



*Climate Change And Greenhouse Gas
Reduction Act 2010*
Minister's Annual Report 2012-13

PRESENTED BY
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The ACT Legislative Assembly passed the *Climate Change and Greenhouse Gas Reduction Act 2010* (the Act) on 26 October 2010 and the Act was enacted on 5 November 2010. The Act requires the Minister to present a report to the Legislative Assembly within six months of the end of the financial year for which the report is made. This report outlines the Minister's actions against the requirements of the Act for the 2012-13 financial year.

1. Actions taken in 2012-13 under the Act

2012-13 was a significant year for action on climate change in the ACT. A road map document that guides how the ACT will achieve its legislated greenhouse gas reduction targets, *AP2: A new climate change strategy and action plan for the ACT*, was released. AP2 seeks develop the benefits of new renewable energy alternatives like wind and solar projects, both here and in the Capital Region; encourages the use of public transport to reduce traffic emissions; and boosts energy efficiency in homes and buildings to reduce our carbon footprint and save Canberrans money. Work on 18 AP2 actions has already started and an implementation progress report is available at: http://www.environment.act.gov.au/climate_change/ap2

With its focus on social equity, community engagement, independent review and its adaptive management approach, AP2 will ensure that the ACT Government's work to deliver the Territory's legislated greenhouse gas emission reduction targets is conducted in the most efficient and socially responsible manner.

Significant progress was made on a number of critical projects that achieve greenhouse gas reduction targets, including the first grant of entitlement under the large scale solar auction, the commencement of the Energy Efficiency Improvement Scheme (the EEIS) and progress on the ACT Government's commitment to carbon neutrality in its own operations. The combined impact of projects initiated in 2012-13 will provide the foundations for a sustainable Canberra that leads by example in action to address climate change. The successes of these projects are detailed below.

A. Review climate change issues

International

The key outcome of the 2012 United Nations Framework Convention on Climate Change (26 November to 8 December 2012) in Doha was an eight year extension of the Kyoto Protocol to 2020 agreed to by 194 countries. While this second phase of the Kyoto Protocol still omits the world's two biggest greenhouse gas emitters, China and the United States, it provides important continuity in the international obligations of other major economies, including Australia.

Governments agreed to work toward a universal climate change agreement covering all countries from 2020, to be adopted by 2015, and to find ways to scale up efforts beyond the existing pledges to curb emissions before 2020. Parties agreed on a path to 'raise the necessary ambition to respond to climate change', which has been linked to extreme weather events that have devastated many parts of the world this year. Parties also endorsed the completion of new institutions and agreed on ways and means to deliver scaled-up climate finance and technology to developing countries. Additional information can be found online at www.cop18.qa.

National

The Climate Commission released its report, *The Critical Decade 2013 – Climate Change Science, Risks and Responses* in June 2013. The report generated both national media interest and local interest as it provides a summary of projected climate change impacts on the Capital Region.

Notably, the report highlighted the fundamental conclusion of the scientific literature that most of the world's available fossil fuels cannot be burned if we are to stabilise the climate this century. Based on estimates by the International Energy Agency, the authors concluded that emissions from using all the world's fuel reserves would be around five times the estimated maximum that can be emitted (600 billion tonnes CO₂-e by 2050) if we are to stay within the two degree Celsius limit. The report states, '*It is clear that most fossil fuels must be left in the ground and cannot be burned.*' This conclusion highlights the relevance and importance of ACT Government led initiatives in reducing emissions through energy efficiency and accelerating the Territory's transition to renewable energy sources.



The Climate Commission also highlighted the potential for long-term climatic changes to affect weather patterns that can impact on Australian communities in the short term. Examples of this include the breaking of multiple temperature records across Australia in 2013.

Progress on assessing the impact of climate change confirms the importance of effective adaption to inevitable climate impacts on the Territory. The impact of climate change has implications across all areas of Government policy and is being reviewed through the framework for climate change adaptation set out in AP2.

B. Promote action to meet targets

The ACT Government released *AP2: A new climate change strategy and action plan for the Australian Capital Territory* in October 2012.

The primary focus is to set the Territory on the path to meet its 2020 greenhouse gas reduction target and establish a strong foundation for the achievement of the overall target of zero net emissions by 2060.

AP2 was informed by the most up-to-date climate science at that time and professional economic and energy modelling. A comprehensive community consultation showed the community prioritised energy efficiency measures and renewable energy to meet our targets.

AP2 contains 18 actions to achieve four primary outcomes:

- minimising the ACT's contribution to global warming by achieving the ACT's legislated greenhouse gas reduction targets
- ensuring a fair society in a low-carbon economy
- strengthening the ACT's capacity to respond to a changing climate
- leading a sustainable future.

AP2 takes a sectoral approach to identifying and targeting emission reductions across the ACT community. These sectors relate to the major sources of emissions from our community:

- residential sector energy use
- non-residential sector energy use
- transport sector emissions
- waste sector emissions
- energy supply sector emissions.

The key areas of reduction in greenhouse gas emissions contained in AP2 include:

- 218,000 tonnes of carbon dioxide equivalent (CO₂-e) emission reduction from the residential sector through increased energy efficiency; restrictions on installations of high emission hot water heaters; continuation of the ACTSmart programs; and collaboration with local tertiary education institutions to develop new technologies to produce energy
- 181,000 tonnes CO₂-e reduction in the commercial sector through the expansion of the EEIS to large businesses and buildings as well as a heating and cooling load map to encourage private investment in low-carbon energy networks
- 138,000 tonnes CO₂-e reduction through the implementation of the Transport for Canberra strategy, which promotes active travel (walking and cycling) and will increase public transport frequency to encourage people out of their private vehicles
- 1,471,000 tonnes CO₂-e reduction through the deployment of large-scale renewable energy including solar and wind power.

Progress on the implementation of AP2 is subject to independent assessment and reporting by the Office of the Commissioner for Sustainability and the Environment through the publication of implementation status reports every three years from 2014 to 2020. Each report will assess performance against the achievement of AP2 outcomes. The Government will respond to each report through subsequent annual reports.



C. Develop, adopt or promote policies and programs

AP2 contains 18 actions and four supporting actions for delivery that address climate change in and around the ACT.

Action	Title
1	Energy Efficiency Improvement Scheme
2	Inefficient water heater phase out
3	Energy efficiency information to tenants
4	Zero emission buildings
5	Community engagement strategy
6	Trial advanced energy technology systems
7	Business Energy Efficiency Improvement Scheme
8	ACTSmart Energy Assist
9	Distributed energy mapping project
10	Transport for Canberra and Low Emission Vehicle Strategy
11	ACT Waste Management Strategy
12	Large Scale Renewable Energy
13	Renewable Energy Target
14	PV network mapping
15	Territory-wide risk assessment
16	Planning Ministerial Statement
17	Impact assessment on the natural environment
18	Implementation status reports
Supporting	Social equity and cost of living impacts
Supporting	Carbon Offsets Policy
Supporting	ACT Greenhouse Gas Inventory update
Supporting	Carbon Neutral ACT Government

Work has already advanced on a number of actions, including the following:

Solar Auction

Further detail in section (G).

Energy Efficiency Improvement Scheme

The Energy Efficiency Improvement Scheme (EEIS) sets a Territory-wide energy savings target and includes obligations for ACT electricity retailers to meet their individual Retailer Energy Savings Obligation. The EEIS commenced on 1 January 2013 and will initially run until the end of 2015.

