁰² Further, the components that were attributable to the Commonwealth's Renewable Energy Target and GreenPower purchases were 3.39 per cent and 3.7 per cent of the total electricity consumed in the ACT, respectively.⁵⁰³
- 6.90 ActewAGL, which supplies electricity within the ACT only, reports that the proportion of the renewable energy of the total 'system throughput' of electricity in the financial year 2010-11 was 17.41 per cent; while in 2009-10, it was 9.14 per cent; and in 2008-09, it was 7.18 per cent.⁵⁰⁴
- 6.91 As the Government's Sustainable Energy Policy states, 'Buying GreenPower is one of the most cost-effective ways of reducing emissions from electricity production.'⁵⁰⁵
- 6.92 At the time of writing, the latest National GreenPower Accreditation Program Status Report was for the second quarter of the 2011 calendar year. In that quarter, there were 17, 934 GreenPower customers with 267 of them being non-residential ones. The non-residential customers purchased a total of 14, 749 megawatt hours and the residential customers a total of 9, 649 megawatt hours. 27.8 per cent of the total GreenPower purchases were by householders and 72.19 per cent were by non-residential consumers.⁵⁰⁶

⁵⁰⁰ Commonwealth *Renewable Energy (Electricity) Act 2000*

<<http://www.comlaw.gov.au/Details/C2011C00923>>, accessed 1 Dec. 2011.

⁵⁰¹ GreenPower website's 'About Us' webpage: <<http://www.greenpower.gov.au/About-Us/>>, accessed 1 Aug. 2011.

⁵⁰² ICRC (2011) *ACT Greenhouse Gas Inventory Report for 2008-09 Report 7 of 2011*, p.12.

⁵⁰³ *ibid.*, p.5.

⁵⁰⁴ ActewAGL (2011) *ActewAGL Annual Report 2010-11*, p.70 <<http://www.actewagl.com.au/about-us/~media/ActewAGL/ActewAGL-Files/About-us/Publications/Corporate%20and%20legal%20PDFs/Annual-Report-2010-11.ashx>>, accessed 1 Nov. 2011.

⁵⁰⁵ ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, p.23.

⁵⁰⁶ GreenPower (2011) *National GreenPower Accreditation Program Status Report - Qtr 2: 1 April to 30 June, 2011*, p.4

- 6.93 The Interim Report of this Committee's Inquiry into ACT Greenhouse Gas Reductions, tabled in the Legislative Assembly in August 2010, recommended that 'the ACT Government investigate the feasibility of implementing an opt-out approach to the GreenPower scheme and its potential impacts on ACT residents. The outcomes of the investigation should be reported to the Assembly before any action is taken'.⁵⁰⁷
- 6.94 In its response, made in December 2010, the Government stated that:
In 2009, the ACT Government implemented a scheme to require electricity suppliers to offer GreenPower to new and reconnecting customers.
*The ACT Government investigated an opt-out scheme...but decided to progress a first offer to new customers instead so that consumers would not be supplied with a GreenPower product that they could not afford by default.*⁵⁰⁸
- 6.95 The Committee was not presented with any evidence on what measures increase the uptake of GreenPower, or the degree to which the price differential between GreenPower and non-renewable electricity factors in consumers' choices to purchase the latter.
- 6.96 There is much research suggesting that, in collaboration with community sector organisations, robust safeguards can be designed and implemented, to ensure that people on low incomes, among others, are able to easily opt-out of GreenPower when they initiate an electricity connection or later.⁵⁰⁹

<<http://www.greenpower.gov.au/~media/Business%20Centre/Quarterly%20Reports/2011Q2Report.pdf>>, accessed 1 Nov. 2011. The author, GreenPower, is the only voluntary government accredited program in Australia that enables energy providers to purchase renewable energy on consumers' behalf and deliver it to them. It is a joint initiative of the ACT, NSW, SA, QLD, VIC and WA governments. They independently audit the renewable energy sector (GreenPower website's 'About Us' webpage: <<http://www.greenpower.gov.au/About-Us/>>, accessed 1 Aug. 2011).

⁵⁰⁷ Assembly (2009) *Standing Committee on Climate Change, Environment And Water Inquiry Into ACT Greenhouse Gas Reduction Targets Interim Report – Updated October 2009 Report 2*, p.39
 <<http://www.legassembly.act.gov.au/downloads/reports/CCEW02%20Green%20Gas%20revised%20includ%20errata.pdf>>, accessed 1 Aug. 2011.

⁵⁰⁸ ACT (2010) *Government Response to the Final Report of the Legislative Inquiry on ACT Greenhouse Gas Reduction Targets*, Dec. 2010, p.5
 <<http://www.legassembly.act.gov.au/downloads/reports/7th%20CCEW04%20Green%20gas%20final%20report.pdf>>, accessed 1 Aug. 2011.

⁵⁰⁹ Dufty, G. (2007) *Delivering social justice and environmental equity*, St Vincent de Paul Society Victoria Inc., August 2007. KPMG, Brotherhood of St Lawrence and Ecos Corporation (2008) *A national*

- 6.97 It also strikes the Committee that certain developments warrant the Government reconsidering its response to the Committee's recommendation to investigate opt-out GreenPower.⁵¹⁰ They include the ACT's own renewable energy initiatives, discussed later in this Chapter, the Commonwealth carbon price mechanism,⁵¹¹ and related Commonwealth initiatives in 'clean energy'⁵¹².
- 6.98 The Committee considers that these measures are likely to incentivise renewable energy generation roll-out and progressively bring the price of renewable electricity into parity with, or make it cheaper than, the price of fossil fuel electricity. Indeed, Mr Corbell indicated this in a media release he issued on 27 January 2012. Referring to electricity generated from the imminent establishment of large-scale solar electricity generators in the ACT, Mr Corbell said:
- Payment will be made to generators only when renewable energy is produced, and the cost to the community will go down as the price of fossil fuel electricity goes up.*⁵¹³
- 6.99 That the price of renewable electricity will become more attractive to consumers is also borne out by the Commonwealth Treasury Department's 2011 report on the impacts of a national carbon price. It declares that 'A carbon price makes renewable generation more competitive relative to coal, leading to a transition away from conventional coal-fired generation towards renewable technology.'⁵¹⁴

energy efficiency program to assist low income households, Report to the Commonwealth Government, Sept. 2008

<http://www.bsl.org.au/pdfs/KPMG_national_energy_efficiency_program_low-income_households.pdf> and World Resources Institute (2002) *Power Politics: Equity And Environment In Electricity Reform* edited by N. K. Dubash, World Resources Institute, US <http://pdf.wri.org/powerpolitics_all.pdf>, both accessed 1 Aug. 2011.

⁵¹⁰ Assembly (2009) *Standing Committee on Climate Change, Environment And Water Inquiry Into ACT Greenhouse Gas Reduction Targets Interim Report – Updated October 2009 Report 2*, p.39 <<http://www.legassembly.act.gov.au/downloads/reports/CCEW02%20Green%20Gas%20revised%20inclu%20errata.pdf>>, accessed 1 Aug. 2011.

⁵¹¹ Commonwealth Gov. 'Clean Energy Legislation Package' webpage <<http://www.climatechange.gov.au/government/clean-energy-future/legislation.aspx>>, 1 Dec. 2011.

⁵¹² Commonwealth Gov. 'Clean Energy Plan' webpage <<http://www.cleanenergyfuture.gov.au/clean-energy-future/our-plan/>>, 1 Dec. 2011.

⁵¹³ Mr Simon Corbell MLA (2011) 'Call for large scale proposals', Media Release, 27 Jan. 2012. <<http://www.chiefminister.act.gov.au/media.php?v=11322>>, accessed 29 Jan. 2012.

⁵¹⁴ Commonwealth (2011) *Strong Growth, Low Pollution: Modelling A Carbon Price*, p.9.

- 6.100 Currently, electricity across Australia is overwhelmingly generated from non-renewable fuels. The burning of coal generates 77 per cent, and natural gas and oil the rest. Hydro-electricity accounts for 4.7 per cent of Australia's electricity generation; wind 1.5 per cent; and biomass, biogas, and solar 1.2 per cent.⁵¹⁵
- 6.101 The ACT's electricity is almost wholly sourced from the National Electricity Market (NEM)⁵¹⁶ and there is very little electricity generation within the ACT relative to use.
- 6.102 ActewAGL, which supplies electricity within the ACT, noted, in its 2010-11 Annual Report, that its total 'system throughput' of electricity for the year was 3062 gigawatt hours.⁵¹⁷ Methane harvesting power plants at the West Belconnen and Mugga Lane landfills are the ACT's largest electricity generators and, between them, they create electricity of approximately 24 to 28 gigawatt hours per year.⁵¹⁸
- 6.103 The ACT Electricity Feed-in Scheme commenced on 1 March 2009. It was established by the *Electricity Feed-in (Renewable Energy Premium) Act 2008*. The Act allows people with relatively small generators of renewable energy in the ACT to 'feed' the electricity they produce into the electricity network.⁵¹⁹
- 6.104 More specifically, the Act allows 'feed-in' from 'medium' and 'micro' generators that generate electricity from solar, wind or any other source declared by the Minister. 'Medium' generators are defined by the Act as ones with a total capacity of more than 30 kilowatts but not more than 200

<http://www.treasury.gov.au/carbonpricingmodelling/content/report/downloads/Modelling_Report_Consolidated_update.pdf>, accessed 1 Dec. 2011.

⁵¹⁵ Commonwealth Department of Resources, Energy and Tourism (2011) *Energy in Australia 2011*, p.21.

⁵¹⁶ Australian Energy Market Operator (2010) *An Introduction To Australia's National Electricity Market*, July 2010, <<http://www.aemo.com.au/corporate/0000-0262.pdf>>, accessed 14 July 2011.

⁵¹⁷ ACTEWAGL (2011) *ActewAGL Annual Report 2010-11*, p.70 <<http://www.actewagl.com.au/about-us/~media/ActewAGL/ActewAGL-Files/About-us/Publications/Corporate%20and%20legal%20PDFs/Annual-Report-2010-11.ashx>>, accessed 1 Oct. 2011.

⁵¹⁸ ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, p.15 and GreenPower's pdf list of GreenPower Generators <http://www.greenpower.gov.au/About-Us/Where-Are-GreenPower-Generators/~media/Files/GreenPower_Generator_List_101111.pdf>, accessed 1 Aug. 2011.

⁵¹⁹ ACT *Electricity Feed-in (Renewable Energy Premium) Act 2008* <<http://www.legislation.act.gov.au/a/2008-21/default.asp>>, accessed 1 Aug. 2011.

kilowatts. 'Micro' generators are defined as ones with a total capacity not more than 30 kilowatts.⁵²⁰

6.105 The ICRC has reported that at 31 December 2011, the total installed capacity of these generators was 24,232,128 watts and that they were located at a total of 10,223 sites across 44 suburbs of the ACT. The total metered output of the renewable generators from 1 March 2009 to 31 December 2011 was 21,472,480 kilowatts.⁵²¹

6.106 The Act requires licensed electricity suppliers to make certain payments to the persons or organisations for 'feeding-in', and therefore diversifying the ACT's energy sources and decreasing its greenhouse gas emissions. The ICRC reported that, at the end of 2011, \$1,234 was the average total revenue received per customer since the Scheme commenced.⁵²²

6.107 The Committee notes that the ACT Legislative Assembly has enacted the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011*.⁵²³ The Act provides for 'feed-in' by generators with capacities of more than 200 kilowatts that are generating electricity from solar, wind or other sources declared by the Minister. It also provides for a tariff to be paid for this 'feed in'.⁵²⁴

6.108 Minister Corbell stated in a Media Release announcing the passage of the Act: *"This is the first time in Australia large scale solar projects would be given access to a feed-in tariff."*

The construction of more than one solar facility could provide as much as 14% of the minimum electricity demand of the ACT and the equivalent of power for 7000 homes. Under the...Act...industry will have an opportunity to compete for establishment of 40 megawatts of solar generation from large scale facilities in the ACT.

⁵²⁰ Section 5D of the ACT *Electricity Feed-in (Renewable Energy Premium) Act 2008*.

⁵²¹ ICRC (2011), *ACT Electricity Feed-In Scheme Summary 1 March 2009 – 31 March 2011*, p.2 <http://www.icrc.act.gov.au/_data/assets/pdf_file/0016/240217/Electricity_Feed-in_Summary_Report_DecQ11_Final.pdf>, accessed 1 Dec. 2011.

⁵²² *ibid.*

⁵²³ The Assembly enacted this Act on 8 December 2011. See ACT *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* <<http://www.legislation.act.gov.au/a/2011-56/default.asp>>, accessed 1 Oct. 2011.

⁵²⁴ Mr Simon Corbell MLA (2011) 'Large scale solar on the horizon in the ACT', Media Release, 8 Dec. 2011 <<http://www.chiefminister.act.gov.au/media.php?v=11206>>, accessed 1 Oct. 2011.

*"It is expected the first release of 40 MW will reduce emissions by around 850,000 tonnes over its 20 year life, bringing the ACT closer its targets of carbon neutrality by 2060."...*⁵²⁵

- 6.109 Some electricity generators in the wider ACR generate electricity from renewable resources, including the Capital Wind Farm near Bungendore, the Jindabyne Dam mini hydroelectric station, the Jounama hydroelectric power station at Talbingo in the Tumut area, and Burrinjuck hydroelectric power station, 60 kilometres from Yass.⁵²⁶
- 6.110 The RDA ACT Strategic Regional Plan 2011-12 states that 'RDA ACT will support projects that will...create ecologically sustainable development...by promoting...the uptake of renewable energy...' ⁵²⁷ and also that, 'RDA ACT, in partnership with RDA SI and RDA FSC [RDA Southern Inland and RDA Far South Coast], are currently collaborating on issues...including the potential to develop a South East Region of Renewable Energy Excellence' ⁵²⁸.
- 6.111 RDA Southern Inland is comprised of all the LGAs of the ACR, bar the Bega Valley, Cootamundra, Eurobodalla, and Gundagai Shires. It also includes the NSW LGA of Wingecarribee, which is not a part of the ACR.⁵²⁹ RDA Far South Coast includes two LGAs of the ACR, being Bega Valley and Eurobodalla Shires. It also includes what it refers to as the Shoalhaven area, being a broad geographical area around Nowra, Ulladulla, Bomaderry, Berry, and Shoalhaven Heads.⁵³⁰
- 6.112 The ACT Government's Sustainable Energy Policy refers to renewable energy development in the ACR only in so far as it states:
- an increased focus on renewable, energy-efficient and low-emission energy technologies will create significant opportunities for the development of new*

⁵²⁵ *ibid.*

⁵²⁶ GreenPower Generators webpage <<http://www.greenpower.gov.au/About-Us/GreenPower-Generators/>>, accessed 1 Oct. 2011.

⁵²⁷ RDA ACT (2011) *ACT Strategic Regional Plan: A framework for economic, social and environmental development initiatives in the ACT and region*, p.36 <<http://rdaact.org.au/wp-content/uploads/2011/09/RDA-ACT-SRP-2011.pdf>> accessed 12 Dec. 2011.

⁵²⁸ *ibid.*, p.22.

⁵²⁹ RDA Southern Inland webpage <<http://www.rdasi.org.au/>>, accessed 14 July 2011.

⁵³⁰ RDA Far South Coast webpage <<http://www.rdafsc.com.au/overview.html>>, accessed 14 July 2011.

*businesses and industries and associated employment prospects within the Territory and surrounding region...*⁵³¹

- 6.113 The Government's Draft Weathering the Change: Action Plan 2 notes: 'There are a number of very good sites for wind generation in the immediately surrounding area of south east NSW.'⁵³² Further, the Draft Planning Strategy states that:

*There are advantages to be gleaned from Canberra's knowledge and research based industry as well as the region's climate and geography to enhance the generation of 'green' power. The region could be a significant contributor to the development and generation of sustainable energy.*⁵³³

- 6.114 The Committee asked Mr Corbell and officers of the then Department of Climate Change, Environment and Water and Chief Minister's Department whether there was work being conducted on renewable energy infrastructure roll-out in the ACR through the Regional Leaders Forum, or other governance bodies of the ACR. The responses indicated that there was not.⁵³⁴

- 6.115 Increased renewable electricity generation in the ACR is called for by Mr Kevin Cox,⁵³⁵ Ms Jenny Goldie,⁵³⁶ Dr John Schooneveldt,⁵³⁷ Mr David Turbayne,⁵³⁸ the Canberra Division of Engineers Australia,⁵³⁹ the Canberra Environment and Sustainability Resource Centre,⁵⁴⁰ Conservation Council ACT Region,⁵⁴¹ Palerang Council,⁵⁴² and Sustainable Population Australia,⁵⁴³ in

⁵³¹ ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, September 2011, p.26.

⁵³² ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, p.59.

⁵³³ *ibid.*

⁵³⁴ Evidence of Mr Simon Corbell, Mr Daniel Stewart, and Mr David Papps in *Transcript of Evidence* (public hearing), 24 March 2011.

⁵³⁵ Sub. 5, p.4.

⁵³⁶ Sub. 15, p.4.

⁵³⁷ Sub. 2, p.5.

⁵³⁸ Sub. 21, p.2.

⁵³⁹ Sub. 34, p.8.

⁵⁴⁰ Sub. 29, pp.2-4.

⁵⁴¹ Sub. 13, p.1.

⁵⁴² Sub. 30, p.4.

⁵⁴³ Sub. 35, p.9.

their respective submissions. In her testimony to the Committee, Professor Barbara Norman raised the potential for 'green jobs' from renewable energy and other environmental industries in the region.⁵⁴⁴

- 6.116 Only one submitter to the Inquiry argued against the adoption of forms of renewable energy generation. The Institute of Public Affairs ACT Energy Group counsels in its submission:

*...it is important to emphasise that solar and wind technologies which might fill the ACT energy void are prohibitively uneconomic and also extremely expensive (and therefore much less effective) ways of reducing CO2 emissions...*⁵⁴⁵

Energy and emissions assessment of the Government's built infrastructure

- 6.117 While the Government referred to many infrastructure projects in its evidence to the Inquiry, at no time, did a Government Minister or officer allude to or express that the Government had, for any one of those projects, assessed the energy and greenhouse gas emissions embodied in it, the energy that will be used by it, and the emissions that will be produced by it. The Government also made no reference to assessing any infrastructure project in a broader way that would encapsulate, among other things, these direct and indirect energy uses and emissions.
- 6.118 By assessment of the energy and emissions embodied in the infrastructure, what is meant here is the energy and emissions entailed in manufacturing, delivering and retailing the fuel, building materials, and other parts of infrastructure builds. By the energy used and emissions produced by infrastructure, what is meant is how it takes energy and makes emissions to construct, operate and maintain any built infrastructure.
- 6.119 The Government evidence also makes no reference to any routine processes that Government uses during infrastructure selection, design, or implementation to ascertain what energy use prevention and reduction, and

⁵⁴⁴ *Transcript of Evidence* (public hearing), Prof. Barbra Norman, 14 September 2011, p.131.

⁵⁴⁵ Sub. 16, p.5, para. 4.1.3.

emissions abatement, needs to be incorporated into the infrastructure's planning, construction, operation and maintenance.

- 6.120 Environmental assessments that at least determine the energy and emissions embodied in and produced by infrastructure would assist to indicate how the infrastructure's design, construction, operation and maintenance are contributing to the ACT's ecological footprint.
- 6.121 The Canberra Division of Engineers Australia, in its submission, emphasises that it believes 'there is significant discordance between the different infrastructure and environmental plans issued by ACT Government agencies'.⁵⁴⁶
- 6.122 It refers to how the Engineers Australia *Infrastructure Report Card 2010: Australian Capital Territory*⁵⁴⁷ shows that much of the ACT's infrastructure built before the ACT was self-governed 'has aged and will need to be replaced and/or augmented in the near future' and that this 'presents opportunities for new approaches to infrastructure provision that recognise the paradigm shift necessary for a more sustainable ACT community'.⁵⁴⁸
- 6.123 The Canberra Division of Engineers Australia submission then warns:
*infrastructure decisions lock the ACT into the sustainability parameters of the built infrastructure for the whole of its life, typically between 20 and 50 years and in some cases as long as 100 years...Particular care must be applied to ensure that sustainability principles are embodied into infrastructure design and construction and into infrastructure operating plans.*⁵⁴⁹
- 6.124 Similarly, the Friends of Grasslands argue, in their submission, 'We should be switching infrastructure investment to get better bang for our dollar in areas such as reducing the ecological footprint.'⁵⁵⁰

⁵⁴⁶ Sub. 34, p.1.

⁵⁴⁷ Engineers Australia (2010) *Infrastructure Report Card 2010: Australian Capital Territory* <http://www.engineersaustralia.org.au/sites/default/files/shado/Infrastructure%20Report%20Cards/ACT/entire_report.pdf>, accessed 14 July 2011.

⁵⁴⁸ Sub. 34, p.4.

⁵⁴⁹ Sub. 34, p.5.

⁵⁵⁰ Sub. 9, p.4.

- 6.125 Embodied energy and emissions of infrastructure options that serve the same purposes and have similar financial costs can widely diverge according to certain variables. These variables are controllable if they are considered from the beginning of the infrastructure's design, build, operation and maintenance.⁵⁵¹
- 6.126 For all built infrastructure, including transport infrastructure, the variables include the energy sources that are powering the construction, operation and maintenance processes; the extent to which soil and vegetation are upturned during those processes; and the technologies and uses of them that are adopted to operate and maintain the infrastructure.⁵⁵²
- 6.127 That is, widely varying contributions to the ecological footprint can result from choosing one financially viable and fit-for-purpose design, and construction, operation, and maintenance process over another. The Committee could find no evidence that the Government has decision-making systems for making infrastructure choices that are more environmentally sound than others, given the purpose to be served by the infrastructure and the monies invested in it.
- 6.128 As discussed earlier in this Chapter, the ISA 2010 study clearly shows the degree to which construction, and uses of electricity and transport fuels by infrastructure, among other things, contributed to some of the largest fractions of the ACT ecological footprints of 1998-99, 2003-04 and 2008-09.⁵⁵³ The study was released by the ACT Commissioner for Sustainability and the

⁵⁵¹ See, for example, the company, Edge environment (2012) 'A common approach to estimating GHG emissions from road projects – a joint project with the Australian and NZ authorities', Media Release, 2 Feb. 2012 and Transport Authorities Greenhouse Group Australia and New Zealand (2011) *Greenhouse Gas Assessment Workbook for Road Projects*, June 2011 produced by Edge environment and another company Parsons Brinkerhoff for the Transport Authorities Greenhouse Group Australia and New Zealand <<http://edgeenvironment.com.au/edge-and-pb-complete-greenhouse-gas-assessment-workbook-for-road-projects/>> accessed 3 Feb. 2012.

⁵⁵² See, for example, Treloar, G.J. et al (2000) 'A hybrid life cycle assessment method for construction', *Construction Management and Economics*, vol. 18, issue 1, 2000, pp.5-9 and Huang, Y. et al (2009) 'Development of a life cycle assessment tool for construction and maintenance of asphalt pavements', *Journal of Cleaner Production*, vol. 17, issue 2, Jan. 2009, pp.283-296.

⁵⁵³ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.20.

Environment on 14 December 2010.⁵⁵⁴

- 6.129 In its submission, the Government discusses its triple bottom line sustainability policy⁵⁵⁵ and regulatory impact assessment process⁵⁵⁶. The Government's submission does not, in these discussions, mention environmental assessment of any Government infrastructure projects. This is significant because both the Government's Triple Bottom Line Discussion Paper and the Government's regulatory impact statement guidelines explicitly feature environmental assessment as one of their respective foundations.
- 6.130 While the Discussion Paper makes no mention of environmental assessments of infrastructure, it generally refers to assessment of energy consumption and emissions.⁵⁵⁷ This Paper is discussed in Chapter 3.
- 6.131 The Committee commends to the Government that it conduct life cycle assessments of future projects, irrespective of whether it is or is not presently assessing the energy uses and the emissions that infrastructure projects will entail and what energy use and emissions abatements they will need.
- 6.132 A life-cycle assessment of a particular product or service, such as the build, operation and maintenance of an extension to a bus network, assesses the consumption of natural resources in the manufacture, delivery, use, and disposal of its components. This enables determination of the product's or service's contributions to an ecological footprint.
- 6.133 One example of such an assessment is Dr Sarah Ryan's analysis of the contributions to the ACT ecological footprint of 18 commodities commonly purchased by Canberrans. This analysis is discussed briefly in Chapter 2 and in further detail in Chapter 7.
- 6.134 The Committee is commending life cycle assessment for infrastructure, rather

⁵⁵⁴ OSCE (2011) *Office of the Commissioner for Sustainability and the Environment Annual Report 2010-11*, p.3 <http://www.envcomm.act.gov.au/data/assets/pdf_file/0016/233260/2010-11_OCSE_annual_report_for_Web.pdf>, accessed 1 Nov. 2011.

⁵⁵⁵ Sub. 32, p.9.

⁵⁵⁶ Sub. 32, pp.9-10.

⁵⁵⁷ ACT (2011) *Triple Bottom Line Assessment For The ACT Government Discussion Paper*, June 2011 <http://www.cmd.act.gov.au/data/assets/pdf_file/0006/217392/TBL_Assessment_Framework_Discussion_Paper.pdf>, accessed 14 July 2011.

than other kinds of environmental assessment, for four reasons. First, life cycle assessment is cradle-to-grave assessment of many natural resource inputs and wastes embodied in and produced by a product or service. Some other types of assessment are confined to, say, the greenhouse gas emissions produced by certain parts of the infrastructure and only after it has been manufactured, retailed, delivered and purchased.

- 6.135 Second, there are well-established Australian⁵⁵⁸ and international standards⁵⁵⁹ for performing life cycle assessments. Third, there are many academics based in Australia that have developed rigorous life cycle assessment methods for transport and other built infrastructure.⁵⁶⁰ There are also many Australia-based academics and businesses⁵⁶¹ that have delivered life cycle assessments of infrastructure for government, quasi-government and private sector organisations.
- 6.136 These standards, methods and practitioners allow for accurate assessments that can be compared across different infrastructure proposals designed to meet the same purposes and one piece of infrastructure over time and after it or its use or maintenance has been altered.
- 6.137 Fourth, over at least the last decade, Western governments, including Australian ones,⁵⁶² have clearly used life cycle assessments and found them

⁵⁵⁸ AS/NZS ISO 14040 (1998) *Environmental Management – Lifecycle Assessment – Principles and Framework*, International Organization for Standardization, Geneva, Switzerland.

⁵⁵⁹ ISO 14042 (2000) *Environmental management—life cycle assessment, life cycle impact assessment*, International Organization for Standardization, Geneva, Switzerland.

⁵⁶⁰ Horne, R., Grant, T. and Verghese, K. (2009) *Life Cycle Assessment: Principles, Practice and Prospects*, CSIRO Publishing; Goh, K.C. & Yang, J. (2009) 'Developing a life-cycle costing analysis model for sustainability enhancement in road infrastructure project', *Rethinking Sustainable Development: Planning, Infrastructure Engineering, Design and Managing Urban Infrastructure*, Queensland Univ. of Technology, pp. 324-331; Treloar, G., Love, P. and Crawford, R. (2004) 'Hybrid life-cycle inventory for road construction and use', *Journal of construction engineering and management*, vol. 130, no. 1, pp.43-49; and Lenzen, M. (2000) *Life-cycle assessment of Australian transport*, 2nd National Conference on Life Cycle Assessment, Royal Melbourne Institute of Technology, Melbourne, Australia.

⁵⁶¹ See Australian Life Cycle Assessment Society list of practitioners of life cycle assessments in Australia, including academics and private sector consultancies: <<http://www.alcas.asn.au/resources/practitioners>>, accessed 1 Aug. 2011. The website states this list was last updated in mid-January 2012.

⁵⁶² Commonwealth Dept. of Environment and Conservation (2003) *Life cycle inventory and life cycle assessment of windrow composting systems*. Report prepared by Recycled Organics Unit, The

useful in many transport and other built infrastructure projects. They have commissioned life cycle assessments of the infrastructure for road⁵⁶³ and railway⁵⁶⁴ transport and office and other facilities infrastructure.⁵⁶⁵

- 6.138 The Committee notes that ACTEW details in its submission how it has assessed the energy used and greenhouse gases produced by certain parts of the infrastructure it operates and what quantum of energy would be used by alternative infrastructure that performs the same functions.⁵⁶⁶
- 6.139 It provides details of the 'off-sets' it has implemented for energy uses and emissions of some of its current infrastructure.⁵⁶⁷ It also discusses the energy and emissions assessment, and incorporation of energy and emissions reduction measures that were conducted at the outset of infrastructure build

University of New South Wales, Sydney; and Alley, J. (2008) *Life Cycle Assessment (LCA) of the Hydrogen Fuel Cell, Natural Gas, and Diesel Bus Transportation Systems in Western Australia*, February 2008, prepared for WA Dept. for Planning and Infrastructure by Murdoch Univ. <http://www.crest-au.com/docs/alt_LCAreport.pdf>, EPA Vic. webpage on life cycle assessment of rain water tanks by Yarra Valley Water <http://www.epa.vic.gov.au/lifecycle/LCM-in-action/yvw_rainwater_tanks.asp>, both accessed 1 Aug. 2011.

⁵⁶³ See Chapt. 2 on life cycle assessment of road construction in Venner, M. (2010) *Environmental Corridor Management NCHRP 25-25/63*, June 2010, conducted as part of the National Cooperative Highway Research Program (NCHRP) Project 25-25. The NCHRP is supported by contributions from the US State Departments of Transportation <[http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25\(63\)_FR.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25(63)_FR.pdf)> and TIAX LLC (2007) *Full Fuel Cycle Assessment: Well-To-Wheels Energy Inputs, Emissions, And Water Impacts State Plan to Increase the Use Of Non-Petroleum Transportation Fuels Assembly Bill 1007 (Pavley) Alternative Transportation Fuels Plan Proceeding*, prepared for California Energy Commission <http://psehealthyenergy.org/data/CA_Energy_Commission_2007_Report1.pdf>, both accessed 1 Nov. 2011.

⁵⁶⁴ See rail in Chapt. 3 of Scientific Applications International Corporation (2006) *Life Cycle Assessment: Principles And Practice*, prepared for US Environmental Protection Agency <<http://www.epa.gov/nrmrl/lcaccess/pdfs/600r06060.pdf>>, accessed 1 Sept. 2011 and Whitaker, M. (2009) *Life Cycle Assessment of the Use of Jatropha Biodiesel in Indian Locomotives* National Renewable Energy Laboratory, prepared for US Dept. of Energy (covers passenger transport and freight) <<http://www.nrel.gov/biomass/pdfs/44428.pdf>>, accessed 1 Sept. 2011.

⁵⁶⁵ Bengtsson, J. and Howard, N. (2010) *A Life Cycle Impact Assessment Part 1: Classification and Characterisation*, Building Products Innovation Council <<http://www.edgeenvironment.com.au/docs/Life+Cycle+Impact+Assessment++-+Part+1+Classification+and+Characterisation+-1.pdf>>, accessed 1 Aug. 2011. This report was produced for a project jointly funded by AusIndustry and the Building Products Innovation Council as a guide for life cycle assessment of building materials, products, assemblies and whole buildings.

⁵⁶⁶ Sub. 28, pp.28-29.

