ACT Government

2016–17 MINISTER'S ANNUAL REPORT

UNDER THE 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 2016–17 UNDER THE CLIMATE CHANGE AND GREENHOUSE GAS REDUCTION ACT 2010

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 reduction targets, including the Energy Efficiency Improvement Scheme (EEIS) and the Actsmart programs.

The EEIS expanded into the business sector in January 2017 with ActewAGL offering lighting efficiency upgrades for eligible businesses. The Government introduced new energy efficient activities for electric space heating, cooling and water heating and removed two activities that supported the installation of new gas appliances in January 2017.

A highlight of the Actsmart Business Energy and Water program was the launch of the Actsmart Lighting Efficiency web tool in September 2016. Actsmart partnered with the Canberra Business Chamber and the Australian National University to develop the free web-based tool, which is accessible from the Actsmart Sustainability Hub.[1] This simple to use tool allows businesses of all sizes to estimate savings associated with upgrading their inefficient lighting to LED technology.

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 addressing climate change. These projects are further detailed below.

1 www.actsmart-lightingwebtool.com.au

A. REVIEW ISSUES RELATING TO CLIMATE CHANGE

National and regional climate projections

There are a number of key information sources on what Canberra's climate will be like in future and how our region is likely to be affected by climate change from now to 2070. These include: the Commonwealth Scientific and Industrial Research Organisation (CSIRO); the Australian Government Bureau of Meteorology (BoM), and the NSW and ACT Regional Climate Model (NARCliM) place-specific climate variables.[2]

The CSIRO's Climate Change in Australia website[3] provides a suite of information on national and regional climate projections. This includes projections for the ACT[4] as part of the Murray Basin cluster of natural resource management regions. The 2016 State of the Climate Report published by CSIRO and BoM draws on the latest monitoring, science and projections to present a summary of likely variability and changes in Australia's climate in the near future.

Also in 2016 the ACT Climate Change Council released a fact sheet[5] outlining key climate projections, by Professor Will Steffen. With a global annual temperature increase of 1 degree Celsius having already occurred, the climate we are accustomed to is no longer a reliable guide for the future. The greatest risk to life and property will come from the increased frequency, duration and severity of the 'big four' natural disasters—heatwaves, drought, bushfires and storms.

2 www.environment.act.gov.au/cc/regional-climate-projections. In 2014 the ACT Government partnered with the NSW Office of Environment and Heritage to develop fine-scale (10 square kilometre) climate projections for New South Wales and the Australian Capital Territory.

3 www.climatechangeinaustralia.gov.au/en

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

5 www.environment.act.gov.au/__data/assets/pdf_file/0005/1105934/Climate-Change-Council-Climate-Change-Factsheet-2016.pdf

By 2070 the ACT and region's projected climate will be more variable, hotter and drier with average daytime temperatures over 2°C[6] higher than in 1990. Key projected changes are listed below.

- An average of 20 extra days above 35°C each year.
- An increase in the number of severe fire weather days with the bushfire season starting earlier in spring and continuing later into autumn.[7]
- Increased variability in rainfall with a decrease in winter and spring rain and an increase in summer and autumn rain, but annual average precipitation remaining much the same. Plants reliant on seasonal rain are likely to respond as for drought.
- Summer storm season lasting for more months of the year, with an increase in the number of intense storms and rainfall events bringing increased risk of flash flooding.

International

The 2015 Paris Agreement[8] is a global pact to reduce the world's emissions of greenhouse gases quickly and substantially in order to keep global warming below 2^{0}C (aiming for a goal of 1.5^{0}C above pre-industrial levels). The Paris Agreement, which came into force on 4 November 2016, has now been ratified by 166 of the 197 Parties to the Convention.

The Paris 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^{0}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 2016 United Nations Climate Change Conference (COP22) was held in Marrakech, Morocco between 7 and 18 November 2016. The Conference confirmed international commitment to the implementation of the Paris Agreement through ongoing multilateral cooperation. The 'Marrakech Action Proclamation for our Climate and Sustainable Development' called for commitment to combat climate change, as a matter of urgent priority, and called for countries to urgently raise ambition and strengthen cooperation to close the gap between current emissions trajectories and the pathway needed to meet the long-term temperature goals of the Paris Agreement.

The ACT Minister for Climate Change and Sustainability attended COP 22 in Marrakech and was invited to speak at various engagements during the conference. The ACT was recognised for its leading role in reducing emissions and transitioning to renewable electricity. While in Marrakech the Minister signed the global 'Under 2 MOU' (Memorandum of Understanding), an international agreement which aims to reduce greenhouse gas emissions to a level consistent with keeping global warming to under two degrees above pre-industrial levels. In signing the Under 2 MOU the ACT has joined with 165 other leading cities and sub-national governments from 33 countries to help avoid dangerous levels of climate change.

