ACT Government

2015–16 MINISTER'S ANNUAL REPORT

CLIMATE CHANGE AND GREENHOUSE GAS REDUCTION ACT 2010

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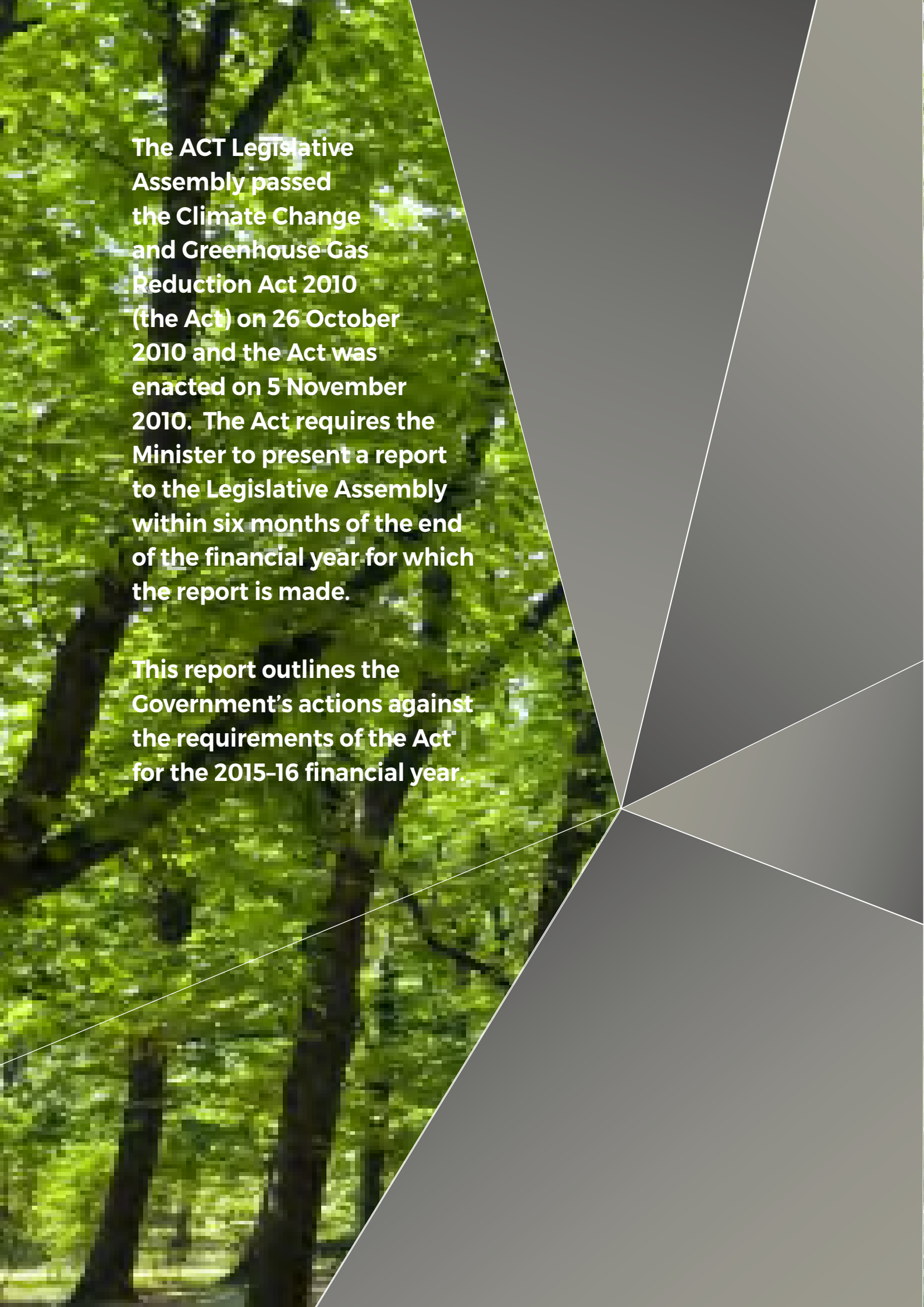


The ACT Legislative Assembly passed the Climate Change and Greenhouse Gas Reduction Act 2010 (the Act) on 26 October 2010 and the Act was enacted on 5 November 2010. The Act requires the Minister to present a report to the Legislative Assembly within six months of the end of the financial year for which the report is made.

This report outlines the Government's actions against the requirements of the Act for the 2015–16 financial year.

1. ACTIONS TAKEN IN 2015–16 UNDER THE ACT

The ACT Government 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 critical projects that support greenhouse gas (GHG) reduction targets, including:

- legislation of a new 100% by 2020 ACT
- renewable energy target (RET)
- legislation of a new zero net emissions by 2050 target
- a reverse auction for the award of feed-in tariff entitlements to 200 megawatts (MW) of large-scale wind generating capacity was concluded (Wind Auction II) in March 2016
- a reverse auction to support up to 200 MW of large-scale wind, solar or other nominated renewable energy technology was conducted (the Next Generation Renewables Auction) in May 2016
- 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
- national and international recognition of the ACT and Canberra's GHG emissions reduction targets and renewable energy target.

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

1.1 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 ACT Government has partnered with the NSW Office of Environment and Heritage to develop new, fine-scale (10 square kilometre) climate projections for NSW 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.

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

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 each year. With the increased heat, the number of severe fire weather days and risk of bushfires will increase in spring and summer. For example, the first six months of 2016 were the hottest on record, according to the US National Oceanic and Atmospheric Administration. This marked the 14th consecutive month in which the monthly global temperature record was broken (the longest such streak in the 137-year record).

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 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

The 2015 United Nations Climate Change Conference (COP21) was held in Paris, France from 30 November to 12 December 2015. The Paris climate agreement involved consensus by 195 countries to adopt a global pact to reduce the world's emissions of greenhouse gases quickly and substantially in order to keep global warming below 2°C (aiming for a goal of 1.5°C above pre-industrial levels). If ratified between 22 April 2016 and 21 April 2017, the agreement would become a legally binding protocol that would come into effect after the Kyoto Protocol expires in 2020. As of June 2016, 178 UNFCCC members have signed the treaty, with 19 ratifications. Australia has signed, and seeks to ratify the agreement by the end of the year.

The Agreement allows countries to pursue their self-determined emissions targets from 2020, but notes the current commitments are insufficient to limit warming to below 2°C. It was agreed that global emissions should peak as soon as possible and that all national targets will be reviewed with a global stocktake every five years beginning in 2023. It also states emission sinks should be used to balance out emissions in the second half of the century. Finally, developed nations agreed to contribute at least US$100 billion a year from 2020 to help developing nations with climate change mitigation and adaptation.

The ACT Minister for the Environment and Climate Change, attended the event, including forums for States and Regions Alliances and other sub-national organisations. The Minister stated the role of sub-national governments was critical in the fight to keep global warming to less than 2°C.

In the lead-up to COP21, more than 1300 non-State stakeholders signed the Paris Pledge for Action, pledging their support for the new climate agreement and promising to take personal, concrete action to ensure the level of ambition set in the Paris deal is met or exceeded. Three Australian states and territories—the ACT, South Australia and Victoria—are among the Paris Pledge signatories.

The ACT was recognised internationally in a report of The Climate Group "Unlocking Ambition: Top Corporate and Sub-national Corporate Commitments Report" which states that the ACT has amongst the most ambitious GHG reduction target of all states and regions (100% reduction by 2050) and renewable energy target (100% renewable electricity by 2020).

Review of the Climate Change and GHG Reduction Act 2010.

A review of the Act was released in April 2016. This operational review found that, holistically, the Act is operating effectively and is meeting its objectives. Due to the progression of climate change policy since 2010, specifically the outcomes from COP21 and increased climate action from other Australian states, a number of changes were recommended.

Of these recommendations, two were implemented in May 2016. The Act was amended to bring forward the principal target of net zero emissions from 2060 to 2050, and the RET was enhanced from 90% to 100% by 2020 through a disallowable instrument.

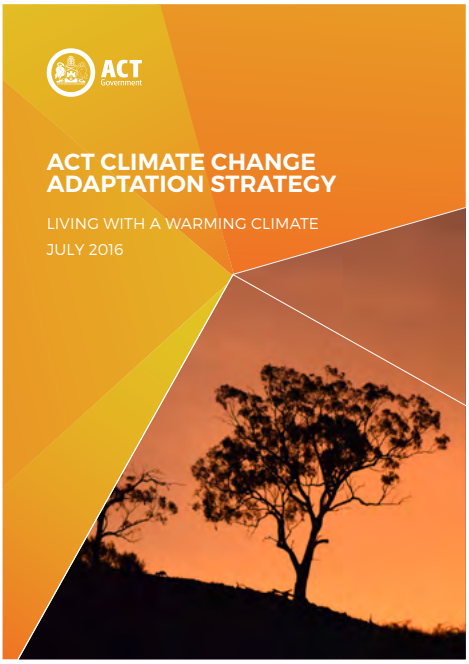
1.2 PROMOTE ACTION TO MEET TARGETS

The ACT Government released AP2: A new Climate Change Strategy and Action Plan for the Australian Capital Territory (AP2) in October 2012. See AP2 at www.environment.act.gov.au/cc.

AP2 is the Government's primary mechanism for meeting its 2020 GHG reduction target and establish a strong foundation for the achievement of the overall target of zero net emissions by 2050.

A status report on all AP2 actions is prepared biannually and published on the Environment and Planning Directorate's (EPD) web site (www.environment.act.gov.au/cc). Suggested outcomes of the review include: the adoption of interim GHG emissions targets; the combination of both climate change mitigation and adaptation strategies and actions into a single consolidated plan; and a clear, coordinated, whole-of-government model that encompasses policy, programs and practice across all areas of government.

AP2 actions progressed during the 2015–16 reporting period are detailed in Section C.



1.3 DEVELOP, ADOPT OR PROMOTE POLICIES AND PROGRAMS

Energy Efficiency Improvement Scheme

The ACT EEIS, which commenced in 2013, is modelled to deliver lifetime emission savings of 515,000 tonnes over 2016–20. The third compliance year of EEIS finished on 31 December 2015. Eligible activities undertaken by electricity retailers under EEIS from 1 July 2015 to 30 June 2016 include building and exhaust fan sealing, hot water service activities, lighting activities, decommissioning/disposal of refrigerators or freezers and installation of standby power controllers in audio visual/ information technology environments.

The EEIS was extended to 2020 through an amendment bill passed by the Legislative Assembly on 4 August 2015. The amendments enhance harmonisation with other jurisdictional schemes and facilitate the participation of third-party activity providers. The amendments were supported by a detailed cost-benefit analysis that estimates significant household and business cost savings and a Net Present Value of $40 million. The extension also provided for the introduction of new commercial activities.

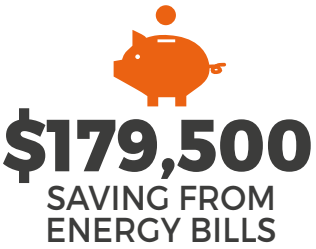
In January 2016, the Minister removed activities that switch from electricity to gas, as the 100% RET means fewer tonnes of carbon dioxide equivalent (tCO2-e) emissions will be avoided for each kilowatt hour of electricity saved.

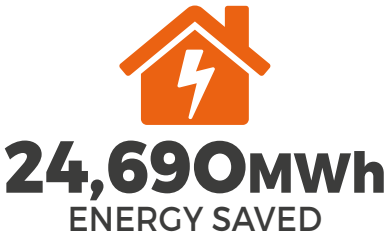
Actsmart Business Energy and Water Program

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 2016, 480 small businesses, community groups and owners' corporations had received a tailored assessment and report, with 227 claiming a rebate and many more currently undertaking efficiency upgrades.

Estimated lifetime energy savings from the upgrades installed since program commencement are **24,690 MWh**, equivalent to the energy used by 3375 houses a year.

In 2015–16 the program assessed 143 small businesses, with 75 claiming a rebate to upgrade to more efficient fittings or fixtures. Estimated savings per year from the upgrades installed in 2015–16 are 811 MWh equivalent to **635 tCO_2-e**. Savings from energy bills are **$179,500** for the year, an average of $2390 per business. To assist medium-sized businesses in the ACT, Actsmart has 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 in September 2016.