⁵⁶⁷ Sub. 28, p.28.

projects.⁵⁶⁸

- 6.140 The Committee also notes that ACTEW referred, in its testimony, to assessments of its energy uses, greenhouse gas emissions, and impacts on biodiversity that certain parts of its infrastructure would have and the measures it had implemented to lessen the environmental impacts of the infrastructure.⁵⁶⁹

Costs of missed opportunities for reducing fossil fuel energy uses in the ACR

- 6.141 The Committee was not presented with evidence on the costs of not reducing the significant contributions of transport and stationary energy combustion in the ACT towards greenhouse gas emissions and the ACT, and therefore, ACR ecological footprint. This is, perhaps, unsurprising given the complexity of this question.
- 6.142 Nonetheless, the Committee regards it as a pressing one suggested by the evidence presented by the Committee's own research and the calls for public transport and transport not vulnerable to peak oil in many of the submissions and some of the oral testimony.
- 6.143 In seeking out the latest, most rigorous research that might answer it, the Committee came upon two up-to-date studies that it was satisfied are sufficiently relevant and detailed in methodology and results to rely on here.
- 6.144 The first is on the potential for renewable electricity industry development in the ACR.
- 6.145 In 2010, the Climate Institute was awarded a grant from the NSW Department of Environment, Climate Change and Water to work with 'regional and industry stakeholders' to assess the employment opportunities associated with renewable electricity that would be created between the years 2010 and 2030 in

⁵⁶⁸ *ibid.*

⁵⁶⁹ Sub. 28, pp.85-6, p.89 and p.95.

several 'precincts' throughout NSW.⁵⁷⁰

6.146 One of the study's NSW precincts was the 'NSW-ACT Border Region'. For the purposes of this study, this Region was the 12 LGAs of Boorowa, Cootamundra, Goulburn Mulwaree, Gundagai, Harden, Junee, Palerang, Tumut, Upper Lachlan, Weddin, Yass and Young. All bar two of these LGAs are in the ARC.⁵⁷¹

6.147 In late February 2011, the Climate Institute reported that it estimated that up to 1,747 new jobs by the year 2030 could be created in the NSW/ACT Border Region, including 427 new ongoing jobs and a peak construction workforce of around 1,320 people.⁵⁷² For the Snowy Monaro precinct, the estimate was 582 new jobs, including 203 new ongoing jobs and a peak construction workforce of 379 people.⁵⁷³

6.148 The Climate Institute based these jobs estimates on its estimations of the 'full renewable energy resource' developments that could be established in the precincts⁵⁷⁴

6.149 The Committee could not find a study that catalogues the costs of delaying reductions in greenhouse gases in the ACT- or wider-ACR. However, a highly

⁵⁷⁰ The Climate Institute 'Clean Energy Jobs in Regional Australia' webpage <<http://www.climateinstitute.org.au/clean-energy-jobs>>, accessed 14 Oct. 2011. The Climate Institute describes itself as an independent research organisation primarily funded by a donation from the Poola Foundation. It is based in Sydney, Australia (The Climate Institute 'About us' webpage <<http://www.climateinstitute.org.au/about-us>>, accessed 14 Oct. 2011).

⁵⁷¹ The Climate Institute (2011) *Snapshot: Clean Energy Jobs in Regional NSW: NSW/ACT Border Region* <http://www.climateinstitute.org.au/images/cleanenergyjobs/cleanenergyjobssnapshot_actborder.pdf>, accessed 14 July 2011. The 'Snowy Monaro' precinct included Bombala; Cooma Monaro; Snowy River; and Tumbarumba, all LGAs that are all in the ARC (The Climate Institute (2011) *Snapshot: Clean Energy Jobs in Regional NSW: Snowy Monaro* <http://www.climateinstitute.org.au/images/cleanenergyjobs/cleanenergyjobssnapshot_snowymonaro.pdf>, accessed 14 July 2011). Bega Valley and Eurobodalla were grouped with many LGAs not in the ACR and the job numbers are not provided by LGA and Queanbeyan and Canberra were not covered by the study (the Climate Institute 'Clean Energy Jobs in Regional Australia' webpage <<http://www.climateinstitute.org.au/clean-energy-jobs>>, accessed 14 Oct. 2011).

⁵⁷² The Climate Institute (2011) *Snapshot: Clean Energy Jobs in Regional NSW: NSW/ACT Border Region*.

⁵⁷³ The Climate Institute (2011) *Snapshot: Clean Energy Jobs in Regional NSW: Snowy Monaro*.

⁵⁷⁴ The Climate Institute 'Clean Energy Jobs in Regional Australia' webpage <<http://www.climateinstitute.org.au/clean-energy-jobs>>, accessed 14 Oct. 2011. The methodology for calculating for these developments and associated jobs is laid out clearly and comprehensively on this webpage.

developed and up-to-date study on the costs to Australia serves as a suitable proxy, in the absence of a specific study on the ACT or ACR.

- 6.150 In April 2011, ClimateWorks Australia, a not-for-profit organisation hosted by Monash University in partnership with the Myer Foundation, published its up-to-date modelling of these costs to Australia.⁵⁷⁵
- 6.151 The ClimateWorks Australia modelling clearly indicates that the largest part of the savings lost in the twelve months previous to April 2011 and in the forecast to 2020 is from missed energy efficiency opportunities that arose when the buildings and industry sectors fit-out new assets or newly fit-out existing stock with, for example, heating and cooling systems.
- 6.152 The assets have higher operating costs because they were not fit-out with energy inefficient, rather than cost-effective energy efficient, building materials and systems, widely available in markets across Australia. Because these energy inefficient buildings will be around for at least some decades, they 'lock in' emissions, and therefore, running costs for tens of years.⁵⁷⁶

ACT State of the Environment Report 2011 on transport and stationary energy

- 6.153 The Committee notes that the Commissioner for Sustainability and the Environment's *ACT State of the Environment Report 2011* makes a number of recommendations which address both transport and stationary energy. These recommendations broadly relate to several matters the Committee has noted in this Chapter.

⁵⁷⁵ ClimateWorks Australia Low Carbon Growth Plan webpage
<http://www.climateworksaustralia.org/low_carbon_growth_plan.html>, accessed 14 Oct. 2011

⁵⁷⁶ ClimateWorks Australia (2011) *Low Carbon Growth Plan for Australia: 2011 update*, April 2011. ClimateWorks Australia has updated its 2010 Low Carbon Growth Plan to reflect the national statutory carbon price scheme that the Commonwealth Parliament enacted in late 2011. Scrutiny of this updated Plan's estimates of monies saved by adoption of abatement opportunities reveals that the savings losses forecast in the April 2011 update are significantly understated: *Low Carbon Growth Plan for Australia Impact of the carbon price package*, Aug. 2011 Revised edition
<http://www.climateworksaustralia.com.au/LCGP_Impact_of_the_carbon_price_package_Aug_2011_revised_edition.pdf>, accessed 10 Oct. 2011.

6.154 The recommendations are that:

11. *As a priority the ACT Government develop and implement pathways to achieve carbon neutrality in ACT Government buildings and services. These should be implemented through the second Action Plan of Weathering the Change and include monitoring, evaluation of actions and annual public reporting on progress.*
12. *The ACT Government develop and implement a pathway to achieve the legislated climate change emission reduction and renewable energy targets. This should be implemented through the second Action Plan of Weathering the Change and include:*
 - a. *focus on reducing emissions from transport and our buildings (especially improving energy efficiency of old building stock);*
 - b. *responsive regulatory, governance and investment arrangements for renewable energy;*
 - c. *continued engagement with ACT community; and*
 - d. *regular monitoring, evaluation of actions and public reporting on progress against the targets.*⁵⁷⁷

Key findings

- 6.155 The ACT's current patterns of consumption of stationary and transport energy are not environmentally sustainable, because this energy is overwhelmingly derived from coal and oil. Hence, this consumption substantially contributes to the ACT's ecological footprint and the ACT's greenhouse gas emissions.
- 6.156 The ACT Government has taken some significant steps towards reducing the contributions of stationary and transport energy combustion to the ACT ecological footprint.

⁵⁷⁷ OCSE (2012) *ACT State of the Environment Report 2011*
<http://www.envcomm.act.gov.au/actsoe2011/executive_summary.html>, accessed 6 May 2012.

- 6.157 Life cycle assessments of the energy and greenhouse gas emissions embodied in, and emissions produced by, built infrastructure options are relatively conventional throughout the world. They equip governments and others to make more environmentally sustainable choices about how they design, construct, operate and maintain infrastructure.
- 6.158 Costs are likely to be borne by the people of the ACT, in terms of lost savings in private and public finances and lost reductions in greenhouse gas emissions, if the ACT Government does not significantly further:
- a. the advances it has already made in lessening the oil dependence of the ACT vehicle fleet and in improving public transport infrastructure.
 - b. the efforts it has made to increase public transport patronage and active travel in the ACT and public transport infrastructure between the ACT and wider ACR.
- 6.159 Costs are likely to be borne by the people of the ACT, in terms of lost savings in private and public finances, reductions in emissions, and opportunities for renewable electricity jobs and industry development, if the Government delays capitalising on its leadership in increasing renewable energy consumption in the ACT and renewable energy generation in the ACR.

RECOMMENDATION 9

- 6.160 **The Committee recommends that the ACT Government:**
- a) **monitor and incorporate developments in transport biofuels into its planning and operations.**
 - b) **continue its active support of electric vehicle infrastructure planning and roll-out in the ACT.**
 - c) **continue to implement and evaluate its measures to improve public transport infrastructure and increase public transport patronage within the ACT.**

RECOMMENDATION 10

- 6.161 The Committee recommends that the Government continue to implement and evaluate its measures to increase active travel.

RECOMMENDATION 11

- 6.162 The Committee recommends that the ACT Government examine ways that built infrastructure proposals can be subjected to triple bottom line assessments that include robust ecological footprint analyses of the proposals' full life cycles.

RECOMMENDATION 12

- 6.163 The Committee recommends that the ACT Government continue its efforts to collaborate with ACR governance bodies to develop:
- a) rapid, reliable, and environmentally sustainable public transport between the ACT and wider ACR, particularly routes along which there is and/or is forecast to be, the highest amount of private motor vehicle use.
 - b) cost-effective and environmentally sensitive renewable energy generators in suitable locations throughout the ACR.

RECOMMENDATION 13

- 6.164 The Committee recommends that the ACT Government consider implementing those recommendations of the *ACT State of the Environment Report 2011* that relate to transport and/or stationary energy uses.

7 FOOD

- 7.1 Food is one of the most fundamental human needs and widely regarded as a basic human right.⁵⁷⁸
- 7.2 While access to food systems for humans is not optional, who participates in them, what those systems produce, distribute, and discard, and where and how they do, *are* matters of debate. This is not least because of the health, environmental and other consequences of how food systems are organised.

Food component of the ACT ecological footprint

- 7.3 As noted in Chapter 3, the ecological footprint is a measure of the land used to produce goods and services for a population's consumption and to absorb the wastes of that consumption.
- 7.4 As the ISA 2010 study states in its conclusions, food is 'responsible for the largest single category of the ACT Ecological Footprint, closely followed by the provision of services to ACT residents'.⁵⁷⁹ According to this study, food comprised 22 per cent of the 1998-99 ACT ecological footprint, 23 per cent in 2003-04, and 22 per cent in 2008-09.⁵⁸⁰
- 7.5 In 2008-09, cropland was 0.94 gha and pasture land 0.99 gha of the average ACT resident's ecological footprint. For the average Australian that year, cropland was 0.83 gha and pasture land was 0.92 gha.⁵⁸¹ The study explains that the average ACT person's farming lands footprint was higher than the

⁵⁷⁸ See clear evidence of this throughout the ANU – University of NSW (2010) *Australian Capital Territory Economic, Social And Cultural Rights Research Project*, Australian Research Council Linkage Project Lp0989167 Report http://acthra.anu.edu.au/PESCR/Final%20report/Final%20Report%20of%20the%20ACT%20ESCR%20Research%20Project_9%20December%202010.pdf, accessed 14 July 2011.

⁵⁷⁹ ISA (2010) *The 2008-09 Ecological Footprint of the Population of the Australian Capital Territory – report for the Office of the ACT Commissioner for Sustainability and the Environment*, p.24.

⁵⁸⁰ *ibid.*, p.17.

⁵⁸¹ *ibid.*, p.16.

average Australian's, because ACT people consumed a higher than average amount of food and of the fibres embodied in clothing and housing.⁵⁸²

7.6 As noted in Chapter 3, the ISA ranks 'restaurants, cafés and hotels' as the fourth highest contributor to the 2008-09 footprint, at 0.4 gha per ACT resident. The study indicates that this high ranking is overwhelmingly because of the food consumption that occurs in these establishments.⁵⁸³

7.7 Chapter 2 of this Inquiry Report briefly discussed Dr Sarah Ryan's life cycle assessment study of a basketful of common purchases in the ACT. These purchases include tomatoes, bread, coffee and beef. The study was commissioned by the OCSE.⁵⁸⁴

7.8 Dr Ryan's study makes several conclusions about how food consumption contributes to the ACT ecological footprint:

Food...products tend to have more footprint impacts in their agricultural...phase. The generally low contribution of transport to individual footprints of the products analysed suggests that the location of Canberra away from major food...locations is not a very significant component of our overall impact...

...the shopping trip to purchase goods is often significant, particularly for food products that must be bought regularly...our dependence on cars and generally high incomes can mean that some shopping trips may be as significant, or even more significant, than the transport of goods some distance to Canberra...

*...food miles are a relatively poor stand-alone indicator of the footprint of a product, unless all other things are equal...Packaging was rarely a hotspot...*⁵⁸⁵

⁵⁸² *ibid.*

⁵⁸³ *ibid.*, p.20.

⁵⁸⁴ Exhibit 2b, Ryan S. (2011) *Buying Choices for a More Sustainable Canberra*. Report for the ACT Commissioner for Sustainability and the Environment. This Report is reproduced in full on the Inquiry exhibits webpage <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>>, accessed 1 Dec. 2011.

⁵⁸⁵ *ibid.*, pp.46-47.

Key findings

- 7.9 Food consumption is the largest single contributor to the ACT ecological footprint.
- 7.10 Dr Ryan's life cycle assessment study suggests that the main reason for this is that Canberrans are using vehicles powered by fossil fuels to make too many trips to buy food and Canberrans are purchasing significantly more food than they consume.

Food supply for people in the ACR

- 7.11 The Committee was presented with much evidence indicating that the ACT and wider ACR sources food products from, and exports them to, national and global food supply chains. This evidence suggests that the ACT currently imports most of its food from beyond the ACT and wider ACR.⁵⁸⁶
- 7.12 Many submissions and one exhibit presented to the Inquiry express a lack of confidence in future food supplies for the people of the ACT or ACR, generally, not only people who have low incomes.⁵⁸⁷ Some of these and others stress that food production is challenged by looming shortages of transport fuel and industrial fertilisers;⁵⁸⁸ soil degradation;⁵⁸⁹ climate change;⁵⁹⁰ and agricultural uses of land being crowded out by residential and other urban developments⁵⁹¹.

⁵⁸⁶ *Transcript of Evidence* (public hearing), Dr Robert Dyball and Mr David Dumaresq, 15 Sept. 2011, pp. 143-145 and Exhibit 2b, Ryan S. (2011) *Buying Choices for a More Sustainable Canberra*. Report for the ACT Commissioner for Sustainability and the Environment. This Report is reproduced in full on the Inquiry exhibits webpage <<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>>, accessed 1 Dec. 2011.

⁵⁸⁷ Canberra Environment and Sustainability Resource Centre (Sub. 29, p.2); Ms Jenny Goldie (Sub. 15, p.4); Sustainable Population Australia (Sub. 35, p.9); Dr C.L. Watson (Sub. 25, p.2); Exhibit 1, Fusion Australia 2010, *Grown in the ACT: Food Security and the Future of Australia*, p. 3.

⁵⁸⁸ Ms Jenny Goldie (Sub. 15, pp.3-4); Mr Mark O'Connor (Sub. 22, p.14); Palerang Council (Sub. 30, p.10); Sustainable Population Australia (Sub. 35, p.9); Fusion Australia (Exhibit 1, p.4).

⁵⁸⁹ A/Prof. Kieran Fallon (Sub. 6 Attachment); Dr C.L. Watson (Sub. 25, p.2); and Fusion Australia (Exhibit 1, p.4).

⁵⁹⁰ *ibid.*

⁵⁹¹ Ms Jenny Goldie (Sub. 15, p.4); Mr Keith Ross (Sub. 14, p.1); David Turbayne (Sub. 21, p.1); Fusion Australia (Exhibit 1, p.10).

- 7.13 None of the people who appeared as witnesses at the Inquiry hearings viewed insecurity of food supplies to the people of the ACR as a reasonable prospect. Indeed Associate Professor Pearson, stated in his testimony that:

*a region like the ACR has a lot of financial capacity to buy in supplies of food. When we talk about food sovereignty or food self-sufficiency, we are actually talking about the capacity of that region to provide the food that is consumed within that region.*⁵⁹²

- 7.14 Similarly, Dr Robert Dyball, a human ecologist from the ANU, stated in his testimony:

*when you are talking about food security, are you talking about being confident in your ability to provide the food that the people of the region want and expect to be able to eat? Of course, you can do that by growing it and you can do that by purchasing it. If you are an economically wealthy centre, like Tokyo, Copenhagen and Canberra all are, they are basically going to be food secure because they are wealthy enough. The second question then...is this: do you mean that your food is sovereign, that within your jurisdictional area you actually physically produce the food to sustain the population, such that if some cataclysmic thing happened to the global food supply networks you could survive? The answer to that latter question...you could feed the population of the ACR with the food grown within the ACR. However, you would be looking at a reasonably mundane diet...*⁵⁹³

- 7.15 Another ANU-based human ecologist, Dr David Dumaresq, gave evidence with Dr Dyball. Dr Dyball and Dr Dumaresq have long been analysts of food systems and are currently co-investigators in a project examining the flows of food across the globe in and out of Canberra and some cities in other countries.⁵⁹⁴ Dr Dyball and Dr Dumaresq both stated that it was likely that the diet to which the ACR would be confined, should it ever become, in Dr Dyball's words, a 'fortress island', would consist mostly of meat, wheat, and apples.⁵⁹⁵

- 7.16 Dr Dumaresq and Dr Dyball sounded a warning about what needs to be

⁵⁹² *Transcript of Evidence* (public hearing) 21 October 2011, p.157.

⁵⁹³ *Transcript of Evidence* (public hearing), Dr Robert Dyball, 15 Sept. 2011, p.144.

⁵⁹⁴ *ibid.*, p.140.

⁵⁹⁵ *Transcript of Evidence* (public hearing), Dr Robert Dyball, 15 Sept. 2011, p.144.

considered in any thinking about making the ACR 'food sovereign'. Dr Dumaresq advised:

*We do not have inside the ACR the facilities to process the levels of meat, wheat and so on that are produced inside the ACR and which go outside the ACR for those processing levels. So if you are looking at, say, increasing to some very large percentage the food sovereignty inside an area like this, that, to me, would be a very serious question for a jurisdiction.*⁵⁹⁶

- 7.17 Dr Dyball pointed out some of the likely ecological footprint implications of building food processing infrastructure, so that certain foodstuffs could be sourced and processed locally:

*if, for instance, people inside the ACR or even in the city of Canberra wanted to culturally value eating a Canberra region raised chicken, for instance, I strongly suspect that the greenhouse gas emissions per kilo of chicken meat would go up substantially because of economies of scale which are also physical scale factors. If we then went about building the infrastructure to grow, process, transport and preserve those chickens that came at that level in the ACR, I suspect we would be doing much of it from scratch and essentially replicating facilities and infrastructure that already exist [outside the ACR].*⁵⁹⁷

- 7.18 The Commonwealth Government is currently developing a 'National Food Plan', with the aim of fostering 'a sustainable, globally competitive, resilient food supply that supports access to nutritious and affordable food'.⁵⁹⁸ To initiate this process, the Government released an Issues Paper, on 23 June 2011, and made a call for public submissions.⁵⁹⁹ The closing date for submissions was 2 September 2011.⁶⁰⁰

- 7.19 The ACT Government did not make a submission, but several other organisations with a strong interest in the ACR did. These include the South

⁵⁹⁶ *ibid.*, p.145.

⁵⁹⁷ *Transcript of Evidence* (public hearing), Dr Robert Dyball, 15 Sept. 2011, p.146.

⁵⁹⁸ Commonwealth Dept. of Agriculture, Fisheries and Forestry (DAFF) website's National Food Plan webpage <<http://www.daff.gov.au/agriculture-food/food/national-food-plan>>, accessed 14 July 2011.

⁵⁹⁹ *ibid.*

⁶⁰⁰ DAFF National Food Plan webpage <<http://www.daff.gov.au/agriculture-food/food/national-food-plan>>, accessed 14 July 2011.

East Regional Organisation of Councils (SEROC) Resource Recovery Network, the Sustaining our Towns South East Food Project, RDA Southern Inland with Monaro Farming Systems, the Southern Rivers Catchment Authority, and the NSW Government.⁶⁰¹ Their respective submissions make observations that pertain to many of the factors that numerous Inquiry submissions suggest are jeopardising the future of secure food supplies to the people of the ACR.

- 7.20 The submission from the SEROC Resource Recovery Network states that there is much food production activity in the LGAs that comprise SEROC:

*Across the SEROC region there is a cross section of food production enterprises and an associated food transport and indeed food sales activity. An analysis of Industry employment census data used in the Australian Government's Southern Inland Regional Development Authority Strategy plan, which incorporates the SEROC region, clearly supports this statement...*⁶⁰²

- 7.21 The submission also endorses RDA Southern Inland's objective with respect to the 'south east region's agricultural and other primary industry related businesses', which it says is to guide these businesses 'toward practices that adapt to the impacts of climate change and will contribute to long term commercial and environmental sustainability'.⁶⁰³

- 7.22 As noted in the last Chapter, RDA Southern Inland is comprised of all the LGAs of the ACR, bar the Gundagai, Bega Valley and Eurobodalla Shires. It also includes the NSW LGA of Wingecarribee, which is not a part of the ACR.⁶⁰⁴

⁶⁰¹ DAFF National Food Plan Submissions webpage <<http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received>>, accessed 12 Dec. 2011.

⁶⁰² SEROC Resource Recovery Network submission [no date], webpage on National Food Plan website <<http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/south-east-regional-organisation-of-councils-seroc>>, accessed 14 July 2011. SEROC is comprised of 12 LGAs of the ACR, being Bombala, Boorowa, Cooma-Monaro, Eurobodalla, Goulburn Mulwaree, Harden, Palerang, Queanbeyan, Snowy River, Upper Lachlan, Yass Valley, and Young.⁶⁰² This is all the LGAs of the ACR, save the Shires of Cootamundra, Gundagai, Tumbarumba, Tumut, and Young (NSW Gov. 'Local Government Directory – Regional Organisations of Councils' webpage <http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_LocalGovDirectory.asp?index=3#737>, accessed 14 July 2011)).

⁶⁰³ *ibid.*

⁶⁰⁴ RDA Southern Inland webpage <<http://www.rdasi.org.au/>>, accessed 14 July 2011.

- 7.23 The Sustaining our Towns South East Food Project describes itself as a project funded by the NSW Environmental Trust to reduce the ecological footprint of individuals, homes, businesses and communities across the SEROC region. The submission focuses on how governments and others can manage, in a more environmentally sustainable way, the natural resources inputs into, and the waste outputs from, the food industry.⁶⁰⁵
- 7.24 The submission underlines the importance of ‘increased localisation of food supply systems, including local production, transportation and access to local markets’. It says that this localisation is needed to ensure people can access healthy and reasonably priced fresh food and know where their food comes from and where the waste of it can be reduced in the supply process.⁶⁰⁶
- 7.25 The Sustaining our Towns South East Food Project submission also stresses that the project’s:
- ‘localisation’ response is also a community-based insurance policy against national and global instabilities including the global financial crisis, climate change and the threat of ‘peak oil’ amongst others.*⁶⁰⁷
- 7.26 The submission from RDA Southern Inland on the National Food Plan states it was written ‘with Monaro Farming Systems’, an ‘association of approximately 40 farm business members on the Monaro, which equates to over 80 individuals’. The submission explains that the members manage 75,000 hectares and that that is ‘approximately 20% of the native pasture and 24% of improved pasture within the Bombala, Cooma-Monaro and Snowy River Shires’.⁶⁰⁸
- 7.27 The submission then underlines that increases in farm productivity are needed

⁶⁰⁵ Sustaining our Towns South East Food Project submission, 2 Sept. 2011, DAFF National Food Plan webpage <<http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/sustaining-our-towns>>, accessed 14 July 2011.

⁶⁰⁶ *ibid.*

⁶⁰⁷ Sustaining our Towns South East Food Project submission to the National Food Plan consultation, on DAFF National Food Plan webpage, 2 Sept. 2011 <<http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/sustaining-our-towns>>, accessed 14 July 2011.

⁶⁰⁸ RDA Southern Inland submission to the National Food Plan consultation [no date] on DAFF National Food Plan webpage <<http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/rda-southern-land>>, accessed 14 July 2011.

because of growing population and that achieving these increases will be seriously challenged by climate change, allocations of arable land to mining interests, and government disinvestments in research, development, and (agricultural productivity) extension.⁶⁰⁹ It states that:

*In addition, efficient transport should be a priority and research and development towards alternative energy sources, reducing food miles, and research into fertilizer applications for future productivity gains...*⁶¹⁰

7.28 The Southern Rivers Catchment Authority's submission on the National Food Plan emphasises that 'Climate change is possibly Australia's greatest food security threat' and that 'impacts from unmitigated climate change could include a 92 per cent decline in irrigated agricultural production in the Murray-Darling Basin'.⁶¹¹

7.29 The submission stresses the importance of protecting agricultural land for food production purposes; increasing water conservation and soil/landscape hydration practices; elevating the water-holding capacity and microbial activity of soil; incorporating organic matter into soil for carbon sequestration and fertiliser purposes; and boosting ground cover.⁶¹²

7.30 It also urges the adoption of agricultural practices that decrease greenhouse gas emissions; natural fertilisers rather than ones derived from fossil fuels; and ecologically sensitive alternatives to pesticides, herbicides, fungicides, and other agricultural chemicals.⁶¹³

⁶⁰⁹ *ibid.*

⁶¹⁰ RDA Southern Inland submission to the National Food Plan consultation [no date] on DAFF National Food Plan webpage <<http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/rda-southern-land>>, accessed 14 July 2011.

⁶¹¹ Southern Rivers Catchment Authority submission webpage on DAFF National Food Plan webpage <http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/southern_rivers_catchment_management_authority_srcma>, accessed 14 July 2011. The Southern Rivers Catchment Authority covers the Bega, Snowy Monaro and Braidwood areas (NSW Gov. Southern Rivers Catchment Authority 'Our Catchment' webpage <http://www.southern.cma.nsw.gov.au/our_catchment-SRCMA_region.php>, accessed 14 July 2011).

⁶¹² *ibid.*

⁶¹³ Southern Rivers Catchment Authority submission to the National Food Plan consultation [no date] on DAFF National Food Plan webpage <http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/southern_rivers_catchment_management_authority_srcma>, accessed 14 July 2011.

- 7.31 The NSW Government submission on the National Food Plan observes that food production needs to increase due to population growth, at a time of climate change, soil degradation, diminishing water availability, increasing competition from mining and other interests for arable land, and increasing prices for fuels, electricity, fertiliser, transport, and labour.⁶¹⁴
- 7.32 The NSW Government notes, in its submission, that as part of its 'Strategic Land Use Policy', it is establishing an 'independent Office of Food Security and Agriculture Sustainability' and developing 'Strategic Regional Land Use Plans, which will identify the best places for a range of land uses such as mining, agriculture, aquaculture and urban development.'⁶¹⁵
- 7.33 The Committee notes that the ACT Government's Draft Planning Strategy commits the Government to land use planning that identifies, and preserves for food production, land that is suitable for agriculture.
- 7.34 The Strategy states that:
- A regional plan is necessary to identify the best agricultural land and current production, with how to protect it in the various planning systems. This plan is to consider providing incentives to retain land for agriculture and consider food security. This plan, along with an agreed regional settlement plan, will be necessary for the prosperity and sustainability of the region.*⁶¹⁶
- 7.35 Further, Mr Corbell wrote the following, on 3 May 2011, in answer to a question he took on notice during an Inquiry hearing:
- Last year, the ACT Planning and Land Authority (ACTPLA) released "Planning the Eastern Broadacre Area Discussion Paper" for public comment. This Paper was supported by the Eastern Broadacre Planning Study 2009 which identified Pialligo, and in particular the lower lying areas within this precinct, as being suitable for uses such as 'market gardens'. A number of the public submissions supported this*

⁶¹⁴ *ibid.*, p.2.

⁶¹⁵ NSW Gov. submission, dated Sept. 2011, p.3, on DAFF National Food Plan webpage <http://www.daff.gov.au/data/assets/pdf_file/0019/2027305/NSW_Govt_submission_Sept_2011.pdf>, accessed 3 Jan. 2012.

⁶¹⁶ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p. 55 <http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf>, accessed 1 Nov. 2011.

position...ACTPLA is currently considering all the comments received on the...discussion paper and the use of the low lying areas for food production will be further investigated.

*I have been advised that ACTPLA is also considering the issue of food production as part of its review of the Canberra Spatial Plan. This work is taking a much broader perspective in regard to considering the most appropriate and sustainable use of land across the Territory and the neighbouring region.*⁶¹⁷

- 7.36 The exhibit presented to the Inquiry by Fusion Australia which urges comprehensive preparation for dramatically increased production of food within the ACT, was a submission made to the ACT Government, in 2010, 'in relation to planning in general and with specific reference to the Eastern Broadacre and Molonglo area developments'.⁶¹⁸
- 7.37 An Australian Bureau of Agricultural and Resource Economics report of 2009 states Australia's food production is made more difficult by 'climate change, diminishing water supplies and soil degradation, agricultural labour shortages, and declining productivity'.⁶¹⁹ However, ABARE argues that while these factors may cause inflation in Australia's food prices, and slow down in Australia's food productivity growth, they are unlikely to threaten Australians' food security.⁶²⁰
- 7.38 ABARE also notes that world food production may be adversely affected by overseas countries increased protectionist measures in response to supply shocks, heightened demand for different kinds of food from consumers in industrialising economies, elevated demand for certain agricultural inputs to biofuels, and decreased investment in agricultural research and development.⁶²¹

⁶¹⁷ Mr Corbell MLA, Answers to question taken on notice during Inquiry hearing of 24 March 2011, p.5, , dated 3 May 2011, Inquiry Questions Taken On Notice webpage.

⁶¹⁸ Exhibit 1, Fusion Australia, p.3.

⁶¹⁹ Sheales, T. and Gunning-Trant, C. (2009) *Global food security and Australia*, Australian Bureau of Agricultural and Resource Economics, Dec. 2009, p.1.

⁶²⁰ *ibid.*, p.2.

⁶²¹ Sheales, T. and Gunning-Trant, C. (2009) *Global food security and Australia*, Australian Bureau of Agricultural and Resource Economics, Dec. 2009, pp.1-2.