In November 2016, the ACT became one of 17 states/regions and 19 countries across the world to sign up to the '2050 Pathway Platform', which supports countries, governments and businesses to develop long-term strategies to work towards zero greenhouse gas emissions by 2050, including by setting interim targets.

The ACT won the Carbon Disclosure Project's award for 'Best Renewable Target for an Australian City' in 2016.

6 In 2017 daytime average temperatures were almost 1°C higher than the 1990 average.

7 The first six months of 2016 were the hottest on record, according to the USA National Oceanic and Atmospheric Administration (NOAA). This marked the 14th consecutive month in which the monthly global temperature record was broken (the longest such streak in the 137-year record).

8 treaties.un.org/doc/Publication/CN/2016/CN.735.2016-Eng.pdf

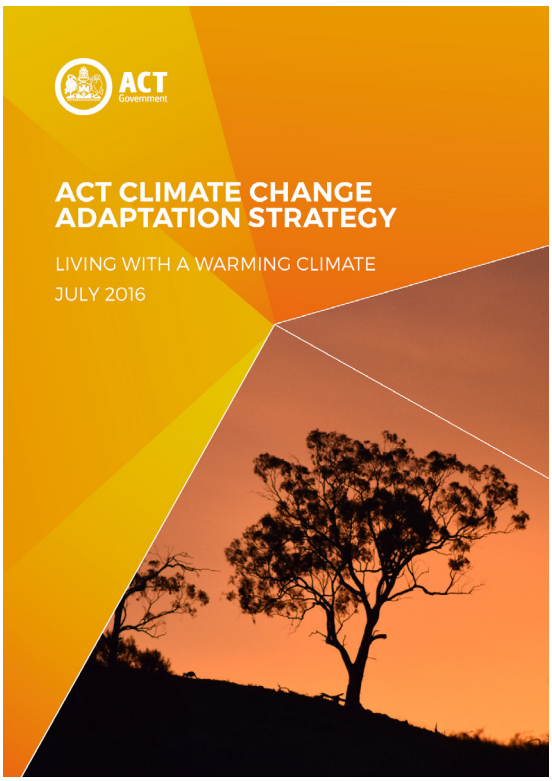
B. PROMOTE ACTION TO MEET TARGETS

The ACT Government released AP2: A new Climate Change Strategy and Action Plan for the Australian Capital Territory (AP2)[9] in October 2012.

AP2 is the Government's primary mechanism for meeting its 2020 greenhouse gas reduction target and establishing 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 annually and published on the Environment, Planning and Sustainable Development Directorate's (EPSDD) website.[10]

Greenhouse gas emissions modelling work is currently underway to assess pathways for achieving net zero emissions by 2050 at the latest. This modelling work will inform consideration of future policy options and the development of a clear path and interim targets to keep us on track to achieve net zero emissions. Economic modelling of potential emissions reduction pathways has been commissioned.



C. DEVELOP, ADOPT OR PROMOTE POLICIES AND PROGRAMS

Adapting to climate change

The ACT Climate Change Adaptation Strategy (the Adaptation Strategy) was released in August 2016 with 27 actions for the Government to implement between 2017 and 2020. This document sets out the need for change to business-as-usual due to the changing climate. Although much was already underway by different Government agencies to reduce vulnerability to climate impacts, the Adaptation Strategy consolidates guiding principles, policy positions and key short term actions, ensuring all of government was included.

In line with advice from the ACT Climate Change Council, a sectoral approach was adopted. The five sectors are:

- disaster and emergency management
- community health and wellbeing
- settlements and infrastructure
- water and
- natural resources and ecosystems.