The *Energy Efficiency (Cost of Living) Improvement Act 2012* provides the legal framework for the EEIS. The Act contains the obligations and options that electricity retailers have to undertake eligible energy savings activities. Retailers incur penalties if they do not meet their energy savings targets.



In the first six months of EEIS operation (January 2013 – June 2013) 5381 door draught sealers, 65,513 energy efficient light bulbs and 15,738 standby power controllers were installed. This equates to an emissions abatement of 78,444 tonnes CO₂-e.

Further information is available at <http://www.environment.act.gov.au/energy>.

Renewable energy target

The largest emission reductions under AP2 and the greatest contribution towards achieving the 40% greenhouse gas reduction target by 2020 will be met with the new 90% renewable energy target. While it is quite straight forward to set the target as an Instrument under the *Climate Change and Greenhouse Gas Reduction Act 2010*, finalising the methodology for accounting against the target is more complex. When the target is set, there must be a clear understanding of what the target constitutes and how we will measure ourselves against it over the long term.

Based on data collected to date, the ACT is on track to meet its target of 15% renewable energy consumption in 2012-13. Early indications are that we will surpass the 15% renewable energy target, which includes renewable energy from GreenPower purchases, rooftop solar generation and the ACT's share of national generation under the Large-scale Renewable Energy Target scheme.

Carbon neutrality in government

The Government is working to achieve carbon neutrality in its own operations by 2020 through the implementation of the Carbon Neutral ACT Government Framework. Endorsed in August 2012, the Framework enables and coordinates a whole-of-government approach to achieving carbon neutrality in a cost-effective manner. The Framework focuses on embedding sustainability into core business and investing in cost effective energy efficiency to 2020.

In the 2012-13 Budget the Government established a Carbon Neutral Government Fund (the Fund) with a boost of \$5 million to increase the existing loan facility (the Resource Management Fund). The Fund assists directorates with the transition to a low carbon economy by making loans available to agencies to implement energy efficiency initiatives. Savings generated through these initiatives are used to pay back the loan. The Fund supports projects that can demonstrate both cost and greenhouse gas savings to Government within an appropriate timeframe.

Two rounds of funding were held during 2012-13, leading to four successful applications with a total project value of \$3.6 million. These projects are in the implementation stage:

- \$1,764,758 to the Territory and Municipal Services Directorate – ACT Property Group to upgrade 28 government sites to LED lighting (four year loan). Planned sites include libraries and offices.
- \$1,528,168 to the Education and Training Directorate to upgrade to LED lighting at 10 of the highest energy using schools (six year loan).
- \$250,000 to the Exhibition Park Corporation (Economic Development Directorate) for the upgrade to LED lighting at priority exhibition pavilions, most of which is high bay lighting providing demonstration of this technology (five year loan).
- \$72,704 to the Education and Training Directorate to upgrade a solar hot water system at Erindale College and Leisure Centre (seven year loan).

Accurate data is critical in informing decisions and monitoring progress towards carbon neutrality. The project to implement the Enterprise Sustainability Platform (ESP, formerly SDMS) commenced in July 2012 is a critical component of the Framework and will provide, for the first time, a complete inventory of Government properties and associated electricity, gas and water usage and costs.

The project will provide the ACT Government with continuously updated, accurate and auditable water, energy (electricity and gas) and greenhouse gas emissions data and utility billing cost information for its assets and agencies. The ESP will enhance transparency and accountability of agencies for greenhouse gas emissions by providing accurate utilities data that can be used to identify performance indicators, resource use and greenhouse gas targets for facilities. It is also expected to generate cost savings through:



- identification and resolution of billing errors
- purchase of electricity from the market at optimal prices
- improved resource management, including reduction of energy and water usage.

A status report on all the actions under AP2 is available at www.environment.act.gov.au/climate_change

D. Consult business and community

Climate Change Council

The ACT Climate Change Council provides advice to the Minister on reducing greenhouse gas emissions and addressing, and adapting to, climate change. It was established under the *Climate Change and Greenhouse Gas Reduction Act 2010*.

The Council reports to the Minister annually within three months of the end of financial year. These reports are made available to the public, with the Climate Change Council Annual Report 2012-13 available at www.environment.act.gov.au/climate_change.

The Council met four times during 2012-13 and held one community forum. In providing advice to the Minister, the Council consulted with business and community groups throughout the Territory.

E. Promote actions or strategies by business entities

Since the ACT Government's ACTSmart Business Energy and Water program commenced on 1 July 2012, more than 130 local small businesses have taken advantage of advice and rebates to improve their energy and water efficiency.

Under the program, an experienced assessor visits a business to gain an understanding of its operations and challenges, and provides a report that outlines the business's energy use and makes recommendations for the business owner to consider. A wide range of businesses have received assessments and access to rebates of up to \$5000 to help replace fittings and fixtures with more efficient options.

During 2012-13, the ACT Government also decided to extend the EEIS (see Section C) to small and medium businesses. This allowed energy retailers to offer energy saving measures to local businesses from 1 July 2013.

F. Promote involvement in climate change forums

The ACT Government participates in a range of national forums to achieve a nationally consistent approach on energy and climate change matters. Forums include the Standing Council on Energy and Resources (SCER), the Select Council on Climate Change (SCCC) and numerous working groups under these councils that work to progress nationally consistent energy and climate change policy reforms.

The SCCC supports an effective response to climate change policy issues with national implications and provides a forum to engage the Commonwealth Government on implementation issues. The SCCC recommended in March 2013 that its energy efficiency responsibilities, including those relating to Greenhouse and Energy Minimum Standards (GEMS) determinations, be transferred to SCER. The SCCC will continue to operate out of session as required until arrangements for the transfer of responsibilities are confirmed.

The SCER forum gives the ACT Government the opportunity to consider market conditions and trends and discuss initiatives to support the development and efficient operation of the nation's energy and resources sectors.

The ACT is also a party to the National Partnership Agreement on Energy Efficiency (NPA-EE) under the National Framework on Energy Efficiency, which provides for a nationally consistent and cooperative approach to energy efficiency. The NPA-EE can be found at <http://www.coag.gov.au/node/183>.



G. Promote the commercialisation, generation and use of renewable energy

Solar Auction

In September 2012 the ACT set an Australian benchmark for low-cost, large-scale solar generation with the announcement that Fotowatio Renewable Ventures (FRV) would build Royalla Solar Farm, a 20 megawatt solar power facility in the District of Tuggeranong and the largest photovoltaic solar generator in Australia to date. Royalla Solar Farm was the successful proponent in the fast-track stream of the ACT large-scale solar reverse auction (Solar Auction).

Key details of the ACT's first big solar project are:

- up to 100 jobs during construction
- the production of 38,000 megawatt-hours of renewable energy each year, which is enough to power approximately 5,000 Canberra homes
- an approximate reduction of 700,000 tonnes CO₂-e over the 20 year life of the project.

The Solar Auction is a nation leading project in this field with strong industry backing. In August 2013 another two successful proponents were announced: Zhenfa Canberra Solar Farm One Pty Ltd and OneSun Capital 10MW Operating Pty Ltd, with a combined capacity of a further 20MW of renewable energy. A mandatory review of the Solar Auction has recently been undertaken and will inform future large-scale renewable energy capacity releases under the supporting legislation. The next capacity release is expected to be announced in the first half of 2014.

The Solar Auction generated a strong level of interest from local and international proponents. This should result in the ACT being well-placed to deliver major reductions in greenhouse gas emissions through further renewable energy investments, and achieve the 2020 renewable energy targets at the most affordable cost to ACT electricity consumers. The Solar Auction is delivering on the Government's vision to see Canberra as Australia's solar capital and an internationally recognised centre for clean energy innovation, excellence and investment.

