ACT Government

Climate Change And Greenhouse Gas Reduction Act 2010
Minister's Annual Report 2014-15

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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 ACT Government's (the Government) actions against the requirements of the Act for the 2014–15 financial year.

1. Actions taken in 2014–15 under the Act

The Government has continued to show strong leadership in environmental management by responding to climate change through a range of programs, initiatives and nation-leading reforms.

Significant progress was made on a number of critical projects that support greenhouse gas reduction targets, including:

- in 2014, a reverse auction for feed-in tariff entitlements for 200 megawatts of large-scale wind generating capacity was conducted by the Government
- community uptake of activities under the Energy Efficiency Improvement Scheme (EEIS)
- substantial progress on the Government's commitment to be carbon neutral in its own operations by 2020
- international recognition of the ACT and Canberra's greenhouse gas emissions reduction targets and renewable energy target.

The combined impact of projects initiated during the reporting period will provide the foundations for a sustainable Canberra that leads by example in action to address climate change. These projects are further detailed below.

a. Review issues relating to climate change

National and regional climate projections

The Climate Change in Australia web portal released in 2015 by the Commonwealth Scientific and Industrial Research Organisation (CSIRO)[1] provides a suite of information that adds to the 2014 State of the Climate report by CSIRO and the Australian Government Bureau of Meteorology (BoM). This includes projections for the ACT[2] as part of the Murray Basin cluster of natural resource management regions.

The Government has partnered with the NSW Office of Environment and Heritage to develop new, fine-scale (10 square kilometre) climate projections for New South Wales and the ACT using a regional climate model called the NSW and ACT Regional Climate Model, (NARCliM). The research, released in late 2014, provides more specific climate variables and projections. This information is available on the ACT's Actsmart Sustainability Hub, http://www.actsmart.act.gov.au/.

Together, these information sources project what Canberra's climate will be like and how our region will be affected from now to 2070. Although it is difficult to predict the exact impacts, it is clear the climate we are accustomed to is no longer a reliable guide for the future.

> ***"The external environment in which we are operating has changed. The average temperatures and rainfalls have changed, and that warrants a change.... It's changing what we do to get what we want. In most cases, there is still a range of options that people can pursue."***
>
> **CSIRO scientist and IPCC contributor Dr Mark Howden 2014**

1 http://www.climatechangeinaustralia.gov.au/en/
2 http://www.climatechangeinaustralia.gov.au/en/climate-projections/future-climate/regional-climate-change-explorer/clusters/?current=MBC&tooltip=true&popup=true

The anticipated impacts are:

Increasing heat: By 2070 the ACT and region's average air temperature will increase up to 2°C with an average of 20 extra days above 35°C (heatwaves) each year. With the increased heat, the number of severe fire weather days and risk of bushfires will increase in spring and summer.

More variable rainfall: Although the annual average precipitation is not projected to change much, there will be increased variability in rainfall with a decrease in spring and an increase in autumn. Therefore plants reliant on seasonal rain may respond as for drought and not thrive. The changes to the hydrological cycle will extend the summer storm season (more months of the year) with an increase in the number of intense storms (heavier rainfall over short periods) bringing increased risk of flash flooding.

More extreme events: The greatest risk to life and property will come from the increased frequency and severity of natural disasters—drought, bushfires, wild storms, flash flooding and heatwaves.

International

In November 2014, the Intergovernmental Panel on Climate Change (IPCC) released the Fifth Assessment Synthesis Report. The report pulls together the conclusions of three IPCC working groups which issued reports over the past year on the underlying science, the impacts, and the ways to address climate change.

Three key messages from the synthesis report are:

- the human influence on the climate system is clear
- the more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts
- we have the means to limit climate change and build a more prosperous, sustainable future.

Much is happening internationally in the lead up to the 21st United Nations Climate Change Conference of Parties (COP21) in Paris, France in 2015. The conference objective is to achieve a legally binding and universal agreement on climate from all the nations of the world.

Leading up to COP21 the Australian Government has committed to a target of curbing greenhouse gas emissions to at least 26–28% below 2005 levels by 2030. This compares with the United States of America's pledge to reduce emissions by 26–28 below 2005 levels by 2025 and the European Union's pledge to reduce emissions by 40% below 1990 levels by 2030.

The Unlocking Ambition: Top corporate and sub-national corporate commitments report of The Climate Group states that the ACT has the world's most ambitious greenhouse gas reduction target of all states and regions (100% reduction by 2060) and renewable energy target (100% renewable energy by 2025).

> ***"Renewable energy jobs in ACT have grown 400% over the past five years. We can do this. We have shown it's possible – now we have one small step left. 100% renewable energy will drive further jobs growth in our research and corporate sectors."***
>
> **Andrew Barr, Chief Minister, Australian Capital Territory 2015**

b. Promote action to meet targets

The ACT Government released AP2: A new climate change strategy and action plan for the Australian Capital Territory (AP2) in October 2012. The climate change strategy and action plan can be viewed at www.environment.act.gov.au/cc.

The strategy is the primary mechanism of the Government 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.

The Government continues to implement the 18 actions presented in AP2. A status report on the actions is prepared biannually and released on the Environment and Planning Directorate's web site. The most recent version is available at www.environment.act.gov.au/cc.

Actions progressed under AP2 during the 2014–15 reporting period are detailed in Section C.

c. Develop, adopt or promote policies and programs

Energy Efficiency Improvement Scheme

The ACT Energy Efficiency Improvement Scheme (EEIS), which commenced in 2013, is modelled to deliver around 6.2% reduction on ACT residential sector emissions in 2015 and lifetime emission savings of 742,000 tonnes. The second compliance year of the EEIS finished on 31 December 2014. Electricity retailers successfully implemented energy saving activities under the EEIS in over 25,700 households, including over 7800 priority households. Additionally, over 920 refrigerators and freezers were decommissioned (including de-gassing) and destroyed.

Despite the Government extending the EEIS to business in July 2013, to date no activities have been offered by obligated electricity retailers to businesses.

The Energy Efficiency (Cost of Living) Improvement Act 2012 was amended during 2014–15 with the EEIS extended to 2020 and a mechanism introduced for the EEIS Administrator to register 'approved abatement providers'. This legislation, as presented on 4 June 2015, passed on 4 August 2015 and was notified on 18 August 2015.

Energy efficiency information to tenants

The ACT Government is working with the Centre for Liveability Real Estate to assess options for providing energy efficiency information to residential tenants in the ACT. The pilot project, to be concluded in early 2016, will include the assessment of 380 rental properties against a range of energy efficiency and other features to:

- determine how to provide transparent, simple and robust communication on key features of a property at the point of rent
- understand whether this information can effectively influence tenants and landlords
- identify what further information is required to help tenants better use their home during occupancy and whether this can improve tenant outcomes
- identify what further support landlords need to improve the energy efficiency of their properties and the cost of mandating this approach.

Actsmart Business Energy and Water Program

The Actsmart Business Energy and Water program commenced on 1 July 2012 to provide advice and assistance to small businesses and community groups in the ACT, including a rebate to assist with upgrade costs. As at 30 June 2015, 338 small businesses and community groups had received a tailored assessment and report, with 159 claiming a rebate and many more currently undertaking efficiency upgrades.

Estimated lifetime energy savings from the upgrades installed since program commencement are 16,565 megawatt hours (MWh), equivalent to the energy used by 2300 houses a year.

In 2014–15 the program assessed 115 small businesses, with 81 claiming a rebate to upgrade to more efficient fittings or fixtures. Estimated savings per year from the upgrades installed in 2014–15 are 878 MWh, equivalent to 704 tCO_2-e. Savings from energy bills are $198,000 for the year, an average of $2,440 per business. To assist medium-sized businesses in the ACT, Actsmart have partnered with the Canberra Business Chamber to develop a suite of online resources and tools to help businesses become more environmentally sustainable, including ACT-specific energy advice and case studies, and an online tool to identify lighting upgrade opportunities and savings. These resources are under development and will be available through the Actsmart Sustainability Hub by the end of 2015–16.

Outreach low income energy and water efficiency residential program

Following a successful trial program, an expanded Outreach program was implemented in June 2011. Outreach assists low income households improve the energy and water efficiency of their homes, reduce their energy and water consumption bills, and contribute to reducing greenhouse gas emissions. Operating through community welfare organisations, the Outreach program has provided energy-efficient essential home appliances, assessments, education and retrofits to eligible households.

In 2014–15 Outreach provided eligible low income households with some or all of the following assistance, depending on their needs:

- energy and water efficiency assessments of their homes
- new energy and water-efficient appliances to replace old, inefficient appliances
- retrofits of energy and water efficient products and repairs in their homes, such as draught proofing and/or
- energy efficiency advice and information.

In January 2015 the Outreach program partnered with Care Financial Services Inc. and the Salvation Army to offer subsidies for energy and water efficient appliances purchased using the No Interest Loans Scheme (NILS). This is a cost-effective approach to reduce greenhouse gas emissions and water use. The following subsidies applied in 2014–15:

- $300 for refrigerators
- $200 for freezers and washing machines
- $500 for reverse-cycle air conditioners.

The Outreach program assisted approximately 1840 low income households in 2014–15. Cost-effective reductions in household energy consumption and greenhouse gas emissions are expected to be achieved over the life of the energy efficiency improvements implemented with these households.

Estimated savings per year from the activities in 2014–15 are 540 MWh (from both electricity and gas), equivalent to 240 tCO_2-e.

Total energy savings are calculated using the deemed lifetime savings methodology employed by the Energy Efficiency Improvement Scheme (EEIS). Note that not all activities offered through the Outreach program (such as education) are included in the EEIS, so the reported savings are likely to be an underestimate.

ToiletSmart

The ToiletSmart program closed on 24 September 2014. It assisted ACT homeowners to replace their single and older dual flush toilets with 4-star water-efficient dual flush toilet suites.

The water savings in the 2014–15 financial year from all the toilets installed since the start the program is estimated to be 343 megalitres (ML) providing estimated greenhouse gas emission savings (from reduced water treatment) of 408 tCO_2-e. The cumulative water savings for the life of the program from 2008 to 2014 – 15 is estimated to be 1790 ML, providing estimated greenhouse gas emission savings of 2129 tCO_2-e.

Actsmart Schools

Actsmart Schools implements a whole-of-school, action learning approach to sustainability that supports schools to introduce sustainable management practices into every day school operations and educate school communities to change behaviours. All 133 ACT schools have registered with the program. This accounts for over 72,000 students.

Actsmart Schools continues to work collaboratively with the ACT Education and Training Directorate (ETD) to assist schools to move towards carbon neutrality. In partnership with ETD, Actsmart Schools provides environmental data, workshops and ongoing education, resources and advice.

Data for 2014–15 shows that schools with Actsmart Schools waste accreditation send 22% less waste to landfill (on a per student basis) than schools that are not accredited. In 2014–15 this equated to approximately 2995 cubic metres of less waste being sent to landfill from these 62 accredited schools, when compared with non-accredited schools. This represents a reduction of 433 tCO_2e. In addition, 127 schools were assisted to establish/re-establish waste and recycling systems during 2014–15 with 60 of these being visited at least once.

Actsmart Business Recycling program

The Actsmart Business Recycling program continues to provide assistance and accreditation to businesses and offices in the ACT to encourage and support the adoption of efficient waste management and recycling. Over 40,000 staff have access to the program throughout the 695 participating sites across the Territory.

Since the program started in 2009, accredited sites have reduced waste to landfill by 48,458 cubic metres. This represents a reduction in emissions of 7,009 tCO_2-e.

In 2014–15, the 283 accredited sites recycled approximately 11,980 cubic metres of mixed recyclables, representing 966 tCO_2-e avoided, and 1676 cubic metres of organic material, equivalent to 919 tCO_2-e avoided.

Public events

The Directorate continued delivery of the Actsmart Public Event program, which helps event organisers implement recycling facilities within a public event. Any community-based event is eligible including school fetes, festivals, fairs, shows or sporting events.