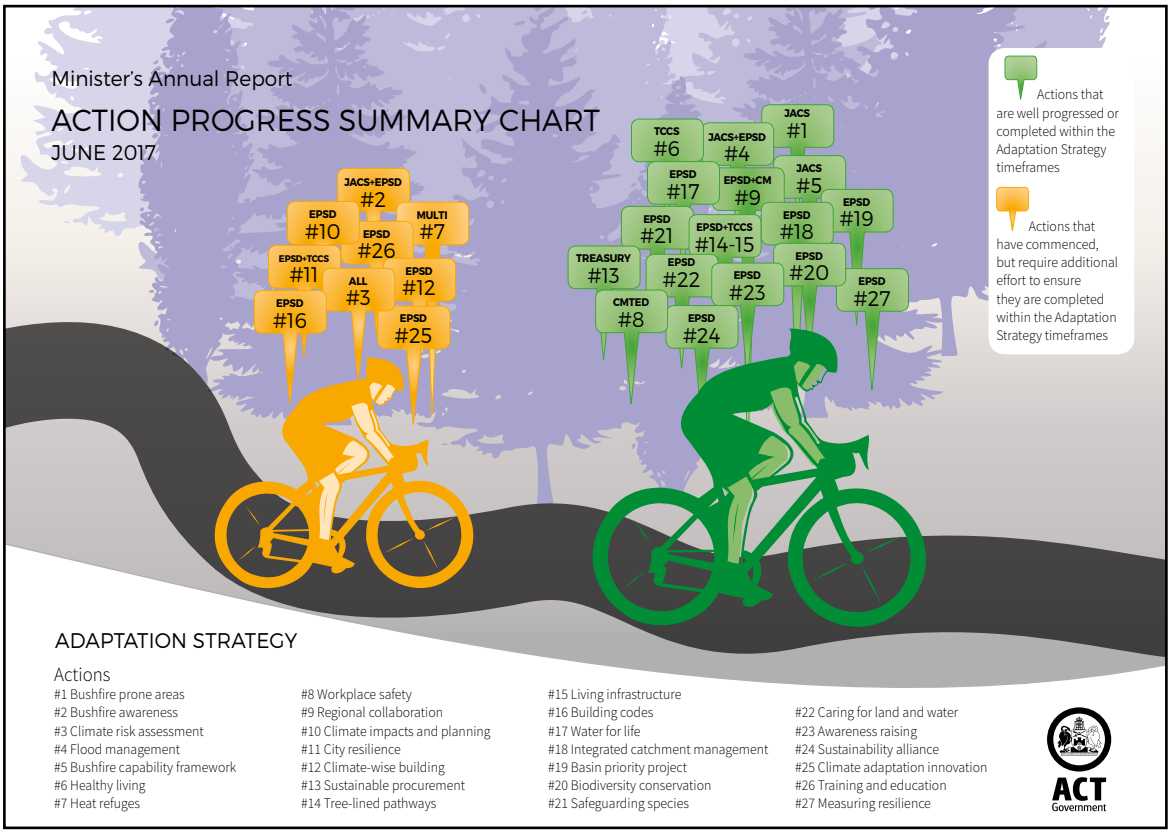
To oversee progress on these actions, a governance structure commenced in early 2017 with quarterly meetings of a Director-General level Climate Change Adaptation Steering Committee and a senior officer level Adaptation Working Group. In time for the fourth meeting of 2017 (in October), the Steering Committee broadened its scope to consider all climate change matters, and was renamed the Climate Change Steering Committee.

Progress in implementing the 27 actions as of 30 June 2017 is shown in the infographic below. The ability of Directorates to undertake these actions in line with nominated timelines has varied due to prioritisation and allocation of resources.

Total greenhouse gas emissions savings in this report use ACT emission factors for electricity for the 2016–17 financial year taking into account the ACT's transition to 100% renewable electricity by 2020.

9 www.environment.act.gov.au/cc

10 www.environment.act.gov.au/cc



Energy Efficiency Improvement Scheme (EEIS)

The Energy Efficiency (Cost of Living) Improvement Act 2012 established the EEIS, requiring electricity retailers to achieve energy savings in households and small-to-medium enterprises through a non-certificate based supplier obligation. The EEIS will run until December 2020 and helps households and businesses to reduce emissions and energy costs, including providing targeted assistance for lower income priority households.

More than 69,000 households and 1,060 businesses have participated in the scheme since it began in January 2013, including more than 17,800 priority low income households. During its first four and a half years of implementation, the scheme successfully installed over 1,167,800 energy saving items, saving over 713,000 tonnes of carbon dioxide equivalent emissions (t CO_2-e). Total emissions savings from the EEIS for the 2016–17 financial year were 51,038 t CO_2-e.

The EEIS expanded into the business sector in January 2017, with ActewAGL offering efficient lighting upgrades for eligible businesses. This initiative allows businesses to reduce their energy consumption, reduce lighting energy bills by up to 60% and improve the quality and lifespan of their light globes. In the first half of 2017, around 590 Canberra businesses received lighting upgrades with more than 41,200 lights installed and over 13,700 tonnes of carbon dioxide equivalent emissions avoided. The installed items have the potential to save around $24.3 million over ten years.

As part of the ongoing process of strengthening the EEIS, in January 2017 the Government introduced new energy efficient electric activities for space heating, cooling and water heating and removed two activities that supported the installation of new gas appliances. In June 2017, the EEIS began consultation with stakeholders on new insulation activities, updates to building-sealing activities and on setting the 2018 Priority Household Target.

Community Garden Grants

In July 2015, $25,000 was offered to the ACT community to help establish or enhance community gardens. The maximum available for individual grants was $5,000. Of 17 applications, eight were successful, including projects to establish gardens to provide healthy food for low income and disadvantaged households and refurbish established community gardens.

In April 2016, a second round of grants was announced, with $50,000 being available and the criteria expanded to promote healthy living. Six applications were received, and five of these met the eligibility criteria and were funded. Three of the grant projects have been finalised, one is underway, and one grant was returned because of the inability of the organisation to undertake the work due to a change in circumstances of the coordinator.