H. Promote the commercialisation and use of other technologies

Waste

AP2 identifies opportunities to establish energy-from-waste (EfW) technologies to produce energy from some organic wastes such as wood, contaminated paper, cardboard and food, that cannot be recycled. EfW technologies, such as anaerobic digestion, pyrolysis and gasification may provide opportunities to reduce the ACT's greenhouse gas emissions through reducing the amount of organic materials sent to landfill and through the production of bioenergy, transport fuels or biochar (a stable form of carbon).

Market sounding on the provision of new waste infrastructure to recover residual waste and biomass was completed in 2012-13. The ACT is now considering options to cost effectively procure new waste infrastructure for the Territory.

Transport

The Transport for Canberra policy will guide transport planning in the ACT over the next 20 years. Released on 19 March 2012, it updates and replaces the 2004 Sustainable Transport Plan. As Canberra grows and changes, Transport for Canberra will help us reduce traffic congestion and greenhouse gas emissions while increasing the number of people using active travel and public transport. It will increase accessibility for all Canberrans and improve links throughout the region.

In 2014 the ACT Government will release a Strategic Cycling Network Plan and a Low Emission Vehicle Strategy. The strategy will include an evaluation of the Green Vehicles Duty Scheme and identify how to better encourage the purchase of lower emissions vehicles, including electric vehicles.

Further information is available at

http://www.transport.act.gov.au/policy_and_projects/transport_for_canberra_policy



I. Promote research and development

The ACT Government continued to support research and local partnerships through the Canberra Urban and Regional Futures (CURF), a joint initiative of the Australian National University (ANU) and the University of Canberra. CURF is an information platform for sustainability and climate change in the Canberra region, facilitating the sharing of information between university, research, federal, state and local government institutions.

Future work to promote research and development will include the implementation of action 6 of AP2, a trial of advanced energy technology systems in partnership with the ANU and the Canberra Institute of Technology aimed at increasing the technical and economic potential for intermittent energy sources on the ACT network. The Government has also partnered with ANU to implement action 9 of AP2, with around 25 ANU engineering students conducting surveys and modelling of Canberra town centres to identify opportunities for low carbon distributed energy systems. Outcomes of the work will be published online.

J. Support the development of approaches to address climate change

NSW and ACT Regional Climate Model (NARClIM)

The ACT Government has partnered with the NSW Office of Environment and Heritage to develop new, fine-scale climate projections for New South Wales and the Australian Capital Territory using a regional climate model called the NSW and ACT Regional Climate Model, NARClIM.

NARClIM will improve our ability to predict changes in temperature, wind and rainfall in the area which, in turn, will provide critical information to manage the impacts of climate change on health, settlements, agriculture, weather extremes and services such as water and energy supplies. Modelling results from NARClIM will become available from late 2013.

K. Consider and recommend amending Territory law, government policy or practice

AP2 contains several actions that require, or may require, legislative amendments, including:

- Action 2: Phase out of inefficient hot water systems
- Action 3: Energy efficiency information to tenants
- Action 13: 90% renewable energy target.

Establishing a 90% renewable energy target, for example, requires implementing an instrument under the *Climate Change and Greenhouse Gas Reduction Act 2010* to set the target, and the *ACT Electricity Feed-in (Large-scale Renewable Energy) Act 2011*, to increase the Feed-in Tariff capacity from 210MW.

L. Assess the impact of climate change

The Environment and Sustainable Development Directorate is responsible for monitoring the greenhouse gas emissions from the ACT community as a whole. The emissions are calculated and published in an annual ACT Greenhouse Gas Inventory (GGI), using methodologies consistent with national requirements but specific to the unique energy requirements of the ACT. The ACT GGI series includes both Scope 1 emissions produced within the Territory and indirect Scope 2 emissions, which relate to the generation of electricity used in the ACT.

The ACT GGI is not intended as a strict carbon accounting report but as a source of information for the ACT Government, businesses and the community about the major sources of emissions we can influence through our policies and actions. The major sources of greenhouse gas emissions in the ACT are electricity, transport fuels and natural gas.

The 2010 ACT GGI Report was prepared on behalf of the Government by the Independent Competition and Regulatory Commission and released in September 2012. It stated that ACT greenhouse gas emissions were



4,402 kilotonnes CO₂-e, which is 2,482 kilotonnes above the level required to meet ACT's emissions reduction target of 40% below 1990 levels. Per capita emissions peaked in 2006 at 12.7 tonnes, and in 2010 were 12.3 tonnes. Renewable energy use increased from 11% in 2009 to 12.9% in 2010.

The directorate also collected ACT fuel sales data under the Environment Protection Act 1997 to improve the accuracy of transport emissions data available for the ACT GGI.

M. Support public education

At the heart of AP2 is the principle that everyone in the ACT has a role to play, every action counts and together we can make a difference. The focus of AP2 is on establishing the policy environment to meet our emissions reduction targets and providing the tools and incentives to make it easier for everyone in the ACT to play a role. Education and community dialogue is important. Understanding precedes concerted action, and an informed and engaged Canberra community is better placed to act for its own benefit and the benefit of future generations.

The ACT Government has committed through AP2 to develop a comprehensive strategy to engage the community on climate change matters and to provide integrated information, advice and support to Canberra households on reducing energy bills and cutting emissions. This will be guided by a community engagement strategy to be published in 2014.

N. Any other functions

AP2 commits the Government to undertaking an annual cost of living review with a specific focus on social equity. The Cost of Living Review is at Appendix A.

No other functions have been given to the Minister under the Act as at 30 June 2013.





2. Effectiveness of government actions taken to reduce greenhouse gas emissions during 2012-13

The Minister has sought information on actions undertaken by each ACT Government directorate. All directorates report their greenhouse gas emissions in their annual reports. Directorates also have, or are developing, resource management plans to address their environmental resource use.

Chief Minister and Treasury Directorate		
Policy/ Program Title	Description of policy/program	Milestones and emission reductions (if quantifiable and applicable)
Climate Change Impact Assessment	As of March 2013, assessments of climate change impacts are required for all Government Bills and major policy proposals. The assessments can be scaled according to whether the likely impacts will be simple or significant, and consider potential increases in greenhouse gas emissions. The assessments may also entail consideration of the projected impacts of the bill or proposal on the ACT's capacity to adapt to projected climate change, including the extent to which the bill or proposal itself will be impacted by likely climate change impacts.	The requirement for climate change impact assessment is now being implemented. The application and approach to assessing climate change impacts will be piloted for 12 months and then reviewed to consider its costs and benefits.