Actsmart Government Energy and Water Program

The ACT Government introduced the Actsmart Government Energy and Water Assessment program to demonstrate leadership by ensuring that government leased and owned sites are operating as efficiently and sustainably as possible. A Government Energy and Water assessor visits government sites to asses and determine how energy and water efficiencies can be improved. The assessor produces a comprehensive report that identifies sustainability upgrades and opportunities to reduce GHG emissions and operating costs. The report can be used to support applications for funding through the Carbon Neutral Government Fund.

The Green Team Action Kits are available to government sites to help identify where wastage may be occurring and to encourage behavioural change.

Low-Income Household Program (formerly Outreach)

The Low-Income Household Program helped low income households improve the energy and water efficiency of their homes, reduce their energy and water consumption bills, and contribute to reducing GHG emissions. Working through community welfare organisations, the Low-Income Household Program provided energy-efficient essential home appliances, assessments, education and retrofits to eligible households.

The program was delivered through community welfare organisations for their eligible low income clients experiencing financial hardship, as well as clients referred from a wider network of community organisations in the ACT. These included:

- Belconnen Community Service
- Communities@Work
- Northside Community Service
- St Vincent de Paul Society
- YWCA of Canberra.

A panel of providers of energy efficiency services was engaged to perform the assessments, education and retrofits in clients' homes, and provide training for energy efficiency officers, other staff and volunteers of community welfare organisations.

The Low-Income Household Program assisted approximately 314 low income households from 1 July 2015 to 30 September 2015. Cost effective reductions in household energy consumption and GHG emissions are expected to be achieved over the life of the energy efficiency improvements implemented with these households.

In January 2015 the Low-Income Household 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 GHG emissions and water use. The following subsidies applied in 2015-16:

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

A new program commenced on 1 October 2015 to help low income households improve the energy efficiency of their homes and contribute to reducing GHG emissions. The Low-Income Household Program is delivered by St Vincent de Paul. The program offers low income households in-home energy assessments and education to improve their understanding of energy and water use and provides energy saving kits, a heated throw rug and extensive draught proofing to the house. The program also replaces old inefficient refrigerators and installs curtains to a limited number of prioritised households.

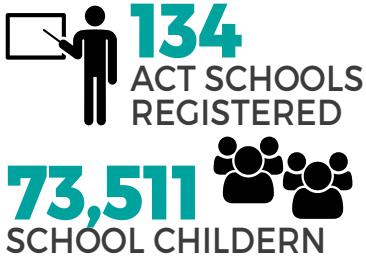
In April 2016, EPD started replacing old heating systems with efficient heating systems in low income households. This program is delivered by an external contractor on referral from St Vincent de Paul after an energy assessment of eligible households. These households are participants of the Low-Income Household Program and include group disability households and the community housing sector, as well as homeowner occupiers.

Estimated savings per year from the activities in 2015–16 are **530 MWh** (from both electricity and gas), equivalent to **328 tCO_2-e.**

Total energy savings are calculated using the deemed lifetime savings methodology employed by the EEIS. Note that not all activities offered through the Low-Income Household Program (such as education) are included in the EEIS, so the reported savings are likely to be an underestimate.

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 **134 ACT schools** have registered with the program. This accounts for over **73,511 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 from audits undertaken for 2015–16 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 2015–16 this equated to approximately **4015 cubic metres** less waste being sent to landfill from accredited schools, when compared to non-accredited schools. This represents a reduction of **581 tCO_2 -e**. In addition, 134 schools were helped to establish/re-establish waste and recycling systems, with 49 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 45,000 staff have access to the program throughout the 800 participating sites across the Territory.

In 2015–16, the 348 accredited sites have recycled approximately **14,000 cubic metres** of mixed recyclables, representing 1129 tCO_2-e avoided, **19,480 cubic metres** of paper and cardboard, representing 4869 tCO_2-e avoided and **1597 cubic metres** of organic material equivalent to 876 tCO_2-e avoided.

14,000 CUBIC METRES MIXED RECYCLABLE

1597 CUBIC METRES ORGANIC MATERIAL

19,480 CUBIC METRES PAPER AND CARDBOARD

Actsmart Public events

The Directorate continued 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. The Actsmart Public Event program has expanded its projects to include energy and water in its bid to facilitate more sustainable practice.

In 2015–16, 55 events 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 **41,015 kilograms** of mixed recycling equivalent to 52.5 tCO_2-e avoided, and **10,421 kilograms** of organic waste equivalent to 16.67 tCO_2-e avoided. Three events were carried out in relation to the new energy and water initiative, with plans to increase these activities into the future.

51,436 KILOGRAMS MIXED RECYCLABLE and ORGANIC MATERIAL

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, a draft ACT Climate Change Adaptation Strategy was developed and released for public consultation (22 February to 3 April 2016).

The draft Adaptation Strategy presented 22 actions to enable the ACT Government to maximise engagement with business and households to build greater resilience within the Territory to future climate impacts.

Five sectors were selected based on their relative priority in the Territory:

1. Disaster and emergency management
2. Community health and wellbeing
3. Settlements and infrastructure
4. Water
5. Natural resources and ecosystems

The community was encouraged to make a submission through the Government's online consultation portals, the Directorate's social media accounts, a range of events and presentations for the wider community and stakeholder groups. The final Adaptation Strategy was released in August 2016.

Low Emission Vehicle Strategy

The development of a Low Emission Vehicle Strategy (LEVS) is an action in both Transport for Canberra and AP2. A 2014 discussion paper regarding possible Territory actions to lower vehicle emissions showed community support for most of these actions. This feedback has helped inform the development of LEVS and the Government's direction on managing emissions generated by the transport sector. LEVS is expected to be completed in late 2016 and is being supported by work investigating electric vehicle uptake in the ACT.

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 ACT Government. In August 2013 large-scale grants of feed-in tariff entitlement were made under the Act to two further successful solar auction proponents. Zhenfa Australia (now Maoneng Group) 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 at Williamsdale. Construction of both solar farms has commenced, with generation expected to start in late 2016.

Large-scale wind energy

In 2015, a reverse auction for feed-in tariff entitlements for **200 MW** of large-scale wind generating capacity was conducted by the ACT Government (Wind Auction II). In early 2016, 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 **100 MW** wind farm to be developed by Neoen SAS at Hornsdale in South Australia (the second stage of 100 MW wind farm successful in the first wind auction held in 2014); and a **100 MW** wind farm to be developed by CWP Renewables near Glenn Innes in northern NSW.

In 2016 the Coonooer Bridge wind farm, a successful project in the 2014 200 MW wind auction, began generating. The two other successful projects in that auction, the Ararat and Hornsdale (Stage 1) wind farms, began construction in 2016 with completion expected in 2017.

Next Generation Renewables

In April and May 2016, proposals were accepted in another reverse auction, the Next Generation Renewables Auction, to allocate feed-in tariff entitlements for up to 200 MW of large-scale wind or solar generating capacity or other renewable energy capacities. An announcement of the successful projects is expected in September 2016. The feed-in tariff prices paid to the successful projects in the Next Generation Renewables Auction will include an Energy Storage Contribution that will fund a grants program to support the rollout of more than 5000 solar photovoltaic battery storage systems across the ACT.

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

In June 2014 the Government commenced operation of an Enterprise Sustainability Platform (ESP), a database that provides accurate and comprehensive whole-of-government data on its stationary energy and water use and GHG emissions. The ESP underpins implementation of the ACT Government Carbon Neutral Framework, providing key baseline and tracking data against the target of carbon neutrality[3] in Government operations by 2020. It supports facility managers across the Government to monitor and proactively manage energy and water usage and costs, and identify opportunities to implement energy efficiency and GHG emission reduction measures to meet their own and whole-of-government goals and objectives. Data from the ESP is central to agency Carbon Neutral Government Fund applications, annual ACT Government GHG inventory reporting, and sustainability data reporting in agency annual reports.

This year ESP data played a key role in the trialling of 'carbon budgets' for directorates. Improvements made to data monitoring and reporting included modification of the custom ACT Government sustainability data report format to show data completeness, and addition of a module to facilitate and standardise tracking of energy and cost savings in the many energy efficiency projects being implemented across Government. The ESP services agreement has been extended to the end of June 2017 to ensure continuity of its services to Government operations while a new contract process is undertaken. The ESP continues to deliver benefits beyond the scope of its original intended purpose. For example, in 2015–16 it contributed consumption and cost data used in the management and renewal of whole-of-government utility services under the Smart Modern Strategic (SMS) Procurement Reform Program. Under this program the Territory replaced dozens of contracts for electricity and gas with just two, at the time reportedly saving almost half a million dollars in one month.

3 The ACT Government aims to become carbon neutral on a 'net' basis. This means that while some residual emissions may be produced each year, they will be fully balanced by the purchase of carbon offsets, which are projects that reduce emissions. Carbon neutrality = zero GHG emissions = GHG emissions - GHG offsets

ESP data helps with annual whole-of-government GreenPower electricity purchases and, since April 2015, has contributed annual data on Government operations for the ACT Government's Compact of Mayors CDP Cities reporting under the international Carbon Disclosure Project.

Carbon Neutral ACT Government Framework

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

The CNG Framework has 39 actions across 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)

In 2015–16, the CNG Implementation Committee continued to monitor progress on the framework's implementation and coordinate a whole-of-government approach. In relation to trialling directorate carbon budgets, a collective reduction target of 3.2% electricity was set across the service, with the majority of directorates reducing electricity use in priority sites. Carbon budgets commence formally in 2016–17 and will be a new reporting obligation for Director-General performance agreements.

Since 2012–13, ACT Government emissions have reduced by 17% through a combination of mitigation activities by directorates and the increasing proportion of renewable energy in the electricity grid.

All directorates have up-to-date 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.

For 2015–16, the Environment and Planning Directorate's RMP focused on continued implementation of activities to maintain energy efficiency. The energy consumed by Dame Pattie Menzies House over the reporting period led to an impressive 5.5 NABERS energy rating. The Directorate's Green Team helped by promoting sustainability and resource efficiency within the agency.

Implementation of the CNG Framework continued to build capacity across the public service with the delivery of multiple workshops on sustainable procurement, using green leases, energy savings from improved heating and cooling maintenance and a sustainable building tour of the Centenary Hospital for Women and Children.

Under the framework, ACT Government is committed to increasing sustainable work travel options for staff. Directorates promote the use of active travel, walking, cycling or taking public transport, for short work trips. Staff are provided access to MyWay cards for work trips, agencies have established bike fleets and government has increased its electric vehicle fleet to 17 cars supported by 29 charging points. In June 2016, the Directorate purchased a fleet of eight electric pedal-assisted bikes to be housed between Dickson and Civic government office locations as part of a trial, further supporting staff with active travel choices.

Carbon Neutral Government Fund

In 2015–16, four applications for funding were received; all were successful, with **$2.506 million** approved. Projects commencing in 2015–16 were:

$758,613 to the Education Directorate for an energy efficient building managements system upgrade at Erindale Educational Recreation Centre

$1,555,545 to the Education Directorate to upgrade 31 schools to low emitting diode (LED) lighting technology

$170,000 to the Chief Minister, Treasury and Economic Development Directorate to install a 27 kW capacity solar photovoltaic system connected to a 76 kW battery storage to power depot operations at the National Arboretum.

$22,220 to the Education Directorate for the installation of an organic response system for energy efficient lighting management at the Hawker Primary School.

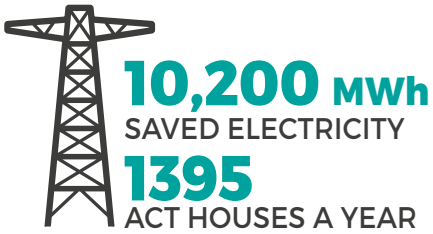
Twenty-three ACT Government projects to the value of **$12.3 million** have been supported under the fund since 2009. Once fully implemented, these projects have ongoing annual cost and energy savings and help support the local clean economy. The estimated cumulative total of project reductions or savings per year, once fully implemented, is:

» **$2 million** in cost savings

» **8,500 t CO_2-e**, equivalent to taking **2,297 cars** off the ACT's roads for a year

» **10,200 MWh** of electricity, equivalent to the energy used by **1395 ACT** houses a year

» **6,900 GJ** of natural gas.



Capital Metro

The Capital Metro Agency was established on 1 July 2013 (now Transport Canberra and City Services) with the intention of linking light rail, walking, cycling and current bus networks to reduce congestion and enhance efficient travel in the ACT. 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. A report from Transport Canberra, "Keeping Canberra Moving: What you have told us" highlights key improvements that could be made to public transport to ensure Canberra remains the most liveable city in the world.