Community Partnerships

The ACT Government provides funding to three community organisations: SEE-Change Society, Canberra Environment Centre and Conservation Council ACT Region. The funding supports the three organisations to help ACT residents become more sustainable and environmentally aware through the delivery of events, workshops and other community engagement activities. The organisations' activities complement the Government's climate change, sustainability and environmental priorities, policies and programs. The organisations also promote and distribute information on current sustainability initiatives of the Government.

Actsmart Business Energy and Water Program

The Actsmart Business Energy and Water program provides advice and financial assistance for efficiency upgrades to small businesses to help reduce energy and water consumption. The program commenced on 1 July 2012.

The program is open to ACT businesses, community groups and owners corporations with electricity bills up to $20,000 per annum and/or up to 10 full-time equivalent staff.An Actsmart assessor conducts an energy and water assessment of the participant's premises, resulting in a tailored energy and water action report. The report recommends upgrade opportunities as well as no-cost and behaviour change recommendations to reduce energy and water consumption and greenhouse gas emissions. Businesses, community groups and owners corporations are able to claim a rebate of 50% of costs of approved upgrades up to a value of $5,000.

	2016–17 participation	Total program participation (since July 2012)
Number of businesses assessed	204	682
Number of businesses claiming a rebate	131	357

2017 Actsmart Business Sustainability Awards winners

In 2016–17 the program assessed 204 small businesses, community groups and owners corporations, with 131 claiming a rebate to upgrade to more efficient fittings or fixtures. Estimated savings per year from the upgrades installed in 2016–17 are:

» energy – 1,601 MWh

» greenhouse gas emissions – 1,124 t CO_2-e

» savings from energy bills – $352,200 for the year, an average of $2,690 per business.

Estimated lifetime energy savings from the upgrades installed since the program began are 40,080 MWh.

A highlight of the Actsmart Business Energy and Water Program in 2016–17 was the launch of the Actsmart Lighting Efficiency web tool in September 2016. Actsmart partnered with the Canberra Business Chamber and the Australian National University (ANU) to develop the free web-based tool accessible from the Actsmart Sustainability Hub.[11] This simple to use tool allows businesses of all sizes to estimate savings associated with upgrading their inefficient lighting to LED technology.

At the annual Actsmart Business Sustainability Awards Breakfast in May 2017, the following businesses received awards for special achievements in this area:

Actsmart Business Energy and Water Star – Winner: Anytime Fitness Gungahlin

With support from Actsmart, Anytime Fitness Gungahlin replaced 160 inefficient fluorescent lights with light-emitting diode (LED) lights, resulting in estimated annual energy savings of almost $5,000 and 27,500 kWh. Anytime Fitness also installed blinds to reduce the heat gain from west facing windows in summer.

Actsmart Business Energy and Water Star – Highly Commended: Squash ACT

Woden Squash Court's 1960's lights were replaced with LED lights with support from Actsmart. The upgrade has resulted in a significant improvement in lighting quality on the courts, and is expected to save 6,400 kWh and $1,400 per year.

Low-Income Household Program (formerly Outreach)

The Low Income Household Program, formerly the Outreach Program, commenced 1 October 2015. The Program, which is delivered by St Vincent de Paul, helps low income households improve the energy efficiency of their homes and contribute to reducing greenhouse gas emissions. It offers low income households free 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, EPSDD commenced a program to replace 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 include public housing, group disability households and the community housing sector, as well as home owner occupiers.

No Interest Loan Scheme

In January 2015, a partnership was developed with Care Financial Services Inc. and The Salvation Army to offer subsidies for energy and water efficient appliances purchased using the existing No Interest Loans Scheme (NILS). This cost effective approach reduces greenhouse gas emissions by providing the financial means for low income households to access energy efficient technology where there may otherwise be a cost barrier. The following subsidies apply:

» $300 for refrigerators

» $200 for freezers and washing machines and

» $500 for reverse-cycle air conditioners.

11 www.actsmart-lightingwebtool.com.au

Low Income Program (formerly Outreach Program) participation

Activity	Program commenced	2016–17 Participation	Total participation from start of program
Low income households assisted	01 Oct 2015	1,271	2,175
Home energy assessment and education (first visit only)	01 Oct 2015	567	1,046
Information sessions	01 Oct 2015	704	1,129
Energy efficient refrigerators and freezers installed	01 Oct 2015	104	264
Energy saving kits, heated throw rugs and other energy and water efficient items provided.	01 Oct 2015	551	954
Draught proofing	01 Oct 2015	433	834
Energy efficient heaters installed	01 Apr 2016	94	171
Appliances provided through NILS subsidies	Jan 2015	46 refrigerators	115
		3 freezers	5
		43 washing machines	114
		6 reverse cycle air conditioners	9

Outcomes of the Low Income Programs

Estimated savings per year from all energy-efficient appliances and retrofits completed in 2016–17 are:

- energy – 1,091 MWh (from both electricity and gas) and
- greenhouse gas emissions – 362 t CO_2-e.

These figures do not include the energy and greenhouse gas emission savings that may be achieved from behaviour change of program participants as a result of the home energy assessment, education and information sessions.