Commerce and Works Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Electric Vehicles	The ACT Government committed to the introduction of electric vehicles into its fleet in the <i>Transport for Canberra 2013-2031</i> policy. Commerce and Works is coordinating the introduction of ten electric vehicles across the directorates by providing project management and logistical support in relation to vehicle specifications, corporate branding and recharge station infrastructure installation.	Commerce and Works has committed to have three electric vehicles in its city-based fleet by the end of October 2013.
ICT	<p>New energy meters have been installed in Government data centres. These meters show the total energy use of each data centre. Used in combination with software that analyses the technology's (servers, switches etc) energy use, the Power Usage Effectiveness (PUE) of the data centre can be determined. This data will be used to further refine operational efficiency to reduce energy consumption and improve sustainability practices.</p> <p>The ACT Government is currently progressing a data centre strategy that would result in the current facilities being replaced by two purpose built, modern and energy efficient facilities better able to accommodate the Territory's future data storage requirements.</p> <p>The first of these new data centres is expected to deliver efficiencies in both cost savings and resource usage. The new technology offered by this facility will significantly reduce the Territory's carbon emissions, based on current consumption and predicted growth rates.</p> <p>A data management strategy is also being developed to optimise the lifecycle management of the Territory's data holdings (such as through appropriate sentencing of data) to slow the Government's data storage growth and assist in reducing longer term data storage costs.</p>	<p>Energy meters have been installed in each of the Government's three data centres.</p> <p>Carbon emissions are estimated to be in the order of 18,000 tonnes less than they would otherwise have been over the 10 year term of the contract.</p>
ACTSmart Office Accreditation	<p>A number of initiatives are underway to assist CWD to achieve ACTSmart Office accreditation:</p> <ul style="list-style-type: none"> • A resource management plan (RMP) is currently under development. The plan will assist with implementing measures which promote future resource efficiencies and lead to a reduction in greenhouse gas emissions. The RMP will be updated regularly to reflect progress made and establish new goals as required. • A Green Committee and Green floor 'champions' have been appointed to provide peer support and encouragement for behavioural change and reinforce corporate and whole-of-government sustainability messages with the aim of reducing waste to landfill output. 	



Community Services Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
ACTSmart Waste Management Program	<p>In June and July 2013 implementation of ACTSmart Office Recycling and Waste Management Program was rolled out. The program includes the addition of comingled and organic waste bins throughout the office and is expected to reduce the amount of waste sent to landfill by at least 50%.</p> <p>This program has already been implemented at 11 Moore Street, Canberra City. However, accreditation has not yet been sought.</p> <p>The introduction of the ACTSmart Office Program at CSD has been well received, with staff actively participating in recycling activities with the aim to reduce nearly all GHG emissions connected to waste materials.</p> <p>Taking into account natural increases in the amounts of waste materials produced at Nature Conservation House (NCH); current estimates indicate NCH will send up to 75% less waste materials to landfill. This equates to a total emissions reduction of approximately 45 tonnes CO₂-e per year and a monetary saving of approximately \$4,000 per year.</p>	<p>To achieve ACTSmart accreditation, a 75% attendance (based on FTE) at formal ACTSmart training is required. The NCH Program has achieved this attendance rate and is in the process of seeking accreditation. Accreditation processes for 11 Moore Street will commence during 2013-14.</p> <p>Before the introduction of the ACTSmart Office Recycling program, all waste materials were sent directly to landfill, approximately 45.5 tonnes per year (which equates to emission reductions of approximately 43.68 tonnes CO₂-e per year).</p>
ACT Community Facilities Go Energy Smart (CFGES), part of the federally funded Community Energy Efficiency Program (CEEP).	<p>The CSD owns and operates a number of community centres, halls, community hubs and childcare centres. These sites are used by not-for-profit and community groups to deliver support and human services to the ACT Community. While efforts have been made to improve the energy efficiency of the community facilities, the larger properties remain inefficient due to ageing and outdated mechanical and electrical services. The CEEP implementation program addresses these major service issues at 13 of the larger community facilities.</p> <p>Over the four year life of the project the total budget is \$6.5 million, made up of \$3.2 million from the Australian Government and the remaining \$3.3 million from the CSD Community Facilities.</p>	<p>The CEEP implementation program will undertake major energy efficiency works on 13 of the medium to large community facilities. As part of the CEEP implementation program CSD has engaged Exergy, Australia's leading specialists in energy efficiency consultancies, to undertake detailed and specific audit, design works and recommendations on these facilities.</p> <p>To date, audits and detailed design works have been produced for the Griffin Centre, Southside Community Centre and Holt Community Hub. These include recommendations and works such as roof and wall insulation to help maintain building temperatures with least energy usage, changes to heating and cooling systems to remove inefficient systems and tune existing systems for better operations, changing lighting to provide optimum lighting levels with efficient and cost effective lighting.</p> <p>Detailed investigations and design work is underway on Chifley Health and Wellbeing Hub and Pearce Community Centre, and the remaining eight properties will be included in this program in the near future.</p>



Economic Development Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Participation in the ACTSmart Energy and Water Program	<p>Under the Carbon Neutral ACT Government Framework, the ACTSmart Government Energy and Water Program provides a free trial program.</p> <p>The program supports directorates by providing technical advice from a Government Energy and Water Assessor, on achieving sustained energy and water savings through consultation, sites assessment and reporting.</p>	<p>The following locations across the directorate had energy assessments carried out and action reports provided as a part of the program in 2012-13:</p> <ul style="list-style-type: none"> • Level 2 tenancy in Telstra House, 490 Northbourne Avenue • Ground floor, level 6 and level 7 tenancy in TransACT House, 470 Northbourne Avenue • Ground floor annex and level 8 tenancy, 220 Northbourne Avenue • Canberra Region Visitors Centre, Northbourne Avenue • Holt Depot (Sport and Recreation Services) • Waramanga Depot (Sport and Recreation Services) • Yarralumla Depot (Sport and Recreation Services) • Tenancy at ACT Academy of Sport — Lyneham
EDD Resource Management Plan	The EDD portfolio has an internal RMP that includes the Land Development Agency, ACT Gambling and Racing Commission and the Exhibition Park Corporation. The plan reports on consumption of energy, waste and transport and related greenhouse gas emissions. The plan identifies strategies and actions to be undertaken in the portfolio to reduce emissions.	Provided in 2012-13 annual reports.
Innovation Connect Clean Technology Funding Scheme	<p>Clean Technology Grants of up to \$50,000 provide businesses with support on proof of concept and early stage commercialisation projects that:</p> <ul style="list-style-type: none"> • improve environmental quality, reduce environmental impacts or improve efficiencies in the use of energy resources • lead to the development of new, innovative clean technologies and services • generate low emission and energy efficient solutions that reduce greenhouse gas emissions and/or • develop waste management technologies and processes that reduce energy demand and enhance sustainable practices. 	<p>The grants program includes a requirement to identify reductions in greenhouse gas emissions or energy consumption from the grant, as well as the environmental impacts and sustainability benefits that will be facilitated by the grant.</p> <p>Milestones are specific to each funded grant proposal.</p>
Sustainability Team (Green Team)	The main objective of the EDD Green Team is for staff to help monitor, maintain and improve the directorate's environmental performance against the RMP.	The Sustainability Team was established in the second half of 2013.