1.4 CONSULT BUSINESS AND COMMUNITY

Climate Change Council

The Climate Change Council is an advisory body to the Minister responsible for providing advice on reducing GHG emissions and adapting to climate change. The Council also plays a pivotal role in informing climate change policies in the ACT and providing leadership in the community, working to raise awareness of climate change risks and community benefits from effective climate action, influencing community views and attitudes, and encouraging everyone to take action towards a decarbonised economy and a more resilient Territory.

Members include:

» Professor Barbara Norman

» Professor Penny Sackett

» Ms Dorte Ekelund

» Professor Will Steffen

» Dr Frank Jotzo

» Mr Toby Roxburgh

» Ms Karen Jesson (appointed July 2016)

Council meetings this year focused on a variety of topics, including:

» introducing interim GHG emissions reduction targets

» amending baselines to be in-line with future federal government targets

» new approaches to social media and community engagement about climate change issues that affect the ACT

» perspectives on participation at COP21, noting that realistic hopes have been achieved and that 2016 is a decisive year for global action

» transport emissions in the ACT

» the City and Gateway Urban Renewal Strategy, Nature Conservation Strategy, ACT Healthy Waterways (Basin Project) and the draft ACT and Region Catchment Strategy.

Highlights for the Council included attendance at COP21 prior to which they released a comparative report, Sub-national Climate Policies Report: How does the ACT compare?. This report compared the climate targets and actions of the ACT with those of 12 domestic and 18 international sub-national jurisdictions. The report found that states and cities can act as pioneers for new scalable approaches, and that the ACT Government's climate change policies are among the best in the world.

1.5 PROMOTE ACTIONS OR STRATEGIES BY BUSINESS ENTITIES

Since the ACT Government's Actsmart Business Energy and Water Program commenced in July 2012, 480 local small businesses, community groups and owners' corporations 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 800 participating sites across the Territory reaching over 45,000 staff. Once effective recycling systems are in place, a business can receive accreditation through the program to recognise their achievements. At 30 June 2016, 348 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.

1.6 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 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 a member of a number of international climate change network and reporting bodies, including:

- Carbon Disclosure Project (CDP)
- Compact of States and Mayors (CoSM)
- Compact of States and Regions (CoSR)
- States and Regions Alliance (SRA)
- RegionsAdapt
- International Council for Local Environmental Initiatives (ICLEI).

Benefits of these groups for the ACT include information sharing, networking, ensuring accurate data analysis/reporting, engaging with sub-national governments, and aiding benchmarks for ACT climate change policies/ actions.

Highlights this year included the 2015 report from CDP, Unlocking Ambition: Top Corporate and Sub-national Climate Commitments, sub-national meetings at COP21, and a series of global webinars/seminars on climate change mitigation and adaptation.

As of 2015 the ACT Government commenced reporting under the Compact of States and Regions. During the COP21 summit, the ACT became a founding member of RegionsAdapt (another SRA initiative to focus initiatives on climate change adaptation). The aim of which is to provide a cooperative framework for regions with different capacities and experience on climate change adaptation to share best practices and collaborate.

1.7 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 with the financial support of the industry-funded Renewable Energy Innovation Fund (REIF). REIDS is driving a renewable energy ecosystem in the Territory and accelerating the creation of a vibrant, export-oriented, renewable energy industry in the ACT for the benefit of participating businesses, institutions and the ACT community.

With industry support, REIF has been expanded from $1.2 million to $12 million. The REIF Business Advisory Board, comprising seven senior commercial leaders from the ACT and surrounding regions, was formed to provide commercial input and guidance to the Minister for the application of REIF funds and the development of the renewables industry in the Territory. REIF will target the development of new renewable energy research programs, trades training initiatives, and support new and emerging renewable energy ventures and opportunities.

Together with the priority areas of REIF, the Territory's renewable energy auctions are driving the development of the renewable energy industry in the ACT. The $5.9 million Renewable Energy Skills Centre of Excellence at the Canberra Institute of Technology (CIT) was formed and will target the development and delivery of wind energy trades training capabilities.

As part of its local investment commitments, Windlab commenced delivery of its renewable energy secondary schools education program, and in 2016 launched a new wind energy course as part of the Australian National University's Masters of Energy Change program.

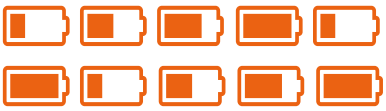
Renewable energy companies are also moving to and setting up operations in the ACT. Neoen, developer of the Hornsdale wind farms, has established its Asia-Pacific Headquarters and asset and operations facilities in the Territory. Similarly CWP Renewables will also be establishing asset and operations management facilities in the ACT.

1.8 PROMOTE THE COMMERCIALISATION AND USE OF OTHER TECHNOLOGIES

Next Generation Energy Storage Grants

On 18 December 2015 the ACT Government announced its support for a battery storage program that will see the ACT become a world-leader in energy storage innovation. The scheme will see more than **36 MW of battery storage** rolled out in more than **5000 Canberra homes** and businesses over a four year period.

36 MW
BATTERY STORAGE in 5000 ACT HOMES



The program began with the Next Generation Renewables Pilot, which awarded grants of $200,000 to three companies through a competitive grants process, to subsidise the installation of around **200 battery storage systems** in ACT homes and businesses. The pilot was used to test the battery storage market and to inform the design of the wider battery storage program.

Following the success of the pilot, a second round of grants was announced on 25 May 2016. The grants are expected to provide five companies, through a competitive grants process, with grants of up to $400,000 each (a total of $2 million) to subsidise battery storage systems in around a further 600 homes and businesses. The successful companies are expected to be announced in 2016.

The grants program will be funded by the 200 MW Next Generation Renewables Auction, under which successful proponents will provide an energy storage contribution amount to support the program. The auction is expected to secure up to $25 million for battery storage grants.

Waste

In the 2015–16 Budget the Government committed $2.8 million over two years to undertake the ACT Waste Feasibility Study to assess options for meeting the Government's waste targets. By mid-2017 it will deliver a business case for a preferred suite of infrastructure, regulations and collection systems to better enable meeting targets established under the ACT Waste Management Strategy 2011–25.

The urban form and demographic characteristics of Canberra are changing and future waste management systems will need to respond to these changes. Recommendations to government from the first stage of the study include a focus on encouraging innovation in waste treatment technologies, flexibility in services and highest value re-use of resources. Developing a method to assess the carbon footprint of the waste sector and measure progress towards the target of a carbon neutral waste sector by 2020 will be included in the second stage of this study.

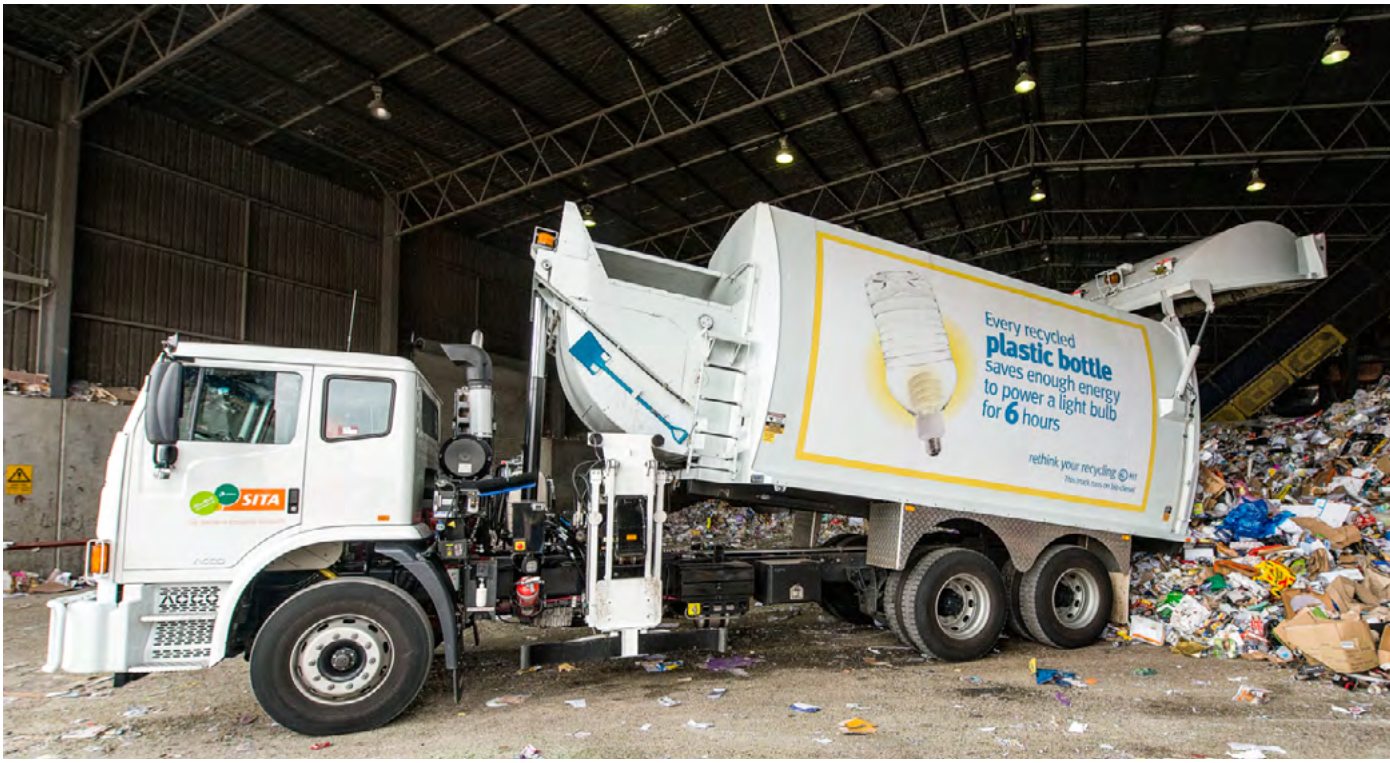
1.9 PROMOTE RESEARCH AND DEVELOPMENT

Renewable Energy Industry Development Strategy

The ACT 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.

As part of this overarching strategy to accelerate the development of a renewable energy industry in the region, the ACT Government has established a $12 million industry funded REIF. Funding from REIF will be allocated over five years into developing new renewable energy research programs, trades training initiatives, and new and emerging renewable energy ventures in the ACT.

Over the last six years, renewable energy jobs in the ACT have grown six times faster than any other state or territory in the nation, and twelve times faster than the national average.



CIT micro-grid feasibility study

$60,000 was provided in 2015–16 to the CIT for a feasibility study into a renewable energy micro-grid. Funding was acquired collaboratively from two business units; $42,000 from the Sustainability and Climate Change Division and $18,000 in loan funding from the Carbon Neutral Government Fund.

GHG emission methodologies

In October 2015 the Minister for the Environment released the 2014–15 ACT Greenhouse Gas Inventory. The inventory, prepared by Independent Consultants (Pitt & Sherry), provides an assessment of both total GHG emissions and the amount of emissions per person in the Territory. This was the first inventory prepared within three months of the end of the financial year.

Since the 2011–12 inventory (released in 2014), the ACT has used its own unique emissions factor that takes into account the RET implementation of 90% renewable by 2020. It will be remodelled next year for the new 100% renewable by 2020 target. These new emissions factors have been 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-electricityemissions.

1.10 SUPPORT THE DEVELOPMENT OF APPROACHES TO ADDRESS CLIMATE CHANGE

NSW and ACT Regional Climate Model

The ACT Government has partnered with the NSW Office of Environment and Heritage to develop new, fine-scale climate projections for NSW and 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 and remains the most current data for 2015. This information is available on the Actsmart Sustainability Hub: www.actsmart.act.gov.au.

1.11 CONSIDER AND RECOMMEND AMENDING TERRITORY LAW, GOVERNMENT POLICY OR PRACTICE

Zero net emissions target amendment

In May 2016 the principal target in the *Climate Change and GHG Reduction Act 2010* was brought forward from 2060–50 as part of the amendments to the Renewable Energy Legislation Amendment Bill 2016

Renewable energy target amendment

In May 2016 a new ACT renewable energy target was legislated for the ACT to source 100% of its electricity supply from renewable energy by 2020. This Disallowable Instrument as part of the Climate Change and GHG Reductions Act 2010 replaced a 2013 renewable energy target for 90% renewable electricity supply by 2020 and 100% by 2025. This triggered the need to amend the feed-in tariff capacity.