The lifetime energy savings achieved from the energy-efficient appliances and retrofits (refrigerators, freezers, washing machines, draught sealing and window treatments) installed prior to 30 June 2017 is 9,653.29 MWh (from both electricity and gas).

Total energy savings are calculated using the methodology employed by the EEIS. Note, some activities offered through the Low Income Household Program are not included in these estimated savings (such as education and heated throw rugs), so the reported savings are likely to be an underestimate.

Curtain Project

The Curtain Project was first run as a trial funded by the Government and delivered by St Vincent de Paul and SEE-Change in 2014. The project provides curtain materials and hardware to volunteers sourced by St Vincent de Paul who make and install the curtains into vulnerable households. Curtains not only help people to warm their homes but also assist in reducing energy bills, providing privacy to residents and may improve a sense of self-dignity and pride in their homes.

The project highlighted the need for curtains in many low income ACT households. Funding continued in 2016–17 and was used to purchase curtains, rods and brackets. Volunteers made and installed the curtains into households identified through St Vincent de Paul. In 2016–17, more than 163 homes had curtains installed as part of the Curtain Project.

Actsmart Home Energy Advice Program

The Actsmart Sustainable Home Advice service was launched on 1 July 2016 after an ACT Government decision to provide a cost-effective in-house energy efficiency service for households. There is no rebate or discount associated with the service, which offers residents independent advice, information and resources to reduce household energy use including:

- free home energy advice by phone, email and website
- free workshops on household energy efficiency and rooftop solar and
- a suite of online accessible factsheets.

The service also provides residents with details of other programs that may assist them such as the EEIS, the Low Income Household Program (formerly known as the Outreach Program) and other ACT and Australian Government initiatives.

In 2016–17, more than 991 people attended 37 workshops and other events, and advice was given by phone and email to 355 people.

Carbon Challenge

The Carbon Challenge, launched in February 2015, provides online tools for households to reduce energy use and greenhouse gas emissions. Initially developed in 2012 by the Canberra Environment Centre as part of an ACT Government Climate Change Grant, EPSDD worked closely with the Canberra Environment Centre to launch the revised Carbon Challenge on the Actsmart website. Participants can accept a range of challenges on energy, water, waste, transport, gardening and community.

The Carbon Challenge had 2,989 registered participants in 2016–17. An associated campaign, the 'ACT Primary Schools Carbon Challenge' began in August 2016. The campaign targeted awareness and engagement of ACT schools and their students' households in the Carbon Challenge. Three specific challenges were promoted, with emission savings made from additional challenges completed by households counted towards the school total. The Carbon Challenge campaign saved approximately 4,580 tonnes of emissions across the 22 participating schools.

Wood Heater Replacement Program

The Wood Heater Replacement program aims to reduce the level of air pollution from the use of wood heaters by helping residents replace their wood heater with a more efficient heater. In January 2013, the Sustainability Programs branch of EPSDD took over the administration of this program, which has been operating since 2004. Approximately 1,143 wood heaters have been removed from service and replaced with cleaner, mains-supplied natural gas heating options or electric reverse-cycle heating systems since the program started, with 29 removed in the past year.

In 2016–17, the program provided:

- $1,100 subsidy when replacing a wood heater with a new ducted gas installation or new ducted reverse cycle system installation
- $600 subsidy for a fixed-flue gas system or reverse-cycle split system (minimum 3 star) or for upgrading an existing ducted system to 5/6 star or reverse-cycle system and
- $100 subsidy for the removal of a wood heater only.

The $100 subsidy for removal of wood heaters was introduced in July 2015 to encourage correct disposal of removed wood heaters. It is included within the subsidies for the replacement of both gas and electric heating systems and as a standalone subsidy where just the wood heater is removed. Funding for the gas subsidies was provided by ActewAGL. In November 2015 the Wood Heater Replacement Program introduced a 12-month trial for subsidised electric heating, funded by ACT Government and this rebate has been incorporated into the program.

Minister for Climate Change and Sustainability joins students at Merici College to make an environmental pledge during Earth Hour activities

Actsmart Schools

The Actsmart Schools program implements a whole-of-school, action learning and behavioural change approach to sustainability. The program supports schools to introduce sustainable management practices into school operations and create a school culture committed to minimising its impact on the environment. All 134 ACT schools have registered with the program, representing over 75,400 students.

A highlight of 2016–17 was the creation of six new DIY videos featuring the sustainable management of energy, waste and school grounds. The videos show the benefits of student leadership teams for encouraging behaviour change across the school community and will be promoted via social media, online and at teacher workshops.

Garran Primary School, St Jude's Primary School, Ainslie Primary School, Farrer Primary School and Mawson Primary School gained five-star accreditation in 2016–17, taking the total to 14 schools.

Due to popular demand, a second interactive waste display was developed, with both waste displays engaging students at 32 schools.