Economic Development Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
LDA projects	<p>The LDA has implemented a range of initiatives in LDA developments to help reduce greenhouse gas emissions. These include:</p> <ul style="list-style-type: none"> • achieving recertification of the Wright and Coombs developments under the Urban Development Institute of Australia’s Enviro-Development program. • providing a rebate for solar hot water in Wright and mandating solar hot water in Coombs. • offering rebates for energy efficient heating and cooling in Wright and Coombs. • trialing energy efficient street lighting in Bonner in conjunction with the Territory and Municipal Services Directorate and ActewAGL. • beginning to pilot the Green Building Council of Australia’s Green Star—Communities rating tool in Lawson. • planning to trial energy efficient street lighting in Lawson. <p>Crace in Gungahlin is a joint venture between the LDA and Crace Development Pty Ltd. Crace has HIA Greensmart® accreditation – a Canberra first – and a special arrangement with Greening Australia is offsetting emissions during the development process. Further information is available at www.crace.com.au.</p>	<p>The range of initiatives has not been required to meet specific milestones or emissions reductions but together will contribute to an overall reduction in emissions from LDA developments.</p> <p>The trial of energy efficient street lighting in Bonner is expected to produce reductions of 50% compared to standard lighting.</p> <p>Progress of all projects is captured in the LDA’s sustainability reporting and included in the LDA’s 2012-13 annual report.</p>
Carbon Neutral Schools Project	<p>Stage 1 of the Carbon Neutral Schools project continued to be rolled out by the directorate in 2012-13.</p> <p>Stage 1 of this project involves the installation of high efficiency internal lighting and high rating roof insulation at ten selected schools with additional works undertaken, where feasible, at two carbon neutral trial sites. These include upgrades to improve heating efficiency, replacement of windows in high use rooms with thermal resistant glass, provision of window furnishings and the construction of covered and secure bike shelters to promote and encourage active travel to school.</p>	<p>The following tasks were completed in 2012-13:</p> <ul style="list-style-type: none"> • feasibility studies and condition audits for lighting and ceiling insulation upgrades at the ten schools • scoping studies for wall insulation at the two carbon neutral trial schools – Canberra High School and Theodore Primary School • carbon inventories at the two carbon neutral trial schools <p>initial testing of wall cavity infill insulation options at Canberra High School. Measuring and monitoring devices were fitted to assess the effectiveness and suitability of the options being trialed. Results are expected in 2013-14.</p>



Education and Training Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Measure monitor and report emissions	<p>Smart meter technology is being installed at all public schools to capture electricity, gas and water consumption and solar energy generation. These smart meters provide schools with 'real time' data on consumption and generation which supports both the management of energy, gas and water use by schools and, through a web-based interface, the development of curriculum studies for students. The web-based interface is publicly accessible at www.watergroup.com.au/actschools.</p> <p>Installation and commissioning of the pulse meters for electricity, water and solar energy generation were completed at 32 schools during 2012-13, bringing the total number of completed schools to 51. Scoping work was completed for all remaining schools and the installations will be completed by September 2013. Scoping work was also completed for gas smart meters at all schools. An installation procedure has been developed and is awaiting final approval from the relevant regulatory authorities. Installation of the gas smart meters will be completed during 2013-14.</p>	<p>Energy consumption in schools peaked in 2011-12 and declined for the first time in 2012-13. In 2012-13, energy consumption across all public schools totalled 234.3 million Megajoules (MJ) which is a decrease of 5.31% from 2011-12.</p> <p>Electricity consumption totalled approximately 27.6 million kilowatt hours (kWh) which is a decrease of 2.59% from 2011-12 with gas consumption totalling 134.6 million MJ, a decrease of 7.22% from 2011-12.</p> <ul style="list-style-type: none"> GHG emissions for 2011-12 were 32,944 tonnes CO₂-e. Despite the decrease in total energy consumption, GHG emissions increased by 18.95% in 2012-13. This increase is attributable to a change in ACT Government policy to decrease the percentage of Greenpower purchased. ETD is implementing a number of energy efficiency and GHG emission reduction strategies to continue to reduce its overall energy use and GHG emissions.
Carbon Neutral Government Fund (CNGF)	<p>The directorate was successful in its application to the Fund for \$1,528,168 (GST exclusive) to replace existing T8 lamps with T8 LED lamps at ten public schools and for \$72,704 (GST exclusive) for the provision of a new solar hot water system for Erindale College (including the Leisure Centre).</p>	<p>The T8 LED lamp retrofit project is anticipated to result in an annual savings of approximately 1300 MWh of electricity reduce and reduce GHG emissions by approximately 1000 tonnes CO₂-e per annum across the ten schools. The new solar hot water system at Erindale College is expected to reduce the school's annual electricity use by approximately 72 MWh and GHG emissions by approximately 55 tonnes of CO₂-e.</p> <p>The payback period for both projects has been calculated to be six years on average. However, financial savings are anticipated to continue beyond the six year payback period as the life span of the technologies implemented extends well beyond six years. Preliminary scoping work for both projects was completed in 2012-13. Design, documentation and installation of both projects will be completed in 2013-14.</p>



Education and Training Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Green Star Schools	5 Star Green Star certification represents Australian best practice in sustainable building design.	Gungahlin College was certified as a 5 Star Green Star – Education Design v1 by the Green Building Council of Australia during 2012-13 bringing the total number of Green Star certified projects in ACT public schools to four. Namadgi School and Neville Bonner Primary School are expected to receive 5 Star Green Star certifications in 2013-14.
Energy efficient lighting upgrades program	The directorate has undertaken a number of projects to reduce the energy consumption of lighting in schools. Lighting in all refurbished areas of public schools continues to be upgraded to T5 fluorescent technology (lamps and fittings) as part of the standard works of capital upgrades. T5 technology uses approximately 25 to 30% less energy than T8 technology.	A light emitting diode (LED) lighting retrofit trial was completed at Caroline Chisholm School (junior campus) in the last quarter of 2012-13. The project involved retrofitting all existing T8 fluorescent lamps with LED T8 lamps. Pre-retrofit energy data was collected from the lighting electrical circuits as well as lighting (lux) levels. Post-retrofit data will be collected in 2013-14 and the lessons learnt will inform the directorate's delivery of the CNGF LED project.
Solar lighting program		The installation of two external solar powered lights was trialled at Palmerston District Primary School in 2012-13. Scoping work for the provision of four outdoor solar powered lights at the Canberra College Performing Arts Centre was also completed with installation of the lights to be completed in 2013-14. Solar tube technology was also trialled in 2012-13 at Neville Bonner Primary School (new school) and progressively into Chapman Primary School (school upgrade). Solar tubes will also be installed at the University of Canberra Kaleen High School in 2013-14.
Sustainability Curriculum Program	The directorate and AuSSI also continued to provide all public schools with assistance to integrate the National Solar Schools Program (NSSP) into student learning. Schools that received photovoltaic panel systems through the NSSP in 2012-13 were offered a teacher professional development workshop covering photovoltaic systems, smart metering and the sustainable management of energy in schools. AuSSI also delivered workshops for ACT schools on the Australian Curriculum Sustainability Priority, sustainable water management, establishing a food garden and writing a school environmental management plan.	Two energy workshops were held during the reporting year and a total of 67 public school staff, representing 50 schools, attended.



Education and Training Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Resource efficiency and waste program	To support waste removal and recycling programs at public schools, the construction of two bin enclosures was completed at Black Mountain School and Chapman Primary School in 2012-13. Bin lifters were also purchased for eleven schools (Bonython, Hughes, Ngunnawal, Palmerston District and Wanniasa Hills Primary Schools, Stromlo High School, Harrison School, Canberra and Erindale Colleges, Narrabundah Early Childhood School and Telopea Park School) to mitigate occupational health and safety risks relating to the emptying of bins.	A review of schools waste contracts is planned for the 2013-14. The objective is to achieve both a reduction in costs for schools as well as improved recycling by schools.
Learn to Ride facility project	Designs for a Learn to Ride facility were completed for Southern Cross Early Childhood School in 2012-13. A number of strategic partners have contributed to the facility including the school, NRMA Road Safety Trust, Anglicare, ACT Health, Territory and Municipal Service (TaMS) as well as the directorate. This facility will be available to all other early childhood classes of ACT public schools in the Belconnen region.	This facility will provide age appropriate bike education and road safety programs and will be constructed during 2013-14. The directorate will also develop a strategic plan in 2013-14 for Learn to Ride facilities in other ACT school networks.
Ride or Walk to School Program	Ride or Walk to School is an initiative managed by the Health Directorate which aims to encourage active travel in ACT schools.	Ten public schools signed up to the program in 2012-13 and another nine public schools will join the program in 2013-14. The directorate is collaborating with the Health Directorate to remove physical infrastructure barriers hindering active travel to school. An audit of the ten schools' bike facilities was conducted in 2012-13 and preliminary guidelines for the provision of bicycle storage facilities at ACT public schools has been drafted. These guidelines will be completed in 2013-14.
Urban waterways connections project	Scoping and design works to connect Lyneham Primary School, Lyneham High School and Dickson College irrigation systems to the Northside Urban Waterway system were undertaken in 2012-13.	The connection of these three schools to the waterway will be completed in 2013-14. Irrigation systems at Lyneham Primary School and Lyneham High School will also be reinstated as part of this project.