- 7.39 Like the ABARE report, a joint study of the OECD and the United Nations Food and Agriculture Organisation on the global food outlook for the years 2009 to 2018 finds that there is likely to be continuing volatility in food prices. The study notes that the world has significant capacity to boost food production to meet the growth in demand that is expected, because of rising human populations and income levels in some countries.⁶²²

Local commercial and not-for-profit food producers

- 7.40 Many individuals and organisations that gave evidence to the Inquiry championed existing local food production and the potential for more.⁶²³
- 7.41 Palerang Council argues, in its submission, that:
- The ACR has potential for increased local food production, both privately and commercially within climatic and soil limitations, to support the local population and reduce the ecological footprint of imported goods.*⁶²⁴
- 7.42 Similarly, Fusion Australia states in an Exhibit it presented to the Inquiry, that through the use of aquaponics and hydroponics ‘it should be possible for Canberra...to grow significant amounts of food’.⁶²⁵
- 7.43 Dr Schooneveldt saw the value of local agricultural enterprises in them being sites where farming practices that increase the ecological carrying capacity of the ACR could be innovated and the economic survival of regional farmers, thereby, enhanced. He suggests in his submission:
- A focus on regional food production will greatly enhance the attractiveness of the region, and with it, its carrying capacity...It is not difficult, with careful management, to re-build the region’s soils...This would enable the ACR to biosequester all its CO2*

⁶²² Organisation for Economic Cooperation and Development (OECD) and the UN Food and Agriculture Organization (FAO) (2009), *Agricultural Outlook 2009-2018*, p.11.

⁶²³ See for example, Cooma-Monaro Shire Council (Sub. 20, p.2) and Canberra Food Alliance (Sub. 27, p.2).

⁶²⁴ Palerang Council (Sub. 30, p.4).

⁶²⁵ Exhibit 1, Fusion Australia, p.3.

*and CH₄ emissions (making the region carbon neutral) and either sell the surplus credits or offset emissions (for a fee) to high emitters elsewhere.*⁶²⁶

- 7.44 The submissions of the Canberra Food Alliance,⁶²⁷ the Canberra Environment and Sustainability Resource Centre⁶²⁸, and Mr David Turbayne,⁶²⁹ as well as the testimony of Associate Professor David Pearson⁶³⁰ and the managers of the Capital Region Farmers' Market (CRFM)⁶³¹ suggest that there is considerable demand for food directly sold by ACR farmers.
- 7.45 The CRFM are one example of these farmers markets in the ACT. They are held weekly at Exhibition Park In Canberra (EPIC), in Canberra's inner north.⁶³²
- 7.46 Mr Clive Badelow, the CRFM Director, noted that producers from as far away as Coffs Harbour, in NSW, and Renwick, in South Australia, sell their food produce at the CRFM. However, they stated that 80 per cent of the stall-holders, and their products, were from the 'Bega Valley, Bombala, Boorowa, Cooma- Monaro, Eurobodalla, Goulburn Mulwaree, Harden, Palerang, Queanbeyan, Snowy River, Tumut, Upper Lachlan, Yass Valley and Young'.⁶³³ Mr Badelow said CRFM had an inspection regime to ensure that this was the case and that some stall-holders had been ejected from the CRFM because they had failed inspection tests.⁶³⁴
- 7.47 Mr Badelow claimed that CRFM was helping to 'enhance food security and sustainability concerns', in the region, because outside Sydney and Melbourne 'our farmers market provides the biggest single farm gate outlet for New South Wales regional growers'.⁶³⁵ He estimated that eight thousand people

⁶²⁶ Dr John Schooneveldt (Sub. 2, pp.6-7).

⁶²⁷ Canberra Food Alliance (Sub. 27, p.2).

⁶²⁸ Canberra Environment and Sustainability Resource Centre (Sub. 29, p.1).

⁶²⁹ Mr David Turbayne (Sub. 21, p.1).

⁶³⁰ *Transcript of Evidence* (public hearing), A/Prof. David Pearson, 21 Oct. 2011, p.158.

⁶³¹ *Transcript of Evidence* (public hearing), Mr Clive Badelow, 20 April 2011, p.46.

⁶³² *ibid.*, p.47.

⁶³³ *ibid.*, p.45.

⁶³⁴ *ibid.*, pp.46-47.

⁶³⁵ *Transcript of Evidence* (public hearing), Mr Clive Badelow, 20 April 2011, p. 48.

attend the CRFM weekly, making it possibly the largest farmers market in Australia in terms of patronage.⁶³⁶

- 7.48 Mr Bill Watson, the CRFM Deputy Director, commented that they also value that they could ask the producers themselves, at their stalls, about where and how the food was produced.⁶³⁷
- 7.49 Some submissions argue that 'local' commercial food production is not always best in terms of minimising the environmental impacts of food consumption.
- 7.50 For example, the ACT Natural Resource Management Council refers to a study that found that producing lamb in New Zealand and shipping it to the United Kingdom entailed only 25 per cent of the carbon emissions that would result if the lamb were produced in United Kingdom.⁶³⁸ Similarly, the Conservation Council ACT Region states that the environmental impacts of producing rice in Australia suggest it may be environmentally better to import it from countries such as Thailand.⁶³⁹
- 7.51 The Institute of Public Affairs ACT Energy and Climate Change Group suggests in its submission that potential measures to increase local food production should be subjected to cost-benefit analysis before being promoted.⁶⁴⁰ The ACT Natural Resource Management Council also suggests that the potential effects of increasing local production would need to be studied before the increase was implemented.⁶⁴¹
- 7.52 Some individuals and organisations gave evidence to the Inquiry that underscored how not-for-profit food production in backyards and community gardens has the capacity to reduce pressures on the environment and to improve people's health and well being.
- 7.53 For example, the Canberra Food Alliance states, in its submission:
- Improving access to community gardens and other forms of urban agriculture in the ACT region can provide a variety of environmental, social and health benefits, such as*

⁶³⁶ *ibid.*, p. 52.

⁶³⁷ *ibid.*, p. 49.

⁶³⁸ Sub. 26, p. 2.

⁶³⁹ Sub. 13, pp.1-2.

⁶⁴⁰ IPA ACT (Sub. 16., p. 5).

⁶⁴¹ ACT Natural Resource Management Council (Sub. 26, p. 1).

*reduced 'food miles', improved individual and community food security, social inclusion, improved nutrition and physical activity...*⁶⁴²

- 7.54 Similarly, the Canberra Environment and Sustainability Resource Centre argues in its submission:

*Children involved in their own food production are also more willing to eat healthier, and gain an understanding of ecological cycles. Community gardens provide important opportunities to grow and support community. Coming together for a common purpose provides the opportunity to meet and befriend those we live around... Urban food gardens can be implemented alongside higher density housing, where residents are within walking distance of their food source...*⁶⁴³

- 7.55 The Committee notes that the Canberra Organic Garden Society (COGS) operates 12 community gardens, across the ACT. According to COGS, these are 'supported by the ACT Government who administer licenses to operate on unused government land, and issued grants for garden establishment under the Healthy Cities program'.⁶⁴⁴

- 7.56 The Committee also notes that Mr Corbell wrote the following to the Committee, on 3 May 2011:

*...I would remind the Committee that the Government is actively supporting and planning for community gardens across the metropolitan area. Opportunities in Lawson, Eastlake and Molonglo are being investigated. Further, given the significance these gardens can play in the community, the Government has established a working group to identify and promote sites, and is proposing to prepare a specific policy on community gardens.*⁶⁴⁵

⁶⁴² Canberra Food Alliance (Sub. 27, p. 1).

⁶⁴³ Canberra Environment and Sustainability Resource Centre (Sub. 29, p. 5). A/Prof. David Pearson expressed similar views in his testimony: *Transcript of Evidence* (public hearing), 21 Oct. 2011, pp.158 and 166.

⁶⁴⁴ Canberra Organic Growers Society 'Community gardens' webpage <<http://www.cogs.asn.au/community-gardens/>>, accessed 14 July 2011.

⁶⁴⁵ Mr Corbell MLA, Answers to question taken on notice during Inquiry hearing of 24 March 2011, p.5, dated 3 May 2011, Inquiry Questions Taken On Notice webpage <<http://www.legassembly.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=15>>, accessed 14 July 2011.

- 7.57 The Committee notes that community gardening is 'Strategy 1.2' of 'Outcome One – Less Waste Generated' in its 2011 *ACT Waste Management Strategy - Towards a sustainable Canberra - Reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra 2011-2025* (Waste Strategy).⁶⁴⁶
- 7.58 Strategy 1.2 is 'support for community gardens and home composting'. The Strategy explains this is because community gardens 'provide an excellent opportunity for householders to reduce waste by composting household organic materials'.⁶⁴⁷
- 7.59 The Strategy explains that the Government has established a 'one stop shop' process for applying for a licence to create a community garden. It states that the Government is developing 'site selection criteria' under which applicants will be required to account for 'relevant Development Code provisions in the Territory Plan and undertake community consultation to demonstrate support from the neighbouring community'.⁶⁴⁸
- 7.60 The Committee notes that community gardens are also an element of Strategies 1, 2 and 5 and Principle 3 of the ACT Government's Draft Planning Strategy (2011).⁶⁴⁹
- 7.61 Principle 3 addresses design for community resilience and decreased natural resource consumption. The Principle casts community gardens as places that 'create a focus for the local community'.⁶⁵⁰
- 7.62 Under Strategy 1, community gardens are green, community spaces in higher density development.⁶⁵¹ Under Strategy 2, the gardens are means of 'renewing

⁶⁴⁶ ACT (2011) *Waste Management Strategy - Towards a sustainable Canberra - Reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra 2011-2025*, p.17.
http://www.environment.act.gov.au/data/assets/pdf_file/0008/238994/EDS_ACT_Waste_Strategy_Policy_FA_1.pdf, accessed 12 Dec. 2011.

⁶⁴⁷ *ibid.*

⁶⁴⁸ ACT (2011) *Waste Management Strategy - Towards a sustainable Canberra - Reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra 2011-2025*, pp.17-18.

⁶⁴⁹ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.29
http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf, accessed 1 Nov. 2011.

⁶⁵⁰ *ibid.*, p.63.

⁶⁵¹ *ibid.*, p.35.

group and local centres as the hubs of community life and providing new opportunities for lifestyle choices'.⁶⁵²

7.63 Strategy 5 of the Draft Planning Strategy addresses capacity building for increased public participation in the public realm. This entails retaining, and building into, established suburbs 'new community facilities, such as community gardens' and research into community garden 'benefits and user groups' to 'ensure best use of land'.⁶⁵³

7.64 This research would be well-informed by some observations that Associate Professor Pearson made during his testimony. These observations were: 'You have to have the right physical location within the right region and you need the right infrastructure supporting that community garden'⁶⁵⁴ and:

*As soon as we have a situation where people start getting in a car, we are losing a lot of the environmental and social benefits of these gardening opportunities. So it is that sort of 400-metre type rule—if you can walk to it, great, but if you cannot walk to it, it is probably not going to be as effective...the important thing is to provide these opportunities in a very dispersed manner.*⁶⁵⁵

7.65 The Canberra Food Alliance also urges that 'consideration should be given to public transport and active transport to these sites'.⁶⁵⁶

Key findings

7.66 It appears unlikely that current and prospective food supply poses a significant constraint on the human carrying capacity of the ACR. However, there are several factors that warrant supports of ecologically sensitive commercial food production in the ACT and wider ACR. These include peak oil, opportunities to practice farming that enhances ecological carrying

⁶⁵² *ibid.*, p.38.

⁶⁵³ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.47
<http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf>, accessed 1 Nov. 2011.

⁶⁵⁴ *Transcript of Evidence* (public hearing) 21 October 2011, p.167.

⁶⁵⁵ *ibid.*, p.69.

⁶⁵⁶ Canberra Food Alliance (Sub. 27, p.2).

capacity, and consumer interest in food produced by ACR commercial producers.

- 7.67 As is evidenced in submissions to this Inquiry and to the National Food Plan consultation process, several groups throughout the ACR are deeply interested in the ecological carrying capacity dimensions of food production, supply, and consumption.
- 7.68 There is much evidence for fostering ecologically sensitive not-for-profit, small-scale community gardens within existing urban areas of the ACR to nurture people's health and well-being and their understanding of water, soil and other aspects of food growth. A key element of both the ACT Draft Planning Strategy and Waste Strategy include is the ACT Government's facilitation of community gardening in urban areas of the ACT.
- 7.69 The Draft Planning Strategy promotes land use planning to preserve arable land that is suitable for food production throughout the ACR. Further, ACTPLA is considering such land planning as part of the review of the Canberra Spatial Plan.
- 7.70 ACTPLA is also considering food production in its review of the public submissions on its 'Planning the Eastern Broadacre Area Discussion Paper', which was predicated on, among other things, a 2009 study which identified Pialligo as being suitable for 'market garden' use.
- 7.71 In September 2011, the NSW Government stated that it is establishing an independent Office of Food Security and Agriculture Sustainability and developing Strategic Regional Land Use Plans which will identify the best places for a range of land uses.

RECOMMENDATION 14

- 7.72 **The Committee recommends that the ACT Government maintain its support for well-coordinated community gardens in locations that are highly accessible to people who walk or use public transport.**

RECOMMENDATION 15

- 7.73 **The Committee recommends that the ACT Government play a leadership role in ACR land use planning that preserves arable land suitable for food production throughout the ACR.**

RECOMMENDATION 16

- 7.74 **The Committee recommends that the ACT Government inform its participation in ACR land use planning, by consulting with the:**
- a) **ACR groups interested in the ecological carrying capacity implications of food production, supply, and consumption, in the context of peak oil, climate change, and consumer interest in locally produced food.**
 - b) **NSW Government about the NSW Office of Food Security and Agriculture Sustainability and NSW Strategic Regional Land Use Plans that identify the best land for agricultural uses.**
 - c) **Commonwealth Government about evidence the National Food Plan process gathered which may underpin financially and environmentally sustainable improvements to ACR food security.**

Food waste

- 7.75 The Committee has not been able to find any research that quantifies the contribution that food waste makes to the ACT or ACR ecological footprints.
- 7.76 A 2005 study, also by the Australia Institute, found that residents of the ACT were only second to the residents of Queensland in the amount of money they spent yearly on food that was then wasted. ACT residents spent \$635, while Queensland residents spent \$638. NSW residents spent \$521.⁶⁵⁷
- 7.77 A 2009 Australia Institute study found that ACT residents spent \$641 per year

⁶⁵⁷ Hamilton, C., Denniss, R. and Baker, D. (2005) *Wasteful Consumption in Australia*, Australia Institute Discussion Paper No. 77, March 2005, p.10.
<http://www.tai.org.au/documents/dp_fulltext/DP77.pdf>, accessed 15 July 2011.

on wasted food, closely followed by NSW residents who spent the next largest amount at \$643 per year. Queensland residents spent the most at \$678 per year.⁶⁵⁸ The study clearly shows that in all states, bar Victoria, the higher a household's income was, the more it wasted food.⁶⁵⁹

- 7.78 The study emphasises that the more food is discarded, the more there is unnecessary generation of greenhouse gas emissions from agricultural production; the transport, processing and refrigeration of food; and the decomposition of food waste in landfills.⁶⁶⁰
- 7.79 In evidence given to the Committee, Associate Professor Pearson said that a study he had recently conducted showed that people were highly amenable to decreasing how much they wasted food.⁶⁶¹
- 7.80 Associate Professor Pearson also observed that the studies on messages that were most likely to motivate people to not waste food indicated that it is the financial expense of food wastage, not its adverse environmental effects, that most influences people.⁶⁶² This was one of the findings of the Australia Institute's 2009 study.⁶⁶³
- 7.81 Associate Professor Pearson also said that effective food waste reduction campaigns optimally target households' main buyers of groceries and that, in Australia, 7 out of 10 of these buyers are women.⁶⁶⁴ He also advised that effective campaigns target people when their attitudes and behaviours are likely to be most amenable to change, such as when a new resident is settling in the ACT.⁶⁶⁵

⁶⁵⁸ Baker, D., Fear, J. and Denniss, R. (2009) *What a waste: An analysis of household expenditure on food*. Policy Brief No. 6, Nov. 2009, p.5
http://www.ces.org.au/Other%20stuff/Australia_Institute_What_a_waste_of_food.pdf, accessed 15 July 2011.

⁶⁵⁹ *ibid.*, p.7.

⁶⁶⁰ Baker, D., Fear, J. and Denniss, R. (2009) *What a waste: An analysis of household expenditure on food*, Australia Institute Policy Brief No. 6, Nov. 2009, p.6.

⁶⁶¹ *Transcript of Evidence* (public hearing), A/Prof. David Pearson, 21 Oct. 2011, p.159.

⁶⁶² *ibid.*, p.161.

⁶⁶³ Baker, D., Fear, J. and Denniss, R. (2009) *What a waste: An analysis of household expenditure on food*, Australia Institute Policy Brief No. 6, Nov. 2009, p.1.

⁶⁶⁴ *Transcript of Evidence* (public hearing), A/Prof. David Pearson, 21 Oct. 2011, p.162.

⁶⁶⁵ *ibid.*

- 7.82 Associate Professor Pearson strongly recommended that the ACT adopt an advertising campaign similar to the NSW 'Love Food, Hate Waste' one.⁶⁶⁶
- 7.83 The Committee notes that the ACT Waste Strategy flags that the ACT Government is 'currently looking at education campaigns to help address this issue [of householders disposing of large quantities of unused food] within the ACT'.⁶⁶⁷
- 7.84 Chapter 9 of this Report provides more Committee commentary, findings, and recommendations regarding a communications campaign to reduce the size and growth rate of the ACT ecological footprint. These findings and recommendations are applicable to all contributions to the ACT ecological footprint, including food waste.
- 7.85 Associate Professor Pearson discussed not only householders, in his testimony, but also public and semi-public dining settings. He pointed to how:
*More and more people in Australia are eating food away from home. This ranges from takeaway food through to restaurants through to what I call more institutional catering environments.*⁶⁶⁸
- 7.86 He proposed that:
*I think the biggest area of opportunity in the food away from home market, for government at least, is the idea of public procurement. So it is about really pushing sustainability goals into the contracts for public procurement.*⁶⁶⁹
- 7.87 Chapter 9 of this Report lays out the Committee's key findings and recommendations regarding ACT Government procurement.
- 7.88 Many of the submissions argued for recycling food wastes. For example, in its submission, the Conservation Council of the ACT Region argues for urban planning that promotes 'comprehensive' recycling of green wastes and composting.⁶⁷⁰ The ACT Natural Resource Management Council emphasises,

⁶⁶⁶ Transcript of Evidence (public hearing), A/Prof. David Pearson, 21 Oct. 2011, p.159.

⁶⁶⁷ ACT (2011) Waste Management Strategy - Towards a sustainable Canberra - Reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra 2011-2025, p.17.

⁶⁶⁸ Transcript of Evidence (public hearing) 21 Oct. 2011, p.157.

⁶⁶⁹ *ibid.*, p.162.

⁶⁷⁰ Sub. 13, Attachment, p.5.

in its submission, that 'food waste needs community collection and composting'.⁶⁷¹

7.89 The Canberra Environment and Sustainability Resource Centre states that community gardens in urban settings allow people to be involved in their own food production and that 'Those who have grown their own food are less likely to throw it away, and can harvest as much as they need at a given time, also reducing waste.'⁶⁷² The Centre also points to how systems 'such as the 'hotrot' [composting] currently in use at the ANU can be utilized by small business serving local areas to collect organic food waste, compost it, and sell it back to the community'.⁶⁷³

7.90 In his testimony, Mr Badelow of the CRFM stated that 'offering farm-fresh quality produce reduces product shelf life, and that helps to reduce waste'.⁶⁷⁴

7.91 Mr Badelow also explained that CRFM was exploring:

*a city to soil waste recycling initiative to strip out half of what we currently put into landfill and to convert it into compost for putting back into the soil. Our role in this might be...to provide a weekly collection point for recyclable waste brought to our market by customers before being taken away at the end of the market for centralised processing.*⁶⁷⁵

7.92 In its submission, the Canberra Food Alliance advocates for a similar project to the City to Soil collection and Groundswell composting process, saying that this 'may be an effective measure for reducing the ACT's ecological footprint, given the impact that organic waste has on GHG emissions when disposed of in landfill'.⁶⁷⁶ Palerang Council also commends the City to Soil collection and Groundswell composting process (City to Soil Groundswell Project).⁶⁷⁷

7.93 The City to Soil Groundswell Project operated between 2007 and 2011 through

⁶⁷¹ Sub. 26, p.6.

⁶⁷² Sub. 29, p.5.

⁶⁷³ *ibid.*, p.6.

⁶⁷⁴ *Transcript of Evidence* (public hearing), Mr Clive Badelow, 20 April 2011, p.48.

⁶⁷⁵ *ibid.*

⁶⁷⁶ Sub. 27, p.2.

⁶⁷⁷ Sub. 30, p.4.

a partnership between Goulburn-Mulwaree, Palerang, Queanbeyan City and Lachlan Councils, with the assistance of the NSW Government Environmental Trust.⁶⁷⁸ The project tested a system of curbside collection of food and garden waste from householders, composting the collection, and then delivering the compost to agricultural producers.⁶⁷⁹

- 7.94 The project was independently evaluated mid-way and at its end by the University Of Canberra Institute Of Sustainable Communities.⁶⁸⁰ Further, the Groundswell Composting Process at Bathurst, NSW, was peer reviewed by Dr Sara Beavis from the Australian National University.⁶⁸¹ There is not the scope here to canvas the results of these evaluations.
- 7.95 Suffice to say that according to a 2011 SEROC report examining the implications of the Project for SEROC, the Project's system has been operational in Goulburn, Marulan and Condobolin since 2008. That is, those areas have continued the system beyond the Project.⁶⁸²
- 7.96 Further, Armidale Dumaresq Council commenced rolling out the system in September 2011.⁶⁸³ Harden Council, commenced roll out of it too, in early 2011, with a grant from the SEROC Resource and Recovery Network and the NSW Department of Environment and Heritage.⁶⁸⁴
- 7.97 The 2011 SEROC Report details, among other things, how curbside collection was cost-neutral for Councils and the economic value the collection and composting brought to LGAs that participated in it.⁶⁸⁵ This detail is based on a published study of the economics of the Project's system commissioned by the

⁶⁷⁸ Dilkara, S. (2011) *The Groundswell Project - Implications & Opportunities for SEROC 2011*, Dec. 2011, p.1
http://www.serroc.nsw.gov.au/InTuneFiles/resources_reports/files/19_SERRROC%20GROUNDSWELL%20REPORT%20-%202025-10-2011%20final%20draft.pdf, accessed 14 Feb. 2011.

⁶⁷⁹ *ibid.*, p.2.

⁶⁸⁰ *ibid.*, p.2.

⁶⁸¹ *ibid.*, p.7.

⁶⁸² *ibid.*, p.2.

⁶⁸³ *ibid.*, p.3.

⁶⁸⁴ *ibid.*, p.4.

⁶⁸⁵ *ibid.*, p.11.

Project.⁶⁸⁶

- 7.98 In his testimony, Dr Schooneveldt also endorsed the ACT's uptake of a project like the City to Soil Groundswell Project:

*...back to the ACT and what it can do immediately, it can introduce a putrescibles waste stream. It can provide support for farmers that use it. The Groundswell project that I have mentioned is putting the product on horticultural things—grapes and things like that—with enormous success, and sequestering a lot of carbon in the process.*⁶⁸⁷

- 7.99 While the ACT Government's Waste Strategy notes that Government's policies and programs are 'diverting a large amount of food waste from organisations into composting businesses and worm farms', it states 'composting...is not suited to producing high value products from residual household organics'.⁶⁸⁸

- 7.100 Dr Schooneveldt stated in his testimony that 'I agree that there is an oversupply of compost and the reason is that most farmers are using chemical fertilisers—very expensive—and that cannot continue. Nitrogenous fertilisers require natural gas to be manufactured.'⁶⁸⁹ Natural gas is a fossil fuel, the combustion of which produces greenhouse gases.

- 7.101 Dr Schooneveldt also stated in respect of compost produced by the City to Soil Groundswell Project:

*The economics will change as the benefits of carbon sequestration and things come in. At the moment the existing established fertiliser companies and chemical companies have the upper hand.*⁶⁹⁰

- 7.102 The Committee notes that the NSW Government submission on the National Food Plan states that the NSW Government is working with the Commonwealth Department of Climate Change and Energy Efficiency on a 'method to have compost on farm land recognized as an accredited form of

⁶⁸⁶ Reynolds, M. (2011) *The Economics of Groundswell*, M&M Project Management, Wagga Wagga, Australia.

⁶⁸⁷ *Transcript of Evidence* (public hearing) 23 March 2011, p.11.

⁶⁸⁸ ACT (2011) *Waste Management Strategy - Towards a sustainable Canberra - Reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra 2011-2025*, p.24.

⁶⁸⁹ *Transcript of Evidence* (public hearing) 23 March 2011, p.11.

⁶⁹⁰ *ibid.*

greenhouse gas abatement under the Carbon Farming Initiative'.⁶⁹¹

7.103 The Committee also notes that this submission emphasises the importance of diverting food from landfill into marketable products and that expansion of a market for food wastes should be advanced under 'Direction 2 – Improving the Market' of the National Waste Policy'.⁶⁹²

7.104 Direction 2 of the *National Waste Policy: Less Waste, More Resources Implementation Plan*, shows that while it does not specifically mention food wastes, it does address 'improving the market' for waste products.⁶⁹³ The Committee notes that the Commonwealth Government and all State and Territory Governments, adopted this Implementation Plan, in July 2010, as part of their work on the federal Environment Protection and Heritage Council (EPHC).⁶⁹⁴

7.105 In the ACT Waste Strategy, the Government commits to continuing 'to investigate the costs and benefits associated with developing markets for waste streams with a view to providing services that deliver the maximum benefit to the Canberra community in a cost effective manner'.⁶⁹⁵

7.106 The *ACT State of the Environment Report 2011* has one recommendation that specifically pertains to waste. It is consistent with the Committee's observations regarding home and commercial food wastes, noted in this Chapter. The recommendation is:

18. *Finalise and implement a new ACT Waste Management Strategy with a focus on reducing waste generation, in particular:*

i. *examine and implement options for diverting wastes from landfill to higher*

⁶⁹¹ NSW Gov. submission on National Food Plan website, p.20
<http://www.daff.gov.au/data/assets/pdf_file/0019/2027305/NSW_Govt_submission_Sept_2011.pdf>, accessed 14 July 2011.

⁶⁹² *ibid.*

⁶⁹³ Commonwealth (2010) *National Waste Policy: Less Waste, More Resources Implementation Plan*, p. 12
<http://www.ephc.gov.au/sites/default/files/WasteMgt_National_Waste_Policy_Implementation_Plan_Final_201007.pdf>, accessed 14 July 2011.

⁶⁹⁴ *ibid.*, p.5.

⁶⁹⁵ ACT (2011) *Waste Management Strategy - Towards a sustainable Canberra - Reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra 2011-2025*, p.37.

order beneficial reuse opportunities. These actions should be measured, recorded and reported publicly.;

ii. focusing community education on the link between consumption and waste; and

iii. targeting specific programs to reduce waste from the construction and demolition, and commercial and industrial sectors.⁶⁹⁶

Key findings

7.107 A 2009 Australia Institute study found that ACT residents spent \$641 per year, and NSW residents \$643 per year, on wasted food. The more food is discarded, the more unnecessary generation of greenhouse gas emissions there is in the production, delivery and decomposition of food.

7.108 It is likely that people of the ACR will be most influenced by public communications that promote reduction in food waste, if they:

- a. emphasise the financial expense of wasting food, over the adverse environmental effects of this waste;
- b. are directed at the main buyers of food supplies and services for households, cafés, restaurants, and hotels, and congregate residential facilities such as hospitals and university residences; and
- c. seek to reach people at points when they are most likely to be amenable to change, such as when a new resident or organisation is settling into the ACR or an organisation is newly entering into procurement arrangements for food supplies or food services.

7.109 The NSW 'Love Food, Hate Waste' advertising campaign is a model one for promoting food waste reduction.

7.110 The Committee received a large volume of evidence commending that Governments systematise the collection and composting of householders' food

⁶⁹⁶ OCSE (2012) *ACT State of the Environment Report 2011*

<http://www.envcomm.act.gov.au/actsoe2011/executive_summary.html>, accessed 6 May 2012.

waste and the conditioning of soils with the compost. Consequently, the Committee regards this systematisation to be a proposal that is worth the Government revisiting. The ANU and UC evaluations of the City to Soil Groundswell Project are likely to be helpful, in this regard, if the Government has not already reviewed them.

- 7.111 It would be beneficial for the ACT Government to confer with the NSW Government and the Commonwealth Department of Climate Change and Energy Efficiency on crediting compost on farm land as a greenhouse gas abatement under the Commonwealth Carbon Farming Initiative. Further, the ACT Government should explore making food wastes more marketable, in collaboration with the NSW and Commonwealth Governments.

RECOMMENDATION 17

- 7.112 **The Committee recommends that the ACT Government:**
- a) **review the evidence on providing services that collect and compost food waste and distribute the compost to soils that most need conditioning.**
 - b) **confer with the NSW Government and the Commonwealth Department of Climate Change and Energy Efficiency about crediting compost on farmlands as greenhouse gas abatement in the Carbon Farming Initiative.**
 - c) **collaborate with the NSW and Commonwealth Governments to make food wastes more marketable as per the *National Waste Policy: Less Waste, More Resources Implementation Plan* (2010).**
 - d) **consider implementing those recommendations of the *ACT State of the Environment Report 2011* that relate to preventing and recycling food waste.**

8 ECOLOGICAL FOOTPRINT REDUCTION MEASURES

- 8.1 As noted in Chapter 3, with the decrease in the ACT's energy consumption, the overwhelming driver of the absolute size and growth rate of the ACT ecological footprint is the steady increase in the ACT's consumption of food, goods, and services per person. The OCSE's summary of the ISA's analysis of the ACT ecological footprint for 2008-09, comments:

The ACT has the highest mean household disposable income in the country...Higher incomes generally result in higher spending, resulting in a larger footprint. However, this link can be changed. Countries such as Switzerland and France have managed to continue or improve their development while reducing their ecological footprint...

- *Repair, reuse or borrow where possible instead of buying new things.*
- *Buy quality goods that are efficient and will last a long time;*
- *Invest in doing an activity as an alternative to purchasing goods...*
- *Use renewable energy; and*
- *Make your home and appliances energy efficient.*⁶⁹⁷

- 8.2 There is a large body of credible evidence on human settlements achieving reductions in their ecological footprints, or in the growth rates of their footprints, without decreases in standards of health and well-being that are typically enjoyed in economically developed countries.⁶⁹⁸

⁶⁹⁷ OCSE summary of the key findings of the ISA study, quoting the ABS (2009) *Household Income and Income Distribution, Australia 2008-07* (cat. no. 6523.0)

<http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0016/211183/ACT_Ecological_Footprint_Summary.pdf>, accessed 14 July 2011.

⁶⁹⁸ See project of (NSW) Mosman Council, which reduced households' ecological footprints <<http://www.mosman.nsw.gov.au/environment/sustainability/ecological-footprint>> [dated 2012]; (Vic.) City of Port Phillip Council's reported reductions in its ecological footprint <<http://www.epa.vic.gov.au/ecologicalfootprint/caseStudies/portphillip.asp>>; reductions in Calgary, Canada <http://www.footprintnetwork.org/images/uploads/Calgary_Ecological_Footprint_Report.pdf>; and study by GEN-Europe, Sustainable Development Research Centre and Stockholm Environment Institute, which found Findhorn Ecovillage in Moray, Scotland, which has high living standards, has

Can the region's ecological footprint be reduced and at what cost?