A School Earth Hour competition, organised by Actsmart Schools, encouraged schools and individuals to demonstrate how they reduced electricity consumption through their participation in Earth Hour activities. The Earth Hour competition attracted 58 entries. The Minister for Climate Change and Sustainability presented the prizes at an awards ceremony held at the Legislative Assembly.

Actsmart Schools provides professional development workshops for students, teachers and school business and facilities managers. In 2016–17 these workshops attracted 329 participants from 68 schools. Workshop topics included engaging students in waste and recycling, integrating sustainability into the curriculum, educating school sustainability coordinators and using school grounds for learning. Two eco-bus tours were conducted for teachers and students. The ACT Teacher Quality Institute re-accredited the workshops offered to schools in 2016–17.

Actsmart Schools staff give advice, conduct energy assessments, deliver best practice guides, address school meetings and help establish student teams. Staff completed comprehensive energy audits and energy reports for nineteen schools and gave a student energy kit to 27 schools.

Actsmart Schools facilitate visits by a qualified horticulturist. In 2016–17, 32 schools received advice on irrigation, plant selection and garden design to reduce water and energy consumption, keeping chickens, composting and establishing food gardens.

Resources provided by Actsmart Schools included best practice guides (energy, water, waste and recycling, school grounds and biodiversity and the integration of sustainability into the curriculum), curriculum units (Preschool to Year 10), and educational games, such as Trash and Treasure and Talking Points waste games.

The five-star accreditation scheme rewards schools for their achievements.

Actsmart Schools exceeded its 2016–17 targets in:

- workshop participation, with an average of 45-50 participants attending and
- accreditations, which averaged one per week for the school year (43 new school accreditations).

Actsmart Schools also continued to work collaboratively with the ACT Education Directorate to help schools move towards carbon neutrality, providing environmental data, workshops and ongoing education, resources and advice.

The comparison of consumption levels for 2016–17 between accredited and non-accredited schools is illustrated below. Note that water and energy results are based on data for public schools only.

Data from audits undertaken for 2016–17 shows that schools with Actsmart Schools waste accreditation send 20.89% less waste to landfill (on a per student basis) than schools that are not accredited. In 2016–17 this equated to approximately 3,812 cubic metres less waste being sent to landfill from accredited schools, when compared to non-accredited schools. This represents a reduction of 551 t CO_2-e. In addition, 47 schools were helped to establish/re-establish waste and recycling systems.

Actsmart Business Recycling Program

EPSDD launched the ACT Government's commercial recycling programs: Actsmart Business and Actsmart Office, in 2009. Now known as the Actsmart Business Recycling program, this program provides assistance and accreditation to businesses to encourage and support the adoption of efficient waste management and recycling. The program focuses on encouraging participants to improve the way they deal with their waste, to redirect waste away from landfill, and to strive to improve sustainability and reduce the ACT's carbon footprint.

The 910 sites across the ACT participating in these programs include major shopping centres, fast food outlets, GIO Stadium (Canberra Stadium), UNSW Canberra Oval (Manuka Oval), Canberra Museum and Gallery, Australian Institute of Sport, Calvary Public Hospital, Calvary John James Hospital, National Arboretum and National Zoo & Aquarium. Including EPSDD, 439 sites were accredited in 2016–17, meeting the recycling standard set by the program.

Water	**Water use per student 2016–17 (kL/student/annum)**
All schools	5.62
Actsmart Schools accredited schools	4.92
Non-accredited schools	6.26
Energy	**Energy use per square metre 2016–17 (MJ/m^2/annum)**
All schools	338
Actsmart Schools accredited schools	308
Non-accredited schools	387
Waste and recycling	**Waste sent to landfill 2016–17 (m^3/student/annum)**
All schools	0.40
Actsmart Schools accredited schools	0.37
Non-accredited schools	0.47

More than 50,000 staff have access to the program. In 2016–17, the 439 accredited sites recycled approximately 15,380 cubic metres of mixed recyclables, representing around 1,240 t CO_2-e avoided, 16,860 cubic metres of paper and cardboard, representing 4,214 t CO_2-e avoided and 1,693 cubic metres of organic material, which is equivalent to 929 t CO_2-e avoided.

In addition:

- many businesses signed up to the program and working towards accreditation are achieving substantial reductions in waste to landfill that are not captured in the above statistics of accredited sites
- the program helps businesses avoid over-servicing caused when bins are collected when not full, resulting in further cost savings for business owners and
- the program offers a tour of the Materials Recovery Facility to educate staff from signed sites about the recycling process, including advice on best practice recycling.

The Actsmart Business Recycling program continued to be delivered to Queanbeyan businesses by Actsmart staff through a cross-border agreement with Queanbeyan–Palerang Regional Council. As waste generated in Queanbeyan is diverted to ACT landfills, encouraging Queanbeyan businesses and offices to improve recycling results in less waste going to landfill in the ACT.