Education and Training Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
PC Power Management Project	Following a successful trial of PC Power Management software at five schools, the Directorate purchased 16,756 Verismic Power Manager licences in 2012-13 to be deployed by Shared Services ICT across all public schools. Software design and testing work was completed in 2012-13 and the software will be rolled out in 2013-14 alongside the deployment of SchoolsNET. An equivalent number of free home-use licences will also be distributed to students in 2013-14.	The trial achieved a 56% reduction in electricity consumption from the use of Personal Computers (PCs) in schools. ETD will measure and report the energy and emissions reductions achieved on an annual basis once the software is fully deployed.
Annual Capital Works Program	As capital works were undertaken at schools, including new facilities, building upgrades and refurbishments, opportunities are taken to improve the energy and water efficiency of these spaces. This included implementing solar passive design, solar tubes, natural ventilation and thermal comfort strategies, lighting upgrades and roof insulation and water efficient appliances as part of toilet upgrades.	
National Solar Schools/ACT Solar Schools Project	The ACT Solar Schools program aims to install around 1 megawatt (1000 kilowatts) of panels on schools across the ACT public school system between 2010 and 2013.	Systems were installed at 55 schools in 2012-13, bringing the total number of schools with a solar panel system to 80. The installation of solar panel systems for the final six schools will occur early in the 2013-14 year. Feasibility studies for the expansion of the PV systems at Franklin Early Childhood School and Neville Bonner Primary School commenced late in the reporting year and are expected to be completed in 2013-14. The systems at each of these schools will be expanded from 30kW to 100kW in 2013-14.
Feed-in-Tariff Policy	As part of the solar schools program, public schools were approved for the maximum tariff rate (45.7 cents/kWh) under the ACT Feed-in-Tariff scheme for small-scale systems. The collective size of solar panel installations at public schools approved under this scheme is 1,192kW. To support schools implementation of this policy, financial reporting guidelines and Feed-in-Tariff investment guidelines were drafted in 2012-13. These guidelines will be finalised and distributed to all schools during 2013-14.	Fifty-one solar panel systems were installed in 2011-12 and 2012-13 generated Feed-in-Tariff income during 2012-13. Connections to the electricity grid will be completed in the first quarter of 2013-14 for all remaining solar systems. The income generated by these systems will be used by schools to implement further environmental sustainability measures.



Education and Training Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Energy, Water, Waste Audit and Accreditation Program	<p>The directorate continued to collaborate with the Australian Sustainable Schools Initiative (AuSSI) during 2012-13 to promote and support the implementation of sustainable behaviours in ACT schools.</p> <p>Audits conducted in previous reporting years were followed up in 2012-13 in order to accredit schools in the sustainable management of energy, water and waste.</p> <p>The program of energy and water audits commenced in the 201011 reporting year was expanded in 2011-12 to also include waste auditing.</p> <p>To support the implementation of water saving initiatives and raise awareness of the range of relevant educational programs on offer to schools, a professional development workshop for teachers on water was delivered in 2012-13.</p>	<p>At the end of 2012-13, a total of 31 public schools were awarded the AuSSI accreditation for sustainable energy management, 45 for sustainable water management and 22 for sustainable waste management.</p> <p>Water audits were conducted at seven public schools in 2012-13, bringing the total to 82 schools.</p> <p>Twenty-seven participants representing 15 public schools attended the workshop.</p>



Health Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
ACT Health Sustainability Strategy	<p>To assist its planning processes, the Health Directorate developed the ACT Health Directorate Sustainability Strategy (2010), which outlines the current environmental challenges presented by increasing demands on health care in the ACT and provides a roadmap for a collaborative sustainable future. It encapsulates a picture of where the Health Directorate wants to be in 30 years and takes into account the key elements contributing to a sustainable and dynamic future. The Sustainability Strategy contains seven focus areas (models of care, buildings and infrastructure, the digital health environment, transport, regulatory environment, workforce, and partnerships and external service delivery).</p> <p>During 2012–13, the directorate undertook extensive work on finalising the Sustainability Action Plan 2013, in line with the Sustainability Strategy.</p>	<p>To date, ACT Health has completed 93% of the short term actions (59 short term actions in total) towards a sustainable future, including:</p> <ul style="list-style-type: none"> • development of the Environmental Principles and Guidelines for Building and Infrastructure Projects under the Health Infrastructure Program • improvement of access to information for consumers through the ACT Health consumer portal • development of models of care in conjunction with consumers and staff, taking into account Evidence-Based Design, supportive leadership and teams and optimising patient/ staff experiences • establish new processes in community health centres that enable strong links with their local communities, improving communication flows, information and adapt services to local needs • establishment of secure bicycle sheds, shower/change room facilities into current and future builds to support a healthy transport option.
Water management	<p>The ongoing implementation and review of a variety of water efficiency initiatives continued through 2012-13.</p>	<p>Water efficiency initiatives included:</p> <ul style="list-style-type: none"> • installation of flow restrictors on a range of plumbing fixtures (e.g. showers, hand basins and toilets for all new works and refurbishments) • installation of six-star energy rating fixtures as replacements • replacement of heating pipe work and associated works at TCH • Boiler upgrades at TCH • continuation of restrictions on the use of potable water for outside watering at all directorate facilities and deactivation of all garden sprinklers and decommissioning of fountains • monitoring of water meters for cooling towers usage • use of newly-installed tank water for outdoor garden watering and external washing of facilities, buildings and pavements.



Health Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Transport management	<p>To accommodate the integration of electric vehicles into the fleet, the directorate's recently completed Southern Car Park at the Canberra Hospital includes infrastructure to support the charging of electric vehicles in the future.</p> <p>In June 2010, the directorate entered into a contract with Carpool-It.com (Australia) Pty Ltd (also known as MyCarpools) for the development and hosting of a car-pooling system for staff. Subsequently, the ACT Government introduced MyCarpools across ACT Government directorates and since June 2012, the directorate has been participating in this program. Usage of the ACT Government's MyCarpools has steadily increased since its inception.</p>	<p>Since 2012, 301 users have registered, with 110 of those users being staff of the directorate. There are currently 15 car-pooling groups registered with MyCarpools, of which 13 registered groups are made up of directorate staff, resulting in the directorate having the largest number of active car-pooling staff across ACT Government.</p> <p>ACT Health will acquire two electric vehicles in the next financial year.</p> <p>New bicycle facilities at Canberra Hospital have helped staff use alternative modes of transport to work.</p>
Energy management	<p>The directorate maintains an ongoing program to improve the performance of its facilities.</p>	<p>In 2012-13, the following initiatives to improve energy management were either implemented or continued across the directorate:</p> <ul style="list-style-type: none"> • replacement of several gas fired boilers at Canberra Hospital • replacement of air conditioning fan coil units throughout Building 1 at Canberra Hospital • ongoing upgrade of electrical distribution board across many areas of the directorate • ongoing installation of energy-efficient, occupancy-sensor or time-controlled lighting for non-critical building lighting and air-conditioning systems • continued review, monitoring and tracking of large plant equipment (e.g. high-energy use chillers and boilers), with programming adjustments made, where possible, by the building management system to maintain peak efficiency • replacement of older, larger electrical equipment in non-acute areas with more energy efficient units, e.g. pan flushers and utensil washers • installation of boiler heat recovery and burner management systems.