As at June 2015, 43 events had participated in the program, including Floriade, National Multicultural Festival, ActewAGL Royal Canberra Show, National Folk Festival, sporting events, fetes and fairs. Diversion of waste into recycling streams included 30,976 kilograms (kg) of mixed recycling equivalent to 39 tCO_2-e avoided, and 11,494 kg of organic waste, equivalent to 18 tCO_2-e avoided. Over 1 million visitors had the opportunity to recycle at these events.

Adapting to climate change

Following the May 2014 commitment in the Minister's Statement on Climate Change and the brochure *Adapting to a changing climate: Directions for the ACT*, an ACT Climate Change Adaptation Strategy has been under development to address the main climate change impacts that require our people and our city to adapt.

To help reduce the negative impacts of climate change now and into the future across social, environmental and economic issues, the Adaptation Strategy's focus is on emergency and disaster management, increasing community resilience for health and wellbeing, and modifying our city to make it fit-for purpose into the future.

Low Emission Vehicle Strategy

An action of both Transport for Canberra and Action Plan 2 commits to the development of a Low Emission Vehicle Strategy (LEVS). A discussion paper on actions the Territory could take to lower vehicle emissions was released for public consultation in June 2014. The discussion paper identified ten potential actions based around three strategies. Feedback from the community engagement showed support for the majority of these actions and has been used to help inform the development of the LEVS and the Government's direction on managing emissions generated by the transport sector. The LEVS is expected to be completed in 2016.

Large-scale solar energy

In 2012 and 2013, a reverse auction for feed-in tariff entitlements for 40 MW of large-scale solar generating capacity was held by the Government. In August 2014, one of the successful auction projects, the 20 MW Royalla solar farm constructed by Fotowatio Renewable Ventures (FRV), began generating electricity. The solar farm was granted a feed-in tariff entitlement under the *Electricity Feed-in (large-scale Renewable Energy Generation) Act 2011* in September 2012 and was opened in September 2014. At the time of its opening it was the largest photovoltaic solar farm in Australia.

In August 2013 large-scale grants of feed-in tariff entitlement were also made under the Act to two further successful solar auction proponents. Zhenfa Australia was granted a feed-in tariff entitlement for a 13 MW solar farm to be developed at Mugga Lane and OneSun Capital was granted a feed-in tariff entitlement for a 7 MW solar farm that will now be developed at Williamsdale. The construction of both solar farms has been delayed and both plan to be generating in 2016.

Large-scale wind energy

In 2014, the Government conducted a reverse auction for feed-in tariff entitlements for 200 MW of large-scale wind generating capacity. In February 2015 grants of feed-in tariff entitlement were made under the *Electricity Feed-in (large-scale Renewable Energy Generation) Act 2011* to its successful proponents: a 19.4 MW wind farm to be developed by Windlab Ltd at Coonooer Bridge in central Victoria; a 100 MW wind farm to be developed by Neoen SAS at Hornsdale in South Australia; and a 80.5 MW wind farm to be developed by RES Australia at Ararat in central Victoria. The Ararat and Coonooer Bridge wind farms reached financial close (finalised finance) in the first half of 2015 and the Hornsdale wind farm reached financial close soon after. The Coonooer Bridge wind farm began construction in the middle of 2015. Planning by EPD also commenced in the first half of 2015 for a second 200 MW wind auction that opened for proposals in August 2015.

Whole-of-government approach to measure, monitor and report greenhouse gas emissions

The project to implement an Enterprise Sustainability Platform (ESP) was completed in June 2014. The ESP is for whole-of-government sustainability data collection and reporting for electricity, natural gas and water. It enhances transparency and accountability of ACT Government agencies for their greenhouse gas emissions. The ESP provides a baseline for government greenhouse gas emissions in pursuit of the goal of carbon neutrality in 2020 and enables the ongoing monitoring and evaluation of initiatives to increase energy efficiency in government buildings and operations.

Through the ESP, the Government has access to the emission profile for ACT Government operations and develops ongoing carbon budgets for each ACT Government Directorate to help achieve the 2020 target.

Carbon Neutral ACT Government Framework

Government leading by example is an important element of AP2. The Government is responsible for about 5% of the Territory's greenhouse gas emissions and is committed to achieving zero net emissions in its operations by 2020 through the implementation of the Carbon Neutral Government (CNG) Framework, which was launched in August 2014.

The CNG Framework has 39 actions for execution across Government directorates. It identifies three key steps for the Government to achieve carbon neutrality in 2020:

- **Step 1:** measure, monitor and report GHG emissions
- **Step 2:** mitigate – avoid and reduce emissions and switch to low carbon fuel sources
- **Step 3:** offset residual emissions (to achieve zero net emissions in 2020)

A whole-of-government committee oversees implementation of actions and reports progress to the ACT Public Service Strategic Board annually. Reports were made in June, August and November 2014.

All directorates have produced Resource Management Plans (RMP). Each plan measures the progress of resource management strategies, contains a review process to ensure the RMP is updated before expiry and states the governance process for the RMP and performance review requirements. RMPs are being reviewed to include energy targets for priority sites and accountability for meeting performance.

Implementation of the CNG Framework focussed on building the foundations for ongoing support to Government operations, in particular the CNG Fund and the establishment of a trial of carbon/energy budgets to occur in 2015–16.

Carbon Neutral Government Fund

In 2014–15, six applications for funding were received; all were successful, with $3,541,976 approved. Projects commencing in 2014–15:

- $60,000 to CMTEDD for heating, ventilation and cooling building management systems improvements at Dame Pattie Menzies House, Macarthur House and 1 Moore Street premises.
- $50,000 to CMTEDD for the upgrade of boiler burners at Grant Cameron Community Centre and Mount Rogers Community Centre.
- $75,000 to CMTEDD for the upgrade of boiler burners at Village Creek Health Centre, Hackett Community Centre, Hackett Sports House and North Curtin Emergency Services Agency.
- $20,000 to CMTEDD for heating, ventilation and cooling upgrades at Woden and Belconnen libraries.
- $18,000 to CIT for a feasibility study into a renewable energy micro-grid.

A project was approved on 30 June 2015 for $3.318m for a major lighting upgrade and solar photovoltaic installation at The Canberra Hospital.

Many applications to the fund have been for large-scale LED lighting projects, which save energy and money. To date, installations of internal lighting in more than 90 Government buildings and schools have an estimated cost saving of $1 million per year and have reduced electricity use by up to 30% at project sites.

Eighteen ACT Government projects to the value of $9.8 million have been supported under the fund since 2009. These projects have ongoing annual cost and energy savings from the date of implementation, and help support the local clean economy. The estimated collaborative total of annual project reductions or savings for the 2014–15 year, including the five projects established this year, is:

- $1.78 million in cost savings
- 7,808 tCO_2-e, equivalent to taking 2110 cars off the ACT's roads for a year
- 9,303 MWh of electricity, equivalent to the energy used by 1,292 ACT houses a year.

Capital Metro

The Capital Metro Agency was established on 1 July 2013 with the principle objective of managing all aspects of the ongoing planning, design and delivery of Stage 1 of a light rail network for the Territory. Capital Metro is Canberra's light rail project and is an important part of the Government's vision to deliver a truly sustainable and creative city as set out in The Canberra Plan – Towards our Second Century.

d. Consult business and community

Climate Change Council

During 2014–15 the Climate Change Council (Council) held three formal meetings, from which the Council provided advice to the Minister on climate change issues. The Minister for the Environment attended the meeting on 4 March 2015.

The focus for the Council in 2014–15 included large scale renewable-energy projects, climate change adaptation, the City and Northbourne Avenue Urban Design Precinct, and increased community engagement on climate change. Council members also undertook a number of engagement activities outside Council meetings and continued to increase their presence at community events and online.

New members joined the Council and existing members were reappointed. In February 2015, Professor Penny Sackett was appointed to the Council and Professor Barbara Norman, Professor Will Steffen and Dr Frank Jotzo we reappointed. They joined existing council members Mr Toby Roxburgh and Ms Dorte Ekelund. Professor Norman was appointed as Chair of the Council and Professor Sackett as Deputy Chair for an initial one year term. The Council's Annual Report for 2014–15 will be available in late 2015.

Review of the Energy Efficiency Improvement Scheme

As part of the review of the Energy Efficiency Improvement Scheme (EEIS) undertaken by the consultants Jacobs SKM in 2014, a stakeholder forum was held and a consumer satisfaction survey was undertaken. The review concluded there was high participant satisfaction with the EEIS and there were significant overall benefits to continuing the EEIS.

e. Promote actions or strategies by business entities

Since the ACT Government's ActSmart Business Energy and Water Program commenced in July 2012, 337 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 and water 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.

The Actsmart Business Recycling Program has 695 participating sites across the Territory reaching over 40,000 staff. Once effective recycling systems are in place, a business can receive accreditation through the program to recognise their achievements. At 30 June 2015, 283 sites had achieved accreditation through the program.

Additionally, Actsmart business clients are promoted through digital and print media with their achievements showcased to the ACT community, and have the opportunity to be recognised at the Actsmart Business annual awards breakfast held in June each year.

f. Promote involvement in climate change forums

The Government participates in a range of national forums to achieve a nationally consistent approach on energy and climate change matters. Forums include Meetings of Environment Ministers and its predecessor, the Standing Council on Environment and Water (SCEW), the National Environment Protection Council and the recently established Council of Australian Governments (COAG) Energy Council (previously the Standing Council on Energy and Resources).

The ACT is also a party to the National Partnership Agreement on Energy Efficiency under the National Framework on Energy Efficiency, which provides for a nationally consistent and cooperative approach to energy efficiency.

On 13 April 2015 Canberra became a member of the Compact of Mayors. The Compact of Mayors is an agreement by city networks – and their members – to undertake a transparent and supportive approach to reduce city-level emissions, to reduce vulnerability and to enhance resilience to climate change in a consistent and complementary manner to national level climate protection efforts.

On 8 May 2015 the ACT became a member of The Climate Group's Compact of States and Regions. The purpose of the Compact of States and Regions is to amplify the political commitments being taken by state and regional governments to avoid dangerous climate change.

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

Renewable Energy Industry Development Strategy

The ACT Renewable Energy Industry Development Strategy (REIDS), released on 1 May 2015, was developed to accelerate the development of a vibrant, export-oriented, renewable energy industry in the ACT for the benefit of participating businesses, institutions and the ACT community.

In developing the strategy, the Government has worked with and gained the support of a broad range of industry stakeholders spanning the research and training communities, industry, and the venture investment community. REIDS is inclusive, driven by open collaboration between government, research and education institutions, and industry. Inaugural partners to this strategy provide a core constituency that will grow and be extended over time.

Next Generation Solar

Fixed panel, silicon-based, photovoltaic solar cells are a mature technology which can be cost competitive with grid electricity for both residential and commercial consumers, but intermittency and reliability of supply remain a key challenge to solar's widespread adoption. Next generation solar is solar technology that applies energy storage technologies in conjunction with solar energy generation to address the limitations arising from intermittency and reliability of solar energy supply.

On 6 May 2015, the ACT Government announced the launch of the Next Generation Solar Expression of Interest (EOI) process. The EOI process closed on 8 July 2015 and received thirty submissions. The Government is targeting next generation solar as a central component in its plan to reduce emissions, grow the renewable energy industry in the Territory, and position Canberra as an internationally recognised centre for renewable energy innovation and investment.

h. Promote the commercialisation and use of other technologies

Waste

The Government continued to implement elements of the ACT Waste Management Strategy 2011–2025. Following a market sounding process in early 2013 the Government commenced developing a detailed business case for a new waste infrastructure. In the 2015–16 Budget the Government committed $2.8 million over two years to progress the procurement of new waste infrastructure via the ACT Waste Feasibility Study. This process is likely to facilitate a suite of new waste sorting and processing technologies being established in the ACT in the next 3–6 years.

i. Promote research and development

Renewable Energy Industry Development Strategy

The ACT Renewable Energy Industry Development Strategy (REIDS) promotes research and development of a vibrant, export-oriented, renewable energy industry in the ACT for the benefit of participating businesses, institutions and the ACT community. REIDS is an open collaboration between government, research and education institutions, and industry.