- 8.3 The Organisation for Economic Cooperation and Development⁶⁹⁹, the United Nations Environment Programme⁷⁰⁰, and some Australian bodies⁷⁰¹ have comprehensively reviewed the evidence on which measures enable people to decrease their consumption levels while maintaining the high standards of living expected in economically developed countries.
- 8.4 Like the OCSE's summary of the ISA 2010 study, these publications suggest practices that do not entail declines in standards of human development, such as people enjoying high levels of physical and mental health; access to safe, healthy and comfortable housing; and opportunities for meaningful work, education, and recreation.
- 8.5 The OCSE summary of the ACT ecological footprint⁷⁰² and the author of the ISA 2007 study⁷⁰³ both underscore that reducing ecological footprints requires moving away from the current high-consumption economies of the economically developed world to alternative forms of economic growth that require less usage of natural resources.
- 8.6 This was a point also made in different ways by many individuals and organisations in their submissions to the Inquiry.⁷⁰⁴ Further, it was a matter briefly explored in two public hearings.⁷⁰⁵

recorded the lowest-ever ecological footprint anywhere in the economically developed world <<http://www.ecovillagefindhorn.com/docs/FF%20Footprint.pdf>>. All accessed 1 Dec. 2011.

⁶⁹⁹ OECD (2008) *Promoting Sustainable Consumption: Good Practice in OECD Countries* <<http://www.oecd.org/dataoecd/1/59/40317373.pdf>>, accessed 14 Nov. 2011.

⁷⁰⁰ UNEP (2008) *Planning for Change: Guidelines for National Programmes on Sustainable Consumption and Production* and UNEP (2005) *Communicating Sustainability: How to Produce Effective Public Campaigns*

⁷⁰¹ See, for example, Net Balance Foundation (2009) *EcoBuy: Green Purchasing in Australia* <http://www.netbalance.com/research/Green_Purchasing_Australia_Report_2009.pdf> and Reisch, L. et al (2008) *Sustainable Consumption and Mass Communication: A German Experiment*, CSIRO Working Paper Series 2008-12 <<http://www.csiro.au/files/files/pm9m.pdf>>, accessed 14 July 2011.

⁷⁰² OCSE summary of the key findings of the ISA study, p.7 <http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0016/211183/ACT_Ecological_Footprint_Summary.pdf>, accessed 14 July 2011.

⁷⁰³ Dey, C. et al (2007) *Data Sources and Methodology*, p.308 <<http://acfonline.org.au/consumptionatlas/>>, accessed 14 July 2011.

⁷⁰⁴ Ms Robyn Coghlan (Sub. 17, p.2); Conservation Council ACT (Sub. 13, p.4); Ms Jenny Goldie (Sub. 13, p.4); Mr Tom Gosling (Sub. 18, pp. 2-3); Mr Mark O'Connor (Sub. 22, p.3); Mr Colin Samundsett

- 8.7 In relevant research literature, there are substantial examples of business enterprises that could form such alternative economies.
- 8.8 Some of these are enterprises that ecologically plan, construct, and retrofit residential, community and commercial buildings. This entails selecting design plans and building materials that decrease the energy expended to operate the heating, cooling, lights, computers, and other energy-driven parts of the building.⁷⁰⁶
- 8.9 Such ecological construction also involves decreasing the energy embodied in buildings by choosing building materials and fittings that are produced and transported in water and energy efficient ways. Selection of such green supplies and supply lines are now enabled by computer software, web-based and print guides.⁷⁰⁷
- 8.10 Further examples are businesses converting the wastes produced by other businesses into commercial products that increase the ecological carrying capacity of a region.⁷⁰⁸ Still other examples include the research and development, manufacturing, and roll-out, of renewable energy

(Sub. 12, p.1); Dr John Schooneveldt (Sub. 2, p.6); SEE-Change (Sub. 23, pp. 1-2); and Sustainable Population Australia (Sub. 35, pp. 12-13).

⁷⁰⁵ *Transcript of Evidence* (public hearing) 23 March 2011, pp. 1-5 (Dr John Schooneveldt) and *Transcript of Evidence* (public hearing) 24 March 2011, p.39 (in a question from the Committee Chair, but not the corresponding answer).

⁷⁰⁶ Birkeland, J. (2009) 'Eco-retrofitting - from managerialism to design', in *The Proceedings of Global Forum 2009 - Business as an Agent of World Benefit*, US, Ohio, Cleveland, pp. 1-15 and Hes D. (2010) *Facilitating green building: turning observation into practice*, LAP Lambert Academic Publishing, Saarbrücken, Germany.

⁷⁰⁷ Verghese K. and Hes D. (2007) 'Qualitative and quantitative tool development to support design decisions', in *Journal of Cleaner Production*, vol. 15, Issues 8-9, 2007, pp 814-818 and Bates, M. and Hes, D. (2003) 'Concrete and Sustainability – Supporting Environmentally Responsible Decision Making', in PRO31 the *BDP Environment Design Guide*, RAI, Melbourne Verghese K. and Hes D. (2007) 'Qualitative and quantitative tool development to support design decisions', *Journal of Cleaner Production*, vol. 15, Issues 8-9, 2007, pp.814-818; Bates M. and Hes D. (2003) 'Concrete and Sustainability – Supporting Environmentally Responsible Decision Making', PRO31, *BDP Environment Design Guide*, RAI, Melbourne, Australia; and Hes, D. (2009) *ESD Operations Guide for Owners, Managers and Tenants*, Department of the Environment and Water Resource, Canberra, Australia.

⁷⁰⁸ van Beers, D., Corder, G. D., Bossilkov, A., and van Berkel, R. (2007) 'Industrial Symbiosis in the Australian Minerals Industry: The Cases of Kwinana and Gladstone', *Journal of Industrial Ecology*, vol. 11 no. 1, pp.55-72.

technologies.⁷⁰⁹ There has long been significant private sector and research evidence support for these kinds of businesses.

- 8.11 The Clean Energy Council, an industry association made up of more than 500 member companies operating in renewable energy and energy efficiency, has not long published its *clean energy australia report 2011*. It shows the large amounts of new jobs and business profits created, in 2011, by renewable energy and energy efficiency industries in Australia.⁷¹⁰
- 8.12 The Committee recognises that there is a growing body of quantitative and qualitative evidence on the net economic, social and environmental gains beyond business profits and jobs creation that accrue from increasing the ecological carrying capacities of regions.⁷¹¹ These are gains from avoiding future environmental, financial, and other costs, of delaying systemic 'down-sizing' of the ecological footprint.⁷¹²
- 8.13 Many of these fossil fuel consumption costs and the financial and other gains of avoiding them were covered in Chapter 6,⁷¹³ as were the renewable energy sector jobs forecast for the ACR by the Climate Institute.⁷¹⁴

⁷⁰⁹ See, for example, Renewable Energy Security Australia Holdings Ltd retailer of 'ecowhisper turbines' <<http://resau.com.au/>>, accessed 3 Oct. 2011. Carbon farming, waste recycling, and renewable energy enterprises were discussed by Dr Schooneveldt in both his submission and his oral testimony: Sub. 2, p.5 and *Transcript of Evidence* (public hearing) 25 March 2011, pp.1-5.

⁷¹⁰ Clean Energy Council (2011) *clean energy australia report 2011* <<http://www.cleanenergycouncil.org.au/dms/cec/reports/2011/Clean-Energy-Australia-Report-2011/Clean%20Energy%20Australia%20Report%202011.pdf>>, accessed 14 Dec. 2011.

⁷¹¹ Chamber, N. and K. Lewis (2001) *Ecological Footprint Analysis: Towards a Sustainability Indicator for Business*, Association of Chartered Certified Accountants Research Report No. 65 <http://www2.accaglobal.com/pubs/general/activities/research/research_archive/rr-065-001.pdf> accessed 14 Dec. 2011; UK Secretary of State for Environment, Food and Rural Affairs (June 2011) *The Natural Choice: securing the value of nature* <<http://www.official-documents.gov.uk/document/cm80/8082/8082.pdf>>, accessed 1 December 2011; as well as UNEP (2011) *Towards a green economy*.

⁷¹² The Canberra Division of Engineers Australia, for example, states that '...infrastructure should be provided to users at full social and economic costs, including the costs of externalities...' (Sub. 34, p.5).

⁷¹³ ClimateWorks Australia Low Carbon Growth Plan webpage <http://www.climateworksaustralia.org/low_carbon_growth_plan.html>, accessed 14 Oct. 2011.

⁷¹⁴ The Climate Institute 'Clean Energy Jobs in Regional Australia' webpage <<http://www.climateinstitute.org.au/clean-energy-jobs>>, accessed 14 Oct. 2011.

- 8.14 The Committee also recognises that there are financial and other⁷¹⁵ gains that can be realised immediately from natural or 'green' infrastructure,⁷¹⁶ built infrastructure that is 'eco-designed'⁷¹⁷, and reductions in the water and energy demands of residences and businesses⁷¹⁸.
- 8.15 A 2010 study commissioned by Microsoft, and conducted by the consultancy firms Accenture and WSP Environment & Energy, demonstrates that organisations' overall energy use can be lowered by their use of large cloud data centres because these centres have economies of scale and efficiencies that surpass what organisations' own IT systems can achieve.⁷¹⁹
- 8.16 The analysis compares commonly used Microsoft applications for e-mail, content sharing, and customer relationship management, and their cloud-based equivalents. It concludes that small organisations are likely to experience a 90 per cent or more carbon footprint reduction by using a Microsoft shared cloud environment instead of their own local servers.⁷²⁰
- 8.17 Thus, creating a 'cleaner' economy is to reduce spending on consumption of goods, services and infrastructure that cause environmentally negative transfers of natural resources. Such economic restructuring is already seen as 'part and parcel' of managing the environment in mainstream commentary and research.
- 8.18 For example, when, in late 2010, Professor Ross Garnaut was commissioned by the Commonwealth Government to provide an independent update to his

⁷¹⁵ UK Sustainable Development Commission (2010) *Improving Young People's Lives: The role of the environment in building resilience, responsibility and employment chances* <<http://www.sd-commission.org.uk/publications.php?id=1113>>, accessed 14 July 2011.

⁷¹⁶ Wolf, K. (2007) *City Trees and Property Values*, Uni. of Washington, Seattle, USA <http://www.cfr.washington.edu/research.envmind/Policy/Hedonics_Citations.pdf> and Hewes, W. and A. Fahlund (2011) *Weathering Change: Policy Reforms That Cost Less And Make Communities Safer*, American Rivers <<http://www.americanrivers.org/assets/pdfs/global-warming-docs/weathering-change/weathering-change-full-report.pdf>>, both accessed 1 Dec. 2011.

⁷¹⁷ City of Portland, Oregon (2008) *Cost Benefit Evaluation of Eco-roofs* <<http://www.portlandonline.com/BES/index.cfm?a=261053&c=50818>>, accessed 1 Dec. 2011.

⁷¹⁸ Fielding, K.S. et al (2010) *Environmental sustainability: understanding the attitudes and behaviour of Australian households*, Final Report No. 152, Australian Housing and Urban Research Institute

⁷¹⁹ Accenture and WSP Environment and Energy (2010) *Cloud Computing and Sustainability: The Environmental Benefits of Moving to the Cloud* <<http://www.accenture.com/us-en/Pages/insight-environmental-benefits-moving-cloud.aspx>>, accessed 14 July 2011.

⁷²⁰ *ibid.*

2008 Climate Change Review, the first 'update paper' he presented rigorously evidenced the costs of not starting to 'de-carbonise' the economy.⁷²¹

- 8.19 Similarly, research conducted for Australia's recent tax review, known as the 'Henry Tax Review', suggests that a range of state and territory taxes need to be assessed for whether they disincentivise environmentally sustainable behaviours, and, if so to what extent.⁷²²
- 8.20 In their submissions, many individuals and organisations put various suggestions for financial and economic reforms that could help to create better management of natural resources in the ACR.
- 8.21 The Canberra Division of Engineers Australia calls for 'infrastructure bonds' that finance new infrastructure that is designed in environmentally sustainable ways.⁷²³
- 8.22 Mr Kevin Cox argues for interest-free loans with which citizens can invest in methods for reducing greenhouse gas emissions and the establishment of an investments market for all of these loans. He also proposes rewarding householders with interest-free credit in inverse proportion to their consumption of mains water.⁷²⁴
- 8.23 Dr Schooneveldt recommends that 'a fair (unsubsidised) price on water' be set.⁷²⁵ Mr Keith Sayers urges review of the cheap price of water, with allowances made for low-income householders who need more water due to them being parents of infants.⁷²⁶ The Commissioner for Sustainability and the Environment,⁷²⁷ Dr Schooneveldt,⁷²⁸ and the ACT Natural Resource

⁷²¹ Garnaut, R. (2011) *Update Paper 1: Weighing the costs and benefits of climate change action*, Garnaut Climate Change Review 2011, released 3 February 2011 <<http://www.garnautreview.org.au/update-2011/update-papers.html>>, accessed 1 Oct. 2011.

⁷²² Freebairn, J (2010) 'Chapter Eight: Environmental Taxation and its Possible Application in Australia', in Commonwealth of Australia, *Melbourne Institute - Australia's Future Tax and Transfer Policy Conference*, University of Melbourne, Melbourne, Australia.

⁷²³ Sub. 34, p.5.

⁷²⁴ Sub. 5, p.3.

⁷²⁵ Sub. 2, p.9.

⁷²⁶ Sub. 36, p.1.

⁷²⁷ Sub. 8, p.2.

⁷²⁸ Sub. 2, p.9.

Management Council⁷²⁹ suggest carbon pricing.

- 8.24 The Friends of Grasslands states that environment taxes should be levied and the revenue raised used for environmental protection.⁷³⁰ Dr Schooneveldt argues for the levying of:

*...base rates...on the proportion of the land covered by impervious surfaces. Impervious surfaces prevent water absorption and reduce eco-system services. This is an externality cost that people who cover their land with concrete will need to meet.*⁷³¹

- 8.25 Mr Richard Sharp recommends a system of 'ecological credits' to reduce the ACT ecological footprint. Mr Sharp explains that this would allow some individuals and organisations to 'off-set the loss of all or part of an ecological unit by purchasing ecological credits' and that the credits would be created by some 'rural landholders in the ACT' investing in the enhancement of 'ecological values on their land'.⁷³²

- 8.26 Similarly, Palerang Council advocates for ACT funding for environmental restoration programs in LGAs neighbouring the ACT to 'off-set' the adverse effects of the ACT ecological footprint.⁷³³

- 8.27 The Committee was not presented with any evidence on financial hardship or other adverse effects of moving to an economy that is less reliant on extraction of natural resources. However, as discussed earlier in this Chapter, and in Chapter 6, the Committee researched this issue and found that most research evidence focused on the financial, social, and environmental costs of *delaying* the creation of such an economy.⁷³⁴

- 8.28 Nonetheless, building a low consumption economy means transitioning to a low-carbon one, including, but not limited to, significant climate change

⁷²⁹ Sub. 26, p.5.

⁷³⁰ Sub. 9, p.3.

⁷³¹ Sub. 2, p.8.

⁷³² Sub. 1, p.2.

⁷³³ Sub. 30, pp.6-7.

⁷³⁴ See, for example, Garnaut, R. (2011) *Update Paper 1: Weighing the costs and benefits of climate change action*, Garnaut Climate Change Review 2011, released 3 Feb. 2011

<<http://www.garnautreview.org.au/update-2011/update-papers.html>>, accessed 1 Oct. 2011 and ClimateWorks Australia Low Carbon Growth Plan webpage

<http://www.climateworksaustralia.org/low_carbon_growth_plan.html>, accessed 14 Oct. 2011.

adaptations. The Committee is conscious of how this transition is likely, at some points in time, to increase the water, energy, and transport costs of low-income householders and of some private-, community- and government-sector organisations.

- 8.29 The Committee notes that the ACT Government's current programs and planning documents reflect that it, too, is mindful of this.⁷³⁵
- 8.30 The Committee considers that it is essential for the ACT Government to maintain those of its measures that assist low-income householders to minimise financial stresses that stem from the ACT adapting to climate change and transitioning to a low-carbon economy. These measures include the current energy and transport concessions and water and energy efficiency rebates and programs.⁷³⁶
- 8.31 The Committee also regards it as essential for the ACT Government to maintain those of its programs that increase the energy and water efficiency of its own operations,⁷³⁷ public housing,⁷³⁸ private homes,⁷³⁹ and ACT businesses⁷⁴⁰ and not-for-profit bodies⁷⁴¹.
- 8.32 At the time of writing, the Government is reviewing its *Think water, act water*,⁷⁴² and consulting on three of its draft strategies that critically relate to the ACT

⁷³⁵ ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, pp.29-30 and ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, p.15.

⁷³⁶ See ACT Gov. water rebates webpage <http://www.thinkwater.act.gov.au/tuneup_rebates.shtml>, ACT Gov. concessions webpage <http://www.concessions.act.gov.au/essential_services>, ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, pp.29-30, ACT (2011) *Sustainable Energy Policy 2011-2020: Energy for a sustainable city*, pp.15 and 19 <http://www.environment.act.gov.au/_data/assets/pdf_file/0003/232284/EDS_ACT_Sustainable_Energy_Policy_FA_web_A.PDF>, all accessed 4 Dec. 2011.

⁷³⁷ ACT (2011) *ACT Government Infrastructure Plan 2011-2021*, July 2011, pp. 26 and 54 <http://www.cmd.act.gov.au/_data/assets/pdf_file/0013/220306/infrastructureplan2011.pdf>, accessed 4 Dec. 2011.

⁷³⁸ *ibid.*, p.87.

⁷³⁹ ACT (2011) *ACT Government Infrastructure Plan 2011-2021*, July 2011, pp. 68 and 79 and Home Energy Advice Team webpage <<http://www.heat.net.au/>>, accessed 4 Dec. 2011.

⁷⁴⁰ ACT (2011) *ACT Government Infrastructure Plan 2011-2021*, July 2011, p. 68 and ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, p.19.

⁷⁴¹ ACT (2011) *ACT Sustainable Energy Policy: Energy for a sustainable city 2011-2020*, p.24.

⁷⁴² ACT (2004) *Think water, act water*.

environment. These are the Draft Weathering the Change: Action Plan 2,⁷⁴³ Draft Transport Plan,⁷⁴⁴ and the Draft Planning Strategy⁷⁴⁵ all released in 2011.

- 8.33 Strategy 9 of the Government's Draft Planning Strategy is 'Creating a more prosperous region by focusing on the strengths of a clean, knowledge based economy'.⁷⁴⁶
- 8.34 The Government is also presently developing a triple bottom line assessment policy based on its consultations on its 2011 *Triple Bottom Line Assessment For The ACT Government Discussion Paper*,⁷⁴⁷ discussed in Chapter 3. It is also developing a clean economy strategy based on its consultations on the 2010 *Framework for an Australian Capital Territory Clean Economy Strategy: Economic, Environmental and Social Perspectives*,⁷⁴⁸ discussed later in this Chapter.
- 8.35 The Committee is aware that certain Commonwealth programs extend grants, rebates and other funding to assist research and development on less carbon intensive technologies and energy and water efficiency improvements in households and organisations.⁷⁴⁹
- 8.36 Further, the Commonwealth Parliament has legislated for a nation-wide carbon pricing mechanism, which will commence on 1 July 2012. This legislation ensures that the carbon price is not imposed on householders, or low emissions businesses, but, rather, on the 500 or so businesses in Australia

⁷⁴³ ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*.

⁷⁴⁴ ACT (2011) *Transport for Canberra – Transport for a sustainable city 2011-2031: Draft for public comment*.

⁷⁴⁵ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*.

⁷⁴⁶ *ibid.*, p.58.

⁷⁴⁷ ACT (2011) *Triple Bottom Line Assessment For The ACT Government Discussion Paper*, June 2011.

⁷⁴⁸ University of Canberra Knowledge (2010) *Framework for an Australian Capital Territory Clean Economy Strategy: Economic, Environmental and Social Perspectives*, September 2010. Report commissioned by Chief Minister's Department and the Department of Environment, Climate Change, Energy and Water, Sept. 2010 <http://www.business.act.gov.au/_data/assets/pdf_file/0020/204257/ACT_CES_Framework.pdf>, accessed 14 July 2011.

⁷⁴⁹ See, for example, Commonwealth Dept. of Climate Change and Energy Efficiency webpage on 'programs and rebates' to 'save energy and reduce emissions' <<http://www.climatechange.gov.au/government/programs-and-rebates.aspx>>, Commonwealth Department of Sustainability, Environment, Water, Population and Communities 'Water Programs Funding and Grants' webpage <<http://www.environment.gov.au/water/programs/>>, all accessed 1 Dec. 2011.

that produce the most carbon emissions. The legislation provides that those businesses will only pay for the emissions they actually produce.⁷⁵⁰

8.37 The legislation also enables all of the revenue thus accrued to be used to assist households to meet any increased costs flowing from the carbon price and to assist businesses and other organisations to maintain jobs and invest in climate change adaptations and clean industries.⁷⁵¹

8.38 The legislation has resulted in several programs. Some will allow communities to create revenue streams from the carbon price economy, such as the carbon farming initiative and funding for research and development of clean energy technologies. One will sets target reductions in energy used in Commonwealth Government office buildings. Another will inform small and medium size enterprises and community organisations about how to practically manage the flow-on effects of a carbon price.⁷⁵²

Propensity and capacity of the ACT to reduce its ecological footprint

8.39 As Chapter 3 evidences, significant reductions in the ACT ecological footprint will make for significant reductions in the ACR one.

8.40 This is not only because most of the ACR's footprint is attributable to the consumption patterns of the people of the ACT; it is also because, as was noted in Chapter 4, many people of the ACR work, shop, or do other routine activities in the ACT. They are, therefore, likely to be influenced by what occurs in the ACT, including systematic decreases in consumption of food, goods, and services.

8.41 The Committee notes that there is much evidence to suggest that the ACT

⁷⁵⁰ This legislation was enacted on 8 Nov. 2011. See Commonwealth Dept. of Climate Change and Energy Efficiency 'Clean energy legislation' webpage <<http://www.climatechange.gov.au/government/clean-energy-future/legislation.aspx>>, accessed 1 Nov. 2011.

⁷⁵¹ *ibid.*

⁷⁵² See Commonwealth's 'Clean Energy Plan' webpage <<http://www.cleanenergyfuture.gov.au/clean-energy-future/our-plan/>>, 1 Dec. 2011.

population is highly amenable to making personal consumption decisions, and supporting economic reforms, that will reduce the ACT's ecological footprint, without diminishing standards of living in the ACT.⁷⁵³

- 8.42 The Committee particularly has in mind, here, the results of the Final Report on the 2007 Sustainability Community Attitudes Study, commissioned by the then ACT Department of Territory and Municipal Services. The Report states:

*Canberrans are willing to make changes to their lives. Many Canberrans surveyed have already taken steps to reduce energy use, such as by purchasing energy efficient appliances and reducing water consumption. The main reason given for these changes is having a personal responsibility to do the right thing. This indicates a preparedness to increase levels of sustainable behaviour in the community.*⁷⁵⁴

- 8.43 In this connection, the Committee also notes the results of the ABS 2007-08 *Environmental Views and Behaviour Survey*.⁷⁵⁵ These show that the rates of concern about environmental problems were highest among ACT adults, at 90 per cent. The ACT also had some of the highest proportions of adults who felt the condition of the natural environment was 'bad' or 'declining', at 33 and 64 per cent, respectively.⁷⁵⁶

- 8.44 This Survey also found that ACT adults were the most concerned about specific environmental issues, including water shortages, at 95 per cent, and climate change, at 81 per cent. ACT adults were also the most likely to donate money to help the environment, at 18 per cent, four per cent above the Australian average. 93 per cent of ACT adults reported recycling. 50 per cent of ACT adults reported using 'green or recyclable bags'.⁷⁵⁷

- 8.45 Canberra has many active community-based groups dedicated to

⁷⁵³ The interest Canberrans have in the environment, including reducing their footprint, is emphasised by the Canberra Environment and Sustainability Resource Centre (Sub. 29, p.6).

⁷⁵⁴ ACT (2009) *Sustainable Future: Workshop finding report*, p. 12
<http://www.actpla.act.gov.au/_data/assets/pdf_file/0018/16245/SustainableFuture7_Web.pdf>, accessed 15 July 2011.

⁷⁵⁵ ABS (2009) *Environmental views and behaviour, 2007-08* (2nd issue) (cat. no. 4626.0.55.001)
<[http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4626.0.55.001Main%20Features12007-08%20\(2nd%20issue\)?opendocument&tabname=Summary&prodno=4626.0.55.001&issue=2007-08%20\(2nd%20issue\)&num=&view=>](http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4626.0.55.001Main%20Features12007-08%20(2nd%20issue)?opendocument&tabname=Summary&prodno=4626.0.55.001&issue=2007-08%20(2nd%20issue)&num=&view=>)>, accessed 1 Aug. 2011.

⁷⁵⁶ *ibid.*

⁷⁵⁷ ABS (2009) *Environmental views and behaviour, 2007-08* (2nd issue) (cat. no. 4626.0.55.001).

environmental concerns. These range from SEE-Change Canberra, which describes itself as a group to 'support action to reduce Canberra's ecological footprint',⁷⁵⁸ to organisations that monitor some effects of the ACT ecological footprint. The latter include Friends of Grasslands and the Canberra Ornithologists Group.⁷⁵⁹

8.46 Local institutions are also playing a role. The University of Canberra's ban on bottled water is 'believed to be the largest ban of its kind in Australia and the first across a university'.⁷⁶⁰ The ANU Climate Change Institute is hosting the 'Climate Vulnerability and Adaptation in the Australian Capital Territory and Region Project'.⁷⁶¹

8.47 The ANU and the University of Canberra (UC), in partnership with a number of organisations, have also established the Canberra Urban and Regional Futures (CURF), a platform for information exchange with communities on 'urban and regional planning, sustainability, climate change and more'.⁷⁶² Last year, CURF conducted several well-subscribed public forums focused on, among other matters, the environmental dimensions of regional development that joined in conversation urban planners, business leaders, parliamentarians, and members of the general public.⁷⁶³

8.48 One major indicator of the participation of ACT organisations in environmental sustainability is the extent to which they construct, or commission construction of, 'green' buildings. The Green Building Council of Australia reported, last year, that:

Of all the states, the ACT has the highest investment in sustainable construction per capita. In 2010, approximately \$4,358 was spent on green projects for every resident of

⁷⁵⁸ Sub. 23, p.1, and SEE-Change website homepage <<http://www.see-change.org.au/node/10>>, accessed 1 Nov. 2011.

⁷⁵⁹ All three organisations made submissions to the Inquiry (Sub. 23, 9, and 10, respectively).

⁷⁶⁰ 'Canberra uni banned bottled water', *Sydney Morning Herald*, 20 Jan. 2011. <<http://www.smh.com.au/environment/water-issues/canberra-uni-to-ban-bottled-water-20110120-19xji.html>>, accessed 14 July 2011.

⁷⁶¹ ANU Climate Change Institute Website <<http://www.anu.edu.au/climatechange/content/canberra/climate-vulnerability-and-adaptation-in-the-australian-capital-territory-and-se-nsw-region-actr-actr-project-an-integrated-biophysical-policy-and-governance-approach/>>, accessed 1 Nov. 2011.

⁷⁶² See CURF website <<http://www.curf.com.au/home/>>, accessed 1 Nov. 2011.

⁷⁶³ *Transcript of Evidence* (public hearing), Prof. Barbara Norman, 14 Sept. 2011, p.136.

*the territory – almost four times as...Queensland and more than eight times NSW.*⁷⁶⁴

- 8.49 The ANU recently opened a six-star 'green building' featuring a photovoltaic array, a hybrid air-conditioning unit, and rainwater harvesting and black water recycling systems. The ANU Vice-Chancellor, Professor Ian Young, declared that the opening of this building was just the beginning of the ANU transforming into a campus of green buildings.⁷⁶⁵
- 8.50 The business community in the ACT has also expressed interest in the ACT's ecological footprint. An article on the website of the ACT Division of the Property Council of Australia, reports that at its 2011 ACT Population Symposium, one of the matters discussed was 'Canberra's large per capita ecological footprint'. The article reports that 'all acknowledged that the right population size and density were crucial to reducing it'.⁷⁶⁶
- 8.51 The Committee also notes that Canberra is the home of many centres of expertise in economics and social policy that could advise on how to restructure the ACT economy into one that consumes less natural resources and makes net returns to ecological carrying capacity, in ways that are commensurate with maintaining and raising people's health and well-being.⁷⁶⁷
- 8.52 It is pertinent to note, here, the conclusions of a 2010 UC report, commissioned by the ACT Government, entitled *Framework for an Australian Capital Territory Clean Economy Strategy: Economic, Environmental and Social Perspectives* (the

⁷⁶⁴ Green Building Council of Australia (2011) *Evolution: A year in green building 2011* <http://www.gbca.org.au/uploads/30/13598/GBCA014_Evolution_Spreads_LoRes.pdf>, p. 26. The ACT 'track record of being quite a high achiever in developing green-star buildings' was also remarked on, during an Inquiry public hearing, by Ms Sheila Hughes, President of the ACT Chapter of the Australian Institute of Architects, *Transcript of Evidence* 23 March 2011, p. 13.

⁷⁶⁵ Dyett, K. (2011) 'Six star home for climate change research', ABC News, 24 Oct. 2011 <<http://www.abc.net.au/news/2011-10-24/anu-fenner-building-climate-change/3597416>>, accessed 25 Oct. 2011.

⁷⁶⁶ Carter, C. (2011) 'Population Symposium finds agreement on big issues', Property Council of Australia, 21 Feb. 2011 <<http://www.propertyoz.com.au/Blog/archive/2011/02/21/128.aspx>>, accessed 14 July 2011.

⁷⁶⁷ See, for example, University of Canberra's National Centre for Social and Economic Modelling <<http://www.canberra.edu.au/centres/natsem/>>; Environmental Economics Research Hub and Centre for Climate Economics and Policy at ANU's Crawford School <http://www.crawford.anu.edu.au/research_units/eeerh/> and <<http://ccep.anu.edu.au/>>, respectively, all accessed 12 Nov. 2011.

Clean Economy Report).⁷⁶⁸

- 8.53 This Report reveals how other cities and regions in economically developed countries have ‘greened’⁷⁶⁹ their existing businesses and created ‘clean industries’ to meet new demands. In a nutshell, it concludes that in an ‘ACT clean economy’:

*...new employment opportunities will arise in many sectors...Contemporary economic development plans...can no longer be shielded from the context of the need to reduce carbon footprints and consume less non-renewable fuels...A range of stakeholders including the business community, the tertiary education sector and research and development sectors need to be along for the journey...It is clear that a whole-of-ACT Government effort needs to be developed ...across...: Utilities, Renewable energy, Transport, Business and industry development, Research and development, Environmental management, Green procurement, Human capital development and skills training, Education...*⁷⁷⁰

- 8.54 As noted in Chapter 3, the Government has reported that it will deliver a ‘clean economy strategy’ in April 2012, and that this strategy will be based on the public consultation it conducted on the Clean Economy Report.⁷⁷¹ Three of the principal results of the ACT Government’s 2010 public consultation process, called *Time To Talk: Canberra 2030* (Time to Talk 2030), closely align with the conclusions of that Report.