Feed-in tariff amendments

In May 2016 the Renewable Energy Legislation Amendment Bill 2016 was passed by the Legislative Assembly to amend the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011*, which governs the Territory's large-scale feed-in tariff (FiT) scheme. The amendments increased the total capacity for which FiT entitlements may be granted under the Act from 550 MW to 650 MW and released an additional 91 MW of FiT entitlement capacity for potential allocation in the Next Generation Renewables Auction (taking its total available capacity to 200 MW). The Act's total FiT entitlement capacity was increased to allow sufficient entitlements to be allocated to reach the new 100% by 2020 renewable energy target.

Waste management

The Waste Management and Resource Recovery Bill 2016 was drafted to replace the *Waste Minimisation Act 2001*. The new legislation is designed to provide a more robust regulatory framework to enable government, business and households to improve waste management and meet the waste policy targets.

1.12 ASSESS THE IMPACT OF CLIMATE CHANGE

2014–15 ACT greenhouse gas inventory

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

In October 2015 the Minister for the Environment released the 2014–15 ACT GGI. It included recalculated figures for 2012–13 and 2013–14.

The report, prepared by Pitt & Sherry, estimated the ACT's total emissions of GHG in 2014–15 were equivalent to 3934 kt CO_2-e, including emissions reductions due to land use, land-use change and forestry. This represents a decrease in total GHG emissions of 11.8% from their respective 2010–11 emission levels. Between 2013–14 and 2014–15 emissions increased by 4.6%. This increase is attributed to a range of interrelated factors including updated emissions factors, extended low winter temperatures and transport fuel data improvements such as the inclusion of additional fuel sources. Electricity consumption was responsible for 56% of total emissions in 2014–15 followed by transport fuels (26%) and natural gas (10%). Industrial processes and waste activities collectively contributed approximately 7% of total emissions.

Consumption of renewable energy in the ACT changed from 14.2% in 2010–11 to 19.8% in 2013–14 to 18.5% in 2014–15. This reflects the decrease of renewable energy in the NEM as a result of the repeal of the carbon price. In addition, the ACT's GreenPower sales were 81.84 gigawatt hours (GWh) in 2014–15, which represented 3% of electricity consumption (down 1.5% from 2010–11).

1.13 SUPPORT PUBLIC EDUCATION

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

The Actsmart Sustainability Hub (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.

1.14 ANY OTHER FUNCTIONS

AP2 commits the ACT Government to undertake an annual Cost of Living Review with a specific focus on social equity. The Cost of Living Review for 2015–16 is at Appendix A.

No other functions have been given to the Minister under the Act as at 30 June 2016.

2. GREENHOUSE GAS EMISSIONS FOR 2015-16 FROM ACT GOVERNMENT OPERATIONS

In 2015-16 the ACT Government consumed 155,002,072 kWh of electricity in its operations, including a purchase of 7,700 MWh GreenPower which is approximately equivalent to 5%. The ACT Government consumed 373,406 GJ of natural gas in its buildings. ACT Government vehicles consumed 425,055 L of unleaded petrol and 11,068,778 L of diesel fuel. ACTION buses also consumed 2,425,397 m3 of compressed natural gas. GHG emissions from ACT landfill are separately reported in the Territory-wide ACT GHG inventory.

Figure 1: Sources of the ACT Government's GHG emissions 2015-16

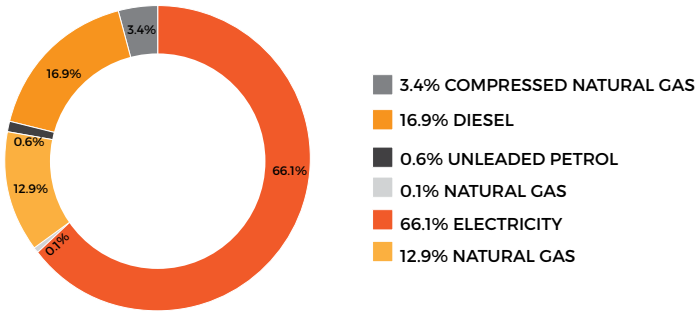


Table 1: ACT Government GHG Emission Profile 2015-16

Emission Source	Consumption	Emissions
Stationary energy		
Electricity[1]	155,002,072 kWh	122,606.44 tCO_2-e
Natural Gas[1]	373,406 GJ	23,946.51 tCO_2-e
		146,553.15 tCO_2-e
Transport fuels		
Unleaded petrol[2]	425,055 L	1,023.90 tCO_2-e
E10[2]	69,119 L	150.09 tCO_2-e
Diesel[2,3]	11,068,778 L	31,360.50 tCO_2-e
Liquid Petroleum Gas[2]	- L	- tCO_2-e
Compressed Natural Gas[3]	2,425,397 m^3	6,329.12 tCO_2-e
		38,863.62 tCO_2-e
Total emissions		**185,416.77 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 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 GHG emissions.
> Electricity used to charge electric vehicles is not separated from stationary electricity.

Table 2: 2015-16 ACT Government GHG emissions by agency

Agency	Transport emissions	Stationary emissions
ACT Electoral Commission	-	27
Capital Metro Agency	-	23
Independent Competition and Regulatory Commission	-	22
ACT Audit Office	3	31
Cultural Facilities Corporation	9	2,028
ACT Legislative Assembly	14	746
Education and Training Directorate	61	27,856
Canberra Institute of Technology	97	10,023
Environment and Planning Directorate	28	433
Community Services Directorate	387	2,415
Chief Minister, Treasury and Economic Development Directorate	954	11,382
Health Directorate	776	36,961
Justice and Community Safety	1,616	8,532
Territory and Municipal Services	34,895	46,073

Due to changes in administrative arrangements of government operations during 2015-16 and availability of data, the total emissions reported against agencies may not be identical to those reported in Directorate Annual Reports.

Figure 2: ACT Government GHG emissions for the past three years (t CO_2-e). Note that previous years have been recalculated using current emissions factors for comparison.

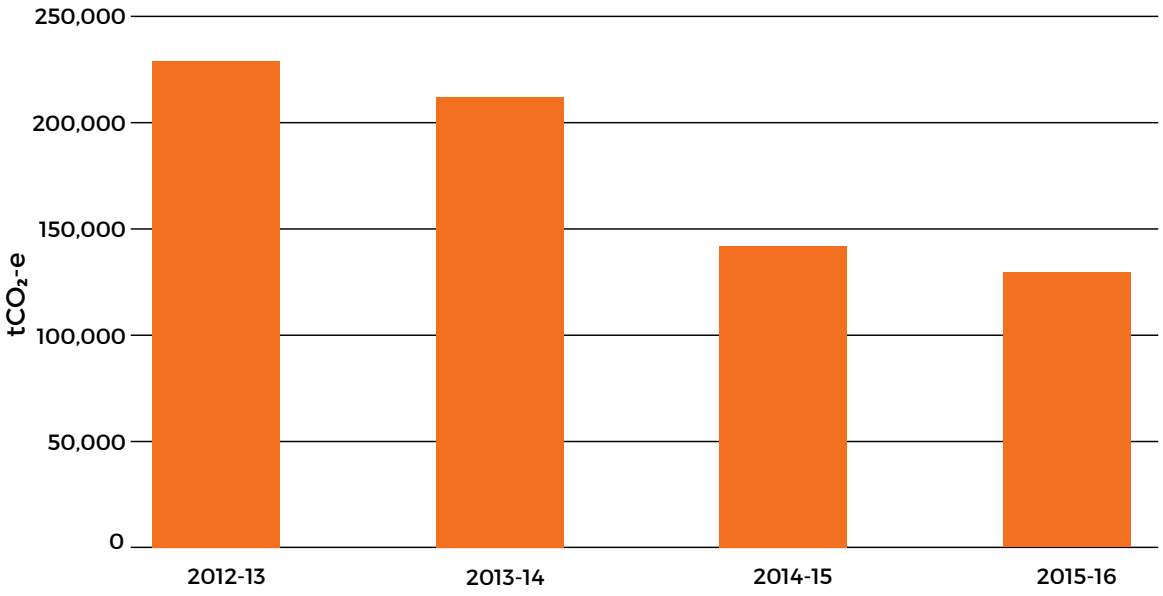


Figure 3: ACT Government GHG emissions by source 2015-16 (tCO2-e). Note that previous years have been recalculated using current emissions factors for comparison.

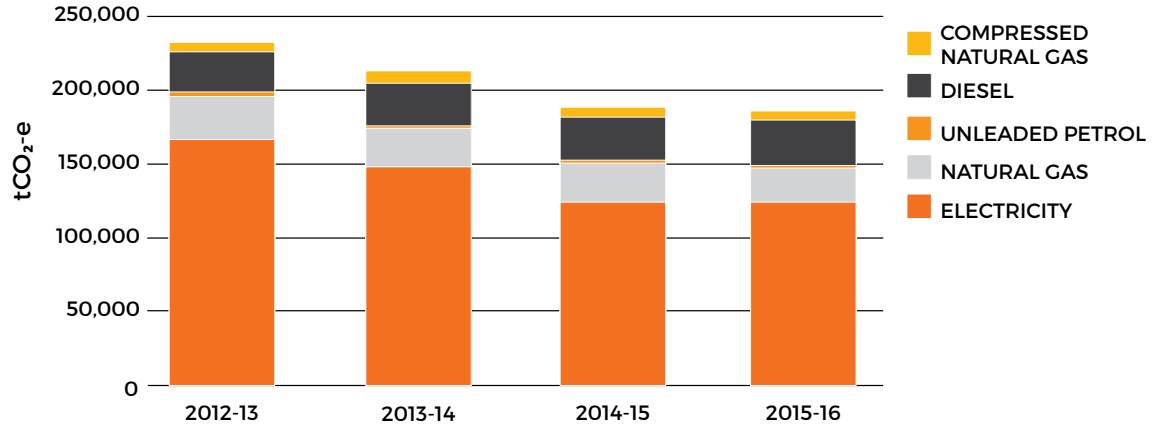
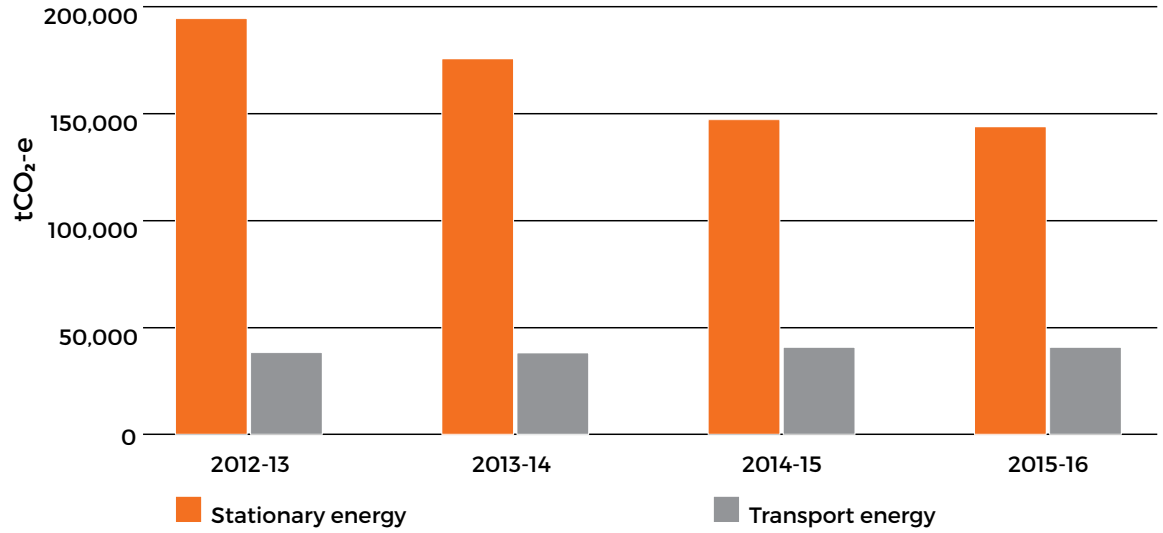


Table 3: ACT Government GHG emissions by source 2015-16

	2012–13	2013–14	2014–15	2015–16
Compressed Natural Gas	6970	6970	6802	6329
Diesel	30,235	30,330	31,390	31,365
E10	-	362	251	150
Unleaded Petrol	1817	1312	1211	1024
Natural Gas	25,596	23140	24,774	23,947
Electricity	167,421	150,185	123,956	122,607

Figure 5: ACT Government GHG emissions from stationary energy and transport fuel (tCO2-e). Note that previous years have been recalculated using current emissions factors for comparison.