Microgrid feasibility study under Carbon Neutral Government Fund

$18,000 was provided in 2014–15 under the Carbon Neutral Government Fund to the Canberra Institute of Technology (CIT) for a feasibility study into a renewable energy micro-grid.

Greenhouse gas emission methodologies

In September 2014 The Minister for the Environment released the 2011-12 ACT Greenhouse Gas Inventory. The Inventory, prepared by the Independent Competition and Regulatory Commission, provides an assessment of both total greenhouse gas emissions and the amount of emissions per person in the Territory.

As an initial measure to provide a more timely greenhouse gas inventory for the Territory, in March 2015 the Minister for the Environment released an interim greenhouse gas inventory covering 2012–13 and 2013–14. This latest inventory, prepared by consultants Pitt&Sherry, demonstrates that the ACT met its first legislated emissions reduction target of peaking per person emissions by 30 June 2013.

For previous financial years, the ACT has used an emissions factor produced by the Australian Government to calculate greenhouse gas emissions from electricity consumption, which counts the ACT as part of NSW. While this was suitable prior to the ACT's implementation of its 90% renewable energy target, the ACT now requires its own electricity emissions factor. The Territory commissioned consultants to calculate electricity emission factors specific to the ACT. These new emissions factors will be used by ACT Government agencies to calculate emissions from electricity commencing from 2014–15. The full report of the consultants can be found at www.environment.act.gov.au/cc/acts-greenhouse-gas-emissions/measuring-act-electricity-emissions.

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 ACT using a regional climate model called the NSW and ACT Regional Climate Model, NARCliM. The research, released in late 2014, provides more specific climate variables and projections. This information is available on the ACT's Actsmart Sustainability Hub, http://www.actsmart.act.gov.au/.

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

Feed-in Tariff amendments

In June 2015 the Electricity Feed-in Tariff Schemes Legislation Amendment Bill 2015 was passed by the Legislative Assembly. This Bill made a number of amendments to the Acts that govern the Territory's Large Scale and Small Scale Feed in Tariff (FiT) schemes. These amendments are designed to update and improve the effectiveness of the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011 and Electricity Feed-in (Renewable Energy Premium) Act 2008*.

Amendments to the Large Scale FiT scheme protect the Territory from any changes in Commonwealth legislation which was identified as a source of sovereign risk and allow the Government to take advantage of future technologies, such as battery storage, to lower FiT support payments for the benefit of consumers.

Amendments to the *Electricity Feed-in (Renewable Energy Premium) Act 2008* update the Small Scale FiT scheme to reflect its closure and provide administrative certainty. Changes aimed at electricity retailers and the distributor streamline reporting arrangements to reduce regulatory burden and enhance compliance arrangements through the targeted use of penalties and audit requirements. The amendments also provide for a sunset date requiring installation and connection of unused FiT entitlements by 31 December 2016 and provide clarity on the use of storage technologies.

Small Scale FiT Review

The Environment and Planning Directorate commenced the statutory Review of the Small Scale FiT scheme (*Electricity Feed-in (Renewable Energy Premium) Act 2008*) in the final quarter of 2014–15. The review, tabled in the Assembly on 22 September 2015, found the scheme successfully contributed to the objectives of the Act.

Waste management

The Government is reviewing the operation of the *Waste Minimisation Act 2001* along with the NSW Protection of the Environment Operations (Waste) Regulation 2014 as part of its consideration of a more robust regulatory framework required to support the Government's waste policy objectives.

l. Assess the impact of climate change

2011–12 ACT greenhouse gas inventory

The Environment and Planning 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, 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.

In September 2014 the Minister for the Environment released the 2011–12 ACT Greenhouse Gas Inventory. The Inventory provides an assessment of both total greenhouse gas emissions and the amount of emissions per person in the Territory.

The report, prepared by the Independent Competition and Regulatory Commission, estimated the ACT's total emissions of greenhouse gas in 2011–12 were equivalent to 4,352,000 tCO_2-e, including emissions reductions due to land use, land-use change and forestry. This represents a decrease in total greenhouse gas emissions of 2.4% from their respective 2010–11 emission levels. Electricity consumption was responsible for 61% of total emissions in 2011–12 followed by transport fuels (24%) and natural gas (9%). Industrial processes and waste activities collectively contributed approximately 5% of total emissions.

Consumption of renewable energy in the ACT increased from 14.2% in 2010–11 to 16.9% in 2011–12. A major contributor to the increase in renewable energy use was the Australian Government's Renewable Energy Target component, which steadily increased from 3.4% in 2008–09 to 7.3% in 2011–12. In addition, the ACT's GreenPower sales were 131 gigawatt hours (GWh) in 2011–12, which represented 4.5% of electricity consumption (up 4% from 2010–11).

Interim ACT greenhouse gas inventory for 2012–13 and 2013–14

As an initial measure to provide a more timely greenhouse gas inventory for the Territory, in March 2015 the Minister for the Environment released an interim greenhouse gas inventory covering 2012–13 and 2013–14. This latest inventory demonstrates that the ACT met its first legislated emissions reduction target of peaking per person emissions by 30 June 2013. At their peak in 2005–06, the ACT emitted 12.72 tCO_2-e per person, but this figure dropped to 10.41 tCO_2-e per person in 2013–14.

The interim inventory showed a continuing downward trend in the Territory's overall emissions. Between 2011–12 and 2013–14, ACT emissions fell by 8% to 3,995,000 tCO_2-e. The main reasons were an increase in the proportion of renewable electricity used in the ACT to 19.5% and a fall in the demand for electricity in the ACT.

For previous financial years, the ACT has used an emissions factor produced by the Australian Government to calculate greenhouse gas emissions from electricity consumption, which counts the ACT as part of NSW. While this was suitable prior to the ACT's implementation of its 90% renewable energy target, the ACT now requires its own electricity emissions factor. The Territory commissioned consultants to calculate electricity emission factors specific to the ACT. These new emissions factors will be used by ACT Government agencies to calculate emissions from electricity commencing from 2014–15.

The full report of the consultants can be found at www.environment.act.gov.au/cc/acts-greenhouse-gas-emissions/measuring-act-electricity-emissions.

The Environment and Planning 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 Greenhouse Gas Inventory.

m. Support public education

At the heart of AP2 is the principle that everyone in the ACT has a role to play in addressing climate change, 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 Actsmart Sustainability Hub (http://www.actsmart.act.gov.au), Carbon Challenge and dedicated Facebook and Twitter social media channels are being delivered to better inform the community about climate change, including actions individuals and businesses can take to reduce their greenhouse impacts, the steps government is taking to address climate change and to reduce emissions from government operations. The Actsmart Sustainability Hub, Carbon Challenge and social media aims to make use of more interactive content, including videos and events and news listings.

The Actsmart Home Energy Advice Service provides free, independent energy efficiency advice to householders in the ACT. The service aims to reduce emissions by providing residents with information that will improve the efficiency of their homes. Residents can access the service via telephone or email or attend one of the tailored workshops held across Canberra throughout the year.

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 for 2014–15 is at Appendix A.

No other functions have been given to the Minister under the Act as at 30 June 2015.

Minister Corbell with Nick Wain at the opening of the Royalla Solar Farm

2. Greenhouse gas emissions for 2014–15 from ACT Government Operations

In 2014–15 the ACT Government consumed 153,466,762 kWh of electricity in its operations, including a purchase of 7700 MWh GreenPower, equivalent to 5%. The ACT Government consumed 373,232 GJ of natural gas in its buildings. ACT Government vehicles consumed 476,519 litres of unleaded petrol and 11,175,738 litres of diesel fuel. ACTION buses also consumed 2,606,742 cubic metres of compressed natural gas.

Figure 1. Sources of the ACT Government's greenhouse gas emissions 2014–15

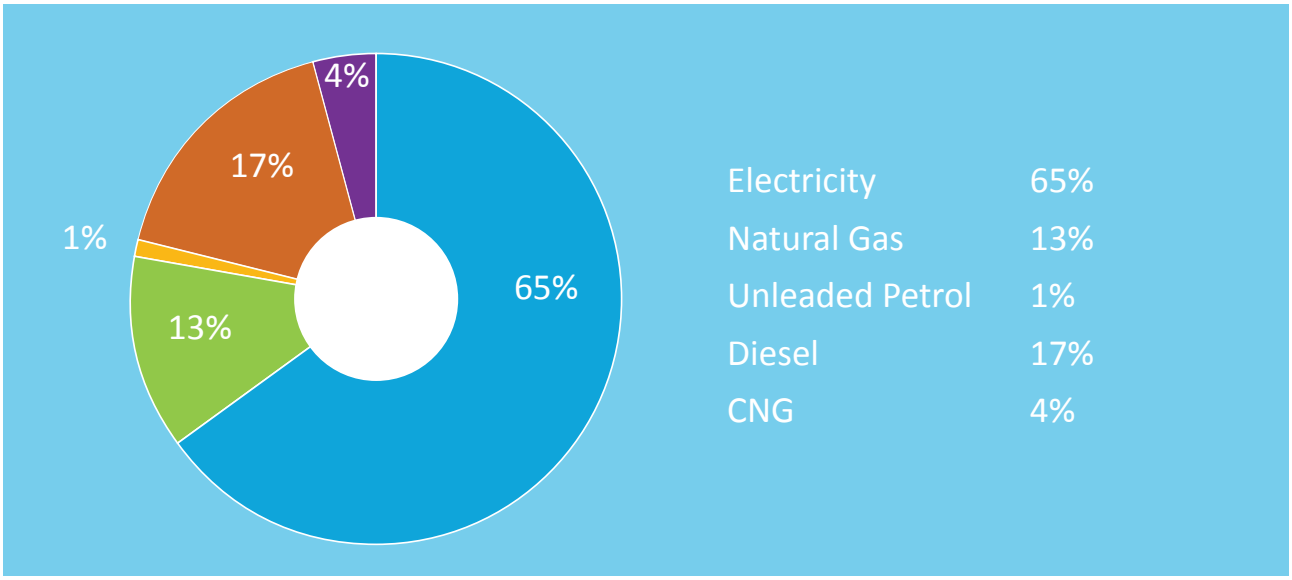


Table 1. ACT Government Greenhouse Gas Emission Profile 2014–15

Emission source	Consumption	Milestones and emission reductions (if quantifiable and applicable)
Stationary energy		
Electricity[1]	153,466,762 kWh	123,080.34 tCO_2-e
Natural Gas[1]	373,232 GJ	23,935.34 tCO_2-e
Total		**147,015.69 tCO_2-e**
Transport fuels		
Unleaded petrol[2]	476,519 L	1,433.86 tCO_2-e
Diesel[2,3]	11,175,738 L	32,396.90 tCO_2-e
Liquid Petroleum Gas[2]	- L	- tCO_2-e
Compressed Natural Gas[3]	2,606,742 m3	6,802.35 tCO_2-e
Total		**40,633.11 tCO_2-e**
Total emissions		**187,648.80 tCO_2-e**
GreenPower[4]	7,700,000 kWh	

Sources:

1. ACT Government Enterprise Sustainability Platform
2. CMTEDD, JACS, CIT
3. ACTION Bus Services
4. ACT Property Group

Notes:

- Emissions for unleaded petrol do not include CH_4 and N_2O emissions from ethanol included in E10 purchases.
- Emissions for diesel assumes that the ACTION bus fleet meets Euro IV or higher emissions standards.
- GreenPower is generated from a range of accredited renewable sources such as solar, wind, biomass and hydro generators that produce no net greenhouse gas emissions.
- Electricity used to charge electric vehicles is not separated from stationary electricity.