- 8.55 These are, one, Canberrans ‘opted for a sustainable economy built on

⁷⁶⁸ University of Canberra Knowledge (2010) *Framework for an Australian Capital Territory Clean Economy Strategy: Economic, Environmental and Social Perspectives*, September 2010. Report commissioned by ACT Chief Minister’s Department and the ACT Department of Environment, Climate Change, Energy and Water, Sept. 2010. <http://www.business.act.gov.au/_data/assets/pdf_file/0020/204257/ACT_CES_Framework.pdf>, accessed 14 July 2011.

⁷⁶⁹ *ibid.*, pp.12 and 40.

⁷⁷⁰ *ibid.*, p.6.

⁷⁷¹ ACT (2011) *ACT GOVERNMENT PRIORITIES 2011-12 PROGRESS REPORT – 31 DECEMBER 2011*, p.6 <http://www.cmd.act.gov.au/_data/assets/pdf_file/0019/271621/ACT_Government_Priorities_2011-2012_Progress_Report.pdf>, accessed 5 Jan. 2011.

Canberra's strong base of academia/education and Centres of Excellence'.⁷⁷²

Two, Canberrans expressed a wish to see Canberra 'at the centre of a region offering stimulating, highly skilled jobs in a clean green economy'. Three, they considered that this economy could only be achieved if there was 'Government leadership' to 'develop a partnerships approach with local communities, residents, businesses, and the universities and institutions of Canberra'.⁷⁷³

- 8.56 In keeping with the findings of the Clean Economy Report and Time to Talk 2030, the Committee believes that the development and implementation of the clean economy strategy, and the ACT's general transition to a cleaner economy, would benefit from the establishment of an independent advisory body that includes leading researchers and practitioners in social equity, the environment, business development, and restructuring economies.
- 8.57 Many of the submissions, and much of the oral testimony, given to this Inquiry emphasised that meeting the ACT's and wider ACR's environmental challenges requires building partnership between ACR governments, civil society groups and organisations, as well as members of the general public who may not participate in any of these groups and organisations.⁷⁷⁴
- 8.58 As noted earlier in this Chapter, this was also stressed by the authors of the UC Clean Economy Report and by representatives of Canberra communities in Time to Talk 2030.
- 8.59 Accordingly, it is critical for any advisory body on the clean economy in the ACR to regularly inform, and consult about its activities with the governance bodies of the ACT and wider ACR; and the general public.

⁷⁷² ACT (2010) *Time to Talk: Canberra 2030 Outcomes Report*, Dec. 2010
<<http://timetotalk.act.gov.au/storage/78d10e40d957379825347909b6e2bfd9.Time%20to%20talk%20-%20web%20version.pdf>>, accessed 14 Oct. 2011, p.49.

⁷⁷³ ACT (2010) *Time to Talk: Canberra 2030 Outcomes Report*, Dec. 2010
<<http://timetotalk.act.gov.au/storage/78d10e40d957379825347909b6e2bfd9.Time%20to%20talk%20-%20web%20version.pdf>>, accessed 14 Oct. 2011, p.38.

⁷⁷⁴ See, for example, Ms Katy Gallagher, *Transcript of Evidence* (public hearing) 8 Sept. 2011, p.109; Ms Sheila Hughes, appearing in her capacity as ACT Chapter President, Australian Institute of Architects, *Transcript of Evidence* (public hearing) 23 March 2011, p.18; Prof. Barbara Norman, *Transcript of Evidence* (public hearing) 14 Sept. 2011, p.129; Canberra Division of Engineers Australia (Sub.34, p.2); Canberra Environment and Sustainability Resource Centre (Sub. 29, pp.1 and 7); and Palerang Council (Sub. 30, p.4).

Key findings

8.60 The Committee finds that:

- a. those structural reforms to the economy, and those low-consumption choices of individuals and organisations, that are needed to reduce the ACT ecological footprint are not incompatible with maintaining and increasing people's health and well-being.
- b. the ACT has a unique wealth of expertise in environmental and economic matters, and of individuals and organisations, that are informed about, and well disposed to, environmental stewardship.
- c. reforms to the ACT economy, and low-consumption choices of ACT individuals and organisations, can position the ACT to lead the ACR in realising the economic, social and environmental benefits of moving to a cleaner economy and avoiding the financial, social and environmental costs of delaying this move.

8.61 The Committee finds that it is necessary for:

- a. the Government to maintain, and review for adequacy, those of its measures that assist organisations and low-income householders to transition to climate change adaptations and a low-carbon economy.
- b. ACT Government Ministers to help maintain the Commonwealth Government's focus on delivering to householders and organisations adequate assistance to transition to climate change adaptations and a low-carbon economy.

RECOMMENDATION 18

8.62 **The Committee recommends that the ACT Government considers creating an independent body to advise the Government on how to transition the ACT economy into one that reduces natural resources uses and greenhouse gas emissions and makes net returns to the ACR's ecological carrying capacity.**

9 ACT GOVERNMENT LEADERSHIP IN REDUCING THE ACT ECOLOGICAL FOOTPRINT

- 9.1 On reviewing the previous chapters' evidence on the contributors to the ACT ecological footprint, uses and methods of ecological footprint estimations, trends in ACT food, water and energy uses, the Committee considers that the ACT Government can be a leader in significantly reducing the ACT ecological footprint, and thereby, the ACR ecological footprint.

Current uses of Australian Capital Region ecological footprint estimates by governments and statutory authorities

- 9.2 As noted in Chapter 3, Mr Corbell, in his capacity as Minister for the Environment and Sustainable Development, stated during one of the Inquiry's public hearings:
- We [the ACT Government] certainly have an objective to reduce it [the ecological footprint]... we have not quantified a particular number... Our focus has been at the next level down... that is, our performance in a range of sectors such as greenhouse gas emissions, water use, energy use and waste generation...*⁷⁷⁵
- 9.3 The Committee observes that the ACT Government currently uses the ACT ecological footprint estimates for 1998-99, 2003-04 and 2008-09 as a stand-alone indicator on its 'Measuring Our Progress' website.⁷⁷⁶ The website clearly flags that these estimates were produced by the ISA study commissioned by the OCSE.
- 9.4 The ISA estimate of the ACT ecological footprint for 2008-09 is also discussed, in the Government's *Draft ACT Planning Strategy: Planning for a sustainable*

⁷⁷⁵ *Transcript of Evidence* (public hearing) 24 July 2011, pp.40-41.

⁷⁷⁶ See ACT 'Measuring our Progress' website, <http://www.measuringourprogress.act.gov.au/a_sustainable_act/ecological_footprint>, accessed 14 July 2011.

- city*⁷⁷⁷ (Draft Planning Strategy) and in its *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060* (Draft Weathering the Change: Action Plan 2).⁷⁷⁸ The ACT Government also discusses the estimate at some length in its *Background Paper 11: Resource Consumption*, a background paper for the Draft Planning Strategy.⁷⁷⁹
- 9.5 The Committee also observes that the Government issued a ‘snap-shot’ of the ISA estimate and analysis of the ACT ecological footprint on the Government’s website for its 2010 *Time to Talk: Canberra 2030* (Time to Talk) public consultation process.⁷⁸⁰
- 9.6 The Committee notes that the Commissioner for Sustainability and the Environment includes some commentary on the ISA analysis of the ACT ecological footprint in the OCSE fact sheet summarising the findings of the ISA 2010 study, as well as in the ACT *State of the Environment Report 2007/08* (2008),⁷⁸¹ the OCSE Schools Fact-Sheet on that Report⁷⁸².
- 9.7 The Committee observes that the Commissioner for Sustainability and the Environment also refers to the ACT ecological footprint estimate of the ISA 2010 study in the *Regional State of the Environment Report 2004-2009* (2009).⁷⁸³ The Committee also notes that in the ACT *State of the Environment Report 2011*

⁷⁷⁷ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p. 29 <http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf>, accessed 1 Nov. 2011.

⁷⁷⁸ ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, p. 10 <<http://timetotalk.act.gov.au/storage/Climate%20Change%20Strategy%20Action%20Plan%202%20FINAL.pdf>>, accessed 23 Dec. 2011.

⁷⁷⁹ ACT (2011) ‘BACKGROUND PAPER 11: Resource consumption’, Oct. 2011 <http://timetotalk.act.gov.au/storage/Planning_Background11_Resource.pdf>, accessed 1 Nov. 2011

⁷⁸⁰ ACT (2010) *Time to Talk: Canberra 2030 Outcomes Report*, Dec. 2010 <<http://timetotalk.act.gov.au/storage/78d10e40d957379825347909b6e2bfd9.Time%20to%20talk%20-%20web%20version.pdf>>, accessed 14 Oct. 2011, p.12.

⁷⁸¹ OCSE (2008) *State of the Environment Report 2007/08* <<http://www.envcomm.act.gov.au/publications/soe/2007actreport/progressingsustainability07#app1>>, accessed 11 May 2011.

⁷⁸² OCSE (2008) *State of the Environment Report 2007/08: factsheet for schools* <http://www.envcomm.act.gov.au/_data/assets/pdf_file/0015/183030/OCSE_schools_factsheet_soe_2007_2008.pdf>, accessed 11 Nov. 2011.

⁷⁸³ Schooneveldt, J. (2009) ‘Regional Sustainability’, in OCSE (2009) *Regional State of the Environment Report 2004-2009* <http://www.envcomm.act.gov.au/soe/rsoe2009/overview_schooneveldt.shtml>, accessed 1 Nov. 2011.

(2012) the Commissioner presents the ISA estimate of the ACT ecological footprint as one of six 'headline indicators' of the state of the ACT environment.⁷⁸⁴ In the same Report, the Commissioner also uses the ISA estimate to illustrate 'consumption', one of four 'driving forces' pressuring the environment.⁷⁸⁵

- 9.8 The ACT Government's 2011 *Triple Bottom Line Assessment For The ACT Government Discussion Paper* is about 'embedding triple bottom line (TBL) assessment into its day to day decision-making processes'. The Committee notes that the Discussion Paper states that some governments are using how proposed activities would contribute to the ecological footprint as a decision-making criterion.⁷⁸⁶ The Discussion Paper proposes that the 'non-greenhouse components of the ACT's 'ecological footprint' be an assessment criterion for Government proposals.
- 9.9 It states this would entail consideration of 'changes to ACT consumption of renewable resources, such as water' and:
*ACT consumption of non-renewable resources, particularly where these might be scarce or damaging to produce. Examples include land, natural gas, electricity, firewood and motor vehicle fuel...also...ACT's waste management systems.*⁷⁸⁷
- 9.10 Section 2 of the Discussion Paper refers to how consideration of the ecological footprint is a part of the decision-making frameworks of the Victorian Environment Protection Authority, the Melbourne City Council, councils that fall under the auspices of the Northern Sydney Regional Organisation of Councils, and the Japanese Ministry of the Environment.⁷⁸⁸
- 9.11 As the EDO ACT points out in its submission, unlike Governments' and other organisations' after-the-fact environmental reporting, triple bottom line

⁷⁸⁴ OCSE (2012) *ACT State of the Environment Report 2011* <
<http://www.envcomm.act.gov.au/actsoe2011/headline-indicators.html>>, accessed 6 May 2011.

⁷⁸⁵ OCSE (2012) *ACT State of the Environment Report 2011* <
<http://www.envcomm.act.gov.au/actsoe2011/driving-forces.html>>, accessed 6 May 2011.

⁷⁸⁶ ACT (2011) *Triple Bottom Line Assessment For The ACT Government Discussion Paper*, June 2011
<http://www.cmd.act.gov.au/_data/assets/pdf_file/0006/217392/TBL_Assessment_Framework_Discussion_Paper.pdf>, accessed 14 July 2011.

⁷⁸⁷ *ibid.*, p.28.

⁷⁸⁸ *ibid.*, pp.7-16.

assessment is ‘about assessing forward impacts’.⁷⁸⁹ Consequently, a requisite of a robust ACT Government method for triple bottom line assessment is that it tests potential policies, programs, or procurements in terms of one the Government’s most accurate, rigorous and descriptive indicators of environmental impacts; namely the ecological footprint.

9.12 In 2006, the ISA conducted *An Ecological Footprint Study of New South Wales and Sydney* for the then NSW Department of the Environment and Climate Change. This Study proposes solutions for the whole of NSW, but provides no detail on any particular region of NSW.⁷⁹⁰

9.13 The Committee could not find any published literature indicating that there was, at any time, a decision by the NSW Government or any NSW local government in the ACR to attempt to reduce the size or growth rate of the ecological footprint, *per se*, of NSW or of any NSW part of the ACR. However, these governments have published literature indicating they have environmental sustainability policies and programs.⁷⁹¹

Current uses of Australian Capital Region ecological footprint estimates by non-government and non-statutory organisations

9.14 In late 2009, the ACT Natural Resource Management Council published its Plan *Bush Capital Legacy – iconic city, iconic natural assets*.⁷⁹² This Plan has ‘intermediate targets’ regarding the ACT’s ecological footprint.

⁷⁸⁹ Sub. 31, p.4.

⁷⁹⁰ ISA (2006) *An Ecological Footprint Study of New South Wales and Sydney*, NSW Dept. of the Environment and Climate Change, Sydney, Australia
<<http://www.environment.nsw.gov.au/resources/research/08215ecofootprintnswsyd.pdf>>, accessed 14 July 2011.

⁷⁹¹ See, for example, NSW Gov. ‘Sustainability Policy’ website
<<http://www.environment.nsw.gov.au/government/policy.htm>> and Queanbeyan City Council’s ‘Waste Minimisation Centre’ webpage advertising the provision of garden clippings for mulch
<<http://www.qcc.nsw.gov.au/Council-Services/Waste---Recycling/Waste-Minimisation-Centre/Waste-Minimisation-Centre>>, both accessed 8 May 2012.

⁷⁹² ACT Natural Resource Management Council (2009) *Bush Capital Legacy – iconic city, iconic natural assets* <<http://www.actnrmcouncil.org.au/nrmplan>>, accessed 14 July 2011. The ACT Natural Resource Management Council describes itself as a ‘non-statutory advisory committee to the [ACT]

- 9.15 The first is that 'Agreed ecological footprint measures are established and progress reported publicly in the ACT state of environment reporting' from the year 2008. The second is that there is a '15% reduction in the 2008 per capita ecological footprint' by 2015. The Plan also has a 'long-term target' for the ACT's ecological footprint, which is that there is a '30% reduction in the 2008 per capita ecological footprint' by 2030.⁷⁹³
- 9.16 SEE-Change refers to the ACT ecological footprint when, in 2009, it conducted a 'Weekly Footprint Challenge' through which individuals and SEE-Change groups throughout Canberra implemented various projects to reduce their respective ecological footprints.⁷⁹⁴ This included the SEE-Change Jamison and Woden groups committing to 'reducing the ecological footprints of their local suburbs by 30% over three years'.⁷⁹⁵
- 9.17 The Canberra Environment and Sustainability Resource Centre has also publicly promoted the use of ecological footprint calculators as part of a 'Sustainability Challenge' public education initiative it delivered.⁷⁹⁶

Reduction targets for the ACT ecological footprint

- 9.18 Ecological footprint estimates and analysis give a clear view to the amounts of reductions in consumption that residents and organisations of the ACT need to make, across many areas of life, to avoid depleting ecosystems. This is

Minister for Environment and Sustainable Development' and that its operations are supported by Commonwealth Gov. Caring for Country program funding and 'complementary funding' of the ACT Gov. (ACT Natural Resource Management Council website <<http://www.actnrmcouncil.org.au/node>>, accessed 14 July 2011).

⁷⁹³ *ibid.*

⁷⁹⁴ SEE-Change webpage <<http://www.see-change.org.au/node/42>>, accessed 14 July 2011 SEE-Change Canberra describes itself as 'a community, not-for-profit group that aims to inspire, inform and support action to reduce Canberra's ecological footprint' (SEE-Change webpage <<http://www.see-change.org.au/node/10>>, accessed 14 July 2011) and refers to the ACT ecological footprint estimates on the ACT Gov. 'Measuring Our Progress' website in explaining which of 'Canberra's challenges' it sets out to address (SEE-Change webpage <<http://www.see-change.org.au/node/76>>, accessed 14 July 2011).

⁷⁹⁵ SEE-Change webpage <<http://www.see-change.org.au/node/31>>, accessed 14 July 2011.

⁷⁹⁶ Canberra Environment and Sustainability Resource Centre webpage <<http://www.ecoaction.com.au/category.php?id=102>>, accessed 8 May 2012.

exemplified by Mr Corbell's oral testimony, quoted in Chapter 3, as well as in many of the submissions to the Inquiry, and in the Committee's review of the ISA 2007 and 2010 studies.

- 9.19 The Committee recognises the mounting evidence on the imperative for governments to demonstrate clear leadership in reducing the ecological footprint to increase ecological carrying capacity. This evidence regards, among other governments, municipal ones,⁷⁹⁷ such as the ACT Government. The Committee also recognises that this evidence demonstrates how the government leadership must be in collaboration with other private, non-government and government sector organisations and community groups.⁷⁹⁸
- 9.20 The Committee is aware of the host of research literature, which suggests that unless a society has reduction targets for the ecological footprint, and indicators for measuring progress towards them, there is highly unlikely to be any reduction in the geographical area's ecological footprint, unless it experiences total economic collapse or a permanent or at least long-term evacuation of all humans.⁷⁹⁹

⁷⁹⁷ See, for example, Commonwealth Department of Sustainability, Environment, Water, Population and Communities webpage entitled 'Local government and Australian environment law' <<http://www.environment.gov.au/epbc/publications/localgovernment.html>> [dated 2009]; the Australian Local Government Association (ALGA) webpage on how ALGA has observer status at the Environment Protection and Heritage Council of Australia and New Zealand, established in June 2001 by the COAG <<http://www.alga.asn.au/?ID=73&Menu=44,60>> [no date]. The Council, on which the ACT Minister for the Environment and Sustainable Development is a member, is known as the COAG Standing Council on Environment and Water. At the time of writing, it last met 30 Nov. 2011 <<http://www.ephc.gov.au/>>. All websites accessed 15 Dec. 2011.

⁷⁹⁸ See, for example, James, P.R. (2010) 'And the winner is...South Australia': Ecological footprint reduction by integrating government targets and community participation supported by university research and outreach', in Simone Bastianoni et al. (editors) *The State of the Art in Ecological Footprint Theory and Applications: Footprint Forum 2010* and UN Dept. of Economic and Social Affairs Division for Sustainable Development (2009) *Earth Summit - Agenda 21 – The United Nations Programme of Action from Rio* <<http://www.un.org/esa/dsd/agenda21/>>, accessed 1 Aug. 2011.

⁷⁹⁹ See, for example, Barrett, J. and Dawkins, E. (2008) *Carbon Footprint of Housing in the Leeds City Region – A Best Practice Scenario Analysis*. Commissioned by The Environment Agency, Stockholm Environment Institute, Sweden; Owen, A., Alistair, P. and Barrett, J. (2008) *Ashford's Footprint – Now and in the Future*. Commissioned by WWF UK and English Partnerships, Stockholm Environment Institute, Sweden; and CAG Consultants in association with the Stockholm Environment Institute, Cambridge Econometrics and the Centre for Urban and Regional Ecology (2008) *Reducing South East England's Ecological Footprint*, South East England Regional Assembly on behalf of the Assembly, SEEDA and the WWF.

- 9.21 The Committee concludes that the ACT Government should collaborate with the private, government and non-government sectors and community groups to establish a long-term plan, including evidence-based short-term, intermediate, and long term, reduction targets for the absolute size and the growth rate of the ACT's ecological footprint.
- 9.22 The keystone of this plan should be the evidence, discussed in Chapter 3, of not only how the overwhelming majority of the ACT ecological footprint is from steady increases in the consumption of food, goods, and services, but also that reductions in the ACT ecological footprint are likely to reduce the ACT ecological footprint and the rate at which it grows.
- 9.23 As discussed in Chapter 3, none of this is to say that the ecological footprint need, or should be used as, the sole measure of the ACT population's pressures on the environment. The Committee agrees with the EDO ACT⁸⁰⁰ and others⁸⁰¹ who gave evidence suggesting that apart from ecological footprint methods, there are other tested techniques that rigorously measure human impacts on the environment.
- 9.24 There are existing initiatives that enable people to decrease their consumption and increase ecological carrying capacity, while maintaining the high standards of living expected in countries with advanced economies.⁸⁰²

⁸⁰⁰ Sub. 31, pp. 3-4.

⁸⁰¹ See, for example, ACT Commissioner for Sustainability and the Environment on value of combining ecological footprint with carbon and urban footprint measures (Sub. 8, p. 2); Canberra Ornithologists Group on bird surveys (Sub. 10, p. 1); and *Transcript of Evidence* (public hearing), Chair of the Sustainability Committee of the ACT Chapter of the Australian Institute of Architects, 23 March 2011, p. 16.

⁸⁰² OECD (2008) *Promoting Sustainable Consumption: Good Practice in OECD Countries* <<http://www.oecd.org/dataoecd/1/59/40317373.pdf>>, accessed 14 Nov. 2011; UNEP (2008) *Planning for Change: Guidelines for National Programmes on Sustainable Consumption and Production* and UNEP (2005) *Communicating Sustainability: How to Produce Effective Public Campaigns*; Net Balance Foundation (2009) *EcoBuy: Green Purchasing in Australia* <http://www.netbalance.com/research/Green_Purchasing_Australia_Report_2009.pdf> and Reisch, L. et al (2008) *Sustainable Consumption and Mass Communication: A German Experiment*, CSIRO Working Paper Series 2008-12 <<http://www.csiro.au/files/files/pm9m.pdf>>, accessed 14 July 2011; and Barrett, J., Birch, R., Cherrett, N., and Wiedmann, T. (2005) 'Exploring the application of the Ecological Footprint to sustainable consumption policy', in *Journal of Environmental Policy and Planning*, vol. 7, issue 4, pp.303-316.

- 9.25 As previously noted, the Committee has observed that many cities and countries have developed rigorous plans, including targets, for reducing their respective ecological footprints.⁸⁰³
- 9.26 The Committee considers that all of this evidence should be integrally factored into any ACT Government planning to reduce the ACT, and thereby, the ACR ecological footprint.
- 9.27 Chapter 3 referred to how the ACT Natural Resource Management Council has set targets for reductions in the ACT ecological footprint and that SEE-Change Canberra groups have set targets for reducing the ecological footprints of certain suburbs of the ACT. The Committee considers that the Government should consult with both about how they set, and endeavoured to reach, their targets and the factors that facilitated and hindered these processes.
- 9.28 These organisations will have many constructive lessons to share from their experience.

ACT Government adoption of reduction targets

- 9.29 Given the evidence in Chapter 3 on the lack of ACT Government communications about the ACT or wider ACT ecological footprints, the Committee considers that it is necessary for the Government to conduct concerted public communications about them, before, during and after its launch of the ecological footprint reduction targets plan.
- 9.30 The Committee considers that the key communications messages should focus on raising community awareness of the impacts of purchasing decisions on the ACT and ACR ecological footprints.
- 9.31 The Committee notes that the ISA 2007 study's conclusion that 'there is a role for governments to educate and encourage populations to consume sensibly...education on sustainable consumption'.⁸⁰⁴

⁸⁰³ For a list of these, please see the GFN website

<http://www.footprintnetwork.org/en/index.php/gfn/page/case_stories/> accessed 1 Nov. 2011.

⁸⁰⁴ Dey, C. et al (2007) *Data Sources and Methodology*, p.306, on Australian Conservation Foundation Consumption Atlas website <<http://acfonline.org.au/consumptionatlas/>>, accessed 14 July 2011.

9.32 The Committee also notes that the Commissioner for Sustainability and the Environment recommends in the *ACT State of the Environment Report 2011*:

22. Strengthen community engagement in sustainability by:

- i. Undertaking research on attitudes to sustainability and consumption patterns and behaviours. This could be done through regular community surveys similar to the annual NSW 'Who cares about the environment?' with the outcomes informing focus areas for community engagement.; and*
- ii. Fostering behaviour change through community engagement to reduce our ecological footprint..⁸⁰⁵*

9.33 In its submission, the ACT Natural Resource Management Council urges the use of 'community based social marketing' to make the 'behaviour shifts' needed to reduce the ACT ecological footprint.⁸⁰⁶

9.34 This advice from the ISA and the ACT Natural Resource Management Council is in keeping with the concluding statement in the ACT Government's submission that one of the 'principles' which 'should guide our further actions' is to 'Educate the community on ways of reducing our 'footprint' – in particular, the level of purchased but unconsumed resources'.⁸⁰⁷

9.35 It is also pertinent to note that the Canberra Division of Engineers Australia advises in its submission: '...it is vital that actions proposed to achieve greater sustainability...are relevant to [individuals' and organisations'] daily activities. Without this connection, the changes in attitudes are unlikely to occur'.⁸⁰⁸ The ISA's 2007 study similarly counsels that public education is significantly more effective 'if there can be personal relevance, such as...particular demographic groups, lifestyle factors or locations'.⁸⁰⁹

⁸⁰⁵ OCSE (2012) *ACT State of the Environment Report 2011*
<http://www.envcomm.act.gov.au/actsoe2011/executive_summary.html>, accessed 6 May 2012.

⁸⁰⁶ Sub. 26, p.5.

⁸⁰⁷ Sub. 32, p.47.

⁸⁰⁸ Sub. 34, p.2.

⁸⁰⁹ Dey, C. et al (2007) *Data Sources and Methodology*, p.231, on Australian Conservation Foundation Consumption Atlas website <<http://acfonline.org.au/consumptionatlas/>>, accessed 14 July 2011.

- 9.36 Many of the submissions emphasise that Canberra is Australia's capital city,⁸¹⁰ with one commenting that 'Canberra was established...to provide a national capital, not a booming city consuming ever more resources...bearing down a heavier and heavier ecological footprint'.⁸¹¹ The Committee also observes that the ACT Clean Economy study, commissioned by the Government from the University of Canberra, stresses Canberra's potential to lead environmental stewardship as Australia's national capital.⁸¹²
- 9.37 Canberra is a 'sister city' of Nara, in Japan, and Beijing, the capital city of China.⁸¹³ Japan uses the ecological footprint as a primary measure of its development.⁸¹⁴
- 9.38 If the ACT becomes a leader in reducing its ecological footprint, it will help lead the country in one of its most urgent challenges. This fits neatly with the Chief Minister's 2012 'Australia Day statement to the Canberra community' that 'One year out from our centenary as a city, I am committed, as Chief Minister, to ensuring that Canberra remains the...place to which Australians turn for leadership, ideas, and action on matters that affect us all.'⁸¹⁵

Key findings

- 9.39 The ACT Government currently has an objective of reducing the ACT ecological footprint, but has not quantified by how much, and by when, it

⁸¹⁰ See, for example, Mr Colin Samundsett (Sub. 12, p. 1); Dr John Schooneveldt (Sub. 2, p.1); and Dr Chris L. Watson (Sub. 25, p.1).

⁸¹¹ Ms Julia Richards (Sub. 11, p. 1).

⁸¹² University of Canberra Knowledge (2010) *Framework for an Australian Capital Territory Clean Economy Strategy: Economic, Environmental and Social Perspectives*, September 2010. Report commissioned by Chief Minister's Department and the Department of Environment, Climate Change, Energy and Water, Sept. 2010, p.6.

⁸¹³ For details, see CMCD webpage entitled 'Canberra's international Relationships' <http://www.cmd.act.gov.au/communication/cir/international_relationships> [webpage dated 17 Oct. 2011], accessed 1 Nov. 2011.

⁸¹⁴ For Japan's last report on its ecological footprint, see WWF and GFN (Aug. 2010) *Ecological Footprint Report - Japan 2009 - Maintaining Well-Being In A Resource Constrained World* <http://www.wwf.or.jp/activities/lib/lpr/WWF_EFJ_2009e.pdf>, accessed 1 Nov. 2011.

⁸¹⁵ Ms Kay Gallagher MLA, Chief Minister of the ACT (2012) 'Chief Minister's Australia Day statement to the Canberra community', Media Release, 25 Jan. 2012 <<http://www.chiefminister.act.gov.au/media.php?v=11316&m=52>>, accessed 25 Jan. 2012

seeks to reduce the size or the growth rate of that footprint.

9.40 It is necessary for the ACT Government to:

- a. set evidence-based targets for reducing the size and growth rate of the ACT ecological footprint in a plan on how to achieve these reductions.
- b. make reducing the ecological footprint an objective explicitly central to its communications, policies, programs and other activities.
- c. collaborate with local environmental, business and other groups to develop and execute the plan to reduce the ACT ecological footprint, including the reduction targets.

RECOMMENDATION 19

9.41 **The Committee recommends that the ACT Government sets short and long term targets for a reduction in the size of the ACT ecological footprint.**

RECOMMENDATION 20

9.42 **The Committee recommends that the ACT Government conduct a communications campaign to raise community awareness of the impacts of purchasing decisions on the ACT and ACR ecological footprints.**

ACT Government procurement

9.43 The Committee believes that one of the most important first steps on this journey to reduce the ACT ecological footprint would be the ACT Government setting a good example 'in its own backyard' by reforming its procurement activities into more environmentally sustainable ones.

9.44 Several research reports on how government agencies optimally lead communities to consume in more environmentally sustainable ways demonstrate that environmentally sustainable government procurement programs are fundamental.⁸¹⁶

⁸¹⁶ See, for example, European Topic Centre on Resource and Waste Management (2009), *Green Public*

- 9.45 During its research, the Committee noticed that the ACT is one of the jurisdictions that is a party to the *National Waste Policy: Less Waste, More Resources* (the National Waste Policy). It was adopted, in 2009, by the Commonwealth and all State and Territory Governments, as part of their work on the then Environment Protection and Heritage Council.⁸¹⁷
- 9.46 This National Waste Policy provides, in its Strategy 2, that 'All governments as significant procurers of goods, services and infrastructure, will embody and promote sustainable procurement principles and practices within their own operations and delivery of programs and services to facilitate certainty in the market.'⁸¹⁸
- 9.47 The ACT is also one of the jurisdictions that is a party to the 2007 *Australian and New Zealand Framework for Sustainable Procurement*.⁸¹⁹
- 9.48 Further, all Australian state and territory governments have a published policy or published guidelines for what can be broadly referred to as environmentally sustainable procurement.⁸²⁰ The Commonwealth Government

Procurement and Product Performance Requirements Case Study on Selected Energy Using and Non-energy Using Products, for the European Environment Agency; Vic. Commissioner for Sustainability and the Environment (2006) *Government procurement and environmental sustainability: An overview*; European Commission (2007), *Sustainable Public Procurement in EU Member States: Overview of Government Initiatives and Selected Cases*, Final Report to the EU High-Level Group on Corporate Social Responsibility; and OECD (2007) *Improving the Environmental Performance of Public Procurement: Report on Implementation of the Council Recommendation*.

⁸¹⁷ Commonwealth (2009) *National Waste Policy: Less Waste, More Resources*, November 2009 <http://www.ephc.gov.au/sites/default/files/WasteMgt_Rpt_National_Waste_Policy_Framework_Less_waste_more_resources_PRINT_ver_200911.pdf>, accessed 14 July 2011.

⁸¹⁸ *ibid.*, p.9.

⁸¹⁹ Australian Procurement and Construction Council (2007) *Australian and New Zealand Framework for Sustainable Procurement*, 14 Sept. 2007 <<http://www.apcc.gov.au/LinkClick.aspx?fileticket=%2FIacfFgL8eO%3D&tabid=151&mid=497>>, accessed 12 Nov. 2011.