At the annual Actsmart Business Sustainability Awards Breakfast in May 2017, the following organisations received awards for their special achievements in this area:

Waste Minimisation – Winner: Brema Group

Prior to joining the program, this demolition and earthmoving company sent 67% of its waste to landfill. With the help of the Actsmart program they have implemented mixed recycling, paper and battery recycling as well as organic recycling, now sending a tiny 3% of waste to landfill from their office. This result is only matched by their ability to send 98% of waste from their demolition jobs to recycling.

Highly Commended – Winner: Public Trustee and Guardian for the ACT

After joining the Actsmart program in 2010, the Office of Public Trustee and Guardian for the ACT added mixed recycling and organics collections, resulting in them sending only 4% of their waste to landfill

Biggest Recycler – Winner: Calvary Public Hospital Bruce

One of the largest hospitals in the ACT, Calvary Public Hospital in Bruce has implemented separate collection of 29 waste streams. Between May 2016 and April 2017 they sent 153.8 tonnes of material for recycling, equivalent to 10,170 household recycling bins.

Small Business Award – Winner: boyandgirlco

With most timber pallets being sent to landfill, boyandgirlco saw an opportunity to turn pallets into functional, stylish and sustainable custom furniture. Since starting operation in 2013 this sustainable company has diverted 11,000 timber pallets from landfill.

Corporate Award – Winner: Griffin Legal

Griffin Legal joined the Actsmart Business Recycling program in 2013 to reduce waste to landfill by 29%, despite an increase in their workforce by 30%. Becoming a paperless office required staff to create new work habits and processes. They participated in an Australian National University study on workplace recycling habits and encouraged staff to walk to meetings, take public transport and ride to work.

Motivation Excellence – Winner: KPMG

After implementing the Actsmart Business Recycling program, KPMG staff are dedicated to making a difference. They are educated and motivated, with pass/fail signs on recycling bins. They also participate in ‘office harvest’ where staff bring in excess food for sharing.

Innovation Excellence – Winner: Australian Sports Commission

After joining the program in 2013 the Australian Sports Commission implemented its own on-site organics system, transforming a clay tennis court into a worm farm. Now with more than 160,000 worms and four worm farm beds, the project recycles approximately 3,400kgs of organic waste per month.

Williamsdale Solar Farm

Minister's Award for Leadership – Winner: Ollie McInerney – US Embassy Canberra

Ollie is responsible for the profound impact on waste reduction throughout the US Embassy in Canberra. Ollie has shown innovation in reaching out to the entire embassy community across Canberra. He has increased awareness for hundreds of local citizens and shown leadership to the diplomatic community.

Actsmart Public Event program

EPSDD continued delivery of the Actsmart Public Event program, which helps event organisers implement recycling facilities at public events. The program has been extended to include advice and support on energy, water and transport opportunities available to event holders. Any community-based event is eligible including school fetes, festivals, fairs, shows or sporting events.

A Public Event Sustainable Events Guide, created during 2015–16, includes a section specifically on 'Energy, Water and Transport' to encourage reduced water and energy consumption and use of alternative transport to events. Additionally, the program offers free energy and water assessments for events.

As at 30 June 2017, 70 events had participated in the program including Floriade, National Multicultural Festival, ActewAGL Royal Canberra Show, National Folk Festival, sporting events, fetes and fairs.

Diversion of waste into recycling streams from these events included around 50 tonnes of mixed recycling, equivalent to about 60 t CO_2-e avoided and 11 tonnes of organic waste, equivalent to 17 t CO_2-e avoided. More than one million patrons had the opportunity to recycle at these events.

At the annual Actsmart Business Sustainability Awards Breakfast in May 2017, the following events received awards for their special achievements in this area:

Biggest Recycler – Small Event – Winner: TEDxCanberra

This year TEDxCanberra saw a reduction of waste to landfill and a 78% increase in recycling. Putting their innovation and ideas brand to work saw strategic implementation of mixed recycling and organic bins placed throughout the event, creation of a sustainability checklist for caterers and donation of leftover food to OzHarvest. They even required all cutlery and drinking cups to be made from recyclable materials or to be biodegradable.

Biggest Recycler – Large Event – Winner: Kicks Entertainment Events 'Spilt Milk 2016'

Recycling with enthusiasm and innovation, Kicks Entertainment set up 240 recycling bins at the front of house area of their event in Commonwealth Park. They also had 1,100 litre containers to maximise recycling in the back of house. A $1 deposit scheme for drink containers incentivised patrons to return containers for recycling, as well as minimise litter and the impact to surrounding businesses. By using Actsmart water refill stations, the event reduced the number of drink containers sent to landfill.

Communication and awareness

A communication and education program to increase awareness of water and energy efficiency issues and sustainable waste management was provided through a range of public events and presentations.

The Actsmart website is Government's central sustainability information portal. The website facilitates an ongoing dialogue with the community on climate change and sustainability issues and makes sustainability information and web tools readily available to the community, households, schools and businesses.