Reductions have been made in the emissions of electricity and natural gas from ACT Government operations, as shown in this graph of the past four 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. An annual report on implementation of the CNG Framework is made available on the Environment and Planning Directorate's website.

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 GHG EMISSIONS DURING 2014–15

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

3.1 CHIEF MINISTER, TREASURY AND ECONOMIC DEVELOPMENT DIRECTORATE (CMTEDD)

Data Centres

The old inefficient data centre at Callam Offices was closed and decommissioned following the completion of the transition to the new data centre in Hume.

Energy monitoring equipment has been successfully installed in each of the Territory's data centre facilities.

Milestones emissions reductions

The transition to the new data centre in Hume was completed on time.

Implementation of cold isle containment design at The Canberra Hospital (TCH) Data Centre has achieved a 15–20% reduction in power consumption since 2014–15.

Lighting upgrades

A number of areas of the Directorate have undertaken a program of replacement of old fluorescent light fittings with LED fittings:

- 255 Canberra Avenue workshop area
- Continued rollout of LED lighting and new smart metering at GIO stadium
- 69 street lights and 6 floodlights and numerous entry lights to building replaces with LEDs at Exhibition Park in Canberra
- Sensor lights installed in public toilets and showers at Stromlo Forest Park
- Investigating LED upgrades in the Revenue Management Division tenancies of 220 Northbourne Avenue
- Ensure that lighting upgrades are undertaken during office fit-out where feasible.

ACTPG has completed lighting upgrades in the following locations tenanted by other Directorates:

- 14 at TCCS and EPD Works depots
- Capital Linen Services

Milestones emissions reductions

In 2015-16, electricity consumption has reduced in 255 Canberra Avenue (-5%), GIO Stadium (-9%), Manuka Oval (-9%).

General Building

Activities at the Canberra Nara Centre to reduce energy usage:

- The reduction in the standard operating hours of the lighting controls from 12 hours (7am to 7pm) to 10 hours (8am to 6pm) in the majority of office areas commenced from June 2016. Results are to be reviewed with potential implementation to other areas
- Hand basin maximum water temperatures reduced to 50°C

Base Building NABERS Rating reassessment in April 2016 achieving an energy rating of 4.5 star

Milestones emissions reductions

Following the installation of LED lights in the Canberra Nara Centre, a 19% reduction in electricity use in 2015-16 was realised from the previous year.

Solar Power

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.

GIO Stadium has 72 solar panels installed.

Arboretum will get a loan under the Carbon Neutral Government Fund to enable the works depot to be powered off-grid by a solar-battery system.

ICT Sustainability

Shared Services completed the ICT Sustainability – Desktop Computer and Printer Energy Management initiative to deploy power management software to all ACT Government networked desktop computers and printers. This enables the active management, reporting and monitoring of their energy use and the potential to realise financial and environmental benefits. Full implementation of the associated reporting framework, policies and procedures will enable the active monitoring, reporting and management of directorate energy use to occur in 2016-17. The initiative included:

- An ICT Power Management Standard: Shared Service ICT established standard Power management profiles for desktop and laptop computers. All computers on the ACTGOV network (unless intentionally excluded) were migrated to a centrally managed power management platform.
- Computer Energy Consumption – Reporting & Analysis: The ICT Sustainability project implemented reports that capture device usage and power consumption data from ACT Government Computer assets. The information was collected and tabulated and used to support further analysis work into the overall consumption of Computer assets across the ACT Government fleet.

Printer Consumable & Energy Reporting: Project work was completed to install and configure an improved printer maintenance and reporting tool. In addition to the improved billing and maintenance features this tool provided, this installation allowed an energy reporting process to be established. This reporting framework enables new data to be available for other initiatives that target printer efficiency savings.

Milestones emissions reductions

The ICT Sustainability Project was completed in June 2016. Directorates are now able to request reports on ICT energy usage from Shared Services ICT.

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, includes:

- 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 max 2% sent to landfill as waste.

Milestones emissions reductions

No ICT equipment processed through the provider has been sent to landfill, since the initial engagement in 2009.

GreenPower

ACT Property Group purchased 7,700 MWh of GreenPower on behalf of the ACT Government, representing an indicative 5% of the ACT Government's energy consumption for 2015–16.

Energy Project Officers (ACT Property Group)

The two energy 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.

Milestones emissions reductions

Enabled The Canberra Hospital Solar PV and LED lighting upgrade to be funded and initiate implementation.

Incorporated sustainability into major procurement of services.

Advised on improvements to sustainability of major facility procurement.

Whole of Government Contractual Support

ACT Property Group is the lead area in relation to electricity contracts within ACT Government.

The Whole of Government within PCW Goods and Services manages the whole of Government gas contracts for small and large sites.

The new whole of government electricity contract process included the following:

- details and quality of data provision was improved due to increased number of sites included in Large Market cohort, providing 15 minute rather than monthly measurements of electricity consumption.
- detailed data underpins quantification, planning and verification of many 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 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.

Milestones emissions reductions

Small market gas contract, effective as of Jan 2015 saved 12%–13% of gas consumption cost, or ~$570,000 based on 2014 calendar year costs.

3.2 LIGHT RAIL PROJECT (PREVIOUSLY CAPITAL METRO AGENCY)

Transport Canberra Light Rail is being delivered as a Public Private Partnership between ACT Government and the Canberra Metro Consortium. Under this partnership, a number of sustainability performance requirements are established within the contract to ensure a high quality sustainable infrastructure project for the people of Canberra.

The Project moved into the delivery phase in May 2016. Although activity will pick up over the next 12 months, limited milestones were achieved this year. Providing this information demonstrates what will be achieved and what has been achieved as part of the contract management of the Transport Canberra Light Rail Project.

Sustainability Targets and Reporting Plans

Develop and implement a Construction Environmental Management Plan; Delivery Phase Sustainability Plan and an Operating Phase Environmental and Sustainability Plan for the project.

Milestones emissions reductions

Contractual requirements insist on:

- Submission of a Delivery Phase Sustainability Plan, Construction Environmental Management Plan and Operating Phase Environmental and Sustainability Plan that identifies how the environmental and sustainability requirements of the project will be met.
- Ensuring a 100% Carbon neutral profile for the Project is achieved during the Delivery Phase and the Operating Phase.

Management and Governance

Canberra Metro Consortium will ensure that sustainability is addressed throughout the performance of all Project activities and sustainability is embedded into all design, delivery and operational activities.

Milestones emissions reductions

Contractual requirements insist on:

- Achieving an IS Rating 'Design' level of at least 'Excellent' (50 to 75 points) within two months of the completion of Stage 3 Design.
- Achieving an IS Rating 'As Built' level of at least 'Excellent' (50 to 75 points) within two months of completion of construction.
- Development, implementation and maintenance of governance structures, processes and systems that ensure integration of all sustainability considerations, initiatives and reporting during Project activities.

Using Resources

Contract performance requirements include minimising the lifecycle carbon footprint associated with Project activities over the full design life of all elements of the Project

Key activities are to include:

- Develop and implement an energy and carbon strategy.
- Develop and implement an integrated water management plan that identifies water sources, usage requirements and quality monitoring during the carrying out of the Project activities.

Milestones emissions reductions

Contractual requirements insist on:

- Achieving zero net carbon emissions such that the Project activities are demonstrated to be carbon neutral for the Delivery and Operation Phases
- Reporting on the total carbon footprint, incorporating construction vehicles, materials transport, LRV testing and commissioning.
- Sourcing a minimum 10% of the System's network electricity from renewable sources so that combined with the Territory having achieved its 90% renewable energy target the System can be identified as effectively being powered 100% by renewable electricity.
- Preparing a Materials Environmental Impact Report that identifies initiatives to reduce material impacts

Emissions, Pollution and Waste

Canberra Metro Consortium are responsible for the Identification and implementation of pollution control initiatives and target zero pollution incidents for all discharges to Air, Land and Water.

Milestones emissions reductions

Contractual requirements insist on:

- Identifying and implementing initiatives to minimise airborne emissions.
- Responding to the requirements and direction set out in ACT Waste Management Strategy 2011–25.
- Reporting annually on resource efficiency and waste.

Ecology

Contract performance requirements details that the Project must minimise the clearance of vegetation, particularly native vegetation; and undertake any landscaping and revegetation works as soon as practicable.

Milestones emissions reductions

Contractual requirements insist on:

- Developing management plans to avoid, reduce and mitigate the impacts on vegetation and biodiversity during the construction.

3.3 COMMUNITY SERVICES DIRECTORATE (CSD)

Sustainable Public Events

2016 National Multicultural Festival - ACTSmart Public Events.

Milestones emissions reductions

The 2016 Festival saw over 8.5% of material recycled, with the following breakdown:

- Comingled Recycling: 2,840 kg
- Cardboard: 810 kg
- General Waste: 42,740 kg

Sustainable fleet management

CSD Sustainable Fleet - Continued incorporation of more fuel efficient and reduced emission vehicles.

Milestones emissions reductions

- Reduced fleet size from 172 to 135 as a result of changes in services, primarily with the phasing out of Therapy ACT and Disability ACT.
- Inclusion of 2 electric and 5 hybrid vehicles.
- 3.5% improvement in overall fuel efficiency compared to 2014–15 irrespective of fleet size reductions.

3.4 EDUCATION AND TRAINING DIRECTORATE (ETD)

Resource Management Plans

The Directorate's 2015–16 Resource Management Plan was endorsed by the senior executive team in May 2016 and will be reviewed and updated in the 2016–17 reporting year.

The Directorate participated in the whole of government carbon budget trial and established a target of 5% reduction in electricity usage and 5% reduction in natural gas usage across the Canberra public school portfolio.

Milestones emissions reductions

3.7% reduction in electricity usage was achieved which is a reduction of 840,000kWh of electricity.

6.7% reduction in natural gas usage was achieved which is a reduction of 8.9 million MJ of natural gas.

Energy Efficiency Projects including Carbon Neutral Government Fund

In 2015–16 the Directorate secured an additional $2.51 million from the Carbon Neutral Government Fund for energy conservation projects.

Milestones emissions reductions

Trial of lighting motion sensor technology at Hawker Primary School ($0.022m)

New building management system (BMS) at the Erindale Education and Recreation Complex ($0.738m)

Installation of energy efficient LED lamps at a further 31 school sites ($1.556m).

Once implemented, the Directorate's annual GHG emissions will reduce by approximately 922.81t$C0_2$-e.

Sustainable work travel options

The Directorate Sustainable Transport Strategy

The Directorate endorsed its Sustainable Transport Strategy in May 2016.

Milestones emissions reductions

Two MyWay cards purchased for each branch at 220 Northbourne Avenue to facilitate work-travel via the ACTION bus network.

The Directorate is participating in the whole of government electric bike trial and two electric bikes will be located at the 220 Northbourne Avenue early in the 2016–17 reporting year.

A second electric vehicle, (Nissan Leaf) was also added to the Directorates car fleet in the reporting year.

Renewable Energy

The 176kW solar panel system at the Hedley Beare Centre for Teaching and Learning (HBCTL) in Stirling was registered as a power station by the Clean Energy Regulator in December 2015.

Refer to ACTION 21 for school-based solar PV projects.

Milestones emissions reductions

The HBCTL system provides 25% of the site's annual energy requirement.

Design and Construction of new Buildings

The Sustainable Delivery of Public School Facilities project.

The project commenced in January 2015 with the key deliverable of validated functional and technical specifications to guide new school infrastructure planning through technical specifications, functional briefs and architectural master plans and ensure school design provides value for money. The aim is to ensure value for money outcomes through efficient site and building footprints, standardised schedules of accommodation, standardised design elements, improved floor area utilisation, defining 21st Century Learning environments and cost effective site works and landscaping.

Milestones emissions reductions

The Architecture and Master planning document, Technical Specifications and Furniture, Fittings and Equipment Specifications have been completed.

Carbon Neutral Schools

To support schools to reduce energy consumption, the ACT Government committed $3.5 million over four years in the 2012–13 budget for stage 1 of the Carbon Neutral Schools Program.