⁸²⁰ See NT Gov Dept. of Natural Resources, Environment, The Arts and Sport web page 'Green Purchasing' [dated 2007] <<http://www.nt.gov.au/nreta/environment/sustainability/purchasing.html>>; Queensland Gov. Dept. of Public Works (2008) *State Procurement Policy* <<http://www.hpw.qld.gov.au/supplydisposal/GovernmentProcurement/Pages/default.aspx>>; Tas. Gov. web page 'Buying for Government: A guide for government buyers' [dated 2001] <<http://www.purchasing.tas.gov.au/buyingforgovernment/getpage.jsp?uid=2860591BA721F10FCA25747700820081>>; Vic. Gov. Dept. of Treasury and Finance, Strategy and Policy, Government Services Group (2009) *Good Practice Guidelines – Environmental Procurement*; WA State Supply Commission

has what it describes as a 'policy framework for greening government' as well as an environmental purchasing guide.⁸²¹

- 9.49 In 2008, the ACT Government issued a circular entitled *Sustainable Procurement*, which addresses environmentally sustainable procurement by ACT government agencies.⁸²²
- 9.50 The Government's June 2011 Discussion Paper entitled *Triple Bottom Line Assessment for the ACT Government* states that government procurement policies and programs for environmental sustainability have often emerged from them conducting triple bottom line assessments of their activities.⁸²³
- 9.51 The *ACT Government Infrastructure Plan 2011-2021*, released in July 2011, states: *The Government's triple bottom line approach integrates strategies to maintain Canberra's social character, and safeguard its economic future, while protecting our natural and built environments and reducing our carbon emissions. Designing infrastructure that supports low-carbon energy supply, enhances water security and maintains our natural assets is central to creating a sustainable city...*⁸²⁴
- 9.52 However, the Plan makes no reference to whether it will conduct, or whether it

(2004) *Environmental Purchasing Guide* <<http://www.ssc.wa.gov.au/policies03.asp?id=14>>. All accessed 1 Nov. 2011.

⁸²¹ Commonwealth Dept. Sustainability, Environment, Water, Population, and Communities webpage 'Policy framework for Greening of Government' [dated 7 Sept. 2009] <<http://www.environment.gov.au/sustainability/government/purchasing/policy.html> and Commonwealth (2003) 'Environmental Purchasing Guide' <<http://www.environment.gov.au/settlements/publications/government/purchasing/purchasing-guide/pubs/purchasing-guide.pdf>>, respectively, both accessed 1 Nov. 2011.

⁸²² ACT (2008) *Sustainable Procurement* <http://www.procurement.act.gov.au/_data/assets/pdf_file/0016/16027/2007_08_Sustainable_Procurement.pdf>, accessed 13 July 2011. The ACT (2011) *Purchasing Guide: A manual to assist officers undertaking procurement activities within the Territory* makes no reference to ACT (2008) *Sustainable Procurement*, the Australian and New Zealand Framework for Sustainable Procurement, environmentally sustainable procurement, or any related topic (ACT (2011) *Purchasing Guide: A manual to assist officers undertaking procurement activities within the Territory* <http://www.procurement.act.gov.au/_data/assets/pdf_file/0010/221959/Purchasing_Guide_v4_Jul_11.pdf>, accessed 12 Nov. 2011).

⁸²³ ACT (2011) *Triple Bottom Line Assessment for the ACT Government* <<http://www.cmd.act.gov.au/policystrategic/sustainability>>, accessed 12 Dec. 2011

⁸²⁴ ACT (2011) *ACT Government Infrastructure Plan 2011-2021*, July 2011, p.67 <http://www.cmd.act.gov.au/_data/assets/pdf_file/0013/220306/infrastructureplan2011.pdf>, accessed 1 Aug. 2011.

is considering conducting, whole of life costing of the embodied energy and greenhouse gas emissions of the infrastructure or any other assessment of its environmental sustainability, as a part of the process of procuring it.

- 9.53 The Committee considers that the ACT Government could use its significant buying power to have suppliers of goods, services and capital works meet certain environmental sustainability criteria. These criteria could be set by the ACT Government, after it researches which are feasible in accessible markets and which are most necessary in terms of reducing the ACT's ecological footprint and improving the ACT public sector's buying choices against other indices of environmental performance.
- 9.54 There are already many well-developed, documented examples of such criteria from Australian local governments;⁸²⁵ award-winning local government environmental procurement programs;⁸²⁶ and evaluations of these programs offering practicable ways to improve them⁸²⁷.
- 9.55 There are also Australian software packages that are reported to significantly ease determining 'greener' supply lines. Importantly, these account for the

⁸²⁵ For example, Hornsby Shire Council (2009) *Advancing Greenhouse Purchasing & Carbon Neutrality Framework: A Criteria and Policy Framework to Enable Greenhouse Purchasing* <http://www.hornsby.nsw.gov.au/media/documents/about-council/corporate_documents-and-reports/advancing-greenhouse-purchasing/Advancing-Greenhouse-Purchasing-and-Carbon-Neutrality-Framework.pdf>; Local Government and Shires Associations of NSW webpage 'Sustainable Choice: A sustainable procurement program for NSW Local Government' [dated 19 Dec. 2011] <<http://www.lgsa-plus.net.au/www/html/956-sustainable-choice.asp>>; and Southern Sydney Regional Organisation of Councils 'Get it Green: Sustainable Procurement Policy' (July 2002) <<http://www.ssroc.nsw.gov.au/publications.aspx>>, all accessed 14 Dec. 2011.

⁸²⁶ ECO-Buy (2011) *9th ECO-Buy Awards - Celebrating Achievements in Green Purchasing - June 2011* <<http://www.ecobuyawards.org.au/winners.html>>, accessed 14 Dec. 2011.

⁸²⁷ Eco-Buy (2009) *THE STATE OF VICTORIAN LOCAL GOVERNMENT GREEN PURCHASING IN 2007/08: An analysis of green purchasing by Victorian Local Governments under the ECO-Buy Local Government Program* <<http://cms.ecobuy.org.au/uploads/documents/The%20State%20of%20Victorian%20Local%20Government%20Green%20Purchasing%20in%202007-081.pdf>>, accessed 3 Jan. 2012. There are also searchable web-based guides of certified 'green' products in Australia, such as the 'Good Environmental Choice Australia' website <<http://www.geca.org.au/>> and 'Australia's guide to sustainable living: eco-directory' website <<http://www.ecodirectory.com.au/>>, both accessed 14 July 2011.

whole of life cycle of products, services and capital works.⁸²⁸

9.56 The Committee believes that an ACT Government procurement system that operates on the basis of environmentally sustainable among other criteria is the only one that would be consistent with the ACT Government's aim to reduce the ACT's ecological footprint.⁸²⁹

9.57 Such an ACT Government procurement system would also be in close alignment with the recommendation for green procurement in the Clean Economy report commissioned by the Government in 2010. That Report is discussed in Chapter 8.⁸³⁰

9.58 With respect to the need for the ACT Government to adopt a green procurement system, it is relevant to consider that in November 2010, the Legislative Assembly's Standing Committee on Public Accounts published its Report on its Inquiry into ACT Government Procurement (the Procurement Inquiry Report).⁸³¹ Recommendation 16 of that Report recommends purchase of goods, services and works on the basis of triple-bottom line assessments, including costing of the whole-of-life cycles of goods, services and works.⁸³²

9.59 In its Response, tabled in the Legislative Assembly on 28 June 2011, the Government agrees with this Recommendation on this basis:

ACT agencies are already required to consider optimisation of whole-of-life costs in all procurements as required by section 22A(3) of the Government Procurement Act 2001. Procurement Circular 2010/11 Optimising Whole of Life Costs, including

⁸²⁸ For example, 'Supply-Chain Environmental Analysis Tool', in Venkat, K. (2008) 'Box 33: Enhancing Supply Chain Performance', in J. Birkeland (editor) *Positive Development: From Vicious Circles to Virtuous Cycles Through Built Environment Designs*, Earthscan, London, UK, p.318 and 'Ecospecifier' in Baggs, D. (2008) 'Box 29: Tools for Specifying Green Building Products', in J. Birkeland (editor) *Positive Development: From Vicious Circles to Virtuous Cycles Through Built Environment Designs*, Earthscan, London, UK, p.314.

⁸²⁹ Mr Simon Corbell MLA stated that this is the Government's objective in an Inquiry hearing: *Transcript of Evidence* (public hearing), 24 March 2011, p.40.

⁸³⁰ University of Canberra Knowledge (2010) *Framework for an Australian Capital Territory Clean Economy Strategy: Economic, Environmental and Social Perspectives*, Sept. 2010, p.6.

⁸³¹ See ACT Legislative Assembly Standing Committee on Public Accounts (2010) *Inquiry into ACT Government Procurement: Report 13*, Nov. 2010
<http://www.parliament.act.gov.au/committees/index1.asp?committee=116&inquiry=812&category=19>, accessed 14 Nov. 2011.

⁸³² *ibid.*

worked examples of financial analysis techniques to assist agencies to prepare their whole of life costs for individual products or services.

*Whole of Government contracts provide an excellent opportunity for sustainability impacts to be identified and measured...*⁸³³

- 9.60 The Government, in its Response, disagrees with Recommendation 18 of the Procurement Inquiry Report. Recommendation 18 recommends that section 22A be amended to expressly refer to sustainability considerations, in similar terms to those of section 11 of the Commonwealth *Financial Management Act 1996*.⁸³⁴ The Government disagrees on the basis that the *Government Procurement Act 2001* already requires whole of life costing of prospective procurements.
- 9.61 The Committee is pleased to note that the Government agreed to Recommendation 19 which recommends that all government officers conducting procurement processes regularly receive training on incorporating 'sustainability considerations' into tender development, selection processes, and engagements with suppliers.⁸³⁵

Key findings

- 9.62 The Committee considers that the Government should review its response to Recommendation 18 of the Report of the Standing Committee on Public Accounts 2010 Inquiry into ACT Government Procurement, in light of the evidence presented to this Inquiry into ecological carrying capacity on the absolute size and the growth rate of the ACT ecological footprint, and its highly disproportionate contribution to the ACR's ecological footprint.

⁸³³ ACT (2011) *Inquiry into ACT Government Procurement: Report 13, November 2010, Government Response June 2011*, p.11.

<<http://www.parliament.act.gov.au/committees/index1.asp?committee=116&inquiry=812&category=19>>, accessed 14 Dec. 2011.

⁸³⁴ ACT Legislative Assembly Standing Committee on Public Accounts (2010) *Inquiry into ACT Government Procurement: Report 13*, Nov. 2010, p.12.

⁸³⁵ ACT (2011) *Inquiry into ACT Government Procurement: Report 13, November 2010, Government Response June 2011*, p.12.

RECOMMENDATION 21

9.63 **The Committee recommends that the ACT Government:**

- a) **reviews its response to Recommendation 18 of the *Inquiry into ACT Government Procurement: Report 13* (2010) by the Legislative Assembly's Standing Committee on Public Accounts.**
- b) **develops, implements, and reports on, a procurement system that bases its decisions to purchase goods, services and capital works on, among other things, whole of life cycle environmental costing.**
- c) **develops a triple bottom line assessment policy that is predicated on, among other methods, whole of life cycle environmental costing of Government procurements.**

10 ACT GOVERNMENT CO-LEADERSHIP ACROSS THE AUSTRALIAN CAPITAL REGION

- 10.1 At 30 June 2010, the proportion of adults in the ACT who were aged between 15 and 44 years old, and were, therefore, in their prime fertility years, was particularly high as compared to the rest of Australia. People aged 15 to 34 years old accounted for 32.1 per cent of the ACT's total population and people aged 15 to 44 years old accounted for 46.7 per cent of it. This was 3.7 per cent and 4.1 per cent more, respectively, than the national proportions of people in these cohorts.⁸³⁶
- 10.2 At the same time, in Queanbeyan, 29.4 per cent were 15 to 34 years old, and 45.7 per cent were 15 to 44 years old.⁸³⁷ This is 1 per cent and 3.1 per cent, above the respective national proportions.⁸³⁸
- 10.3 Further, as noted in Chapter 4, Queanbeyan City, Yass Valley and Palerang LGAs, all just across the ACT border, have the fastest growing populations of all LGAs in NSW.
- 10.4 The Global Footprint Network, in its 2010 account of the global ecological footprint, highlights that 'It can be expected that those regions with young populations today will undergo rapid population growth and a consequent multiplicative effect on their Ecological Footprint'.⁸³⁹
- 10.5 Managing the ACT's and ACR's likely future population growth and ecological carrying capacity issues will necessarily require engagement between individuals and organisations from across the ACR's government, non-government and community sectors and community-based groups.

⁸³⁶ ABS (2011) *Population by Age and Sex, Regions of Australia, 2010* (cat. no. 3235.0) (released 31 May 2011). Mr Mark O'Connor points to the 'low age structure' of the ACT in his submission (Sub. 22, p.11).

⁸³⁷ ABS (2011) *National Regional Profile: Queanbeyan (Statistical Subdivision)* (released 4 Nov. 2011).

⁸³⁸ For the national proportions, see ABS (2011) *Population by Age and Sex, Regions of Australia, 2010* (cat. no. 3235.0) (released 31 May 2011).

⁸³⁹ GFN (2010) *Ecological Footprint Atlas*, p. 24
<http://www.footprintnetwork.org/images/uploads/Ecological_Footprint_Atlas_2010.pdf>, accessed 14 Dec. 2011.

Cross-regional governance mechanisms

- 10.6 Regional planning for the ACR is currently governed by a plethora of plans and policies created by government, quasi-government and non-government bodies, as well as bi- and multi-lateral forums and agreements between them.
- 10.7 The following is not intended to be an exhaustive account of these. Rather, it is an attempt to broadly canvas those that arose in the evidence presented to the Inquiry and whether they are interacting to deliver outcomes that are enhancing the ACR's ecological carrying capacity.
- 10.8 NSW local governments in the ACR promulgate their own local environment plans, development control plans, and developer contribution plans, as well as other instruments that relate to managing the landscapes they occupy.⁸⁴⁰ For example, the Queanbeyan City Council is currently developing a climate change action plan,⁸⁴¹ the Cooma Monaro Shire Council has developed a 'climate change risk assessment' with the Wagga Wagga City Council and Great Lakes Council,⁸⁴² and every NSW local government produces a state of the environment report each year that there is an ordinary election of council members⁸⁴³.
- 10.9 As noted in Chapter 3, the 17 NSW local governments that along with the ACT Government, constitute all the local governments of the ACR, also contribute inputs to regional state of the environment reporting conducted by the ACT OCSE. There have been regional state of the environment reports for 1997, 1997–2000, 2000–04 and 2004–2008.⁸⁴⁴

⁸⁴⁰ These are made under the NSW *Environmental Planning and Assessment Act* 1979, Division 4 <<http://www.legislation.nsw.gov.au/scanview/inforce/s/1/?TITLE=%22Environmental%20Planning%20and%20Assessment%20Act%201979%20No%20203%22&nohits=y>>, accessed 3 Jan. 2012.

⁸⁴¹ Queanbeyan City Council <<http://www.qcc.nsw.gov.au/Growing-Our-City/Sustainability/Climate-Change/Climate-Change>>, accessed 14 Dec. 2011.

⁸⁴² Cooma Monaro Shire Council <http://www.cooma.nsw.gov.au/files/docs/environmental_management/0382_br_echelon_climate_change_risk_assessment_cooma.pdf>, accessed 14 Dec. 2011.

⁸⁴³ Subsection 428A(1) of the NSW *Local Government Act* 1993 requires this: <<http://www.legislation.nsw.gov.au/scanview/inforce/s/1/?TITLE=%22Local%20Government%20Act%201993%20No%2030%22&nohits=y>>, accessed 14 Dec. 2011.

⁸⁴⁴ See OCSE regional state of the environment reporting website <<http://www.environmentcommissioner.act.gov.au/publications/rsoc>>, accessed 14 July 2011.

- 10.10 As noted in Chapter 6, all NSW local governments are part of NSW Government Renewable Energy Precincts.⁸⁴⁵ As discussed later in this Chapter, these NSW Renewable Energy Precincts were referred to in the testimony of Mr Robert van Aalst, the Executive Officer of Regional Development Australia ACT (RDA ACT).⁸⁴⁶ RDA ACT was established in 2009, as one of 55 RDA committees across Australia.⁸⁴⁷ It is funded by the ACT Government and Commonwealth Government.⁸⁴⁸ The activities of RDA ACT are elaborated on later in this Chapter.
- 10.11 Written evidence furnished by the Chief Minister indicates that there is an Eastern Regional Transport Taskforce that was established in March 2010 to work on Canberra-Queanbeyan transport issues. It is comprised of representatives from the NSW and ACT Governments and Queanbeyan City Council.⁸⁴⁹
- 10.12 Mr van Aalst of RDA ACT briefly mentioned in his testimony that RDA ACT is a member of South East Australian Transport Strategy Incorporated (SEATS).⁸⁵⁰
- 10.13 SEATS is an incorporated association comprised of many of the local governments of the ACR; Roads ACT, which is a part of the ACT Government's Territory and Municipal Services Directorate (TAMS); the Canberra Airport; and NatRoad, an industry body based in Canberra.⁸⁵¹
- 10.14 Written evidence from the Chief Minister indicates that a South-East Region Organisation of Councils (SEROC) was established in July 2010. SEROC is a

⁸⁴⁵ NSW Office of Environment and Heritage 'Renewable Energy Precincts' webpage [dated 27 Oct. 2011] <<http://www.environment.nsw.gov.au/climatechange/renewableprecincts.htm>>, accessed 14 Jan. 2012.

⁸⁴⁶ *Transcript of Evidence* (public hearing) 8 Sept. 2011, p. 113.

⁸⁴⁷ Exhibit 3, *Memorandum Of Understanding between the Commonwealth Of Australia and the Australian Capital Territory with respect to the Creation and Operation of the Regional Development Australia - Australian Capital Territory Committee*, signed May 2009 <http://www.rda.gov.au/states/act/files/ACT_MOU.pdf>.

⁸⁴⁸ *ibid.*, clause 7 and Ms Katy Gallagher, *Transcript of Evidence* (public hearing) 8 Sept. 2011, p. 103.

⁸⁴⁹ Exhibit 4g, Ms Katy Gallagher MLA (2011) *Overview of ACT Regional Engagement Arrangements*. See, also, *Transcript of Evidence* (public hearing), Mr Daniel Stewart, 24 March 2011, p.35.

⁸⁵⁰ *Transcript of Evidence* (public hearing) 8 Sept. 2011, p.114.

⁸⁵¹ SEATS website <<http://www.seats.org.au/membership/index.asp>>, accessed 14 July 2011.

voluntary association of 12 of the 17 NSW local governments in the ACR. The ARC LGAs that are not members of SEROC are Cootamundra, Gundagai, Tumut, and Young. The ACT Government participated as an observer at the SEROC meeting in July 2011⁸⁵² and SEROC describes the ACT as an 'ex-officio member'⁸⁵³.

- 10.15 As noted in Chapter 7, SEROC has a 'Resource Recovery Network' that focuses on the minimisation of food, among other wastes, and that the Network is developing a regional waste management strategy.⁸⁵⁴
- 10.16 These examples of NSW local governments in the ACR participating in transport planning, environment reporting, climate risk assessment, renewable energy development, and resource recovery, are in keeping with the vast body of literature that highlights the multiple environmental responsibilities that rest with local governments in Australia. This literature emphasises that the scope of these responsibilities is often prescribed by State and Commonwealth law, and that local government's compliance is overwhelmingly funded by the small and narrow revenue bases local governments have due to their limited powers to impose taxes.⁸⁵⁵
- 10.17 The mayors and general managers of the 17 NSW local governments of the ACR are members of a forum that meets bi-annually. It is called the Regional

⁸⁵² Exhibit 4g, Ms Katy Gallagher MLA (2011) *Overview of ACT Regional Engagement Arrangements*.

⁸⁵³ Submission from SEROC to Commonwealth Department of Agriculture, Fisheries and Forestry on the National Food Plan Issues Paper [no date] <http://www.daff.gov.au/agriculture-food/food/national-food-plan/submissions-received/south_east_regional_organisation_of_councils_seroc>, accessed 14 Dec. 2011.

⁸⁵⁴ SEROC Resource Recovery Network *Discussion Paper: Towards Developing a Regional Waste Management Strategy for NSW South East Region*, p.15 <http://www.serroc.nsw.gov.au/InTuneFiles/resources_reports/files/15_Discussion%20Paper%20SEROC%20Region%20waste%20strategy.pdf>, accessed 14 Dec. 2011.

⁸⁵⁵ See, for example, Kelly, A. (2011) 'The Three Phases of Local Government State of Environment Reports in NSW Australia: Complexity, Intricacy and Creativity', *Journal of Economic and Social Policy*, vol. 14, issue 2, article 2; Australian Local Government Association (2011) *Australian Local Government Association – 2011-2012 Budget Submission – Boosting regional capacity and supporting our urban communities* <http://www.alga.asn.au/site/misc/alga/downloads/budget-submissions/2011-12/ALGA_Federal_Budget_submission_2011_12.pdf>; Wild River, S. (2006) *The role of local government in environmental and heritage management*, Integrative commentary prepared for the 2006 Australian State of the Environment Committee, 2006 <<http://www.environment.gov.au/soe/2006/publications/integrative/local-government/part-two.html>>; all accessed 14 July 2011.

Leaders Forum and was established in 1995.⁸⁵⁶

10.18 The Forum is also comprised of the ACT Chief Minister; a minister of the NSW Government nominated by the NSW Premier; the Members of the NSW and Commonwealth Parliaments who represent constituents in the ACR; and the respective Chairs and Executive Officers of the RDA committees for the ACT, Southern Inland (SI), Far South Coast (FSC), and Riverina areas. Secretariat support for the Forum is Secretariat support is provided jointly by the ACT Chief Minister and Cabinet Directorate and the Southeast Regional Office of the NSW Department of Premier and Cabinet.⁸⁵⁷

10.19 The former and the current Chief Minister have had meetings with the Mayor of Queanbeyan outside the context of the Regional Leaders Forum.⁸⁵⁸

10.20 When the Committee asked, in one of the Inquiry hearings, whether regular or semi-regular meetings occurred with the mayors or officers of Yass Valley and Palerang LGAs, the two other fast-growing LGAs on the ACT border, Mr Stewart from the then Chief Minister's Department stated that:

*There is not the regularity of meetings with those other shires to the same extent that we are seeing with Queanbeyan. At the moment the regional leaders forum is seen, as I understand it, an adequate form of engagement for those shires...Issues such as settlement, transport and environmental factors are discussed at those meetings twice a year as they are held. But we do not have that regularity of contact between the Chief Minister and those mayors [of Yass Valley and Palerang LGAs] in the same way that we do with the Mayor of Queanbeyan.*⁸⁵⁹

10.21 Successive ACT Chief Ministers have also met with the NSW Premier and the NSW Health Minister to consider certain cross-border matters, including the

⁸⁵⁶ See Exhibit 4g, Ms Katy Gallagher MLA (2011) *Overview of ACT Regional Engagement Arrangements*, Inquiry Exhibits webpage and CMCD webpage on the Regional Leaders Forum <<http://www.cmd.act.gov.au/policystrategic/regional/rlf>>, accessed 14 Dec. 2011.

⁸⁵⁷ *ibid.*

⁸⁵⁸ Exhibit 4g, Ms Katy Gallagher (2011) *Overview of ACT Regional Engagement Arrangements*, Inquiry Exhibits webpage and *Transcript of Evidence* (public hearing), Ms Katy Gallagher MLA, 8 Sept. 2011, p. 99.

⁸⁵⁹ *Transcript of Evidence* (public hearing), Mr Daniel Stewart, 24 March 2011, p. 32.

provision of ACT Government services to people from South Eastern NSW.⁸⁶⁰

- 10.22 On 16 February 2012, the NSW Deputy Premier and Minister for Regional Infrastructure and Services, Mr Andrew Stoner, announced the appointment of Mr Steve Toms to the position of 'NSW's first Cross Border Commissioner'. Mr Stoner stated that the appointee would commence on 12 March 2012 and 'play a key role in strengthening cross border arrangements and improving services affected by the location of border communities'.⁸⁶¹
- 10.23 Deputy Premier Stoner also declared that the position 'has been created in direct response to concerns raised by Members of Parliament representing NSW border regions'; that it will be 'hosted within NSW Trade & Investment'; and will 'provide specialist advice to the Deputy Premier, the NSW Government and the Director General of NSW Trade & Investment'.⁸⁶²
- 10.24 Planning, development and environmental management in the ACR are also addressed by quasi-governmental bodies that the Commonwealth and ACT Governments jointly fund. One is RDA ACT.⁸⁶³ Another is the ACT Natural Resource Management Council.⁸⁶⁴ The ACT Natural Resource Management Council's contributions to the ACR were discussed in Chapter 9.
- 10.25 Mr van Aalst of RDA ACT said, in his testimony, that the RDA ACT Committee is comprised of 'ACT residents – except...we have the general manager of Queanbeyan City Council' and that RDA ACT had been 'involved with the Regional Leaders Forum' and is 'a member of SEATS'. He also commented he was 'aware of the regional management framework that the ACT Government has had in place and is trying to renew'.⁸⁶⁵

⁸⁶⁰ *Transcript of Evidence* (public hearing), 8 September 2011, p. 99; *Transcript of Evidence* (public hearing), 24 March 2011, p. 32; and *Transcript of Evidence* (public hearing), 1 July 2011, p. 73.

⁸⁶¹ Mr Andrew Stoner, NSW Deputy Premier (2012) 'New Commissioner to give border communities a fair go', Media Release, 16 Feb. 2012 <<http://www.business.nsw.gov.au/news/new-commissioner-to-give-border-communities-a-fair-go>>, accessed 16 Feb. 2012.

⁸⁶² *ibid.*

⁸⁶³ *Transcript of Evidence* (public hearing), Katy Gallagher MLA, 8 Sept. 2011, p. 103.

⁸⁶⁴ ACT Natural Resource Management Council webpage on funding <<http://www.actnrmcouncil.org.au/about/funding>>, accessed 14 July 2012.

⁸⁶⁵ *Transcript of Evidence* (public hearing), Mr Robert van Aalst, 8 Sept. 2011, pp. 112-113.

- 10.26 In his testimony, the Chair of the RDA ACT Committee, Mr Craig Sloan, explained that, in his capacity as Chair, he 'spoke at the last Regional Leaders Forum'⁸⁶⁶; he is on the Canberra Business Board; and the Board's meetings have a standing agenda item for the RDA ACT Chair to relay RDA ACT 'activities and priorities'⁸⁶⁷. Mr Sloan also noted that RDA ACT communicates its work through community groups and networks.⁸⁶⁸
- 10.27 In November 2010, RDA ACT agreed an MOU with RDA Southern Inland to collaborate on issues of mutual interest.⁸⁶⁹ As the RDA ACT 2010 Strategic Regional Plan puts it, 'RDA ACT is the 'hole in the doughnut' of the RDA Southern Inland region'.⁸⁷⁰ According to the testimony of Mr van Aalst, the RDA Southern Inland Committee has representatives 'from all parts of their region' and 'an agenda to develop the 14 local government areas that surround the ACT'.⁸⁷¹ These are all the LGAs of the ACR, bar the Gundagai, Bega Valley and Eurobodalla Shires.⁸⁷²

Memoranda and other agreements for cross-regional governance

- 10.28 Chapter 5 discussed the NSW-ACT-Commonwealth Government agreements for the supply of water and the ACT-NSW Office of Environment and Heritage one for data projections on the ACR climate. There are four other cross-border inter-governmental agreements that bear on the ecological carrying capacity of the ACR.
- 10.29 One is the 2009 MOU between the ACT and Commonwealth Governments to

⁸⁶⁶ *ibid.*, p. 114.

⁸⁶⁷ *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.122.

⁸⁶⁸ *ibid.*

⁸⁶⁹ Exhibit 3, *Memorandum Of Understanding between Regional Development Australia ACT and Regional Development Australia Southern Inland* (signed November 2010).

⁸⁷⁰ RDA ACT (2010) *ACT Strategic Regional Plan: A framework for economic, social and environmental development initiatives in the ACT and region*, p. 21 <http://rdaact.org.au/wp-content/uploads/2011/03/RDA_ACT_regional_plan_20102.pdf> accessed 12 Aug. 2011.

⁸⁷¹ *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.112.

⁸⁷² RDA Southern Inland webpage <<http://www.rdasi.org.au/>>, accessed 14 July 2011.

establish RDA ACT.⁸⁷³

- 10.30 Two of the other inter-governmental agreements are the 2006 *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory-New South Wales Cross Border Region Settlement Agreement*⁸⁷⁴ (Settlement MOU) and the 2006 *Australian Capital Territory-New South Wales Regional Management Framework*⁸⁷⁵ (Regional Management Framework).
- 10.31 The fourth is the *ACT-NSW Memorandum of Understanding for Regional Collaboration* (Regional Collaboration MOU). This MOU was signed on 2 December 2011 and at that time replaced the Regional Management Framework.⁸⁷⁶
- 10.32 The Settlement MOU was signed in 2006 by the then ACT Chief Minister and the then NSW Premier. It states that its purpose is to establish a 'number of principles that will guide settlement as well as access to other services and infrastructure in the Cross Border Region'.⁸⁷⁷ It stipulates that when it refers to 'Cross Border Region' it means Yass Valley, Queanbeyan City and Palerang.⁸⁷⁸
- 10.33 The Settlement MOU states that a 'Cross-Border Region Settlement Strategy' (Settlement Strategy) will be developed and agreed by the ACT and NSW.⁸⁷⁹ It also makes three statements that explicitly regard stewardship of the environment.

⁸⁷³ *Memorandum Of Understanding between the Commonwealth Of Australia and the Australian Capital Territory with respect to the Creation and Operation of the Regional Development Australia - Australian Capital Territory Committee*, signed May 2009, <http://www.rda.gov.au/states/act/files/ACT_MOU.pdf>, accessed 14 July 2011.

⁸⁷⁴ Exhibit 4b, *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory-New South Wales Cross Border Region Settlement Agreement* (2006), Inquiry Exhibits webpage.

⁸⁷⁵ Exhibit 4a, *Australian Capital Territory-New South Wales Regional Management Framework* (2006).

⁸⁷⁶ *ACT-NSW Memorandum of Understanding for Regional Collaboration*, signed 2 Dec. 2011, p.2 [no paragraph numbers in the document], CMCD webpage <http://www.cmd.act.gov.au/_data/assets/pdf_file/0004/265225/ACT-NSW-MoU-regional-collaboration.pdf>, accessed 10 Dec. 2011.

⁸⁷⁷ Exhibit 4b, *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory-New South Wales Cross Border Region Settlement Agreement* (2006), para. 1.1.1.

⁸⁷⁸ *ibid.*, footnote 1, p.2.

⁸⁷⁹ *ibid.*, p.2.

10.34 The first of these is that:

*The achievement of a sustainable future for the ACT /NSW Cross-Border Region will mean that development and growth that meets present day needs and desires will not compromise the ability of future generations to meet their needs.*⁸⁸⁰

10.35 The second is that the NSW component of the Settlement Strategy will adopt the overarching ecologically sustainable development (ESD) principles of ‘the precautionary principle, inter-generational equity, biodiversity conservation, and improved valuing, pricing and incentive mechanisms’.⁸⁸¹ It explains that these are principles enshrined in NSW environment protection statutes.⁸⁸²

10.36 The third is that:

*Growth and development in the region should be located in areas that result in the best social, environmental and economic outcomes – achieving a sustainable settlement pattern, an efficient urban system and minimising ecological footprint will guide decision-making...*⁸⁸³

10.37 The MOU provides that after the establishment of the Settlement Strategy, the ACT will deliver it through its Canberra Spatial Plan and the Territory Plan and that NSW will deliver it through its Sydney-Canberra Corridor Regional Strategy and Local Environmental Plans (LEPs).