Health Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Health Infrastructure Program	The Health Infrastructure Program – a major hospital redevelopment initiative –provides an important opportunity to create ecologically sustainable health facilities. The challenge is to build intelligently, so that buildings use minimal non-renewable energy, produce a minimum of pollution and waste, and cost a minimum of energy dollars, while increasing the health, safety, and welfare of everyone who works in, visits or resides in them. These are the key components of sustainable design.	New health facilities have incorporated many environmentally sustainable design principles such as: <ul style="list-style-type: none"> • energy efficient lighting systems, including LEDs • clean energy options • cyclist facilities for sustainable transport.
Waste management	ISS Health Services (ISS) provides a waste management solution for the directorate under the terms of the ACT Health Domestic and Environmental Services Contract.	ISS services are provided to 17 sites, including the Canberra Hospital.
Waste management	The directorate and ISS developed and implemented a Health Waste Management Plan, which was endorsed in August 2012. The management of all waste services by one provider and in accordance with the waste plan facilitates the delivery of a uniform approach to waste management activities. The directorate is also a signatory to the ACT Government ACTSmart program, which aligns with and supports the initiatives of the Health Waste Management Plan, specifically in increasing recycling outputs. The directorate and ISS are working closely with ACTSmart representatives to increase recycling outputs through education for staff and the implementation of recycling systems within administrative areas.	The directorate introduced waste streaming stations into the design of all new buildings coming on line through the Health Infrastructure Program (HIP).
Waste management	The directorate collaborated with Australian National University (ANU) Medical School students on the ACT Green Hospitals Project 2010-2013. One of the aims of the project was to encourage and increase correct streaming of waste at the point of disposal in the Canberra Hospital theatres.	The project delivered a 4.6% reduction of waste incorrectly disposed into the clinical waste stream, therefore reducing greenhouse gas emissions associated with clinical waste treatments and disposal. The directorate received an EA rating (excellent achievement) from the Australian Council on Healthcare Standards (ACHS) for Waste and Environmental Management in relation to Criterion 3.2.3 EQUIP5 accreditation process undertaken in November 2012.



Justice and Community Safety Directorate

Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
<p>Energy Efficiency Capital Upgrade Program</p>	<p>In 2011 Capital Works and Infrastructure formed a Sustainability Committee (JSC) tasked with improving sustainable outcomes across JACS. The committee is currently managing an Energy Savings Project aimed at assisting all participating business units. The JSC plays an important role in the development of resource efficiency initiatives in the directorate in terms of sustainability.</p> <p>Key responsibilities include:</p> <ul style="list-style-type: none"> • monitoring the effectiveness of introduced environmental resource efficiency measures • establishing new measures, and consider new proposals, to be integrated into the RMP • ensuring alignment of the agency RMP with broader Government objectives as well as internal corporate strategic planning and • overseeing the implementation of environmental resource efficiency measures in the workplace, as outlined in the RMP. <p>The Ainslie Fire Station Solar panel project is by far the largest energy efficiency capital project and has been ongoing since the 2011-12 CUP. The initiative is part of a pilot project with a view to provide solar panels at other ESA sites. The panel installation is now complete and the results of the installation will be monitored in 2013-14.</p>	<p>In the 2012-13 financial year energy efficiency initiatives have been delivered via a number of different upgrades, including:</p> <ul style="list-style-type: none"> • LED lighting upgrade to the ground floor and level 1 meeting room at 255 Canberra Avenue • installation of solar film to level 2 Magistrates Court • T5 lighting upgrades to eight of the Associates offices and the last two remaining Chambers at the Magistrates Court • LED lighting upgrade to Court room 1 bench at the Magistrates Court • installation of seven individual light sensors to GSO, level 6, 12 Moore Street • LED lighting upgrade to level 6, 12 Moore Street • lighting upgrade master plan for the Alexander Maconochie Centre and detailed design for phase 1 upgrades (to be carried out in 2013-14 CUP) • follow-on works from 2011-12 Solar project at the Ainslie Fire Station, including upgrading the 10KW solar system to a 25KW system and installation of a new distribution board at the Ainslie Fire Station to support the solar system.



Territory and Municipal Services Directorate		
Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Operations	During 2012-13 the directorate secured funding under the Carbon Neutral Government Fund for LED lighting upgrades in up to 28 of its buildings including Macarthur House.	Work will commence in 2013-14.
Carbon Neutral Government	As part of its Carbon Neutral ACT Government Framework, the ACT Government committed to the purchase of 5% of ACT Government electricity consumption in GreenPower.	GreenPower was obtained by TAMS on behalf of all directorates to meet this commitment for electricity consumed in 2012-13.
Resource Management Plan	TAMS has expanded the Macarthur House RMP to include wider areas of TAMS operations and has established a Sustainability Advisory Group with representation from all divisions. This group will continue to identify activities that will further reduce greenhouse gas emissions.	
Methane capture	Methane capture continued at Canberra's active landfill at Mugga Lane and at the former landfill at West Belconnen.	29,000 megawatt hours of methane captured from Canberra's active landfill at the Mugga Lane Resource Management Centre and Canberra's former landfill at West Belconnen was converted into electricity for approximately 3,400 homes.
One Million Trees	The One Million Trees initiative, which will see the planting of one million trees and shrubs across Canberra over 10 years, was identified as an action item in the ACT Climate Change Strategy 2007-2025.	In 2012-13, 49,500 trees were planted along the Murrumbidgee River Corridor.
Transport initiatives	ACTION's bus replacement program continued in 2012-13. TAMS continued the implementation of the Transport for Canberra program, including work to develop the NXTBUS real-time passenger information system to be implemented later in 2013. TAMS also continued cycling signage and path maintenance under the walking and cycling infrastructure project.	23 Scania Euro 5 articulated buses were added to the fleet and orders placed for a further 13 Scania articulated buses for delivery in 2013-14. ACTION commenced a procurement process for replacement of a further 77 standard buses. During 2012-13 TAMS continued the construction of new park and ride facilities on rapid and commuter transport routes. TAMS also completed the first two stages of the Civic Cycle Loop.
Vehicle fleet	TAMS continued to use the Mitsubishi iMIEV electric vehicle, which demonstrates TAMS' commitment to contributing to the ACT Government's Greenhouse Gas Reduction policy. The current vehicle lease is due to expire in early 2014, however it is intended to extend the lease for a further two years. TAMS continued to implement best practice for fleet vehicle based on fuel efficiency and environmental performance to decrease its carbon footprint and ensure value for money.	





3. Findings of a cost-benefit analysis of any government policies or programs implemented to meet the targets

AP2 analysis

Investing in climate change mitigation often means paying now for benefits that will accrue over the medium to long term. However, in some cases the benefits can be immediate and result in significant net savings over time, such as investment in cost-effective energy efficiency.

While the costs of renewable energy and the cost-savings from energy efficiency to 2020 are inherently uncertain, the table below provides an indication of the expected costs and savings to the ACT community from implementing the pathway set out in AP2. Savings can result from improvements in household or business energy efficiency, while costs result from renewable energy investments.