Table 2. 2014–15 ACT Government greenhouse gas emissions by agency

Agency	Transport emissions	Stationary emissions
ACT Electoral Commission	-	32
Capital Metro Agency	-	23
Independent Competition and Regulatory Commission	-	20
ACT Audit Office	2	32
Cultural Facilities Corporation	11	2,066
ACT Legislative Assembly	42	743
Education and Training Directorate	69	29,571
Canberra Institute of Technology	109	10,095
Environment and Planning Directorate	41	485
Community Services Directorate	532	2,504
Chief Minister, Treasury and Economic Development Directorate	1,120	10,078
Health Directorate	879	36,390
Justice and Community Safety	1,652	7,842
Territory and Municipal Services	36,175	47,137

Due to substantial changes in administrative arrangements of government operations during 2014–15, including the creation of Access Canberra, the total emissions reported against some agencies may not be identical to those reported in directorate annual reports.

Figure 2. ACT Government greenhouse gas emissions for the past three years (tCO_2-e)

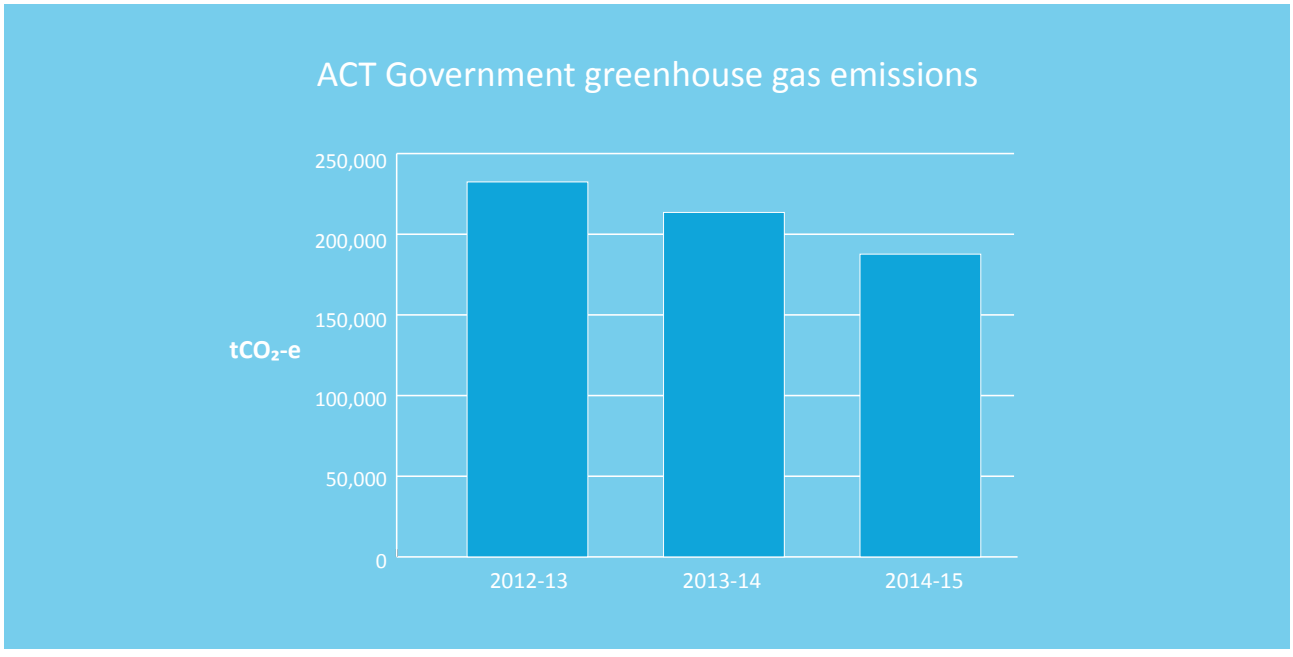
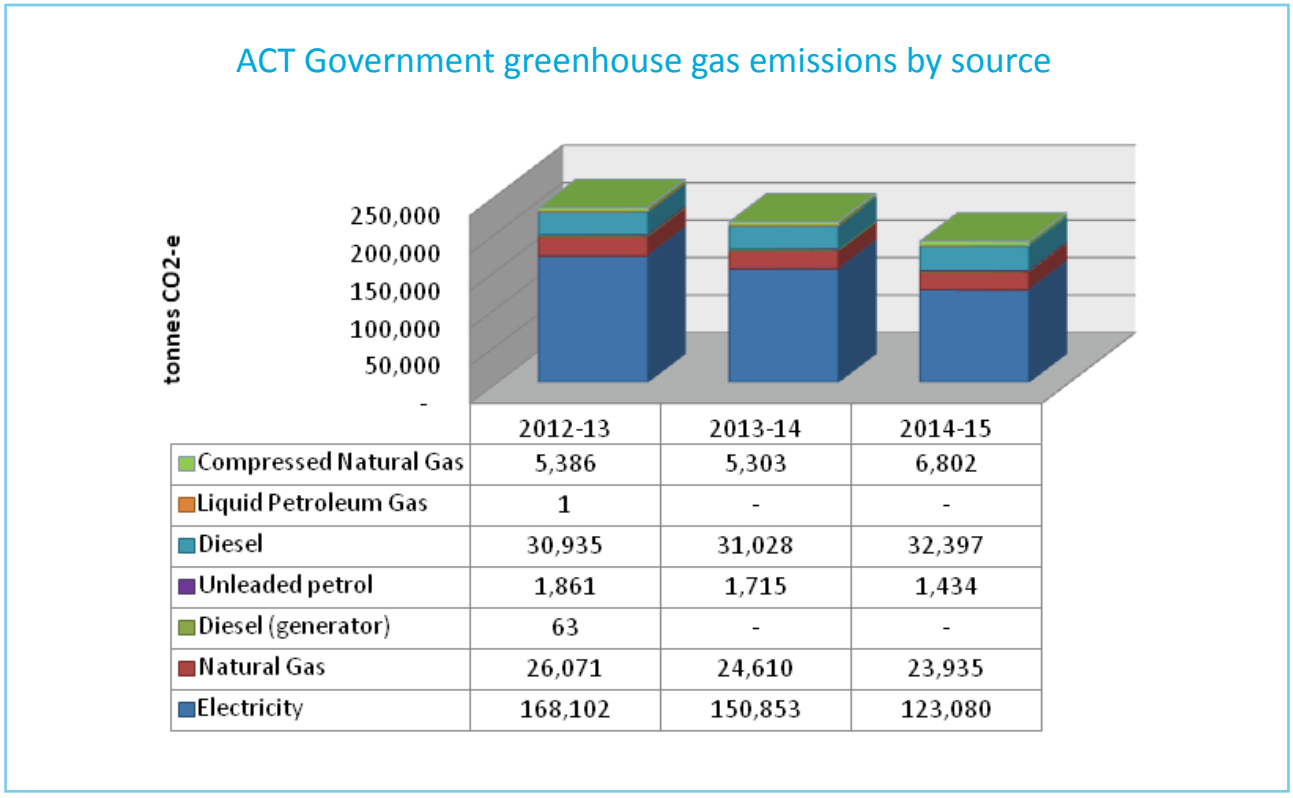
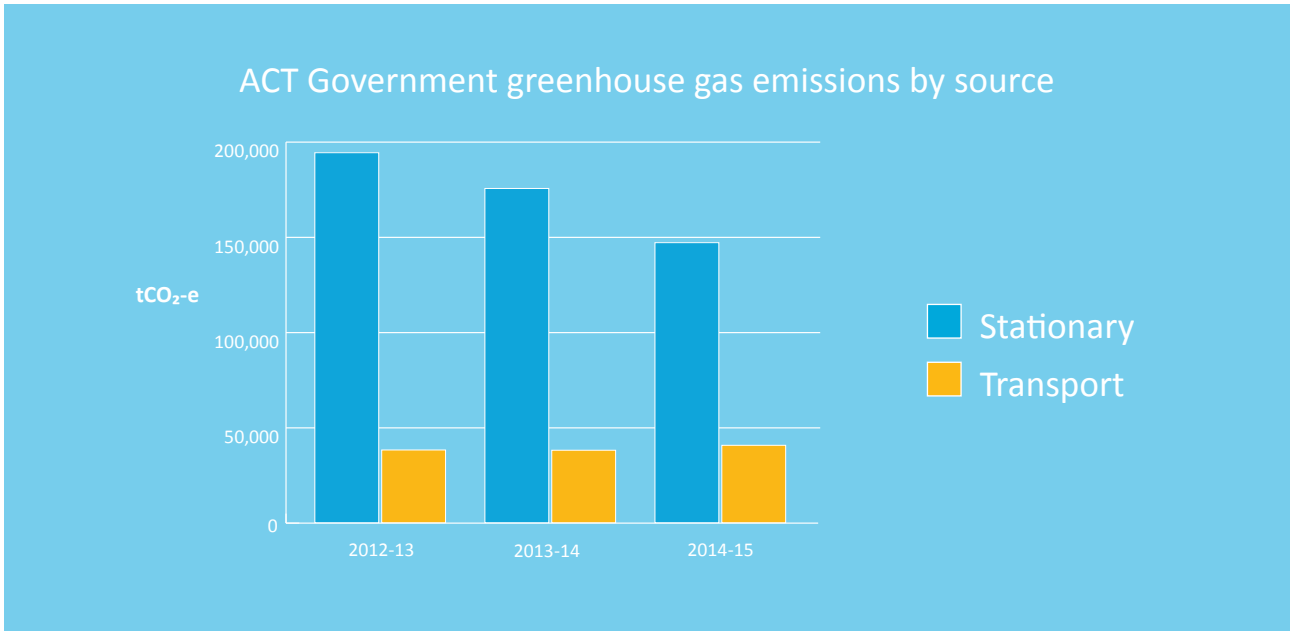


Figure 3. ACT Government greenhouse gas emissions by source (tCO_2-e)



	2012-13	2013-14	2014-15
Compressed Natural Gas	5,386	5,303	6,802
Liquid Petroleum Gas	1	-	-
Diesel	30,935	31,028	32,397
Unleaded petrol	1,861	1,715	1,434
Diesel (generator)	63	-	-
Natural Gas	26,071	24,610	23,935
Electricity	168,102	150,853	123,080

Figure 4. ACT Government greenhouse gas emissions by source (tCO_2-e)



Savings have been made in the emissions of electricity and natural gas of ACT Government operations, as shown in this graph of the past three years. Emissions from the transport sector of ACT Government appear to have remained stable, reflecting changes in service delivery and vehicle types which have offset each other.

The reductions in emissions are a combined result of the large number of initiatives identified by each directorate in Section 3.

3. Effectiveness of government actions taken to reduce greenhouse gas emissions during 2014–15

The Minister sought or obtained information on actions undertaken by each ACT Government Directorate. All directorates report their greenhouse gas emissions in their annual reports. Directorates have also developed resource management plans (RMPs) to address their environmental resource use.

Chief Minister, Treasury and Economic Development Directorate (CMTEDD)

Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Transition to new Data Centre	The old inefficient data centre at Callam Offices was closed and decommissioned following the completion of the transition to the new data centre, significantly reducing the carbon emissions associated with the Territory's computing infrastructure.	Callam Offices had a reduction in electricity usage of between 20% and 50% following the progressive and final decommissioning of the Data Centre. Energy monitoring for the new more efficient data centre is occurring.
LED lighting rollout	A number of areas of the directorate have undertaken a program of replacement of old fluorescent light fittings with LED fittings: • the Canberra Nara Centre (through an across-Government project run by ACT Property Group • Macarthur House (through a project run in conjunction with the Territory and Municipal Services Directorate) • major pavilions and street lights on the grounds of Exhibition Park In Canberra • all corporate areas of GIO Stadium.	At the Canberra Nara Centre a 30% reduction in electricity usage has been seen since the rollout occurred. At Exhibition Park In Canberra, electricity costs (and therefore consequently usage and emissions) have reduced between 30% and 50%.
Winyu House	Winyu House in Gungahlin was built with a 75 kW photovoltaic solar system which feeds into the base building, and uses an energy efficient intelligent lighting installation which includes zone controls, motion sensors, and timers.	
ICT Sustainability	Shared Services completed the planning and solution design for the Information and Communication Technology (ICT) Sustainability – Desktop Computer and Printer Energy Management initiative to deploy power management software to all ACT Government networked desktop computers and printers. This will enable the active management, reporting and monitoring of their energy use and realise financial and environmental benefits, with the full implementation of the associated reporting framework and policy and procedural development to enable the active monitoring, reporting and management of directorate energy use to occur in 2015–16.	