Milestones emissions reductions

In the final year of funding, the following projects were rolled out:

- Installations of LED lights were completed at Calwell and Monash Primary Schools and Wanniassa School Senior Campus during the reporting period.
- Solar tubes were also installed a Monash Primary School as part of the lighting upgrades.
- Insulation upgrades were completed at Caroline Chisholm Senior campus (ceiling) and Theodore Primary School (wall cladding).
- As part of a program of draft proofing works, thermally reflective window coverings were installed at Alfred Deakin High School and Arawang Primary School and door seals/replacements at Evatt, North Ainslie, Weetangera Primary Schools and Calwell and Canberra High Schools.
- Power factor correction equipment was also installed at Weetangera Primary School.

ACTSmart schools program

The Directorate 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.

Professional development workshops were provided to school based staff in energy efficiency, waste and recycling practices, food gardens and integrating sustainability into the curriculum.

Two eco bus tours were offered to teachers and students to visit ‘best practice’ schools .

Milestones emissions reductions

As at 30 June 2016, a total of 42 public schools had been awarded Actsmart Schools accreditation for the sustainable management of energy, 46 for sustainable management of water, 42 for sustainable waste management, 24 for biodiversity and schools grounds management, and nine for sustainability in curriculum. Five public schools gained five-star accreditation.

Average number of participants attending professional development workshops was 45–50, exceeding the target of 30–35 participants.

Energy standards for new schools

The Sustainable Delivery of Public School Facilities project.

The project commenced in January 2015 with the key deliverable of validated functional and technical specifications to guide new school infrastructure planning through technical specifications, functional briefs and architectural master plans and ensure school design provides value for money. The aim is to ensure value for money outcomes through efficient site and building footprints, standardised schedules of accommodation, standardised design elements, improved floor area utilisation, defining 21st Century Learning environments and cost effective

Milestones emissions reductions

The Architecture and Master planning document, Technical Specifications and Furniture, Fittings and Equipment Specifications have been completed.

Colleges

Funding under the Carbon Neutral Government Fund was successful for a new building management system at the Erindale Education and Recreation Complex. Work will commence and be complete in the 2016–17 reporting year.

Milestones emissions reductions

Energy savings over an annual cycle are estimated at 520 MWh of electricity and 1719 Gj of natural gas. Carbon emission reductions are estimated at 307 tCO_2-e.

Green vehicle ratings

Sustainable Fleet Management

Trial new technologies both in fuel and vehicle efficiency

Education Directorate Sustainable Transport Strategy. (See Sustainable Work travel options).

Milestones emissions reductions

A second electric vehicle was added to the Directorates car fleet in 2015–16.

The Directorate is participating in the whole of government electric bicycle trial and two bicycles will be located at the 220 Northbourne Ave early in the 2016–17 Reporting year.

Electric bicycles have been fitted with odometers to allow usage to be measured.

ACTSmart Business/Office sign up

The Directorate's Braddon and Stirling sites are accredited recyclers under the ACTSmart Office recycling program.

3.5 ENVIRONMENT AND PLANNING DIRECTORATE (EPD)

Resource Management Plan

The 2015–16 Resource Management Plan sets sustainability targets for the Directorate including looking to achieve a 1% natural gas reduction in 2015–16 and up to 3% over the two year plan.

The EPD Green Team and Healthy You workplace committees share the common goal of increasing active travel by EPD staff. The EPD Resource Management Plan included the a target to help make a more efficient use of transport fuel by EPD, with the co benefit of increasing healthy workplace outcomes)

The Directorate encouraged staff to choose active transport first (walk, ride, bus) for short trips. Book the electric vehicle or carpool for longer work trips and avoid travel if possible by teleconferencing.

Green team activities that have raised awareness on active travel work options are:

- Bike Fleet familiarisation session BUS – My way cards and information on buses.
- Intranet information on work travel options including cycle route options.

Green team progressed a number of other initiatives like waste minimisation and energy efficiency, greener events and procurement. DPMH achieved a 2% reduction in total emissions compared to previous year.

ACT Water Strategy

The ACT Government continued to roll out the first five year implementation plan for the ACT Water Strategy: Striking the Balance 2014–44, which was launched in August 2014. The strategy provides a solid foundation 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.

ACT Basin Priority Project (ACT BPP)

The Directorate, on behalf of the ACT, secured a funding agreement with the Australian Government that will provide up to $85 million for the ACT Basin Priority Project to improve long-term water quality and environmental conditions in the ACT and downstream Murrumbidgee River system. This funding will be complemented by $8.5 million from the ACT Government.

Improved water sensitive urban design

The ACT Government continued to implement the recommendations of the 2014 Water Sensitive Urban Design Review Report. Recommendations for improvements to water sensitive design in the Territory were addressed during the year, including expanding the acceptable mandated measures to achieve water sensitive urban design targets, and providing maximum flexibility for developers, which will lower development costs. Work is progressing on understanding the whole-of-life costs of water sensitive urban design infrastructure, such as ponds and wetlands, and how to fund ongoing maintenance costs.

Developing more diverse water supply options for multiple benefits

The Directorate commenced an evaluation of the Inner North Reticulation Network, which is designed to 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 the Minister for Environment and Climate Change established the ACT and Region Catchment Management Coordination Group. The Coordination Group was formally established under the *ACT Water Resource Act 2007* during the year. The Coordination Group provides advice to the ACT Minister for the Environment and Climate Change on regional catchment management and acts as a forum for cooperation and collaboration between government and the community.

In response to the region's catchment challenges, the Coordination Group, with strong community involvement, developed a draft ACT and Region Catchment Strategy.

Promoting community involvement in ACT water management

Waterwatch is an environmental education and awareness program that encourages and supports community volunteers to take responsibility for improving the quality of water in their catchment. This community engagement initiative is managed by the Directorate with funding from the ACT Government and Icon Water.

Following the successful launch of the 2012–13 and 2013–14 ACT and Region Waterwatch Catchment Health Indicator Program Report Cards (CHIP), work started on compiling and analysing the data for the 2014–15 report. This information is proving invaluable in guiding priority setting for catchment management projects.

ACT greenhouse gas inventory

In October 2015 the Minister for the Environment and Climate Change released the 2014–15 ACT Greenhouse Gas Inventory.

In 2005–06, the ACT emitted 12.72 t CO_2-e per person but in 2014–15 this figure was 9.97 t CO_2-e per person. Total ACT GHG emissions fell by 11.8% between 2010–11 and 2014–15 to 3934 kt CO_2-e.

Electricity accounted for 56% of ACT emissions, followed by transport (26%) and natural gas (10%). These are the main sectors the ACT is targeting. Projections to 2020 suggest transport will account for 62% of emissions, natural gas 21% and waste 6%. The ACT Government will focus on these three areas in coming years.

Review of the Climate Change and GHG Reduction Act 2010

Section 26 of the *Climate Change and GHG Reduction Act 2010* (CCGHG Act) requires the Minister for Environment and Climate Change to review the operation of the CCGHG Act and its subsidiary instruments after the first five years of the CCGHG Act's operation. This review was completed.

The review found that, overall, the CCGHG Act is operating effectively and successfully in meeting the objects and a majority of the aims or purposes set under each section of the Act. The policies and programs set up within the ACT's climate change strategy, AP2, instigated through the legislative targets set within the CCGHG Act, have placed the Territory on the right track to meet the legislated emissions reduction targets.

Implementing AP2 climate change actions

In November 2015 the Climate Change section published a review of Action Plan 2: A new climate change strategy for the ACT (AP2), first published in 2012.

The review highlighted the ACT Government's success in completing or undertaking 15 of the 18 actions, and that emission targets set out in AP2 are on track or exceeding expectations. The review also considered recommendations from the ACT Climate Change Council for the ACT to establish interim reduction targets for 2025, 2030 and 2040.

Carbon Neutral ACT Government Framework

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

1. Measure, monitor and report GHG emissions
2. Mitigation—avoid and reduce emissions and switch to low carbon fuel sources
3. Offset residual emissions (to achieve zero net emissions in 2020)

ACT Government emissions were reduced by 19% between 2012–13 and 2014–15 through a combination of mitigation activities by directorates and the increasing proportion of renewable energy in the electricity grid. Increasing sustainable transport options has been a theme of the reporting period including an increase in the number of hybrid and electric vehicles in the corporate fleet, and trial of eight electric bikes for work use which commenced in June 2016. Staff are further supported with MyWay cards in head offices for work trips. A summary report of annual progress on implementing the CNG Framework is published on the Directorates website.

Carbon Neutral Government Fund

Twenty- three ACT Government projects to the value of $12.3 million have been supported under the fund since 2009. Once fully implemented, these projects have ongoing annual cost and energy savings and help support the local clean economy.

Milestones emissions reductions

The estimated cumulative total of project reductions or savings per year, once fully implemented, is:

- $2 million in cost savings
- 8,500 t CO_2-e, equivalent to taking 2,297 cars off the ACT's roads for a year
- 10,200 MWh of electricity, equivalent to the electricity used by 1,395 ACT houses a year
- 6,900 GJ of natural gas.

Carbon Neutral Government Energy and Water Program

The Carbon Neutral 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 (CNG) Fund to perform efficiency upgrades to reduce costs and GHG emissions.

Milestones emissions reductions

Identified potential annual savings from the sites that received assessment reports in 2015–16 are:

- Energy – 50 MWh, equivalent to the energy used by 48 houses a year
- GHG emissions – 274 t CO_2-e, equivalent to taking 74 cars off the road for a year
- savings from ACT Government energy bills – $47,506.

Engagement in international climate change forums

The ACT Minister for the Environment and Climate Change, Simon Corbell, attended the COP21 in Paris, including forums for States and Regions Alliances and other sub-national organisations. The Minister stated the role of sub-national governments was critical in the fight to keep global warming to less than 2°C

The ACT also participates in a number of international knowledge sharing and reporting forums, including:

- Carbon Disclosure Project
- Compact of Mayors
- Compact of States and Regions
- States and Regions Alliance
- Regions Adapt
- ICLEI

Carbon Challenge

The Carbon Challenge, launched on 25 February 2015, meets a Parliamentary Agreement to provide online tools for households to reduce energy use and GHG emissions.

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.

Milestones emissions reductions

As at June 2016, 55 events had participated in the program. Diversion of waste into recycling streams included 41,015 kilograms (kg) of mixed recycling, equivalent to 53 t CO2-e avoided (equivalent to taking 14 cars off the road for a year) and 10,421 kg of organic waste, equivalent to 17 t CO2-e avoided (equivalent to taking 5 cars off the road for a year). More than one million patrons had the opportunity to recycle at these events.

Actsmart Home Energy Advice program

In 2015–16, over 1530 people attended 78 workshops and other events, advice was given over the phone and email to 281 people, and 34 user pay home assessments were conducted.

Actsmart Business Energy and Water Program

The Actsmart Business Energy and Water Program, which provides advice and financial assistance for efficiency upgrades to small businesses to help reduce energy and water consumption

In 2015–16 the program assessed 143 small businesses, community groups and owners' corporations, with 75 claiming a rebate to upgrade to more efficient fittings or fixtures. Estimated savings per year from the upgrades installed in 2015–16 are:

- energy–811 MWh
- GHG emissions–635 t CO2-e, equivalent to taking 172 cars off the road for a year

Milestones emissions reductions

Estimated lifetime energy savings from the upgrades installed since the program commenced are 24,690 MWh, equivalent to the energy used by 3375 houses a year.

Actsmart Schools waste accreditation

Data from audits undertaken for 2015–16 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 2015–16 this equated to approximately 5476 cubic metres less waste being sent to landfill from 41 accredited schools, when compared to 42 non-accredited schools. This represents a reduction of 792 t CO2 -e. In addition, 134 schools were provided assistance to establish/re-establish waste and recycling systems, with 49 of these being visited at least once.

3.6 HEALTH DIRECTORATE (HD)

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 for reducing GHG emissions through lessening car use

Milestones emissions reductions

Reports on implementation are regularly provided to the ACT Government Strategic Board.

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 consequences of:

- Extreme heat events; and
- Elevated fire danger conditions (bushfire season) in the ACT.

Milestones emissions reductions

The Plan has no quantifiable milestones, however provides a comprehensive approach to relevant summer natural hazards across the Prevention, preparedness, Response and Recovery spectrum.

ACT Health Sustainability Strategy 2016–20

During this financial year, ACT health reviewed the Sustainability Strategy 2010–15 and is progressing the Sustainability Strategy 2016–20 for endorsement. The review took into account the Strategy's currency and alignment with the Carbon Neutral ACT Government Framework 2014 and the ACT Health Resource Management Plan.