10.38 As noted in Chapter 5, the ACT has established its Canberra Spatial Plan⁸⁸⁴ and Territory Plan,⁸⁸⁵ the NSW Government has established the Sydney-Canberra

⁸⁸⁰ Exhibit 4b, *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory-New South Wales Cross Border Region Settlement Agreement* (2006), para. 1.1.5.

⁸⁸¹ *ibid.*, para. 1.1.6.

⁸⁸² *ibid.*, footnote 2, pp.2-3.

⁸⁸³ *ibid.*, para. 5.3.

⁸⁸⁴ *Canberra Spatial Plan* <http://apps.actpla.act.gov.au/spatialplan/1_future/1B_context/index.htm>, accessed 11 Nov. 2011.

⁸⁸⁵ *Territory Plan 2008* <<http://www.legislation.act.gov.au/ni/2008-27/default.asp>>, accessed 11 Nov. 2011.

Corridor Regional Strategy,⁸⁸⁶ and NSW local governments have established LEPs⁸⁸⁷.

10.39 In his testimony to the Committee, Mr Stewart, indicated that:

*there was an agreement under that document [the Settlement MOU] to prepare a regional settlement strategy. For a variety of reasons, a formal strategy has not been prepared. What we have now is an ACT spatial plan and a New South Wales Sydney-Canberra corridor planning strategy...there has been a lot of activity around Tralee and Googong...It is certainly likely to continue... we have three of the five fastest growing non-metropolitan Sydney New South Wales councils directly on our border — Palerang, Yass and Queanbeyan — growing at a rate well in excess of our own population growth...*⁸⁸⁸

10.40 Ms Gallagher confirmed that there is no Settlement Strategy, in her testimony, and in her written evidence to the Inquiry. When asked by the Committee whether it was Ms Gallagher's 'intention... to have some sort of agreement in place', Ms Gallagher replied 'Yes, if it can be reached'.⁸⁸⁹

10.41 The Committee notes that since Ms Gallagher gave that testimony, the ACT Government has published its Draft Planning Strategy and that it sets a 'target' to 'Achieve a regional settlement strategy' during '2012-2016'.⁸⁹⁰

10.42 The Regional Management Framework was signed in 2006, by the then ACT Chief Minister and the then NSW Premier of NSW.⁸⁹¹ Notwithstanding the Regional Collaboration MOU has now replaced it, it is worth canvassing what the Regional Management Framework stated, making some instructive

⁸⁸⁶ NSW Dept. of Planning (2008) *Sydney-Canberra Corridor Regional Strategy 2006-2031* <http://www.planning.nsw.gov.au/plansforaction/pdf/sydcancorridor_regional_strategy_final.pdf>, accessed 11 Nov. 2011.

⁸⁸⁷ See, for example, Queanbeyan City Council LEP <<http://www.qcc.nsw.gov.au/Growing-Our-City/Local-Environmental-Plans/Local-Environmental-Plans>> and Palerang Council LEP <http://palerang-new.local.e.nsw.gov.au/index.php?option=com_jentlacontent&view=category&id=2352&Itemid=2842>, both accessed 11 Nov. 2011.

⁸⁸⁸ *Transcript of Evidence* (public hearing), Mr Daniel Stewart, 24 March 2011, p. 32.

⁸⁸⁹ *Transcript of Evidence* (public hearing), Ms Katy Gallagher MLA, 8 Sept. 2011, p.106

⁸⁹⁰ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.68. The Draft Planning Strategy was published on 17 September 2011. See Mr Simon Corbell MLA (2011) 'Planning for Canberra's future', Media Release, 17 Sept. 2011.

⁸⁹¹ Exhibit 4a, *Australian Capital Territory-New South Wales Regional Management Framework* (2006).

comparisons with its replacement agreement, and noting what Inquiry witnesses stated occurred under the Regional Management Framework.

10.43 The Regional Management Framework stated at its outset that:

*While Canberra was initially developed as the seat of Australia's national government and its administrative centre, it also grew into a key regional centre in southeast NSW. As Canberra matured, and particularly since self-government in 1989, cross border issues have become increasingly important, and there is now a need for regular engagement between NSW and the ACT.*⁸⁹²

10.44 The Regional Management Framework set out arrangements for coordination between the ACT and NSW governments on 'Water and Catchment Management'; 'Settlement Patterns', including planning for urban and rural development'; 'Infrastructure' including 'transport, communications and community infrastructure'; 'Economic Development – industry, business and community development, investment and marketing for the region'; 'Service Delivery' particularly 'human services'; and 'Emergency and Consequence Management' including 'National Capital Security, all levels of government and business continuity, regional security and Emergency Management'.⁸⁹³

10.45 The Regional Management Framework declared that 'The intention of the agreement is to involve other key stakeholders such as surrounding local governments and the Australian Government as required'.⁸⁹⁴

10.46 It also prescribed that there would be a Work Plan established under it and:

*...the Chief Ministers Department and Premiers Department will jointly monitor, evaluate and document the performance of the RMF [Regional Management Framework] agreement and associated work plan. This will take the form of a report every 12 months to First Ministers on the progress towards the agreed outcomes and functions and matters included in the work plan...*⁸⁹⁵

10.47 The ACT Government's submission to the Inquiry does not mention the

⁸⁹² Exhibit 4a, *Australian Capital Territory-New South Wales Regional Management Framework* (2006), p.1 [no paragraph numbers in document].

⁸⁹³ *ibid.*, p.4.

⁸⁹⁴ *ibid.*, p.3.

⁸⁹⁵ *ibid.*, p.5.

Regional Management Framework or any Regional Management Framework-related work plan, review or evaluation. At the time that submission was written, the Regional Management Framework was still current. The negotiations for the Regional Collaboration MOU, which replaced the Regional Management Framework, could not have yet commenced, because the current NSW Liberal Government was not yet in power.⁸⁹⁶

10.48 Further, when, in Inquiry hearings, the Committee asked ACT Government Ministers and officers about activities conducted under the Regional Management Framework and the Settlement MOU, no reference was made to any Regional Management Framework-related work plan, review or evaluation.⁸⁹⁷ The Regional Management Framework was still on foot when the Ministers and officers gave their testimony.⁸⁹⁸

10.49 However, Mr Corbell, appearing in his capacity as the ACT Minister for Environment and Sustainable Development and Minister for Planning, stated in his testimony that:

*In relation to the settlement pattern itself, there is a regional management framework in place between the ACT and the New South Wales governments and local government areas...I think it is important that we continue to strengthen... engagement between levels of government around that framework.*⁸⁹⁹

10.50 Further, in her oral testimony, Ms Gallagher noted that ‘...in terms of my discussions with Premier O’Farrell [the current NSW Premier who had not long been Premier at the time], the focus would be on having a look at that

⁸⁹⁶ The NSW Liberal Government was elected on 26 March 2011: ABC News ‘NSW Votes 2011’ <<http://www.abc.net.au/elections/nsw/2011/>>, accessed 12 Dec. 2011.

⁸⁹⁷ *Transcript of Evidence* (public hearing), Ms Katy Gallagher MLA, 8 Sept. 2011, pp.99-101; *Transcript of Evidence* (public hearing), Mr Simon Corbell MLA, 24 March 2011, p.31; *Transcript of Evidence* (public hearing), Mr Daniel Stewart, 24 March 2011, pp.31-32.

⁸⁹⁸ ACT-NSW Memorandum of Understanding for Regional Collaboration, p.2 [no paragraph numbers in the document], CMCD webpage <http://www.cmd.act.gov.au/_data/assets/pdf_file/0004/265225/ACT-NSW-MoU-regional-collaboration.pdf>, accessed 10 Dec. 2011. The ACT-NSW Memorandum of Understanding for Regional Collaboration was signed 2 December 2011. The NSW Liberal Government was elected on 26 March 2011: ABC News ‘NSW Votes 2011’ <<http://www.abc.net.au/elections/nsw/2011/>>, accessed 12 Dec. 2011.

⁸⁹⁹ *Transcript of Evidence* (public hearing), Mr Simon Corbell MLA, 24 March 2011, p.31.

agreement [the Regional Management Framework]'. Ms Gallagher also observed:

*...if we could get some overarching agreement that identified the other agreements...and put a plan about how all of that works together...people who are not involved in those specific agreements would understand how it all works together. But, again, I do not want to pre-empt anything that I have not raised...with the Premier...*⁹⁰⁰

10.51 The Regional Collaboration MOU agreed between NSW and the ACT on 2 December 2011 states that it replaces the Regional Management Framework and covers 'South East NSW Region'.⁹⁰¹ It makes no reference to the ACR, while the Regional Management Framework did.⁹⁰² It also makes no direct reference to the environment, or elements of it, such as catchments, while the Regional Management Framework did.⁹⁰³

10.52 However, the Regional Collaboration MOU states that one of three priority actions for NSW and the ACT is a:

*mechanism to deliver collaborative strategic land use and growth related infrastructure planning across the broader South East Region; and once agreed by the First Ministers, develop a new strategic plan for land use and infrastructure requirements reflecting the unique characteristics of the region and taking into account the Draft ACT Planning Strategy and the review of Sydney-Canberra Corridor Regional Strategy.*⁹⁰⁴

10.53 The Committee notes that the 'new strategic plan' for the ACR referred to in the Regional Collaboration MOU is consistent with Strategy 7 of the ACT Draft

⁹⁰⁰ Transcript of Evidence (public hearing), 8 Sept. 2011, pp.100-101.

⁹⁰¹ ACT-NSW Memorandum of Understanding for Regional Collaboration, signed 2 Dec. 2011, p.2, CMCD webpage <http://www.cmd.act.gov.au/_data/assets/pdf_file/0004/265225/ACT-NSW-MoU-regional-collaboration.pdf>, accessed 10 Dec. 2011.

⁹⁰² Exhibit 4a, Australian Capital Territory-New South Wales Regional Management Framework (2006), p.1.

⁹⁰³ *ibid.*, p.4.

⁹⁰⁴ ACT-NSW Memorandum of Understanding for Regional Collaboration, signed 2 Dec. 2011, p.4.

Planning Strategy. Strategy 7 is 'Managing growth responsibly and sustainably by taking a regional approach to urban settlement'.⁹⁰⁵

- 10.54 In relation to the Regional Collaboration MOU's commitment to the ACT Draft Planning Strategy, the Committee notes that, among other things, the Draft Strategy declares that developing 'a regional strategy for biodiversity must be a priority' and that by:

*taking a regional approach we have a better capacity to mitigate our impacts and offset the unavoidable negative impacts that urban and rural development make on wildlife and natural areas.*⁹⁰⁶

- 10.55 The Conservation Council of the ACT Region, in its submission, argues that 'it is essential to consider the ecological functioning of the ACT in the broader biogeographic landscape in which it sits (Southern Tablelands & Alps)'.⁹⁰⁷ Mr Richard Sharp, in his submission, points to studies that treat the ACT and surrounding areas as a bioregion. One of these studies is on native vegetation and the other is on the ecosystems of the ACT and Southern Tablelands.⁹⁰⁸

- 10.56 According to the most up-to-date version of the Commonwealth's Interim Biogeographic Regionalisation for Australia, Canberra and some other areas of the ACR are in the NSW South Eastern Coastal Plain bioregion, while the balance of the ACR is in the NSW South Western Slopes bioregion.⁹⁰⁹

- 10.57 The Regional Collaboration MOU refers to local governments, in so far as it states that it is a priority for the NSW and ACT to:

consider the establishment of an alliance with key regional stakeholders, including Regional Development Australia Boards and Regional Organisation of Councils

⁹⁰⁵ ACT (2011) *Draft ACT Planning Strategy: Planning for a sustainable city*, p.2 <http://timetotalk.act.gov.au/storage/1222_PLANNING_STRATEGY_TAGGED_PDF_FINAL.pdf>, accessed 1 Nov. 2011.

⁹⁰⁶ *ibid.*, p.54.

⁹⁰⁷ Sub 13, p.1.

⁹⁰⁸ Sub. 1, p.1.

⁹⁰⁹ A clear map of these bioregions may be viewed on the Interim Biogeographic Regionalisation for Australia webpages of the Commonwealth Dept. of Sustainability, Environment, Water, Population and Communities website <<http://www.environment.gov.au/parks/nrs/science/pubs/nrs-all-layers.pdf>>, accessed 14 Oct. 2011.

*operating within the broader South East Region, along with the Canberra Urban and Regional Futures.*⁹¹⁰

- 10.58 Chapter 8 of this Report notes that the Canberra Urban and Regional Futures (CURF) is a UC-ANU initiative that has, among other things, convened public forums about regional planning, including environmental dimensions of this planning. In her testimony, Professor Barbara Norman, the Co-Director of CURF, observed that:

*Research is fantastic, but it is not of much use to the regional community if nobody knows about it...The next step was to start a series of seminars...We have had the head of the Green Building Council, Romilly Madew. Will Steffen [CURF Co-Director and Commonwealth Climate Commissioner] gave the second. I gave the third...They are extremely well attended...There is a great thirst for knowledge around these issues by the community...Then there was our regional symposium...It started with a discussion around climate change adaptation... We travelled down to Batemans Bay...There was a forum with local government particularly and the RDAs around some of the regional issues and energy futures...In the afternoon it was around regional resilience. We had a community meeting...attended by about 50 people... We hope to do that more...*⁹¹¹

- 10.59 Professor Norman tabled to the Committee a paper on CURF's origins and objectives. This paper was authored by Professors Norman and Steffen, the CURF's two Co-Directors. It emphasises, among other things, CURF's focus on facilitating a wide range of actors throughout the ACR to jointly learn about, plan, and manage adaptation to climate change and other environmental developments in the region.⁹¹²

- 10.60 The Regional Collaboration MOU makes reference to only one agreement, the Regional Management Framework it replaces, pointing to it as evidence that 'cross regional collaboration...has long been a focus of the two jurisdictions [ACT and NSW]'. It describes the Regional Leaders Forum, in the same

⁹¹⁰ ACT-NSW Memorandum of Understanding for Regional Collaboration, signed 2 Dec. 2011, p.4.

⁹¹¹ Transcript of Evidence (public hearing), 14 Sept. 2011, p.136.

⁹¹² Exhibit 5, Norman, B and Steffen, W (2011) *Canberra Urban and Regional Futures – an innovative regional platform for building resilience*, CURF Paper No. 1, Aug. 2011.

terms.⁹¹³ It does not refer to a NSW Cross-Border Commissioner. However, the MOU was agreed before that new office was announced.⁹¹⁴

Efficacy of ACT-NSW governance for the region's environment

- 10.61 A submission to the Inquiry from the then NSW Minister for Planning, Mr Tony Kelly, a Minister of the previous NSW Government, suggests that 'it may be that a stronger mechanism for ongoing consultation and collaboration is needed for the planning and implementation of strategic outcomes in the region.'⁹¹⁵
- 10.62 The current NSW Government was elected after the Inquiry's period of calling for submissions or witnesses had passed.⁹¹⁶
- 10.63 Ms Gallagher⁹¹⁷ and Mr Stewart⁹¹⁸ indicated, in their testimony, that the Regional Management Framework and the Regional Leaders Forum have facilitated information sharing about regional planning between the ACT and NSW. The Deputy Director-General of CMCD, Ms Davoren, also said this of the Regional Leaders Forum⁹¹⁹ and Mr Corbell said it of the Regional Management Framework⁹²⁰.
- 10.64 However, when the Committee pressed for tangible outcomes of the Regional Leaders Forum and the Regional Management Framework, apart from information sharing, only one outcome was nominated. Ms Davoren offered

⁹¹³ ACT-NSW Memorandum of Understanding for Regional Collaboration, signed 2 Dec. 2011, p.2.

⁹¹⁴ The Commissioner was announced on 16 February 2012, by Andrew Stoner, Deputy Premier NSW (2012): Mr Andrew Stoner, NSW Deputy Premier (2012) 'New Commissioner to give border communities a fair go', Media Release, 16 Feb. 2012 <<http://www.business.nsw.gov.au/news/new-commissioner-to-give-border-communities-a-fair-go>>, accessed 16 Feb. 2012 and the Regional Collaboration MOU was signed 2 December 2011, *ibid*.

⁹¹⁵ Sub. 33, p.1.

⁹¹⁶ The NSW Liberal Government was elected on 26 March 2011, ABC News 'NSW Votes 2011' <<http://www.abc.net.au/elections/nsw/2011/>>, accessed 12 Dec. 2011.

⁹¹⁷ *Transcript of Evidence* (public hearing), 8 Sept. 2011, pp.100-101.

⁹¹⁸ *Transcript of Evidence* (public hearing), 24 March 2011, pp.31-32.

⁹¹⁹ *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.102.

⁹²⁰ *Transcript of Evidence* (public hearing), 24 March 2011, p.31.

that the ACR State of the Environment Reporting by the ACT Commissioner for Sustainability and the Environment, is:

*...one area in terms of that kind of regional approach to environmental matters that has seemed to cohere more with the Regional Leaders Forum. As you say, over time there are opportunities now to look at transport and stronger collaborations.*⁹²¹

10.65 Ms Davoren also commented that:

*One of the challenges we have found with the leaders forum is that it is...17 local government areas with quite diverse interests... So it is a matter of how we juggle...to get areas of common interest for all...17 mayors... working through how we make use of the RDA ACT and the collaborative relationships with other RDAs in the adjoining region, I think that there might be some opportunities for getting some of those collaborative projects going. I think that is...the next bit of work.*⁹²²

10.66 When, in an earlier Inquiry hearing, the Committee asked Mr Stewart a similar question about environmental outcomes of NSW-ACT governance arrangements, he also could only nominate the interaction between the Commissioner for the Environment and Sustainability and the Regional Leaders Forum:

*The Commissioner for Sustainability and the Environment has a standing brief to that forum, primarily because she does the state of the region...There have been visits to wind farms and small-scale solar. There is certainly an interest...as to the capacity of the region to be showcasing and developing its renewable energy credentials...But, in terms of a formal work program relating to environmental projects, there is nothing at this point in time that is joined up across the entire region.*⁹²³

10.67 Mr Sloan, the Chair of RDA ACT underlined in his testimony that:

RDA will be an important...driver of regional...environmental solutions which will

⁹²¹ *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.102. OCSE 'State of the Environment Reporting for the Region' webpage: 'The first regional State of the Environment Report was published in 1997, by the ACT Office of the Commissioner for the Environment, it is a joint effort of all the governments in the Region. Subsequently reports were published for 1997–2000, 2000–04 and for 2004–2008' and 'The 2009 State of the Environment Report for the Australian Capital Region covers the period July 2004 to June 2009.'

<<http://www.envcomm.act.gov.au/publications/rsoe>>, accessed 13 Nov. 2011.

⁹²² *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.102.

⁹²³ *Transcript of Evidence* (public hearing), 24 March 2011, p.33.

*support ongoing sustainability and the management of climate change, including the impact of drought, flood or bushfires...*⁹²⁴

While this statement is not reflected in the MOU between the Australian and ACT Governments that established RDA ACT,⁹²⁵ it is spelt out in the MOU between RDA ACT and RDA Southern Inland⁹²⁶.

10.68 Mr Sloan recalled that RDA ACT had consulted with Greening Australia and the ACT Natural Resource Management Council and that one of the RDA ACT Committee members is also a member of 'an environment taskforce with the ACT Business Council'.⁹²⁷

10.69 Mr van Aalst also pointed out that RDA ACT has an environment subcommittee 'engaging quite heavily with stakeholders from across the relevant sectors'⁹²⁸ and that RDA ACT had coordinated much advocacy for high speed rail service on the Sydney-Canberra-Melbourne route⁹²⁹. The Committee understands that there are several studies of high speed rail,⁹³⁰ including whole of life cycle ones,⁹³¹ which indicate that a well-patronised high-speed rail service can consume less energy and produces less greenhouse emissions than passenger cars and aircraft.

10.70 Mr Sloan stated, in his testimony that '*...we [RDA ACT] assist the government*

⁹²⁴ *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.112.

⁹²⁵ *Memorandum Of Understanding between the Commonwealth Of Australia and the Australian Capital Territory with respect to the Creation and Operation of the Regional Development Australia Australian Capital Territory Committee*, signed May 2009.

⁹²⁶ *Memorandum Of Understanding between Regional Development Australia ACT and Regional Development Australia Southern Inland*, signed November 2010, p.1.

⁹²⁷ *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.122.

⁹²⁸ *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.121.

⁹²⁹ *ibid.*, p.123.

⁹³⁰ Deloitte Access Economics (2011) *The true value of rail*, Report for the Australasian Railway Association, 3 June 2011, p.29

<[https://www.deloitteaccesseconomics.com.au/uploads/File/20110603%20-%20The%20True%20Value%20of%20Rail%20\(Final\).pdf](https://www.deloitteaccesseconomics.com.au/uploads/File/20110603%20-%20The%20True%20Value%20of%20Rail%20(Final).pdf)>, accessed 14 July 2011.

⁹³¹ See, generally, Akerman, J. (2011) 'The role of high-speed rail in mitigating climate change – The Swedish case Europabanan from a life cycle perspective', *Transportation Research Part D* 16 (2011) 208–217. Also Chang, B. and A. Kendall (2011) 'Life cycle greenhouse gas assessment of infrastructure construction for California's high-speed rail system', vol. 16, issue 6, August 2011, pp. 429–434 <<http://www.sciencedirect.com/science/article/pii/S1361920911000484>> and Chester, M. and A. Horvath (2010) 'Life-cycle assessment of high-speed rail: the case of California', *Environmental Research Letters*, vol. 5, no. 1, January 2010 <<http://www.sustainable-transportation.com/>>, both accessed 14 Oct. 2011.

[the ACT Government] *in achieving its environmental targets. They are big targets and a lot of work has to be done...*⁹³² When asked in an Inquiry hearing whether this included assisting the Government to achieve its renewable energy and greenhouse gas reduction targets, Mr Sloan affirmed that it was.⁹³³ While this statement is not reflected in the MOU between the Australian and ACT Governments that established RDA ACT,⁹³⁴ it is spelt out in the MOU between RDA ACT and RDA Southern Inland⁹³⁵ and in the RDA ACT Strategic Regional Plans of 2010⁹³⁶ and 2011-12.⁹³⁷

10.71 When both witnesses were asked for specifics on this assistance to Government with its targets, Mr van Aalst observed how:

*...at the secretariat level, we have been exploring a number of things for which we have not really got endorsement from our committees yet...there is a proposal...for a south-east region of renewable energy excellence, which builds in to the NSW government work about renewable energy precincts which stops at the ACT border...to...make sure that it includes the ACT's strengths in solar energy and in research and development...*⁹³⁸

10.72 As noted in Chapter 7, the RDA ACT Strategic Regional Plan 2011-12 states that, 'RDA ACT, in partnership with RDA Southern Inland and RDA FSC [RDA Far South Coast], are currently collaborating on issues...including the potential to develop a South East Region of Renewable Energy Excellence'.⁹³⁹

⁹³² *Transcript of Evidence* (public hearing), 8 Sept. 2011, p.124.

⁹³³ *ibid.*

⁹³⁴ Exhibit 3, *Memorandum Of Understanding between the Commonwealth Of Australia and the Australian Capital Territory with respect to the Creation and Operation of the Regional Development Australia - Australian Capital Territory Committee*, signed May 2009.

⁹³⁵ *Memorandum Of Understanding between Regional Development Australia ACT and Regional Development Australia Southern Inland*, signed November 2010, p.6.

⁹³⁶ RDA ACT (2010) *ACT Strategic Regional Plan: A framework for economic, social and environmental development initiatives in the ACT and region*, p.63.

⁹³⁷ RDA ACT (2011) *ACT Strategic Regional Plan: A framework for economic, social and environmental development initiatives in the ACT and region*, pp.35-36.

⁹³⁸ *Transcript of Evidence* (public hearing) 8 Sept. 2011, p.113.

⁹³⁹ RDA ACT (2011) *ACT Strategic Regional Plan: A framework for economic, social and environmental development initiatives in the ACT and region*, p.22.

- 10.73 As also noted in that Chapter, the ACT Government's Sustainable Energy Policy⁹⁴⁰ and the Draft Weathering the Change: Action Plan 2⁹⁴¹ broadly refer to the ACR with respect to renewable energy development. However, neither of these documents mention the Government collaborating with any organisation/s involved in ACR governance, such as RDA ACT, to boost renewable energy development or roll-out in the wider region for the benefit of the ACT and the rest of the ACR. As seen earlier in this Chapter, the Regional Leaders Forum has no work program regarding environmental matters, while it has expressed some interest in renewable energy technologies in the ACR.⁹⁴²
- 10.74 Some individuals, NSW local governments, and some other organisations made submissions that are implicitly and explicitly critical of the ACR governance arrangements or of ACR environmental problems that they suggest cannot be solved without effective cross-ACR governance. Some of these submissions propose substantial alternatives.
- 10.75 In a statement that reflects many of the perspectives offered in these submissions, the Commissioner for Sustainability and the Environment states in her submission that:
- In the recent Regional State of the Environment Report [on the ACR], I identified renewable energy, water, land management and building adaptive communities as key areas that the region should focus on for future progress towards sustainability. All of these challenges arise from the currently unsustainable levels of resource use.*⁹⁴³
- 10.76 The EDO ACT recommends that the state of the environment reports conducted by the ACT Commissioner for Sustainability and the Environment 'should include a chapter on 'governance towards sustainability' as a way of maintaining critical thought to that issue'.⁹⁴⁴

⁹⁴⁰ ACT (2011) *Sustainable Energy Policy 2011-2020: Energy for a sustainable city*, p.27.

⁹⁴¹ ACT (2011) *Weathering the Change: Draft Action Plan 2 Pathway to a sustainable and carbon neutral Canberra 2011 – 2060*, p.59.

⁹⁴² *Transcript of Evidence* (public hearing), Mr Daniel Stewart, 24 March 2011, p.33.

⁹⁴³ Sub. 8, p.2.

⁹⁴⁴ Sub. 31, p.7.

10.77 The ACT Natural Resource Management Council points out that ‘Many natural resource issues in the ACT are strongly linked with the wider region and we strongly support actions to develop more consistent natural resource management approaches across borders’.⁹⁴⁵

10.78 The Friends of Grasslands stresses that:

*The ACT can have a huge impact on the region. ACT governments have been somewhat remiss in not always thinking in a regional context and should do so as a matter of course. The ACT Government obviously influences the size, demographic and location of the region’s population. All government policy should consider impact on the region as a whole.*⁹⁴⁶

10.79 Ms Jenny Goldie advises ‘...it will be necessary for the ACT Government to coordinate with the 17 surrounding councils on the combined issue of stabilising/reducing emissions and stabilising population’.⁹⁴⁷

10.80 The Cooma-Monaro Council highlights that ‘There is continual pressure for the provision of ‘lifestyle’ type landholdings within commuter distance to the ACT’. The Council also notes the resulting impacts on the environment⁹⁴⁸ and urges consideration of ‘cross-border land use planning issues’⁹⁴⁹. Similarly, the Upper Murrumbidgee Catchment Coordinating Committee refers to increasing ‘pressures on rural and residential areas around the ACT’ that are a consequence of ‘greater demand from the ACT workforce for ‘country living’.⁹⁵⁰

10.81 The Yass Valley Council⁹⁵¹ and Palerang Council⁹⁵² both stipulate that the illegal dumping of construction waste that has its origins in the ACT is a problem in their respective jurisdictions.

⁹⁴⁵ Sub. 26, p.7.

⁹⁴⁶ Sub. 9, p.3.

⁹⁴⁷ Sub. 15, p.4.

⁹⁴⁸ Sub. 20, p.2.

⁹⁴⁹ Sub. 20, p.3.

⁹⁵⁰ Sub. 24, p.1.

⁹⁵¹ Sub. 4, p.2.

⁹⁵² Sub. 30, p.6.

10.82 Palerang Council highlights pressure on water supplies from rural developments that are established in areas just outside the ACT because of their proximity to the ACT's employment and other opportunities. The Council warns that this water supply 'situation', especially in respect of Bungendore:

*requires an unprecedented level of integration of water, natural resource and land use planning through improved institutional interaction and cross-sectoral policy development. This planning will need to involve National, State (ACT/NSW), Regional (Catchment Management Authorities) and Local (Palerang, etc.) governments and agencies...*⁹⁵³

10.83 By way of example of this integrated planning, Palerang Council suggests that salinity studies of the ACT funded by the National Water Initiative should be broadened to cover Palerang LGA as well.⁹⁵⁴

10.84 Palerang Council also urges integration of an 'ACT ecological footprint reduction off-set strategy' Palerang's natural resource management strategic planning,⁹⁵⁵ and the conservation activities of the NSW Government's Murrumbidgee Catchment Management Authority^{956, 957}

10.85 The Council describes this strategy as one through which the ACT funds⁹⁵⁸ and otherwise facilitates environmental services such as revegetation of riparian corridors,⁹⁵⁹ in areas that neighbour the ACT, to off-set the ACT's adverse impacts on climate change resilience,⁹⁶⁰ biodiversity⁹⁶¹ and water⁹⁶².

10.86 Palerang Council states that the ACT makes these impacts in two ways. These are, one, that Canberra's nearness to these areas spurs their population growth and, two, the ACT carbon footprint and other parts of the ACT's ecological

⁹⁵³ Sub. 30, p.4.

⁹⁵⁴ Sub. 30, p.8.

⁹⁵⁵ Sub. 30, p.8.

⁹⁵⁶ Sub. 30, p.9.

⁹⁵⁷ Sub. 30, p.8.

⁹⁵⁸ Sub. 30, p.6.

⁹⁵⁹ Sub. 30, p.8.

⁹⁶⁰ Sub. 30, p.9.

⁹⁶¹ Sub. 30, p.6.

⁹⁶² Sub. 30, p.8.

footprint spill across them.⁹⁶³

- 10.87 The ACT Government submission is broadly consistent with this causal analysis when it states that a ‘principle’ which ‘should guide out future actions’ is to:

*Continue to work with surrounding NSW Councils in achieving a more sustainable outcome, acknowledging that the growing NSW region surrounding the ACT will have significant impact on our services, infrastructure, demand for goods and overall environmental footprint.*⁹⁶⁴

- 10.88 The Yass Valley Council submission suggests that ‘the measures [for reducing the ACR ecological footprint] should look at cross-border interaction.’⁹⁶⁵

- 10.89 The Canberra Division of Engineers Australia submission states ‘Planning should fully incorporate developments in Queanbeyan and border regions generally’.⁹⁶⁶ In his submission, Dr Schooneveldt counsels that ‘...the region has to ask itself if the current 0.5 million people are well served by the present governance arrangements...it would be helpful to have some better coordinated regional planning.’⁹⁶⁷

- 10.90 Arguably, one instance of a lack of this interaction and planning is that there is no plan, such as the Sydney-Canberra Corridor Regional Strategy, on how sustainable settlement patterns might be established between Canberra and Yass, as confirmed by Ms Gallagher,⁹⁶⁸ Mr Sullivan, the Managing Director of ACTEW,⁹⁶⁹ and Mr Stewart⁹⁷⁰.