Chief Minister, Treasury and Economic Development Directorate (CMTEDD)

Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
ICT recycling	Shared Services ICT's management of ICT assets involves a lifecycle assessment approach to evaluating the potential environmental impacts of products that includes maximising the useful life of ICT equipment and appropriately recycling, reusing and disposing of ICT waste. Contracted provider Capital Easy (now trading as Reuse-RecycleIT) undertakes disposal brokering of all major types of ICT equipment, including: • the resale or reuse so as to maximise return value to the Territory • re-use as the best form of recycling • donation to nominated Territory benefactors • certified no landfill waste (minimum 98%) disposal of e-waste.	No ICT equipment processed through the provider has been sent to landfill since the initial engagement in 2009.
GreenPower	ACT Property Group purchased 7700 MWh of GreenPower on behalf of the Government, representing an indicative 5% of the Government's energy consumption for 2014–15.	
Energy Project Officers (ACT Property Group)	The two Senior Energy Project Officers within ACT Property Group are tasked with assisting directorates to implement initiatives in support of the Carbon Neutral Government Framework. A primary focus of these officers is to work to improve the energy efficiency of Territory owned or leased built environment assets from a whole of government perspective.	

Chief Minister, Treasury and Economic Development Directorate (CMTEDD)

Policy/ Program Title	Description of Policy/Program	Milestones and Emission Reductions (if quantifiable and applicable)
Whole-of-Government Contractual Support	ACT Property Group is the lead area in relation to utility contracts within Government. The new whole-of-government electricity contract process included the following: • detail and quality of data provision from utilities was retained or improved due to it underpinning quantification, planning and verification of all energy savings initiatives across government • data compatibility with ESP utility tracking system was ensured, Action on the whole-of-government Gas Contract has resulted in the execution of the small market contract in January 2015. The large market gas contract will deliver cost savings and provide improved data to the Territory. The Chiller Maintenance Contract includes environmentally sustainable development principles in the request for tender evaluation and contractual requirements. The heating, ventilation and cooling (HVAC) Maintenance Contract (to be incorporated into the Smart Modern and Strategic) enables maintenance contractors to be performance managed by robust energy efficiency key performance indicators delivering energy and emissions savings to the Territory.	Small market gas contract, effective as of January 2015 saved 12–13% of gas consumption cost, or ~$570,000 based on 2014 calendar year costs.

Capital Metro Agency (CMA)

Policy/ Program title	Description of policy/program
Renewable energy requirements for Capital Metro	As a component of the Capital Metro light rail project's procurement documentation, the Capital Metro Agency (CMA) has established a requirement for a minimum of 10% of the light rail system's electricity usage to come from renewable energy sources. Combined with the Government achieving its Renewable Energy Target, this will effectively result in light rail vehicles being 100% powered by renewable energy.
Reducing carbon emissions for Capital Metro	The Capital Metro procurement documentation has established specific requirements for the design and construction phase of the project for avoiding and reducing emissions as well as sourcing carbon offsets.
Resource Management Plan	A review of the CMA's internal RMP commenced in late 2014–15 to evaluate its implementation and identify actions to further develop, implement and communicate sustainable practices to staff.
Corporate Governance Committee	In 2014–15 the CMA established a Corporate Governance Committee to develop, review, implement and evaluate policies, programs and activities relevant to the Corporate Governance of the CMA. A section of these meetings is dedicated to corporate resourcing, including sustainability initiatives.
Infrastructure Sustainability Rating	CMA's procurement documentation has been prepared to require the light rail project to achieve 'Design' and 'As-Built' ratings under the Infrastructure Sustainability Council of Australia's IS Rating scheme.

Community Services Directorate (CSD)

Policy/ Program Title	Description of policy/program	Milestones Emissions reductions (if applicable and quantifiable)
CSD Sustainable Fleet	Improved vehicle efficiency and reduced GHG emissions across 2014–15 through the incorporation of more fuel efficient vehicles, including 10 x Mitsubishi Mirage's, which are a 3 cylinder vehicle with 1.3 litre engines.	Reduced fleet size from 178 to 173. Reduced GHG emissions by 8% which equates to 50 tCO_2-e. Reduced expenditure on fuel by 19% which equates to a saving of $61,408.
ACT Smart office recycling program	Maintain ACTSmart accreditation for Nature Conservation House.	Over 2014, CSD implemented the ACTSmart Business Recycling Program across all sites. Only two sites still require education and training.
	Attain and maintain ACTSmart accreditation for the 11 Moore Street and Child and Family Centres occupied premises to increase staff awareness and implement better practices with respect to waste reduction and energy consumption.	11 Moore Street and Child and Family Centres completed training and are now waiting on post-waste audit and accreditation which is a priority for 2015–16. Accreditation at Nature Conservation House has been achieved.
	Implement an awareness program and establish Green Teams across all sites to drive changes in behaviour.	Green Teams now established.
	Establish a CSD Sustainability Committee to oversee implementation and review of RMP and propose sustainability projects and priorities.	Committee has been established.
	Install desk-side recycling bins for all CSD staff.	Complete.
	Incorporate ACTSmart online training into the CSD Orientation and staff initiation checklist.	To be implemented 2015–16
	Provide CSD staff with ongoing recycling tips through the sustainability mailbox and fact sheets.	To be implemented 2015–16
	Increased purchase of recycled paper with a consistent message to all responsible purchase officers. The percentage of recycled paper has increased slightly but still makes up less than 30% of the total content.	To be implemented 2015–16
Waste reduction	A review of waste collection contracts was undertaken for all CSD occupied premises. The aim was to improve collection of recycling and organic waste and ensure the collections were occurring in a cost-efficient manner. This review resulted in the negotiation of new contracts, saving money for CSD and diverting waste from landfill.	Data not yet available.

Community Services Directorate (CSD)

Policy/ Program Title	Description of policy/program	Milestones Emissions reductions (if applicable and quantifiable)
LED lighting at Bimberi Youth Justice Centre (BYJC)	BYJC has an MOU with ACT Property Group (ACTPG) to upgrade the lighting to LEDs. The installation of LED lighting will benefit BYJC and ACTPG in reducing utility costs and greenhouse gas emissions in line with the ACT Government's climate change policy. Program works will be funded using existing finance awarded to ACTPG by the Carbon Neutral Government Fund (CNGF) for this purpose. The recovered utility costs will be used to repay this loan.	This work has commenced with 75% of the perimeter lighting being replaced with LEDs.
LED Lighting at Holder Site	Proposed LED lighting upgrade project with potential for a 37% reduction in electricity. Pending approval and identified funding source.	Project to be confirmed pending confirmation on future use of site with Therapy ACT closing.
11 Moore Street	Implement low/no cost activities following ACTSmart Energy and Water report. Identify potential projects for major upgrades and improvement.	Data not yet available
Nature Conservation House	Implement low/no cost activities following ACTSmart Energy and Water report. Identify potential projects for major upgrades and improvement.	Data not yet available

Education and Training Directorate (ETD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if applicable)
Solar Energy in Schools Program (Action 21)	70 kW roof mounted photovoltaic systems were commissioned at Franklin Early Childhood School and Neville Bonner Primary School in May 2015. A 30 kW system was commissioned in the reporting year at the new Canberra College Cares facility. The installation of a 100 kW system at the new Coombs Primary School commenced and will be completed during the 2015–16 reporting period. All of the above installations are net-feed systems.	Franklin and Bonner 11.35 (each) tCO_2-e emissions each (15 May to 30 June 2015) CCCares: 18.62 tCO_2-e emissions from 1 January until 30 June 2015
Feed-in-Tariff (Action 21)	Public schools receive the maximum tariff rate (45.7 cents/kWh) under the ACT Feed-in-Tariff (FiT) scheme for small-scale systems. The collective size of solar panel installations at public schools approved under this scheme was 1200 kW[3]. All ACT public schools generated FiT income for the entire reporting year. In 2014–15, schools re-invested their FiT income into further environmentally sustainable initiatives to reduce their energy consumption and their greenhouse gas emissions.	A total of 1813 MWh of energy was generated in 2014–15 resulting in 1454.6 tCO_2-e of avoided emissions in the national electricity grid.
Pulse meters (Action 20)	All ACT public schools are now equipped with the technology to monitor resource usage through the installation of smart meters. These meters track electricity, gas and water usage and solar energy generation and the results are published on a public website allowing both the schools and the local community to track performance. The web-based interface is publicly accessible at www.watergroup.com.au/actschools. Four workshops on the smart meter technology were delivered for school-based staff (business managers, teachers and building services officers).	N/A

3. Audit conducted in the reporting year found that Evatt Primary School has a 10kW system, not 2kW as previously reported

Education and Training Directorate (ETD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if applicable)
Carbon Neutral Schools (Action 20)	Stage 1 of the Carbon Neutral Schools project continued to be rolled out by ETD in 2014-15. The schools included in this program are Arawang, Evatt, Fadden, North Ainslie, Theodore and Weetangera Primary Schools, Alfred Deakin, Canberra and Mt Stromlo High Schools, and Caroline Chisholm School (senior). The installation of LED panels was completed at Canberra High School and Theodore Primary Schools during 2014–15. These two schools were nominated to be the first carbon neutral schools in the ACT. Arawang Primary School received LED tubes. A trial to retrofit ceiling insulation was completed at North Ainslie Primary School as well. North Ainslie Primary School, Alfred Deakin High School, Evatt Primary School, Fadden Primary School, Weetangera Primary School, Stromlo High School, Caroline Chisholm School (senior) received energy efficient fluorescent lights in 2013–14.	Canberra High School and Theodore Primary School: reduction of 52.97t CO_2-e in the period of April-June 2015 compared to April-June 2014 Arawang Primary School, North Ainslie Primary School, Alfred Deakin High School, Evatt Primary School, Fadden Primary School, Weetangera Primary School, Stromlo High School, Caroline Chisholm School (senior): further reduction of 553 t CO_2-e in 2014–15 compared to 2013–14 financial year.
Carbon Neutral Government Loan Fund (Action 3)	To date, 22 ACT public schools have received a total of $2,423,168 from the Carbon Neutral Government Fund for LED lamp upgrades. During the 2014–15 reporting year, works were completed at 21 schools (Aranda, Gordon, Maribyrnong, Miles Franklin, Ngunnawal, Red Hill, Turner and Wanniassa Hills Primary Schools, Calwell, Campbell, Lanyon, Lyneham and Melrose High Schools, University of Canberra High School Kaleen, Gold Creek School, Melba Copland Secondary School (Copland campus), and Canberra, Dickson, Erindale, Hawker and Narrabundah Colleges). Lake Tuggeranong College was completed in 2013–14. These works completed this phase of the program. Design, documentation and installation of solar hot water systems funded through the Fund were completed during the reporting period at Black Mountain and Cranleigh Schools.	Reduction of greenhouse gas emissions of first 10 schools[4] with LED upgrade of 2208.84 tCO_2-e in 2014-2015 compared to 2013-14. Reduction of emissions of second round[5] of LED upgrades of 161.95 tCO_2-e in May and June 2014-15 compared to May and June 2013-14.

4 Lanyon, Lyneham and Melrose High Schools, University of Canberra High School Kaleen, Gold Creek School, Melba Copland Secondary School (Copland campus), and Canberra, Dickson, Erindale, Hawker and Narrabundah Colleges

5. Aranda, Gordon, Maribyrnong, Miles Franklin, Ngunnawal, Red Hill, Turner and Wanniassa Hills Primary Schools, Calwell and Campbell High schools.