Milestones emissions reductions

The original Strategy contained a series of short, medium and long term actions, with the majority being achieved (108 out of the 112 actions identified).

The four outstanding medium/long term actions will be considered in the new approach contained in the Strategy e.g. the development of a Roadmap over the 2016–20 period.

The roadmap contains the following actions:

- Commitment: Leadership on reducing ACT Health's impact on the environment.
- Actioning: Employee engagement to achieve efficiencies resulting in reduced costs and environmental impacts.
- Embedding: Sustainable approaches and continuous improvement as Business as Usual, part of our culture and extended to the supply chain. External benchmarks driving performance.
- Influencing: The environmental impacts of our products and services are minimized over their lifecycle. Triple bottom line reporting is used.
- Sustainable enterprise: ACT Health is a leader in sustainability and inspires others.

ACT Health Resource Management Plan (RMP)

ACT Health also reviewed and is awaiting endorsement of the RMP 2016–20. The RMP is a key element of the CNGF and supports ACT Health to achieve carbon neutrality in its operations by 2020. The RMP includes the requirement to set an energy target which will be included in the Director- General's performance agreement and to report quarterly to Environmental and Planning Directorate on activities being managed to address the reduction of water, electricity and gas consumption, waste production and recycling initiatives.

Milestones emissions reductions

ACT Health continues to monitor all actions within the RMP to report on reduction in GHG emissions.

ACT Health finalised the project to review its existing RMP into the renewed template issued by Environment and Planning Directorate. The new RMP will include Key Performance Indicators and Carbon Budget/energy target information to assist in the management of ACT Health's performance.

ACT Health actively participated in reporting across government to the lead EPD.

ESP Database

Relevant ACT Health business units utilise the ESP to manage energy, water usage, reporting and monitoring.

Milestones emissions reductions

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 whole of Government Senior Energy Officers who provide support and assistance with the management of the ESP database.

WOG Carbon Neutral Government Fund (CNGF)

At the conclusion of the feasibility study undertaken last financial year, ACT Health made application to the Carbon Neutral Government Fund and received the amount of $3.3 million to install a 500km Solar PV array on top of the Southern Multi-story Car Park at Canberra Hospital. Also covered under this funding is the instillation of energy efficient LED lighting as well as at the Canberra Hospital campus.

Milestones emissions reductions

The joint project commenced during the 2015–16 financial year, with the Solar PV instillation expected to be completed by the end of 2016.

The energy efficiency lighting instillation continues to be implemented with an expected date of completion in 2018.

The challenges associated with rolling the LED lighting project out in a clinical environment are being embraced and managemed in a positive light.

Waste Management Plan (Plan)

ACT Health continues to utilise and refer to this Plan as part of usual business operations.

Milestones emissions reductions

Waste management is governed by a Waste Management Committee. The contractor has carriage of implementing ACT Health measures and outputs and has an obligation to provide reports as defined in the contact.

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.

Milestones emissions reductions

ACT Health uses these Guidelines to articulate the ESD requirements for the provision of any new building or capital upgrade project. Consultants consider sustainable initiatives and alternatives for each project, including but not limited to: whole of life payback, sustainable technologies and building fabrics etc. This approach aims to guide and direct infrastructure projects towards achieving and attaining carbon neutrality by having the most sustainable outcomes incorporated into the building and premises at ACT Health owns or occupies.

This document must be used in conjunction with the NSW Health Engineering Services Guidelines (which contain a requirement to consider sustainable elements) and the Building Code of Australia.

Transport for Canberra

ACT Health has five 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). ACT Health has increased its EV fleet from two to five vehicles during this financial year. The EV are utilised on a regular basis.

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 car pooling system.

ACTSmart Initiatives:

ACTSmart Office Waste/Recycling Program and ACTSmart Govt Energy and Water Audits

ACT Health continues to liaise with the Environmental and Planning Directorate to have staff trained in waste management.

ACT Health utilises the Green Team Kit to undertake energy audits of its infrastructure to identify potential efficiencies.

Milestones emissions reductions

ACT Health continues to work with the Domestic Services contractor to ensure:

- Cleaners undertake the ACTSmart Cleaner's 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.
- Alignment with initiatives contained in the ACT Health RMP.

3.7 JUSTICE AND COMMUNITY SAFETY DIRECTORATE (JACS)

Resource Management Plan 2015-17

JACS Resource Management Plan (RMP) provides strategic direction for the Directorate to implement sustainability, energy efficiency and carbon reduction initiatives and actions across the Directorates operations and assets.

Milestones emissions reductions

In 2015-16, JACS RMP was reviewed, as part of the ongoing monitoring and auditing requirements set out in the Plan. A strategy has been developed to address an increase in energy consumption across the Directorate, with a specific spotlight initially on the Emergency Services Agency (ESA) Business Unit. The action plan within this strategy focuses on:

- improving communication with staff
- addressing behaviors that promote energy efficiencies
- identify and build on relationships with contractors in relation to sustainability performance.

2015–16 JACS Energy Efficiency Capital Upgrade Project Funding

JACS allocates funding annually to capital upgrade projects (CUP) to address energy efficiency of our buildings and assets and to reduce energy consumption and carbon emissions.

Milestones emissions reductions

JACS recorded a 9% increase in total energy consumption from 2014–15. This was mainly due to:

- an increase of services e.g. opening of South Tuggeranong Fire and Rescue Station; and
- construction works e.g. additional facilities at the Alexander Maconochie Centre (AMC).

In 2016–17 JACS aims to reduce electricity consumption levels by 1.5% on the previous year's levels. During this period, JACS will no longer have funding put aside for energy efficiency projects meaning the Directorate will look to engage the CNG loan fund for project funding.

AMC LED Lighting Upgrade – Phase 4 & Boiler Upgrade

The project aligns with the JACS Energy Efficiency CUP and the *Climate Change and GHG Reduction Act 2010.*

AMC is the largest energy consumption site in JACS. Two key projects at the Centre have targeted a reduction in electricity and gas consumption.

Phase 4 of the LED Upgrade Project included the replacement of 383 existing external lights to LED retrofits. The Centre now has had 100% of all external, walkway and security fittings upgraded to LED.

22 existing gas fired central heating boilers and associated components have been upgraded to higher efficiency condensing boilers and controllers.

Milestones emissions reductions

The project was completed in June 2016. The most recent LED upgrade will provide an estimated annual saving of 46,500 kWh electricity reduction. This upgrade contributes to a reduction of:

- carbon emissions
- ongoing maintenance costs;
- hazardous waste (mercury).

When combined with the previous upgrade phases, it is estimated 233,900 kWh of electricity will be now be saved at the Centre through LED upgrades.

Old fittings have been deconstructed and separated to ensure that the maximum amount of recycled material does not head to landfill.

The upgrade to the boilers and controls to higher efficiency ones will have an initial estimated reduction of 10% in gas consumption. As these boilers are installed, monitoring of gas consumption will be undertaken to establish accurate savings.

While detainee numbers have increased at the AMC, overall energy consumption has been decreasing, an identified KPI for the Centre, a key milestone in the upgrade works.

Ainslie Fire Station – LED Upgrade

Ainslie Fire station was identified as the first carbon neutral site in JACS portfolio.

The first project in aiding Ainslie Fire Station to become carbon neutral has been an upgrade of all lighting to efficient LED fittings and to install smart control systems such as motion, timed and photo-sensors.

The project upgrade is expected to save 30,800 kWh annually on electricity consumption.

Development of a strategy to identify further opportunities to achieve carbon neutrality is still ongoing.

Capital Infrastructure Projects

JACS has completed (and has several ongoing) Capital Works and Infrastructure Projects to increase the service and operations of the Directorate for the Community. This has included construction works, additional facilities and adaptive reuse of four sites.

The Projects have and will be conducted to meet varying requirements within the NABERS and Green Star Building Ratings Schemes.

Projects have incorporated Ecological Sustainable Development (ESD) into the design and construction of the facilities and have delivered on efficient Energy and Water use to reduce ongoing recurrent costs to the sites.

These projects align with the JACS Energy Efficiency CUP and the *Climate Change and Greenhouse Gas Reduction Act 2010.*

Milestones emissions reductions

Throughout all of the projects, ESD has been incorporated into the design and construction of sites and has included efficiency technology such as:

- Rainwater harvesting;
- Solar PV units;
- Mixed-Mode Ventilation;
- Solar hot water systems;
- LED Lighting and smart control options;
- Smart heating and cooling technology; and
- Recycling and reducing construction waste where possible through procurement procedures.

As sites become operational, the ongoing monitoring of energy and water consumption will allow for the comparison of technologies against prior sites and perceived savings from the upgrades will be justified.

Milestones emissions reductions

Sites that have undergone upgrades or are currently under construction are:

- Aranda co-located Ambulance and Fire Station (due for commissioning in September 2016), which will replace the existing Belconnen Fire and Ambulance Stations;
- the adaptive re-use of Greenway Ambulance Station (completed in May 2016);
- South Tuggeranong Fire and Rescue Station (online in March 2015);
- ACT Law Courts PPP Project (due to be completed in late 2018).

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.

Milestones emissions reductions

Follow up audits on the original six assessments are currently being undertaken to assess if the recommendations in the reports have been followed. Where not, the barriers which are a hindrance to the actions will be investigated.

ACTSmart Recycling Program

To increase recycling and to reduce waste to landfill from JACS business and operation. The program contributes to reduce GHG emissions generated by landfill waste.

Milestones emissions reductions

ACTSmart accreditation/re-accreditation and staff training are in progress. Directorate wide communications have been developed and are awaiting distribution to all staff to:

- increase awareness of the correct use of recycling/waste streams; and
- encourage all staff to complete the online training course.

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.

Milestones emissions reductions

The last Committee meeting was held in August 2016 to provide inputs and feedback on JACS sustainability initiatives. This included the review of the RMP, input into communication plans and to discuss environmental factors with JACS Annual Report. Another Green Champions recruitment campaign is underway which aims to improve staff engagement and awareness of programs.

JACS Procurement Framework[4]

Sustainable procurement will consider environment, social and economic impacts across the lifecycle of goods and services.

Milestones emissions reductions

Ongoing sustainable procurement is being implemented through 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 GHG Emission and urban air pollution, JACS Fleet Manager should consider a vehicle that has the highest star rating under the Green Vehicle Guide.

Milestones emissions reductions

Efforts to ensure that all JACS non-executive vehicles must have an engine size no larger than four cylinders are ongoing. Vehicles requiring larger engines for operational requirements must be approved by the Director-General or delegate.

Where practical, the continued pooling of vehicles for use by all JACS staff has been established.[5] [6]

4 Justice and Community Safety. Procurement Framework, March 2015, p.8

5 Justice and Community Safety. Vehicle Use Guidelines, May 2014

6 Emergency Service Agency. Management and Replacement of ACT Emergency Services Agency Motor Vehicles. ESA001

3.8 TERRITORY AND MUNICIPAL SERVICES DIRECTORATE (TAMS)

TAMS Sustainability Program

TAMS Sustainability Program forms Action 1 of the Resource Management Plan with a dedicated officer to provide a centralised coordination approach in the delivery of the CNGF across the Directorate.

Milestones emissions reductions

- Established in November 2015
- Improved existing Resource Management Plan to be in-line with the CNGF actions.
- Participated in trial carbon budget.
- Established TAMS Sustainability Working Group.
- TAMS were nominated for the Corporate Award at the 2016 Actsmart Business Sustainability Awards.
- TAMS Sustainability Manager was nominated for the Minister's Award for Leadership at the 2016 Actsmart Business Sustainability Awards.
- Commenced an audit of the Directorate's utility accounts in collaboration with Smart Modern Strategic Program (SMS) water savings initiative.
- Commenced development of sustainability material for staff induction in consultation with Human Resources.

TAMS Sustainability Working Group

TAMS RMP (Action 1) requires the Sustainability Working Group to assist with implementation of the CNGF and TAMS RMP and advocates on sustainability matters across the Directorate. Representatives include senior officers from all business units and line areas, and external representatives from CMTEDD and EPD to ensure the best outcomes for the Directorate and across Government.

Milestones emissions reductions

- Established in December 2015.
- Tracking of 21 Actions of the TAMS RMP was tabled at each meeting.
- Five meetings were held during year.
- All staff call for sustainable ideas resulted in a list of over 60 ideas for further development in 2016–17 by TAMS Sustainability Program.