- 10.91 Further, as noted earlier in this Chapter, the cross-border interaction between the ACT Government and Yass Valley Council, as well as Palerang Council, is almost exclusively conducted at the Regional Leaders Forum.

⁹⁶³ Sub. 30, p.7.

⁹⁶⁴ Sub. 32, p.47.

⁹⁶⁵ Sub. 4, p.2.

⁹⁶⁶ Sub. 38, p.4.

⁹⁶⁷ Sub. 2, p.3.

⁹⁶⁸ *Transcript of Evidence* (public hearing) 8 Sept. 2011, pp. 106 and in Exhibit 3.

⁹⁶⁹ *Transcript of Evidence* (public hearing) 13 July 2011, p.94.

⁹⁷⁰ *Transcript of Evidence* (public hearing), 24 March 2011, p. 32.

- 10.92 As also seen earlier in this Chapter, this Forum meets only twice a year and is attended by many representatives from organisations other than the ACT Government and the Yass Valley and Palerang Councils. These include the mayors of the 15 other NSW local governments of the ACR, Members of the NSW and Australian Parliaments from ACR electorates, and officials from the ACR's Regional Development Australia Committees.⁹⁷¹
- 10.93 In a similar vein to the submissions calling for better regional planning, Professor Norman, stated in her testimony that 'I have been talking increasingly about the need for an integrated regional spatial plan. I have been talking to local government about that.'⁹⁷²
- 10.94 Professor Norman explained that, in Geelong, a group of representatives mainly from the community and business, came together as an alliance, called G21, and developed a regional plan that addresses issues which "'transcend traditional local government boundaries.'" Transport is a great example, climate change being another and water being another one.'⁹⁷³
- 10.95 Professor Norman said the regional Geelong alliance presented this plan to the Victorian State Government and the local governments of the Geelong region about a decade ago, and in the time since, the plan had won awards, been adopted by governments, and 'proven to be a very strong foundation for planning in that wider Geelong region.'⁹⁷⁴
- 10.96 'Direction 1' of the five Directions that the *Geelong Region Plan: A sustainable growth strategy* (2007) is predicated on is 'Protect and enhance our environment'.⁹⁷⁵ Further, the whole Plan proceeds from its vivid depiction in words and pictures of two contrasting 'scenarios' for the year 2050. One of the major themes of 'Scenario 1: What we want to avoid' is a regional society that is failing due to, among other things, serious degradation of the

⁹⁷¹ Exhibit 4g, Ms Katy Gallagher MLA (2011) *Overview of ACT Regional Engagement Arrangements* and CMCD webpage on Regional Leaders Forum
<<http://www.cmd.act.gov.au/policystrategic/regional/rlf>>, accessed 14 Dec. 2011.

⁹⁷² *Transcript of Evidence* (public hearing), 14 Sept. 2011, p. 128.

⁹⁷³ *ibid.*, p.129.

⁹⁷⁴ *Transcript of Evidence* (public hearing), 14 September 2011, p. 129.

⁹⁷⁵ Geelong Region Alliance (2007) *Geelong Region Plan: a sustainable growth strategy*, pp.16-31.

environment.⁹⁷⁶ Conversely, ‘Scenario 2: What we want to achieve’ shows a thriving society and how much damage to the environment was prevented or the effects of the damage mitigated.⁹⁷⁷

10.97 The Plan is published on the G21 website. It includes comprehensive exposure of the evidence bases that G21 relied on for the Scenarios and the other parts of the Plan. These include, but are not limited to, a private consultancy report on community attitudes, which revealed ‘overwhelming community support for “protecting and enhancing the environment”’; a La Trobe University triple bottom line assessment of the region’s industries; and a Monash University analysis of the region’s current and future demographics.⁹⁷⁸

10.98 In her testimony, Professor Norman related that:

*at this regional symposium for CURF...The three RDAs there said they were interested in the regional plan [a plan for the Australian Capital Region]. The Chief Minister’s representative there said they were supportive of at least pursuing that concept. The New South Wales representative from the Premier’s department said they were interested in pursuing the concept. It may have been because CURF was an independent university organisation with no affiliations. We were the honest broker in that process...*⁹⁷⁹

ACT State of the Environment Report 2011 on cross-regional collaboration

10.99 In the *ACT State of the Environment Report 2011*, the Commissioner for Sustainability and the Environment made some recommendations that are broadly related to the observations the Committee has made in this Chapter. These recommendations include:

⁹⁷⁶ *ibid.*, p.12.

⁹⁷⁷ *ibid.*, p.13.

⁹⁷⁸ Geelong Region Alliance (2007) ‘Evidence, References and List of Tables’, *Geelong Region Plan: a sustainable growth strategy* <http://g21.com.au/geelongregionplan/index_cfm_pageID=247&pageRef=238&.html>, accessed 10 Sept. 2011.

⁹⁷⁹ *Transcript of Evidence* (public hearing), 14 Sept. 2011, p.130.

14. *Develop a regional approach to planning for climate change. This needs to be done in partnership with NSW Government, local councils and regional organisations. Key areas of focus should include opportunities for renewable energy development, water security, urban and regional planning, transport management and adaptation of ecosystem services to climate change.*

...

21. *In collaboration with NSW Government and local councils, develop a regional approach to planning and risk management to address future challenges of population and climate change.*⁹⁸⁰

Key findings

10.100 The key findings are:

- a. There is no ACT-NSW, NSW or ACT settlement strategy for the corridors between Canberra and Queanbeyan City, Yass Valley and Palerang LGAs.
- b. The ACT Government must significantly advance its regional planning and other collaboration with neighbouring LGAs, especially the LGAs of Queanbeyan, Yass Valley and Palerang, and ensure this collaboration is geared towards increasing the ACR's ecological carrying capacity.
- c. The ACT Government must critically review its current network of ACT-NSW-Commonwealth governance arrangements, especially its liaison with RDA ACT, the NSW Government, and the ACR LGAs, particularly Queanbeyan, Yass Valley, and Palerang.
- d. This review should evaluate the capacities of this current network of governance arrangements to promote regional collaboration that:
 - i. prevents and mitigates the adverse environmental impacts of its ecological footprint and of population growth in and around the ACT;

⁹⁸⁰ OCSE (2012) *ACT State of the Environment Report 2011*

<http://www.envcomm.act.gov.au/actsoe2011/executive_summary.html>, accessed 6 May 2012.

- ii. reduces the size and growth rate of the ACT ecological footprint; and
 - iii. causes net gains to the ACR's ecological carrying capacity.
- e. There are several existing processes to which the Government is a party through which it could immediately commence building this regional collaboration for increasing the ACR's ecological carrying capacity. These include, but are not limited to:
 - i. the 2006 *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory-New South Wales Cross Border Region Settlement Agreement*⁹⁸¹ (Settlement MOU), especially its commitments to settlement planning that is ecologically sustainable.
 - ii. the ACT Commissioner for Sustainability and the Environment's regional state of the environment reporting.
 - iii. the Government's participation in the Regional Leaders Forum, SEROC, the Eastern Regional Transport Taskforce, and SEATS; the liaison of the ACT Chief Minister with the Mayor of Queanbeyan and the NSW Premier.
 - iv. the RDA ACT and its links with neighbouring LGAs and RDA Committees.
 - v. the ACT Natural Resource Management Council and its links with neighbouring like bodies, noted in Chapter 3.
- f. The ACT-NSW Regional Collaboration MOU has a much less explicit focus on environmental matters than the ACT-NSW Regional Management Framework it replaced and the 2006 *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory-New South Wales Cross Border Region Settlement Agreement* (Settlement MOU)⁹⁸².

⁹⁸¹ Exhibit 4b, *Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory-New South Wales Cross Border Region Settlement Agreement* (2006).

⁹⁸² *ibid.*

- g. However, the Regional Collaboration MOU's commitment to land-use planning and the ACT Draft Planning Strategy which prioritises a regional biodiversity plan and its inclusion of CURF are features of the MOU from which the ACT Government can leverage regional collaboration that increases the ecological carrying capacity of the ACR.
- h. The ACT Government's early engagement of the NSW Cross-Border Commissioner about ecologically sensitive land-use planning in ACT-NSW border communities, and ACR governance mechanisms, will bode well for a productive relationship between the Government and the Commissioner in respect of the ACR's ecological carrying capacity.
- i. The involvement of CURF, in the execution of the MOU, will significantly assist the ACT Government's co-leadership of cross-ACR endeavours that increase the ACR's ecological carrying capacity, if CURF continues to engage business, community, government and quasi-government organisations, and the general public, with regional planning that is founded on environmental considerations.

RECOMMENDATION 22

- 10.101 **The Committee recommends that the ACT Government, engage with the NSW Cross-Border Commissioner and ACR organisations and groups, especially Queanbeyan City, Yass Valley and Palerang Councils, to:**
- a) **reduce the size and the growth rate of the ACT and ACR ecological footprints and effect net gains in ecological carrying capacity.**
 - b) **prevent and mitigate the adverse environmental impacts of population growth recorded in ACT and regional state of the environment reports.**
 - c) **consider developing settlement strategies on the respective population corridors between Canberra and Yass Valley, Palerang and Queanbeyan City LGAs.**

RECOMMENDATION 23

10.102 **The Committee recommends that:**

- a) **the ACT Government develop ideas for improving cross-ACR collaboration and discuss implementation of them with ACR leaders.**
- b) **the Commissioner for Sustainability and the Environment address in the 'progressing sustainability' sections of the ACT and regional state of the environment reports the extent to which cross-ACR collaboration is enabling net gains to ecological carrying capacity.**

11 SOME CONCLUDING REMARKS

- 11.1 The Committee recognises the importance of decreasing the ecological footprint and increasing the ecological carrying capacity of the ACT and wider region.
- 11.2 The ACR is well placed to respond to this challenge. The ACR has knowledge and service based economies and communities that have proven willing to respond to climate change.
- 11.3 Equally, the Committee is confident that with the right government initiatives and community education, we can reduce our consumption of natural resources. That way, we can ensure that we are not living beyond our ecological means and that we respect the principle of intergenerational equity and leave a healthy environment for future generations.
- 11.4 The state of the ecological carrying capacity of the ACR has serious ramifications for many matters within the domain of local and municipal government. These include, but are not limited to, biodiversity conservation climate change, and water and soil quantity and quality.
- 11.5 Human pressures detracting from the ACR's ecological carrying capacity call for vigilant and evidence-based assessments and responses. This is not only because of the dependence of present and future generations of people on the ACR's ecosystems for their health and well being. It is also due to the inherent value of diverse and abundant ecosystems and that the loss or degradation of them is often irreversible.

Meredith Hunter MLA

Chair

8 May 2012

12 DISSENTING COMMENTS

– ZED SESELJA MLA

12.1 The main committee report uses an adversarial premise as the basis of its discussion. It has been clear from inception, and throughout its progression, that economic and population growth is to be seen as the enemy of the environment.

12.2 Paragraph 3.40 perhaps best sums up this point. It states:

...high population growth rates and high employment and income rates being strongly and positively correlated with large ecological footprints.

12.3 In the context of a report which seeks to try to define the limits of the region's carrying capacity, the inclusion of this statement is a concern. It clearly indicates that the best way to achieve the aim of limiting ecological footprint is to limit growth in these key areas – population, employment and income. The idea implicit in this part of the report and in other parts that employment growth be limited for the sake of ecological carrying capacity is particularly concerning. Government's should be seeking to promote employment growth, income growth and should not be seeking to artificially constrain population.

12.4 I offer the following points as a more balanced, considered approach more in keeping with the responsibilities we have as policy makers to protect all aspects of our community's prosperity.

Cost of Living Impacts

12.5 Although the Committee noted that there is evidence that Canberra residents are supportive of economic reforms that will reduce the ACT's ecological footprint without diminishing standards of living in the ACT that must be balanced by recognition of the actual financial bottom line impacts.

12.6 For example, the Federal Carbon Tax, supported by the ACT Government, will add another \$244 to Canberra residents' electricity bills, bringing their average annual electricity bill to \$1,662. On top of this, there is the \$225 Canberrans will have to pay every year in their power bills to pay for this Government's solar feed-in tariff scheme.

- 12.7 And with the recent introduction of the Energy Efficiency Improvement Scheme requiring ACT energy retailers to undertake energy savings measures across the Territory, Canberra residents are facing prospective pass-on charges of up to \$1 million every month.
- 12.8 There is no doubt these measures will have a direct impact on household bills, and it is incumbent upon those imposing those costs to recognize the potential hardships they will inevitably cause.

Impacts On Local Businesses

- 12.9 The report also notes that the construction, retail, and hotels, clubs, restaurants, and cafes sectors respectively make up the second, third and fourth largest components of our ecological footprint. Again, implicit in this statement in the context of the report is that limiting growth in these sectors will be good for the environment.
- 12.10 These are sectors that are vital elements that form the basis of our economy. The Government should be encouraging growth in these sectors to underpin economic security. Helping to ensure these sectors remain profitable is not just good for the economy, but in the long run also for the environment as it's only from a base of strong economic growth that sustainable investments in the environment can be made.

Other Cost Implications

- 12.11 At the same time, this report supports initiatives that have further cost implications to Canberra residents and businesses.
- 12.12 For example Recommendation 12 calls on the ACT Government to work with Australian Capital Region (ACR) governments to develop 'rapid, reliable, and environmentally sustainable public transport between the ACT and ACR'.
- 12.13 Yet, the Government is struggling to improve its own ACTION bus network, which Canberra residents pay approximately \$321 per person every year to maintain regardless of whether they use the bus service.

- 12.14 The Greens/Labor plan in this report for rapid reliable transport between Canberra and areas such as Cooma, Yass, Queanbeyan, Goulburn, and other parts of the region would come with a massive price tag and should not be considered while ACT residents continue to experience a substandard public transport system.
- 12.15 Other recommendations in the report come with unknown but in some cases substantial price tags. These include:
- Requiring full life-cycle ecological footprint analyses of infrastructure proposals (Recommendation 11).
 - Developing environmentally sensitive renewable energy generators throughout the ACR (Recommendation 12).
 - Developing and implementing a procurement system that bases its purchasing decisions on a whole-of-life environmental costing (Recommendation 21).
 - Prevent and mitigate environmental impacts of population growth (Recommendation 22).
- 12.16 It is vital that the cost implications be very carefully considered in future policy development.

Evidentiary Concerns

- 12.17 I also have concerns with the evidence on which many of this report's assertions are based on. For example, it is firm in its position on our population's impact on the ecology as reflected in Recommendations 19 and 22, yet it states the following:

The office of the ACT Demographer is located in the CMCD. While that office has published useful analyses of the ABS demographic data on the ACT, it has not published any on ACT population growth and population growth in human settlements surrounding the ACT, or how population dynamics interact with the state of the environment in the ACT or the ACR (para. 4.33).

- 12.18 The report mentions ‘peak oil’ repeatedly in several sections and it is also mentioned in Recommendation 16, yet the report provides no evidence as to the impact this may or may not have on the ACT conceding that:

It is difficult to estimate precisely how vulnerable the ACT and the wider ACR will be to peak oil... (para. 6.28).

- 12.19 Recommendation 9 calls for ‘active support’ for electric vehicle infrastructure planning and roll-out, yet the report concedes:

No evidence was given to the Committee about the extent to which the uptake of electric vehicle infrastructure might increase the ecological carrying capacity of the ACR or decrease its ecological footprint or whether and how this uptake should be accelerated (para. 6.39).

- 12.20 Recommendation 9 calls for more action on biofuels, yet, besides a submission advocating it in two-sentences, the report conceded that:

No other evidence on the potential of biofuels was presented to the Committee (para. 6.41).

- 12.21 The report asserts that our use of fossil fuels needs to be reduced, yet it noted that:

The Committee was not presented with evidence on the costs of not reducing the significant contributions of transport and stationary energy combustion in the ACT towards greenhouse gas emissions and the ACT, and therefore, ACR ecological footprint (para. 6.141).

- 12.22 And this trend continues with food waste. Recommendation 17 call for action on food waste. Yet again, this was neither founded on available empirical proof nor based on the Committee process, noting:

The Committee has not been able to find any research that quantifies the contribution that food waste makes to the ACT or ACR ecological footprints (para. 7.75).

- 12.23 Therefore, many of the recommendations in this report are not drawn from empirical evidence, but qualitative conclusions based on the report’s framing of its initial premise and the preconceived ideas of the report’s proponents.

Population

12.24 By developing on Professor William Rees' definition of 'carrying capacity', this report assumes a neo-Malthusian position with undertones of unsustainable populations and a plundered earth.

12.25 The outcome of this orientation is the fact that, peppered through the report, we get statements such as:

...in each state and territory, the population in the centre and inner suburbs of the capital city are contributing the most per person to the ecological footprint (para. 3.13).

...researchers on ecological footprints are all in agreement about high population growth rates and high employment and income rates being strongly and positively correlated with large ecological footprints (para. 3.40).

...the bulk of the ACT ecological footprint of the ACT and ACR is due to steadily increasing consumption of food, goods, and services per person (para. 3.68).

...the Australian Conservation Foundation has nominated human population as a 'key threatening process' to Australia's biodiversity under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (para. 4.5).

12.26 And it is worth acknowledging that a noticeable number of submissions understood the intent of this report, as it noted that:

A quarter of the submissions to the Inquiry expressed an expectation that the Committee might orient the Inquiry towards proposing a maximum carrying capacity population for the ACT. Some also unambiguously argued that the ACT's population should be limited (para. 4.62).

12.27 Recommendation 22 asks the ACT Government to work with ACR governments to 'prevent and mitigate' the adverse environmental impacts of population.

12.28 In all these submissions and recommendations is a push to limit population. I do not agree that population limitation is a viable or desirable policy approach.

The outcomes – Throsby as a case study

- 12.29 The recent developments at the potential new suburb of Throsby highlight what can happen when environmental and accommodation concerns become out of balance.
- 12.30 Throsby was a suburb that had been planned and prepared for over two decades.
- 12.31 Recently, concerns raised by environmental objectors have led to massive amounts of that suburb simply not being built, with many family, community and educational opportunities lost.
- 12.32 Wiping entire suburbs from the development map as advocated by the Greens is a massive overreaction to a potential problem that could be solved in other ways. If this approach is extended throughout the Territory, our community faces a very uncertain future that has no room for new growth in suburban homes.

Conclusion

- 12.33 In summary, the report agreed to by the committee seeks to unreasonably pit human growth against environmental concerns. It places a negative spin on something which we as policy makers should be pleased about, economic growth, higher incomes and more jobs.
- 12.34 In dealing with the real environmental challenges we face as a community, it is unhelpful to demonise growth in the economy, in employment and in population as being inherently anti-environment. A better approach is to recognise that it is through a strong economy that we can fund the research and development and technological advances which allow us to make better use of our natural resources.
- 12.35 As such, the orientation of this report represents an opportunity missed.

Zed Seselja MLA

8 May 2012

APPENDIX A: Map of the Australian Capital Region

Figure 5: Map of the Australian Capital Region

NOT
TO
SCALE



Source:
Office of the
ACT
Commissioner
for
Sustainability
and the
Environment
*Regional
State of the
Environment
Report
2004-2009
(2009)*

Appendix B: NSW Local Government Areas of Australian Capital Region

(in alphabetical order)

Bega Valley Shire Council website: <http://www.begavalley.nsw.gov.au>

Map of Bega Valley Shire Local Government Area (LGA):

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=550®ion=SE

Bombala Council website: <http://www.bombala.nsw.gov.au>

Map of Bombala Council LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=1000®ion=SE

Boorowa Council website: <http://www.boorowa.nsw.gov.au>

Map of Boorowa LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=1050®ion=SE

Cooma-Monaro Shire Council: <http://www.cooma.nsw.gov.au>

Map of Cooma-Monaro Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=2060®ion=SE

Cootamundra Shire Council website: <http://www.cootamundra.nsw.gov.au>

Map of Cootamundra Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_Regions.asp?regiontype=2&slacode=2200®ion=MG

Eurobodalla Shire Council website: <http://www.esc.nsw.gov.au>

Map of Eurobodalla Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=2750®ion=SE

[continued over page]

APPENDIX B:
NSW Local Government Areas of the Australian Capital Region (continued)
(in alphabetical order)

Goulburn Mulwaree Council website: <http://www.goulburn.nsw.gov.au/>

Map of LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=3310®ion=SE

Gundagai Shire Council website: <http://gundagai.local-e.nsw.gov.au/>

Map of Gundagai Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_Regions.asp?regiontype=2&slacode=3500®ion=MG

Harden Shire Council website: <http://www.harden.nsw.gov.au>

Map of Harden Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=3700®ion=SE

Palerang Shire Council: <http://www.palerang.nsw.gov.au>

Map of Palerang Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=6180®ion=SE

Queanbeyan City Council website: <http://www.qcc.nsw.gov.au>

Map of Queanbeyan City LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=6470®ion=SE

Snowy River Council website: <http://www.snowyriver.nsw.gov.au>

Map of Snowy River LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=7050®ion=SE

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APPENDIX B:
NSW Local Government Areas of the Australian Capital Region (continued)
 (in alphabetical order)

Tumbarumba Shire Council website: <http://www.tumbashire.nsw.gov.au>

Map of Tumbarumba Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_Regions.asp?region=MR®iontype=2&slacode=7450

Tumut Shire Council website: <http://www.tumut.nsw.gov.au/>

Map of Tumut Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=7510®ion=SE

Upper Lachlan Shire Council website: <http://upperlachlan.local-e.nsw.gov.au/>

Map of Upper Lachlan Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_Regions.asp?regiontype=2&slacode=7640®ion=SE

Yass Valley Council website: <http://www.yass.nsw.gov.au/>

Map of Yass Valley LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=8710®ion=SE

Young Shire Council website: <http://www.young.nsw.gov.au>

Map of Young Shire LGA:

http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_regions.asp?mi=0&ml=8®iontype=2&slacode=8750®ion=SE

APPENDIX C: Submissions

The submissions received and authorised for publication by the Standing Committee on Climate Change, Environment and Water are listed below. All of them may be read in full on the Inquiry webpage on the Legislative Assembly website, here: <http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=14>.

No.	Author
1	Mr Richard Sharp
2	Dr John Schooneveldt
3	Mr Greg Cornwall
4	Yass Valley Council
5	Dr Kevin Cox
6	Associate Professor Kieran Fallon
7	Mr Greg Delaney
8	Dr Maxine Cooper, the then Commissioner for Sustainability and the Environment
9	Friends of Grasslands
10	Canberra Ornithologists Group
11	Ms Julia Richards
12	Mr Colin Samundsett
13	Conservation Council ACT Region Inc.
14	Mr Keith Ross
15	Ms Jenny Goldie
16	Institute of Public Affairs ACT Energy and Climate Group

[continued over page]

APPENDIX C: Submissions (continued)

No.	Author
17	Ms Robyn Coghlan
18	Mr Tom Gosling
19	Mr John Burke
20	Cooma – Monaro Shire Council
21	Mr David Turbayne
22	Mr Mark O'Connor
23	SEE-Change Inc.
24	Upper Murrumbidgee Catchment Coordinating Committee'
25	Dr C. L. Watson
26	ACT Natural Resource Management Council
27	Canberra Food Alliance
28	ACTEW Corporation Ltd.
29	Canberra Environment and Sustainability Resource Centre
30	Palerang Council
31	Environmental Defender's Office ACT Inc.
32	ACT Government
33	New South Wales Government Minister for Planning
34	Engineers Australia
35	Sustainable Population Australia – ACT Branch
36	Mr Keith Sayers

APPENDIX D: Witnesses

The following witnesses appeared before, and gave evidence to, the Standing Committee on Climate Change, Environment and Water, including by answering Committee members' questions. The Hansard transcripts of each witness' testimony may be read in full on the Inquiry webpage on the website of the Legislative Assembly for the ACT, here:

<<http://www.hansard.act.gov.au/hansard/2009/comms/default.htm#climate>>.

Date of Public Hearing (in chronological order)

Witnesses

23 March 2011	Dr John Schooneveldt, Visiting Fellow, Australian National University, Fenner School of Environment and Society Ms Sheila Hughes, President of the ACT Chapter, Australian Institute of Architects Mr Peter Overton, Chair of the Australian Institute of Architects ACT Sustainability Committee
24 March 2011	Mr Simon Corbell MLA, the ACT Minister for Environment, Climate Change and Water Mr David Papas, Chief Executive, ACT Department of the Environment, Climate Change, Energy and Water Mr Daniel Stewart, Director, Economic, Regional and Planning Branch, Chief Minister's Department
20 April 2011	Mr Clive Badelow, Director, Capital Region Farmers' Market Mr Bill Watson, Deputy Director, Capital Region Farmers' Market Mr Alfred Lee Donnelly, General Manager, Fyshwick Fresh Food Markets Mr Giuseppe Giugni, Director, Fyshwick Fresh Food Markets Ms Sarah Burrows, Senior Manager, Office of the ACT Commissioner for Sustainability and the Environment

[continued over page]

APPENDIX D: Witnesses (continued)

Date of Public Hearing (in chronological order)

Witnesses

1 July 2011

Mr Simon Corbell MLA, ACT Minister for the Environment and Sustainable Development

Ms Gay Williamson, Manager, Design Policy, Planning Services Branch, ACT Environment and Sustainable Development Directorate

Mr Chris Murray, Manager, Land Policy, Planning Services Branch, ACT Environment and Sustainable Development Directorate

13 July 2011

Mr Mark Sullivan, Managing Director, ACTEW

Mr Leigh Crocker, Manager, Water, ACTEW

8 September 2011

Ms Katy Gallagher MLA, Chief Minister of the ACT

Ms Pam Davoren, Deputy Director-General, ACT Chief Minister and Cabinet Directorate

Mr Daniel Stewart, in his capacity as former Director of Economic, Regional and Planning Branch, ACT Chief Minister's Department (at the time of the hearing, Mr Stewart was the Executive Director, Ministerial, Cabinet and Policy, ACT Chief Minister and Cabinet Directorate)

8 September 2011

Mr Robert van Aalst, Executive Officer, Regional Development Australia ACT

Mr Craig Sloan, Chair, Regional Development Australia ACT Committee

[continued over page]

APPENDIX D: Witnesses (continued)

Date of Public Hearing (in chronological order)

Witnesses

14 September 2011

Professor Barbara Norman, Foundation Chair and Head of Discipline, Urban and Regional Planning, University of Canberra

15 September 2011

Mr David Dumaresq, Co-Convenor of the Human Ecology Program, Fenner School of Environment and Society, Australian National University

Dr Robert Dyball, Co-Convenor of the Human Ecology Program, Fenner School of Environment and Society, Australian National University

21 October 2011

Dr David Pearson, Associate Professor of Advertising and Marketing Communication, and Foundation Chair of the Global Studies and Sustainable Food Research Cluster, at the University of Canberra

Appendix E: Exhibits

The exhibits received and authorised for publication by the Standing Committee on Climate Change, Environment and Water are listed below. They may be viewed in full on the Inquiry webpage on the website of the Legislative Assembly for the ACT at

<http://www.parliament.act.gov.au/committees/index1.asp?committee=112&inquiry=975&category=18>.

No.	Exhibit Description
1	Fusion Australia (2010) <i>Grown in the ACT: Food Security and the Future of Australia</i> , Fusion Australia, Canberra, Australia.
2a	Email, dated 4 August 2011, from Ms Sarah Burrows, Senior Manager at the Office of the ACT Commissioner for Sustainability and the Environment, updating the Committee on various Office projects relevant to the Inquiry.
2b	Ryan, S. (2011) <i>Buying Choices for a More Sustainable Canberra, Report for the ACT Commissioner for Sustainability and the Environment</i> , a report by Dr Sarah Ryan for the ACT Commissioner for Sustainability and the Environment.
3	Email, dated 5 August 2011, from Regional Development Australia ACT, which replies to the Committee Secretary about activities of Regional Development Australia ACT that are pertinent to the Inquiry and attaches the <i>Memorandum Of Understanding between Regional Development Australia ACT and Regional Development Australia Southern Inland</i> (signed by both parties on 23 November 2010).
4	Letter, dated 2 September 2011, in which Ms Katy Gallagher MLA, in her capacity as the Chief Minister of the ACT, replies to a letter from the Committee, dated 27 July 2011. The Committee's letter requested, among other things, the production of certain inter-jurisdictional agreements related to the Inquiry's Terms Of Reference.

[continued over page]

APPENDIX E: Exhibits (continued)

No.	Exhibit Description
4	The following seven agreements are attached to Exhibit 4, the correspondence from Ms Katy Gallagher MLA:
4a	Attachment A – <i>Australian Capital Territory-New South Wales Regional Management Framework - Australian Capital Territory Government - New South Wales Government 2006 – The Agreement</i> (signed in March 2006, by the then Chief Minister of the Australian Capital Territory (ACT Chief Minister) and the then Premier of New South Wales (NSW Premier)).
4b	Attachment B – <i>Memorandum Of Understanding between the Australian Capital Territory Government and New South Wales Government On Australian Capital Territory – New South Wales Cross Border Region Settlement Agreement 2006</i> (signed March 2006, by the then ACT Chief Minister and the then NSW Premier).
4c	Attachment C – <i>Memorandum Of Understanding between the Australian Capital Territory and New South Wales and the Commonwealth of Australia on Australian Capital Territory and New South Wales Cross Border Water Resources 2006</i> (signed March 2006, by the then ACT Chief Minister, the then NSW Premier and the then Commonwealth Minister for Local Government, Territories and Roads).
4d	Attachment D – <i>The Australian Capital Territory and The State of New South Wales and The Commonwealth of Australia - Summary of Legislative Responsibilities – Cross Border Water Supply between the ACT and NSW 2006</i> (signed in 2006, by the then ACT Chief Minister, the then NSW Premier, and the then Commonwealth Minister for Local Government, Territories and Roads).
4e	Attachment E – <i>Queanbeyan Water Supply Agreement – Commonwealth of Australia, State of New South Wales, Australian Capital Territory</i> (signed in September 2008, by the then ACT Chief Minister, the then NSW Premier, and the then Commonwealth Minister for Home Affairs, in his capacity as Minister with responsibility for the <i>Canberra Water Supply (Googong Dam) Act 1974</i>).
4f	Attachment F – <i>Memorandum Of Understanding between the Australian Capital Territory and New South Wales Office of Environment and Heritage-NSW and ACT Regional Climate Model (NARcliM)</i> (signed in June 2011, by a delegate of the ACT and authorised officer of NSW).
4g	Attachment G – <i>Overview of ACR Regional Engagement Arrangements</i> (by ACT Chief Minister and Cabinet Directorate, 2011).

[continued over page]

APPENDIX E: Exhibits (continued)

No.	Exhibit Description
5	Norman, B. and Steffen, W. (2011) <i>Canberra Urban and Regional Futures – An innovative regional platform for building resilience, CURF paper No. 1</i>, August 2011, by the Canberra Urban and Regional Futures Co-Directors, Professor Barbara Norman of the University of Canberra and Professor Will Steffen, of the Australian National University. This paper was tabled by Professor Norman at the Inquiry's public hearing of 14 September 2011.
6	Letter, dated 10 November 2011, from Ms Jan Denham, the Chair of the National Association for Sustainable Agriculture Australia. This letter is a reply to a statement made about the National Association for Sustainable Agriculture Australia by a witness during the Inquiry's public hearing of 20 April 2011. This statement may be read on page 59 of the ACT Legislative Assembly Hansard <i>Transcript of Evidence</i> of the Inquiry public hearing of 20 April 2011.