Education and Training Directorate (ETD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if applicable)
Power Factor Correction	TD installed power factor correction equipment at five ACT public schools (Maribyrnong Primary School, Belconnen High School, Lake Tuggeranong and Narrabundah Colleges and University of Canberra Secondary College Lake Ginninderra) during the 2014–15 year. Repairs were made to existing equipment at three ACT public schools (Erindale College, Wanniassa School senior campus and Melba Copland Secondary School (Copland campus)). This equipment improves how efficiently a facility uses the electricity it draws from the electricity grid and reduces electricity operating costs.	Expected greenhouse gas emissions savings are 26.27 tCO_2-e
ACTSmart Schools (Action 22)	ETD continues to work in close partnership with ActSmart Schools. ActSmart Schools is a school sustainability program managed by the Environment and Planning Directorate. The aim of the program is for all schools to reduce their environmental impact and embed sustainable management practices into everyday school operations. As at 30 June 2015, a total of 40 public schools had been awarded ActSmart Schools accreditation for the sustainable management of energy. Professional development and training was provided to school-based staff, including business managers, building services officers and teachers. Workshops on improving energy efficiency were delivered in 2014–15.	N/A
Transport (Electric Vehicle), (Action 31)	A Nissan Leaf electric vehicle was added to the directorate's fleet. This initiative contributes to the Government's commitment in 2013 to introduce ten electric vehicles across the Government fleet.	Average greenhouse reductions per electric vehicle is 2.9 tCO_2-e across the ACT Government fleet[6]

6 Information from ACT Government Fleet Services

Environment and Planning Directorate (EPD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if quantifiable)
Resource Management Plan	For 2014–15 EPD's RMP focussed on implementing the findings from the Actsmart Government Energy and Water report, in particular reducing energy use and monitoring water use. EPD's Green Team helped by promoting sustainability and resource efficiency within the agency. Events such as an alternative transport challenge raised awareness of using active travel options for staff work travel.	
ACT Water Strategy	The Government launched the ACT Water Strategy: Striking the Balance 2014–44 in August 2014. The strategy provides strong foundations for ongoing water management in the ACT, guiding the management of the Territory and region's catchments and water supply over the next 30 years.	
Improved water sensitive urban design	In August 2014 the ACT Government released the Water Sensitive Urban Design Review Report, which details the findings of a comprehensive industry and community review into the current 40% water use reduction target in new developments and refurbishments/extensions.	
Developing more diverse water supply options for multiple benefits	In April 2015, Minister for the Environment opened the Inner North Reticulation Network, which will provide up to 500 megalitres of stormwater each year for fit-for-purpose irrigation. The stormwater is captured in the newly constructed wetlands at Dickson, Lyneham and Flemington Ponds. It provides a range of aquatic habitat and community recreational benefits before being stored in an aquifer for subsequent use in the hot and dry summer months.	
Strengthening governance of cross-border water catchment management for the ACT and region	In February 2015, Minister for the Environment launched the ACT and Region Catchment Management Coordination Group. The role of the group is coordination, collaboration and advice to Government and the represented stakeholders.	

Environment and Planning Directorate (EPD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if quantifiable)
Murray–Darling Basin ACT Priority Project	The ACT Basin Priority Project, which commenced in February 2014, will see up to $85 million of Australian Government and $8.5 million of ACT Government funding for improved water quality.	The ACT Government met all milestones set out in the project schedule for completion by 30 June 2015 and is on track to complete the remaining milestones required to achieve Australian Government approval of funding for the design and construction of water quality infrastructure
Promoting community involvement in ACT water management	The Minister for the Environment released the ACT and Region Waterwatch 2013–14 Report Card— Catchment Health Indicator Program (CHIP) in February 2015. CHIP is a catchment health report card using data collected from 63 river reaches across the region.	
ACT greenhouse gas inventory	In September 2014 the Minister for the Environment released the 2011–12 ACT Greenhouse Gas Inventory. The ACT's total greenhouse gas emissions in 2011–12 were equivalent to 4352 kt CO_2-e, including emissions reductions due to land use, land-use change and forestry.	
Interim ACT greenhouse gas inventory	In March 2015 the Minister for the Environment released an interim greenhouse gas inventory covering 2012–13 and 2013–14. This latest inventory demonstrates that the ACT met its first legislated emissions reduction target of peaking per person emissions by 30 June 2013. At their peak in 2005–06, the ACT emitted 12.72 tCO_2-e per person, but this figure dropped to 10.41 tCO_2-e per person in 2013–14.	
Implementing AP2 climate change actions	EPD continued to implement AP2, which contains 18 actions to address climate change mitigation and adaptation issues in the Territory	15 of the 18 actions are complete. A status report on all of the actions under AP2 is prepared biannually and released on the Environment and Planning Directorate's web site. The most recent version is available at www.environment.act.gov.au/climate_change.

Environment and Planning Directorate (EPD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if quantifiable)
Carbon Neutral ACT Government Framework	The Carbon Neutral ACT Government Framework has 39 actions for execution across Government directorates. It identifies three key steps for the Government to achieve carbon neutrality in 2020: • **Step 1:** measure, monitor and report GHG emissions • **Step 2:** mitigation – avoid and reduce emissions and switch to low carbon fuel sources • **Step 3:** offset residual emissions (to achieve zero net emissions in 2020) The framework is underpinned by the Enterprise Sustainability Platform, a whole-of-government sustainability dataset (tracking electricity, gas and water data) used for directorate annual reports and assessing the performance of resource management plans across Government agencies. The platform enables complete whole-of-government reporting of greenhouse gas emission reductions.	
Carbon Neutral Government Fund	Eighteen ACT Government projects to the value of $9.8 million have been supported under the fund since 2009. These projects have ongoing annual cost and energy savings from the date of implementation, and help support the local clean economy.	The estimated collaborative project total of reductions or savings for the 2014–15 year, including the five projects established this year, is $1.78 million in cost savings and 9303 MWh of electricity, equivalent to 7808 tCO_2-e.
Engagement in international climate change forums	To increase international collaboration on climate change the ACT Government signed two international agreements in 2015. The Compact of Mayors is the world's largest cooperative effort among mayors and city officials to reduce greenhouse gas emissions, track progress and prepare for the impacts of climate change. The Compact of States and Regions represents a commitment by global state and regional government networks to the setting of targets to address climate change and implementing a range of solutions outlined in the Montreal Declaration 2009.	The "Unlocking Ambition: Top corporate and sub-national corporate commitments" report of The Climate Group states that the Australian Capital Territory has the world's most ambitions greenhouse gas reduction target of all states and regions (100% reduction by 2060) and renewable energy target (100% renewable energy by 2025).

Environment and Planning Directorate (EPD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if quantifiable)
Actsmart Home Energy Advice program		In 2014–15, over 2500 people attended 93 workshops and other events and advice was given over the phone and email to 149 people. Fifteen user pay home assessments were conducted.
Outreach low income energy and water efficiency program		Estimated savings per year from the energy-efficient appliances and retrofits (refrigerators, freezers, washing machines, draught sealing, window treatments, and NILS subsidies) installed in 2014–15 are 540 MWh (from both electricity and gas) equivalent to 240 tCO_2-e.
Carbon Challenge	The Carbon Challenge was launched in February 2015 and meets a Parliamentary Agreement to provide online tools for households to reduce energy use and GHG emissions.	
Actsmart Business Energy and Water Program	The Actsmart Business Energy and Water Program provides advice and financial assistance for efficiency upgrades to small businesses in the ACT to assist in reducing energy and water consumption. In 2014–15 the program assessed 115 small businesses, with 81 claiming a rebate to upgrade to more efficient fittings or fixtures.	Estimated savings per year from the upgrades installed in 2014–15 are 878 MWh, equivalent to 704 tCO_2-e.
Actsmart Government Energy and Water Program	The Actsmart Government Energy and Water Program provides a site assessment to ACT Government agencies that results in a comprehensive report prepared by a Government Energy and Water Assessor. This report can be used to support applications for loan funding through the Carbon Neutral Government Fund to perform efficiency upgrades to reduce costs and carbon emissions.	Identified potential annual savings from the 44 sites that received assessment reports in 2014–15 are 4711 MWh, equivalent to 3778 tCO_2-e.
Waste reduction - Public events	EPD continued delivery of the Actsmart Public Event program, which helps event organisers implement recycling facilities within a public event. Any community-based event is eligible including school fetes, festivals, fairs, shows or sporting events.	As at June 2015, 43 events had participated in the program. Diversion of waste into recycling streams included 30,976 kg of mixed recycling equivalent to 39 tCO_2-e avoided and 11,494 kg of organic waste equivalent to 18 tCO_2-e avoided. Over 1 million patrons had the opportunity to recycle at these events.

Environment and Planning Directorate (EPD)

Policy/ Program Title	Description of policy/program	Milestones Emission reductions (if quantifiable)
Actsmart Schools waste accreditation	Data for 2014–15 shows that schools with Actsmart Schools waste accreditation send 22% less waste to landfill (on a per student basis) than schools that are not accredited. In 2014–15 this equated to approximately 2,995 cubic metres of less waste being sent to landfill from these 62 accredited schools, when compared to non-accredited schools. This represents a reduction of 433 tCO_2-e. In addition, 127 schools were provided with assistance to establish/re-establish waste and recycling systems, with 60 of these being visited at least once.	

Health Directorate (HD)

Policy/ Program Title	Description	Milestones Emission reductions (if quantifiable and applicable)
ACT Health Sustainability Strategy 2010–15	During this financial year, ACT Health reviewed this Strategy to ensure currency and alignment with the Carbon Neutral ACT Government Framework 2014 and the ACT Health Resource Management Plan (RMP).	Of the 114 actions contained in the Sustainability Strategy Action Plan the following figures provide a status update: Short-term: 60 of 60 actions completed (100%) Medium-term: 42 of 45 actions completed (93%) Long-term: 6 of 7 actions completed (85%) All outstanding actions will be completed by the end of the 2015 calendar year, in line with the Strategy dates.
ACT Health Resource Management Plan	ACT Health has a RMP that links to the ACT Health Sustainability Strategy and includes an action plan on activities to address the management of water, electricity and gas consumption, waste production and recycling initiatives.	ACT Health continues to monitor all actions within the RMP to report on reduction in greenhouse gas emissions. ACT Health commenced work to review and renew the RMP to align with the new template issued by the Environment and Planning Directorate. The new RMP will include Key Performance Indicators and Carbon Budget information to assist in the management of ACT Health's performance.
ACT Health Sustainability Environmental Principles and Guidelines – Building and Infrastructure Projects	These Guidelines were originally developed to provide the Health Infrastructure Program with guidance and principles on incorporating sustainability elements into building design. These Guidelines are now published on the Carbon Neutral Government website for utilisation by all directorates.	It is a requirement that any new building or capital upgrade consultants review the Environmental Principles and Guidelines – Building and Infrastructure Projects document and provide a detailed response against the strategies considered for each project, together with whole of life payback, where possible, and attaining carbon neutrality. This document must be used in conjunction with the NSW Health Engineering Services Guidelines (which contain a requirement to consider sustainable elements).

Health Directorate (HD)

Policy/ Program Title	Description	Milestones Emission reductions (if quantifiable and applicable)
WOG Carbon Neutral Government Fund (CNGF)	A feasibility study is currently underway to inform ACT Health of a mechanism to reduce carbon emissions for existing buildings.	ACT Health submitted an application to the CNGF in May 2015. The application was for the installation of solar photovoltaic (PV) panels on the multi-storey car park at Canberra Hospital as well as light emitting diode LED lighting upgrades across the hospital campus. The application was approved in August 2015 and the project is about to commence.
ESP Database	ACT Health was initially involved in the whole-of-government consultation phase for the implementation of the ESP database. ACT Health required all staff from relevant areas to undertake the training. The ACT Health Infrastructure Support Section utilises the ESP to manage energy, water usage, reporting and monitoring.	ACT Health utilises the ESP database on a monthly basis to analyse energy and water bills (-/+ variances). The ESP continues to be utilised to gather data for the ACT Health Annual Report and RMP. ACT Health continues to work with the officers who manage the ESP database.
ACTSmart Initiatives: ACTSmart Office Waste/Recycling Program ACTSmart Govt Energy and Water Audits	ACT Health closely liaises with the Environmental and Planning Directorate to have staff trained in waste management. ACT Health utilises the Green Team Kit to undertake audits of its infrastructure to identify potential efficiencies.	ACT Health continues to work with the Domestic Services contractor to ensure: • cleaners undertake the ACTSmart Cleaners' training • ACT Health staff are trained to manage waste in a more efficient manner, turn lights and computers off, consider initiatives that will result in cost savings etc • infrastructure is assessed to identify potential savings (lighting, HVAC etc.) and modifications are made as part of the audit recommendations.
Waste Management Plan	ACT Health continues to utilise and refer to this plan as part of usual business operations.	Waste management is governed by a Waste Management Committee. The contractor has carriage of implementing ACT Health measures and outputs.