TAMS Resource Management Plan (RMP)

Trial Carbon Budget 2015-16

The RMP is a key element of the Carbon Neutral Government Fund, supporting the aim of carbon neutrality in Government operations by 2020. TAMS RMP was developed by TAMS Sustainability Program in conjunction with key stakeholders across the Directorate. The RMP incorporates a carbon budget to assist in achieving legislated GHG reduction targets and fulfil commitment to the Carbon Neutral Government Fund.

Milestones emissions reductions

- 21 Actions identified under the RMP to reduce the Directorate's GHG emissions and increase efficiencies across stationary energy, transport, water, waste, sustainable procurement and events.
- Governance, accountability and review processes were established to regularly monitor and track TAMS sustainability performance.
- Target of 1% reduction in electricity consumption was set under the trial carbon budget (4% reduction if excluding street lighting) compared with a baseline of 2014-15. Results are pending full data capture in the Enterprise Sustainability Platform.

Enterprise Sustainability Platform

The ACT Government's Enterprise Sustainability Platform is used to monitor and manage electricity, gas and water use at Directorate, Division and individual site level. Driven through the Sustainability Program and Sustainability Working Group, there has been improvement of energy management across the Directorate through use of Enterprise Sustainability Platform to monitor consumption and track targets monthly, quarterly and annually.

Milestones emissions reductions

- Increase of 42% with 36 registered users across the Directorate as at June 2016.
- Identification of a meter anomaly through ESP resulted in refund in excess of $100,000 to the Directorate and avoidance of further over-charging.

Actsmart Business and Office Recycling Program

TAMS RMP (Action 14 and 15) committed the Directorate to signing up and accrediting all government offices and eligible services to the Actsmart Recycling Program.

Milestones emissions reductions

- MOU was signed by DG in March 2016 committing all eligible TAMS sites to the Actsmart Recycling Program.
- Murrumbidgee depot received the Motivation Excellence Award at the 2016 Actsmart Business Sustainability Awards.

Operational Energy Conservation Measures

TAMS RMP (Action 2) details the undertaking of energy conservation measures at TAMS sites through accessing the Carbon Neutral Government Loan Fund and Capital Upgrade Program.

Milestones emissions reductions

- LED lighting upgrade was undertaken at Capital Linen Service, with potential annual savings of 242 MWh and 187 tCO2-e.
- LED lighting upgrades were undertaken across Parks and Territory Services Depot's, with potential annual savings of 126 MWh and 98 tCO2-e.
- Works on heating, ventilation and air conditioning systems were undertaken at Belconnen and Woden Libraries under an MOU with ACT Property Group which utilised the CNGLF. Potential annual savings in gas and electricity equate to 237 GJ and 29 tCO2-e.
- Capital Linen Service installed a higher efficiency bar extractor which will reduce electricity and gas consumption.
- Yarralumla Nursery replaced aged air-conditioning units and undertook an LED lighting upgrade in the administration building. Savings will be tracked through the ESP.
- Tuggeranong Bus Depot replaced a gas heating system in the administration building with a more efficient electric system. Annual savings in gas are approximated to be 389 GJ and 25 tCO2-e. Actual savings will be tracked against increase in electricity.
- Tuggeranong Bus Depot had works undertaken on the workshop heating, ventilation and air conditioning system with estimated annual savings of 1,200 GJ and 76 tCO2-e.
- ACTION implemented an LED lighting trial in the Tuggeranong Bus Depot with upgrades planned to roll out at Tuggeranong and Belconnen Bus Depots commencing 2016-17.
- Roads ACT trialled an innovative approach to road resurfacing with approximately 160 tonnes of asphalt laid in Nicholls, saving an estimated 2 tCO2-e.

Methane harvesting

Harvesting landfill methane continued from the landfills at Mugga Lane and West Belconnen.

Milestones emissions reductions

- Enough electricity was generated to supply over 3,000 homes over the year.

Low-carbon asphalt mix trial

Roads ACT partnered with Downer to trial low-carbon asphalt mix on Kelleway Avenue in Nicholls.

Milestones emissions reductions

- This was the first site in Canberra to be resurfaced using the low-carbon warm mix and received national coverage on ABC News.
- Downer received a sustainability award at the Master Builders and Cbus Excellence in Building Awards in 2016.
- Roads ACT will evaluate the performance of the product over the next few years.

Capital Works real time road user information

Capital Works is delivering a project that will provide road users with real time information which can reduce congestion/delays on arterial roads resulting in reduction of fuel usage and vehicle emissions.

Milestones emissions reductions

- Data collection has commenced with information to be provided to the public commencing in late 2016.

ACTION buses

ACTION has seen a continuation of the fleet replacement program through 2015-16 under an accelerated fleet delivery model.

Milestones emissions reductions

» 29 new Euro VI emission compliant standard buses were delivered during the financial year.

TAMS Fleet Services

TAMS Fleet Replacement Program and Fleet Services is committed to reduction in emissions for all fleet vehicles.

Milestones emissions reductions

» All TAMS passenger and light commercial vehicles are 4 stars or higher, with the exception of heavy commercial and agricultural equipment.

» Heavy commercial and agricultural equipment are still maintaining the highest available standards.

» The number of electric vehicles increased from one to two.

» There were four hybrid vehicles in the fleet with two plug-in hybrid vehicles on order for 2016-17.

» Presently 15% of the total number of passenger vehicles deemed suitable for electric and/or hybrid technology are utilising these technologies.

Streetlight trials and energy efficiency upgrades

The ongoing program to replace older/high wattage streetlight luminaries with energy efficient equivalents reducing electricity usage/costs.

Milestones emissions reductions

» Even with growth (i.e. new streetlights from developments), the net savings on power consumption is 35,000 kW.

» There are 1,902 LED streetlights, as at 30 June 2016 in the streetlight network.

» LED street lighting will be installed in all the new Greenfield developments of Lawson; Moncrieff; Denman Prospect; Throsby and Taylor.

3.9 CANBERRA INSTITUTE OF TECHNOLOGY (CIT)

Resource Management Plan

2015 - 2016 CIT Resource Management Plan was created and has identified reduction targets and reporting to reduce carbon emission annually. The RMP has not yet been endorsed by CIT Management.

Milestones emissions reductions

» 2% GHG reduction annually

Promote ecologically sustainable development through the Climate Change and GHG Reduction Act 2010 and the Environment Protection Act 1997

Implementing initiatives to improve energy efficiency and water conservation through building upgrades, refurbishment and maintenance programs.

» Continued installation of LED lighting, low flush and water conservation urinals and toilets at Fyshwick, Reid and Bruce Campuses.

» Improvements to building management systems that control heating and cooling of buildings.

» Improvements to space heating.

» Operation of the recent co-generation power system at CIT Fyshwick Campus.

Renewable Energy Installation

In 2015 a 10kW solar PV Array was installed in the horticulture training facilities at CIT Bruce reducing electricity consumption at the Bruce Campus.

Milestones emissions reductions

» Electricity reduction of 2%

Transport fleet reduction

Reduced vehicle fleet from 31 vehicles to 26

Milestones emissions reductions

» 16% vehicle fleet reduction

Reduced paper consumption

Reduce paper consumption across all CIT Campuses

Milestones emissions reductions

» 21 % reduction overall.

CIT Involves staff and students through education and project initiatives

CIT website and CIT intranet provide information and resources for staff and students on environmental sustainability at CIT which increases awareness of the environmental impact of daily work practices and provides alternatives. Resources such as posters and recycling signage can be downloaded

CIT Green Network held 6 meetings in 2015 and implemented a range of activities and campaigns

- ACT Smart recycling training of staff
- Installation of new recycling boxes across all campuses in all office areas (450 total distributed)
- Monthly capture of reliable data for waste and recycling
- Development and distribution of energy saving posters throughout all campuses
- Representation at the Carbon Neutral Government Implementation Committee

Milestones emissions reductions

- ACT Smart – 110 staff (15%) currently trained
- 43% waste diversion from landfill

Supporting the ACT Government Renewable Energy Industry Development Strategy

To meet renewable energy targets by 2020, including by establishing partnerships in research and industry development in renewable technologies. Partners include:

- NEON – working in wind turbine development
- IT Power – battery power storage including approval for a 12 month research project on battery storage at the Bruce Campus .

Renewable Energy Day

An initiative of the South East Region of Renewable Energy Excellence, held at the CIT Sustainable Skills Training Hub – K Block Bruce campus. The event invited school groups and public to tour the key sustainability sites around the Canberra region and to explore CIT's Renewable Energy skills Centre of Excellence, launched by the ACT Minister for the Environment Simon Corbell MLA. Renewable industry companies also set up educational stalls at Bruce Campus on this day.

Incorporating reuse and recycling into daily activities in all teaching colleges

The CIT actively engages all colleges to divert waste from landfill. The following are three examples:

- Over 8 tonnes of scrap metal and batteries from trades training at CIT Fyshwick was sent for recycling
- CIT Hairdressing and Beauty Therapy partnered with Sustainable Salons to divert 95% of waste products including aluminium, plastics and hair from the salons for reuse and recycling.
- Increase recycling waste streams to 9 including; Office paper, cardboard, Co-mingle, ICT waste, Print toner, scrap metal, grease traps, batteries and organics.

4. APPENDIX A

4.1 ACTION PLAN 2 – 2015–16 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 2015–16.

Total Energy Consumption

ACT households consumed approximately 7,441 kilowatt hours (kWh)[1] of electricity and 45 gigajoules (GJ)[2] of gas on average during the year. This equates to an annual electricity and gas GST exclusive bill of $1,420 and $1,454 respectively in 2015–16, based on the default standing tariffs offered by the major energy retailer in the ACT during the year. Note this does not include any discounts that may lower these bills further. The combined cost represents approximately 2% 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.

1 Table 13 - Electricity Bill Benchmarks for Residential Customers - A report to the Australian Energy Regulator (March 2015). This figure represents the typical electricity consumption of a four person household with a gas connection but no pool. Note this is higher than the most common household type consisting of 2 persons which will have lower costs.

2 ActewAGL statement released 16 June 2015 on changes to gas prices from 1 July 2015.

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 - 2015 Electricity Price Trends Final Report.

AP2 Cost Impact

Currently, there are two actions identified in AP2 that had a cost of living impact in 2015–16. These were the Energy Efficiency Improvement Scheme and the Large-scale Feed in Tariff scheme. Together, these schemes contributed $63.4 to an average electricity bill in 2015–16, compared to $59.75 in 2014–15. This is approximately 2% of the total cost of energy on average to households during the year. Note there is no impact on gas bills.

Table 1: AP2 Cost Impact per household

2015-16	Average Large scale feed in tariff pass through AP2 cost ($)	Average EEIS pass through AP2 cost ($)	Average Cost of Energy ($)
Electricity	$25.37	$38.02	$1,420
Gas	$0	$0	$1,454
Total	**$25.37**	**$38.02**	**$2,874**

Energy Costs
(% of Median HH Income with children) 1.99%

AP2 Costs
(% of Energy Costs of Median HH Income with children) 2.01%

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 2015–16, the average pass-through cost for a four person household was $38.02, compared to $36.61 in 2014–15.

The total estimated energy bill savings to have been received by participating households under the EEIS in 2015–16 is approximately $14.4 million. This equates to average savings for participating households of $199 in 2015–16, or an average saving across all ACT households of $95. 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.

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 100% 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. This was followed by the commencement of the Coonooer Bridge Wind Farm in 2015–16. The average scheme pass-through costs for a four person household was $25.37 in 2015–16, compared to $23.14 in 2014–15. While these costs are set by the regulator, the pass-through cost set for 2015–16 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 20% of their energy saving obligations under the scheme in low income households. As the number of households in this category is estimated at 20%, the priority household target ensures that the lowest income groups are well represented among those participating in the scheme. From 1 July 2015 to 30 June 2016, 22,133 households participated in the EEIS. Of these, 3,431 households were priority (low-income) households.

Future AP2 Costs

Two more large-scale solar plants and two wind farms are expected to start generating in 2016-17. From 2017–18, onwards there will be significant ramp up of generation capacity required to achieve ACT's 100% by 2020 renewable energy target. The final large-scale generation required to meet this target will be secured by the end of 2016 under the Government's Next Generation Renewables Auction. The Next Generation Renewables Auction will further support the rollout of solar battery storage to more than 5,000 Canberra homes and businesses by 2020. The cost of supporting large scale renewables and the battery storage program is expected to be around $5.50 per household per week in 2020.