Emissions sector	Potential costs and benefits (not discounted)*
Residential energy	<p>Cumulative energy cost savings to 2020 from the implementation of energy efficiency measures are estimated at around \$140 million for the residential sector, or over \$800 per household. This equates to savings of over \$33 million, or \$210 per household in 2020.</p> <p>In addition to costs from moving to renewable energy sources, energy efficiency policies can also have pass through costs, such as in the case of a retailer obligation scheme. Whether or not to pursue such a scheme after 2015 will depend on a regulatory impact assessment to be undertaken by government in consultation with stakeholders.</p>
Non-residential energy	<p>Cumulative energy cost savings to 2020 from the implementation of energy efficiency measures are estimated at around \$93 million for the non-residential sector. This equates to savings of over \$24 million in 2020.</p>
Waste	<p>Net savings are expected to result from reduced waste generation. Costs associated with energy-from-waste are included in the electricity supply sector calculations.</p>
Transport	<p>Cumulative fuel cost savings to 2020 from the implementation of Transport for Canberra and the Low Emission Vehicles Strategy are estimated at around \$395 million. This equates to savings of around \$118 million in 2020.</p>
Energy supply	<p>Increasing renewable energy usage to meet our 2020 target is expected to have a cost peaking at around \$370 million to 2020 or between \$270 and \$305 per household in 2020.</p>
<p>*Stationary energy savings are determined on the basis of savings on imported electricity (wholesale costs and Large-scale Renewable Energy Target (LRET)/ Small-scale Renewable Energy Scheme (SRES) costs only). Fuels cost savings are based on prices escalating from \$1.37 to \$2.06 in 2020.</p>	

Through implementing the actions set out in AP2, electricity prices are forecast to increase by up to 16% to fund renewable energy investment and ensure our greenhouse gas abatement targets are met. On the basis of current electricity prices, even with a 16% increase, the ACT would maintain the lowest electricity prices in Australia. While the difference between jurisdictional electricity prices will change over time, our advantage in having a well-planned low cost electricity network can be expected to ensure a relative price advantage is maintained into the future.

The modelling demonstrates that to maximise the economic benefits of AP2 it is beneficial to promote investment within the Territory and the broader Capital Region as opposed to elsewhere in Australia. To address this, AP2 prioritises investment in local projects both through energy efficiency and renewables. AP2 also adopts an adaptive management approach which provides flexibility to lower implementation costs and maximise local benefits over the course of the strategy.



mixed recyclables

- Paper & cardboard
- Plastic bottles & tubs
- Glass bottles & jars
- Metal cans
- Clean, dry, non-hazardous

mixed recyclables

- Paper & cardboard
- Plastic bottles & tubs
- Glass bottles & jars
- Metal cans
- Clean, dry, non-hazardous

organic material

- Food waste
- Garden waste
- Animal manure
- Plant cuttings
- Soft toys
- Textiles
- Carpets
- Mattresses
- Upholstery
- Mattresses
- Upholstery

waste to landfill

- Appliances
- Electricals
- Furniture
- Garden furniture
- Garden waste
- Glass
- Hazardous waste
- Large items
- Mattresses
- Upholstery

Organic Material

waste to landfill

waste to landfill

- Appliances
- Electricals
- Furniture
- Garden furniture
- Garden waste
- Glass
- Hazardous waste
- Large items
- Mattresses
- Upholstery



Appendix A

Action Plan 2 – 2012-13 Cost of Living Impact Statement

The release of Action Plan 2 (AP2) was accompanied by a commitment to provide an annual cost of living impact statement to guide the Government’s implementation of the strategy. This document represents the first statement under this commitment for 2012-13.

Total Energy Consumption

During the year ACT households consumed 7670 kilowatt hours (kWh) of electricity and 47 Gigajoules (GJ) of gas on average. This equates to total average annual electricity and gas GST-exclusive costs of \$1,482 and \$1,282 respectively. This cost represents 1.91% of the annual income of a median ACT household with children¹ after accounting for GST.

Retail electricity prices paid by ACT households compare favourably with other jurisdictions. The ACT has the lowest electricity prices nationally by a significant margin². However, energy consumption tends to be higher in the ACT compared to other jurisdictions due to a combination of a colder climate and significantly higher average incomes. This means that ACT households, on average, have relatively high energy costs. There are therefore significant opportunities to lower these costs by reducing energy consumption.

Cost Impact of AP2

2012-13 saw the commencement of the Energy Efficiency Improvement Scheme (EEIS) identified in AP2. The compliance costs of the EEIS for electricity retailers are passed through to their customers in the form of higher electricity tariffs. The average pass-through cost for households was \$10.16 in 2012-13. This represents 0.37% of the total average annual household energy cost.

	AP2 Cost Impact	
2012-13	EEIS (\$)	\$
Cost of Electricity (7670 kWh)	\$10.16	\$1,482
Cost of Gas (47 GJ)		\$1,282
Total Cost of Energy	\$10.16	\$2,764
Energy Costs (% of Median HH Income with children)	1.91%	
AP2 Costs (% of Energy Costs)	0.37%	

It is important to note that the benefits of this scheme will only occur in participating households while the costs are distributed across all electricity customers. In 2012-13, the scheme operated for six months from 1 January 2013. The average estimated energy cost saving achieved by households was \$7.70 per household for that year. Overall, in 2012-13 the average net cost of the EEIS was \$10.16 per household.

While costs of the EEIS cease at the completion of the scheme, cost savings for participating households will continue to accrue over a number of years. The net household cost of the EEIS in 2012-13 represents an investment enabling households to reduce energy consumption in excess of the cost over the life of the scheme.

1 Page 44, 2013-14 Budget paper No. 3 – ‘In the ACT, the median weekly family income for families with children was \$3,060’.
 2 Page iv, Electricity Price Trends – Final Report (March 2013), Australian Energy Market Commission



Social Equity

The release of AP2 recognised that the cost of the proposed measures, while being marginal on the community as a whole, may impact differently for those on different incomes. To combat this, a number of Government policies are in place to help vulnerable households suffering financial stress due to energy bills. These include energy outreach programs, increase in concessions and requirements on energy retailers to assist consumers suffering financial hardship.

This was also recognised in the design and implementation of the Government's EEIS under AP2 which includes a low income priority household target. Retailers are required to deliver at least 25 % of their energy saving obligations under the scheme from low income households. As these households constitute less than 25% of the community, the priority household target ensures that they will substantially benefit from the EEIS.

As can be seen in the Cost of Living Impact Assessment, the largest net benefits will accrue to participating households from lowest income groups as the scheme ramps up beyond 2013-14. For 2012-13, the Cost of Living Impact Assessment estimates that savings for the lowest income group, earning less than \$20,000 per annum, will total \$9.25 per annum, representing a net cost of \$0.91 after the cost of the scheme (\$10.16).

The savings accruing to low income households will significantly exceed the costs of the scheme in the following years as it is ramped up. In 2014-15, while the scheme will cost \$33.28 per annum on average, it is expected that this will result in savings well in excess of the costs for all income levels as a whole and the largest savings will occur in the low income groups (\$58.87 per annum).

Future AP2 Costs

In 2013-14, the Royalla Solar Farm is expected to commence generation, with further facilities to be completed in 2014 and 2015. The Cost of Living Impact Assessment shows the expected impact on annual energy costs paid by households in following years of the combined AP2 measures (EEIS and Large Scale Solar Facility). When EEIS savings are included, the combined impact of these AP2 measures represents an overall saving for all households from 2015-16 onwards.