Health Directorate (HD)

Policy/ Program Title	Description	Milestones Emission reductions (if quantifiable and applicable)
Transport for Canberra	ACT Health has two electric vehicles (EV) in its fleet and will undertake an assessment of vehicles due to expire in order to procure more energy efficient vehicles (where available).	Two EVs continue to be utilised as part of ACT Health's transport fleet. ACT Health is in the process of increasing the EV's within its fleet. Bus timetables to and from the Canberra Hospital are available from the main reception at Canberra Hospital and non acute sites for consumers. ACT Health continues to work with other directorates to implement environmental sustainable options for consumers accessing the health system e.g. bus, community transport etc. ACT Health also has priority staff parking for those who utilise the carpooling system.
Implementation of *Towards Zero Growth Healthy Weight Action Plan*	This Plan was originally developed by ACT Health but is now being coordinated by the Chief Minister Treasury and Economic Development Directorate (CMTEDD). ACT Health continues to contribute to a variety of strategies aimed at increasing active transport, which has an important co-benefit of reducing greenhouse gas emissions through lessening car use.	Reports on implementation are regularly provided to the ACT Government Strategic Board.
Capital Upgrades Program	This program considers sustainable elements for all upgrades to existing buildings.	Utilises the ACT Health Sustainability Environmental Principles and Guidelines – Building and Infrastructure Projects Checklist.
Climate Change Adaptation (ACT Health Summer Plan)	The Summer Plan has been developed as a specialised appendix to the ACT Health Emergency Plan (HEP) to assist ACT Health and the ACT health sector ensure appropriate preparedness and response mechanisms are in place to effectively mitigate the risks and manage the consequences of: • extreme heat events and • elevated fire danger conditions (bushfire season) in the ACT.	The plan has no quantifiable milestones, however provides a comprehensive approach to relevant summer natural hazards across the Prevention, Preparedness, Response and Recovery (PPRR) spectrum.

Justice and Community Safety Directorate (JACS)

Policy/ Program Title	Description of policy/program	Milestones Emission Rreductions (if applicable and quantifiable)
Resource Management Plan 2014–15	JACS RMP is to provide strategic direction for the directorate to implement sustainability, energy efficiency and carbon reduction initiatives and actions.	2014–15 RMP was reviewed in August 2014. 2015–16 RMP is currently under review and will be updated once data is available.
2014–15 JACS Energy Efficiency Capital Upgrade Project Funding	JACS allocates funding annually to capital upgrade projects to address energy efficiency of our buildings and assets and to reduce energy consumption and carbon emission.	JACS has achieved a 1% reduction in total energy consumption from 2013 to 2014[7]. JACS aims to further reduce 1.5% electricity consumption in the next two years.
AMC LED Lighting Upgrade – Phase 3	The project aligns with the JACS Energy Efficiency CUP and the *Climate Change and Greenhouse Gas Reduction Act 2010*. Alexander Maconochie Centre (AMC) is the largest energy consumption site in JACS. Phase 3 of the LED Upgrade Project included the replacement of 276 existing internal and external emergency lights to LED retrofits.	The project was completed in June 2015. The LED upgrade will provide an estimated annual 24,090 kWh electricity reduction. It contributes to reduction of carbon emission, ongoing maintenance costs, and reduction of hazardous waste (mercury).
FMC Solar Panel Project	The project aligns with the JACS Energy Efficiency Capital Upgrade Program and the *Climate Change and Greenhouse Gas Reduction Act 2010*. The installation of an additional 9.9 kW solar panel system and a remote monitoring system to the existing solar system at the Forensic Medical Centre (FMC).	The project was completed in May 2015. The solar system will benefit the FMC by providing an annual electricity reduction of an estimated 14,815 kWH and lifetime greenhouse gas emission reduction of 365 t CO_2-e .
Energy and Water Assessments	JACS engaged with ACTSmart Energy and Water Program to conduct energy and water audits on high energy consumption sites. Audit reports identified opportunities for future energy and water saving to be considered in the next few years.	Gungahlin Joint Emergency Services Centre (JESC) and Ainslie Fire Station were audited in 2014–15. Three more sites will be assessed in 2015–16.
Carbon Neutral site - Ainslie Fire Station	Ainslie Fire station was identified as the first carbon neutral site in JACS. To increase recycling and to reduce waste to landfill from JACS business and operation. The program contributes to reduce greenhouse gas emission generated by landfill waste.	Implementation of a pilot plan to achieve this target commenced in 2014–15. All JACS Corporate Offices and Emergency Service Agency (ESA) sites have organic waste recycling bins in place during 2014–15 to further reduce landfill waste. ACTSmart accreditation/re-accreditation and staff training are in progress.

7. According to ESP report, in 2014 total energy consumption from entire JACS business and operation was 56,887 GJ, a 1% reduction from 2013 (57,601GJ).

Justice and Community Safety Directorate (JACS)

Policy/ Program Title	Description of policy/program	Milestones Emission Rreductions (if applicable and quantifiable)
ACTSmart Recycling Program	To increase recycling and to reduce waste to landfill from JACS business and operation. The program contributes to reduce greenhouse gas emission generated by landfill waste.	All JACS Corporate Offices and Emergency Service Agency (ESA) sites have organic waste recycling bins in place during 2014–15 to further reduce landfill waste. ACTSmart accreditation/re-accreditation and staff training are in progress.
JACS Sustainability Committee	The JACS Sustainability Committee has been established since 2011. The committee comprises representatives from each business unit and oversees the implementation and monitoring of initiatives to ensure efficient and effective outcomes are achieved in our RMP.	Committee meeting was held in September 2014 to provide inputs and feedback on JACS sustainability initiatives. New recruitment of Green Champions is aimed to improve staff engagement and awareness programs.
Ride2Work Program	Ride2Work Program aims to reduce petrol fuel consumption by car and to encourage JACS staff to use sustainable transport. The program aligns to the *Climate Change and Greenhouse Gas Reduction Act 2010* and ACT Government Healthy Weight Action Plan.	Pedal Power has conducted Cycling Facility Rating Assessment in late 2014 for three JACS properties: 1 Moore Street, 12 Moore Street, and Eclipse House. Recommendations have been reviewed by JACS WHS Team. A staff engagement program to promote Ride2Work Program will be implemented in Spring 2015.
JACS Sustainability Awareness Program	Regular awareness campaign aims to enhance behaviour change amongst JACS staff to reduce energy and water consumption, to improve waste recycling, and to think and act sustainably in work.	Regular JACS E-newsletters were sent to remind staff to reduce energy use and to switch off computers and monitors when finishing work.
JACS Procurement Framework[8]	Sustainable procurement will consider environment, social and economic impacts across the lifecycle of goods and services.	Sustainable procurement is being implemented in the *JACS Procurement Framework*, including capital works and infrastructure projects, procurement of equipment, purchase of furniture and appliances.
JACS Vehicle User Guide and vehicle acquisition guideline	To address the concern of Greenhouse Gas Emission and urban air pollution, JACS Fleet Manager should consider a vehicle that has the highest star rating under the Green Vehicle Guide.	All JACS non-executive vehicles must have an engine size no larger than four cylinders. Vehicles requiring larger engines for operational requirements must be approved by the Director-General or delegate. Where practical, pooling of vehicles for use by all JACS staff have been established[9, 10]. Office of Regulatory Service (ORS) leased an electrical vehicle (Nissan Leaf) during 2014–15.

8. Justice and Community Safety. Procurement Framework, March 2015, p.8
9. Justice and Community Safety. Vehicle Use Guidelines, May 2014.
10. Emergency Service Agency. Management and Replacement of ACT Emergency Services Agency Motor Vehicles. ESA001.

Territory and Municipal Services Directorate (TAMS)

Sustainable development in the ACT is a key platform of the ACT Government requiring all directorates to embed sustainability in their decision-making processes. As a provider of municipal and other Territory-wide services, TAMS has a key role to play in ensuring economic, social and environmental considerations are part of planning and development processes.

TAMS manages parks and reserves that make up more than 70% of the ACT land mass. They contain a range of built and living assets, protected and endangered species, heritage and cultural sites, and walking and fire trails. This living infrastructure includes ponds, lakes and waterways as well as water catchments for the city including Googong foreshores, Canberra's water catchment, which is located just over the border in NSW.

Our environmental stewardship role means that we need to take into account the health and wellbeing of the environment and its impact on the community. This stewardship extends to Canberra's streetscapes and shopping precincts and the management of Canberra's urban forest, commercial forests, agricultural land and other vegetation within the public domain. All of these natural and related assets contribute to the ACT's quality of life and prosperity in a variety of ways, through:

- ecological benefits arising from the value of a well-managed ecosystem that looks after our soil, water, flora and fauna
- economic benefits flowing from the ACT's attraction for tourists and those wishing to settle in the ACT
- socio-economic benefits resulting from the parks and reserves and the many recreational and cultural amenities available that encourage residents and visitors to be active and involved, improving mental and physical health and wellbeing.

To strategically manage the ACT's natural and community resources, TAMS has divided the ACT into 12 land management categories, Namadgi National Park Wilderness and Tidbinbilla Nature Reserve; other reserves including nature, special purpose and managed; commercial forest plantations; agistment and horse paddocks; lakes, ponds and waterways; the National Arboretum Canberra; town and district parks; neighbourhood parks, pedestrian parkways and laneways; native grasslands and woodlands; semi-natural open space; shopping centre precincts; road verges and median strips.

TAMS holistic approach integrates and reflects the interdependency of the ecological, environmental, economic and socioeconomic impacts. Identifying assets within each of the 12 land management categories helps us to address asset management in a clear, prioritised way that considers both the overall level of service required for the land management category plus the desired service level for the land itself and each of the individual assets within it.

Scientifically based management plans continue to be established as the basis for sustainable management and development of protected areas and ACT catchment rehabilitation targets critically degraded areas. This rehabilitation includes strategies to manage weeds of national significance and protecting assets and infrastructure. Outcomes include improvements in water quality; habitat connectivity for native wildlife; social and cultural association with river's and reduced flood damage to built infrastructure.

Where possible, we re-use materials and use environmentally friendly and recycled materials. For example wood chips produced from tree maintenance operations including removals are used to mulch shrub beds to reduce evaporation, control weeds, prevent erosion and improve environmental conditions for plant growth.

Contractors have been appointed to remove stockpiled timber by-product from the storage sites in Curtin and Mitchell and put processes in place for the ongoing management of incoming vegetative material at both sites. Some of the logs removed from the storage sites have been made available to the ACT Woodlands Restoration Project and arrangements have been put in place to supply suitable material into the future.

Maintaining Canberra's stormwater system

TAMS has also improved the management of watering regimes in response to wet weather conditions by using a remote control irrigation system at 30 irrigated parkland sites across Canberra. This enables rapid identification of leaks and breakages, which enables more targeted water use and reduces water waste. During 2014-15 we continued to use non-potable water to water more than 21,000 urban trees that are under five years of age.

We continue to invest in the design and development of recreational infrastructure, fire protection and enhanced natural habitat in the Molonglo River Park precinct and improve the management of Canberra's natural areas to strengthen biodiversity through pest management programs within Canberra Nature Park.

We work closely with the Woodlands and Wetlands Trust (WWT) which was established as an independent body to enhance management in the protection and conservation of the Mulligans Flat Woodland Sanctuary and the Jerrabomberra Wetlands Nature Reserve, two important reserves in the ACT.

Bush stone curlew

The WWT reintroduced the bush stone-curlew to Mulligans Flat Woodland Sanctuary with further introductions of this species to the sanctuary planned for next year. The twilight walks at Mulligans Flat are proving very popular, with the eastern bettongs of particular interest to visitors. To minimise the adverse effects on the environment a new bird hide and board walk have been established at Jerrabomberra Wetlands Nature Reserve.

To minimise the environmental impacts arising from agricultural activity TAMS has been working with rural lessees to improve the monitoring of land management agreements and planting 29,700 trees under the One Million Trees program.

Our endangered species breeding programs of the southern brush-tailed rock-wallaby, eastern bettong and corroboree frog at Tidbinbilla are showing solid results.

We have also maintained active membership of major industry organisations (the Bushfire Cooperative Research Centre, Australasian Fire Authority Council and the Forest Fire Management Group) to ensure we are involved in the latest research on the ecological sustainable use of fire.

Control burn

Fire fuel levels are managed through an annual works program including physical removal, hazard reduction burning, slashing and fire trail maintenance. Our annual bushfire operational plans are informed by the sub-regional fire management plans and governed by the Strategic Bushfire Management Plan for the ACT. This year our bushfire risk management report is included in the Justice and Community Safety's Annual Report.

We coordinate kangaroo management on rural and government lands and continue to work with the Environment and Planning Directorate and the CSIRO to investigate fertility agents which may assist with management of the kangaroo over-population.

Pest and environmental weed control is carried out across urban and non-urban areas to reduce the threat to Canberra's natural environment and strengthen biodiversity. This includes maintaining mower hygiene to prevent the spread of weed seeds and mowing from areas of high to low weed infestation. We also provide ongoing support for ParkCare groups towards environmental restoration work.

A draft biosecurity strategy for the ACT has been prepared and public comment obtained. The effective management of biosecurity risks is critical to minimising the impacts on our economy, the environment and the community. These risks include weeds, pest animals, plant and animal pests and diseases. The draft strategy highlights the importance of biosecurity for the ACT and identifies the goals, objectives and supporting actions for addressing biosecurity across the Territory.

ACT NOWaste continued to support the recovery and recycling of wastes with over 70 percent of the ACT's total waste stream being diverted from landfill and recycled. The expanded Mugga Lane landfill enables safe and environmentally responsible disposal of the ACT's waste and extends the life of the landfill. ACT

NOWaste have supported reuse through the Green Sheds, located at the Mugga Lane and Mitchell resource management centres, and via the bulky waste collections which are free for concession card holders . Based on advice received from the contractor, and with the assistance of some 54 staff there has been approximately 17,000 tonnes of waste diverted from the landfill to recycling at nil cost to customers and the Territory. This reuses success story also reduces the purchasing of new products, reducing waste generation, saving the community money and protecting the environment.

TAMS commenced the capital works required reopen Mugga 2 Quarry so it can receive soil from building sites. This will provide a much needed dispoal option for ACT building industry to dispose of soil. It will also enable the Mugga 2 site to be remediated in the medium term to something approaching is original state.

A new asbestos disposal pit at the Mugga Lane Resource Management Centre is also being built and work has commenced at the West Belconnen Resource Management Centre in readiness for the disposal of waste from Mr Fluffy properties.

Our landfill cells

Harvesting landfill methane gas continued at Mugga Lane and West Belconnen which generates enough electricity to supply approximately 3,000 homes ensuring the operations of the ACT's landfill and other facilities are carried out in an environmentally responsible way that complies with the required authorisations. By running waste reduction education campaigns we increase public awareness to promote behavioural change. Examples are the 'don't bag your recycling' and 'lids off' campaigns. Another is the launch of the MyWaste application to provide collection day information as well as waste and recycling updates. Additionally, we promoted the Territory's involvement in the national 'Garage Sale Trail' to raise awareness of and encourage reuse.

We continued to implement the irrigation master plan at the **National Arboretum Canberra**, which will eliminate the need to use potable water for irrigation and includes the construction of a seven mega litre storage dam. Stage four has now been completed to secure the non potable water supply and future works will see a number of forests connected to the supply. During the year we continued to work with key stakeholders, partners, volunteers and Friends of the National Arboretum Canberra to ensure sustainable management.

To reduce erosion and improve the quality of water captured in the Arboretum's dams the soil profile around trees was changed by applying mulch wells with recycled materials from within the Arboretum, and followed mowing regimes that maintain suitable ground cover.

The Water Discovery Garden at the Arboretum provides information and educates the community on managing water use in their own garden and guided walks and talks educate participants on the importance of trees and forests and the role they can play in creating a sustainable environment.

Recent initiatives in **Libraries ACT** include upgrading to LED lighting at Dickson and Woden libraries; upgrading to an energy efficient condensing boiler at Woden Library. A Carbon Neutral Government Fund application has also been granted for upgrades to the heating, ventilation and air conditioning systems at Belconnen and Woden libraries. Libraries ACT also provide access to a range of resources for the community, including Home Energy Action kits which are loaned to library members so they can measure the energy efficiency of their home and make improvements.

TAMS regularly monitors energy usage in all our office sites through the Enterprise Sustainability Platform (ESP) system and work with building owners to implement best practice maintenance at all sites to improve energy efficiency. Employees are encouraged to use environmentally friendly or sustainable alternatives in their day-to-day operations. This includes using recycled paper, recycling materials such as printer cartridges and packaging, and identifying and implementing practices and systems that minimise use of paper.

Yarralumla Nursery uses recycled water run-off to a separate holding pond adjacent to Lake Burley Griffin for reuse; stocks a range of 'water wise' plants; and provides advice on water efficient plants to new home owners under the plant issue scheme.

ACTION continues to improve its sustainability with the delivery of 30 Scania Euro 6 rigid buses during the year and orders for another 38 Euro 6 buses for delivery during 2015–2017. These buses will ensure the continued reduction of harmful emissions by the ACTION fleet.

We manage the **Birrigai Outdoor Education Centre** site as a natural environment ensuring the range of programmed activities delivered caters for the ACT schools and youth groups that visit ensuring an outdoor experience. Other sustainability activities at Birrigai include maintaining the ACT Smart School Waste accreditation, upgrading to LED lights, insulating cabins, connecting the grey water recycling system to newer buildings, carrying out environmental weed and feral animal control across the site as well as erosion control and using a bore water supply.

We maintain the facilities to allow quality environmental education programs to be run by the Education and Training Directorate which help the region's young people to understand themselves, their environment, their history and their place within it. As part of the experience Birrigai actively encourage guests to conserve resources such as water and power.

Work has continued on the development of a whole-of-government, **urban tree management** procedure and guideline document which is expected to be completed by December 2015. The review of Design Standard 23 which is the plant species list for urban landscape projects is also expected to be completed during 2015–16.

Overall tree planting in urban areas of the ACT contributed an additional 8500 trees to Canberra's urban forest during the year. These figures include public areas of urban infill and green field areas of development.

Design standards for urban infrastructure are being reviewed to produce a more contemporary suite of documents that will address the issues of climate change and ecologically sustainable development. In addition to providing for wildlife habitats and corridors the final documents will promote:

- the use of materials that are sourced sustainably
- the use of materials and plants that are robust and require less resources to maintain (including water)
- good urban design outcomes that incorporate water sensitive urban design principles
- the use of recycled and recyclable materials.

Wind turbines

3. Appendix A–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 third statement under this commitment for 2014-15.

Total Energy Consumption

ACT households consumed approximately 7,441 kilowatt hours (kWh)[1] of electricity and 47.5 Gigajoules (GJ)[2] of gas on average during the year. This equates to an annual electricity and gas GST exclusive bill of $1,490 and $1,495 respectively in 2014-15, based on the default standing offers offered by the major electricity and gas retailer in the ACT. The combined cost represents 2.06% of the annual median gross household income of ACT households[3] with children 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 margin[4]. 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.

AP2 Cost Impact

Currently, there are two actions identified in AP2 that had a cost of living impact in 2014-15. These were the Energy Efficiency Improvement Scheme and the Large-scale Feed in Tariff scheme. Together, these schemes contributed $59.75 to an average electricity bill of $1,490 in 2014-15. This is approximately 2% of the total cost of energy on average to households with children during the year. Note there is no impact on gas bills.

AP2 Cost Impact per household			
2014-15	**Average Large scale feed in tariff pass through AP2 cost ($)**	**Average EEIS pass through AP2 cost($)**	**Average Cost of Energy($)**
Electricity (7180 KWh)	23.14	36.61	1,490
Gas (47 GJ)	0.0	0.0	1,495
Total	**$23.14**	**$36.61**	**$2,984**

Energy Costs (% of Median HH Income with children)	2.06%
AP2 Costs (% of Energy Costs of Median HH Income with children)	2.00%

1. Table 13, Electricity Bill Benchmarks for Residential Customers- A report to the Australian Energy Regulator by ACIL Allen Consulting (March 2015). This figure represents the annual typical electricity consumption of a four person household with a gas connection but no swimming pool.
2. ActewAGL statement released 13 June 2014 on changes to electricity and gas prices from 1 July 2014.
3. Page 45, 2015-16 Budget paper No. 3 – 'At the 2011 Census, median weekly household income for ACT families with children was $3,060 while for the rest of Australia it was $2,310'.
4. Australian Energy Market Commission- 2014 Electricity Price Trends Final Report

Energy Efficiency Improvement Scheme (EEIS)

The scheme commenced on 1 January 2013. The compliance cost of the scheme is passed through to customers in the form of higher electricity tariffs. In 2013-14, the average pass-through cost for households was $26.93. In 2014-15, this cost increased to $36.61 reflecting the higher rate of energy savings that must be achieved by Tier 1 retailers over this period.

The total estimated energy bill savings to have been received by participating households under the EEIS in 2014-15 is approximately $10 million. This equates to average savings for participating households of $207 in 2014-15, or an average saving across all ACT households of $67. It is important to note that savings for participating households will continue for a number of years even after the EEIS is expected to conclude in 2020.

The EEIS was originally intended to end in 2015. The scheme has now been extended to 31 December 2020. It is anticipated that pass-through costs to consumers will remain at a similar level.

Large Scale Feed in Tariff (FiT) Scheme

The ACT Large scale FiT scheme supports the operation of large renewable energy generation capacity to help achieve the ACT Government's 90% by 2020 renewable energy target. Under the scheme, generators are provided a FiT for the eligible electricity generated. This FiT cost is passed through to customers in the form of higher electricity tariffs.

2014-15 saw the commencement of the Royalla Solar Farm, the first renewable energy generator to start generating under the scheme. The average scheme pass-through costs of for a typical household was $23.41 in 2014-15. While these costs are set by the regulator, the pass-through cost set for 2014 15 is estimated to exceed the actual costs of the scheme during the year. Any over recovery of these costs during the year will mean reduced costs in following years.

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 per cent of their energy saving obligations under the scheme from low income households. As the number of households in this category is estimated at 20 per cent, the priority household target ensures that the lowest income groups are over represented among those participating in the scheme. From 1 July 2014 to 30 June 2015, 20,807 households participated in the EEIS. Of these, 4,788 households were priority (low-income) households—who will experience energy bill savings in 2014-15, at a rate higher than the average for all households participating in the EEIS, due to the scheme's priority household target.

Future AP2 Costs

Two more large-scale solar plants are expected to start generating in 2015-16 and their combined pass-through cost will be similar to the 2014-15 cost (after allowing for possible over-recovery). From 2015-16 household energy costs are also expected to be impacted by the pass-through costs associated with the generation of 200 megawatts of large-scale wind capacity the feed-in tariff entitlements for which were granted in 2014. These and other future large scale renewables generation, consisting primarily of solar and wind, will deliver the majority of the capacity required to achieve ACT's 90% by 2020 renewable energy target. Achieving this target is expected to peak at a cost of approximately $243 per household in total in 2020.