It provides extensive and up-to-date online information, news, links and a variety of interactive tools and opportunities to develop personal plans of action which helps ACT residents, businesses, schools and community organisations better manage their energy, water and waste and live more sustainably.

Social media channels (Facebook and Twitter) increase awareness of Actsmart information and assistance and direct people back to the Actsmart website to access more detailed information. These channels are measured through digital analytics. Reports indicate a growing number of followers by local and national audiences and strong engagement on sustainability initiatives.

Large-scale Renewable Electricity Generation

2016–17 was a significant year in terms of the ACT's progress towards its 2020 renewable electricity target. In August 2016, the Minister for the Environment and Climate Change made grants of feed-in tariff (FiT) entitlement to the two successful projects in the 2016 Next Generation Renewables Auction, the final auction needed for the ACT to secure enough renewable electricity to reach its 100% by 2020 renewable electricity target. The grants were a 91 megawatt grant to the Crookwell 2 wind farm (located about 30 km north-west of Goulburn in New South Wales) and a 109 megawatt grant to the Hornsdale 3 Wind Farm (located north of Jamestown in South Australia).

Several successful projects in earlier auctions began large FiT supported generation in 2016–17. These included the 13 megawatt Mugga Lane Solar Park, which began FiT supported generation in November 2016, and the 10 megawatt Williamsdale Solar Farm which began FiT supported generation in February 2017. Both solar farms are located in the Australian Capital Territory and were successful in the 2013 Large-scale Solar Auction.

Two wind farms that were successful in the 2014 First Wind Auction conducted by the ACT Government also began FiT supported generation in 2016–17. These were the Hornsdale 1 Wind, Farm (located in South Australia), that was granted a 100 megawatt FiT entitlement and which began FiT supported generation in February 2017, and the Ararat Wind Farm (located in Victoria) that was granted an 80.5 megawatt FiT entitlement, andwhich began FiT supported generation in April 2017.

Over the 12 month period of 2016–17, the ACT reached 32% renewable electricity supply putting it on track to reach 100% by 2020.

Carbon Neutral ACT Government Framework

The ACT Government continues to lead by example through implementation of the Carbon Neutral ACT Government (CNG) Framework. The ACT Government is responsible for about 5% of all ACT greenhouse gas emissions and is committed to achieving net zero emissions in its operations by 2020.

The CNG Framework establishes three key steps for the Government to achieve carbon neutrality by 2020:

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

Greenhouse gas emissions from ACT Government operations have declined since 2012–13, through a combination of mitigation activities by Directorates and the increasing proportion of renewable electricity in the grid.

In 2016–17 energy reduction targets were included in all Director-General performance metrics. These targets help to drive improvements in energy efficiency and emission reduction measures across ACT Government agencies.

All Directorates have Resource Management Plans (RMPs). These plans set a framework for managing Directorate resource efficiency and identify key opportunities for improvement. RMPs are regularly updated and outline the governance process and review requirements.

In 2016–17 the CNG Framework continues to build capacity on sustainability issues across the ACT public service. Staff training activities included providing a sustainability tour of Winyu House at Gungahlin and workshops on topics such as behavioural insights, greenhouse gas emissions and best practice energy management.

Under the CNG Framework, the 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) by giving staff access to MyWay cards, bike fleets and electric vehicles for short work trips. EPSDD commenced a trial of electric bikes (e-bikes) during 2016–17. Eight e-bikes were initially located at four locations between Dickson and Civic, with two additional bikes joining the fleet during the year. To the end of June 2017, the e-bike fleet had travelled over 3,200 km. The e-bikes trial will be evaluated during 2017–18.

During 2016–17, the ACT Government undertook a scheduled internal review of the CNG Framework. This review achieved the primary objectives of:

- evaluating progress on implementing strategies and actions under the Framework
- considering existing measures and successes to date and
- recommending actions required to ensure that the ACT Government achieves net-zero emissions at 2020, and maintains net-zero emissions beyond 2020.

The findings of this process will inform emissions-reduction work across the ACT Government to 2020 and beyond.

Carbon Neutral Government Fund

During 2016–17, a loan application from Chief Minister, Treasury and Economic Development Directorate (CMTEDD) for $650,000 was approved, allowing a major upgrade to an all-electric heating, ventilation and cooling (HVAC) system for the North Building in Civic.

This project contributes to the ACT Government's efforts to reduce greenhouse gas emissions associated with gas consumption and maximise the use of renewable electricity in buildings. An application for LED lighting upgrades and solar photovoltaic (PV) at two Canberra Institute of Technology (CIT) campuses was also received and will begin implementation in 2017–18.

Twenty-four ACT Government projects to the value of $12.8 million have been supported under the CNG 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 totals of project reductions or savings per year, once fully implemented, are:

- $2 million in cost savings
- 9,288 MWh of electricity and
- 9,505 GJ of natural gas.

The expansion of ACT Property Group's team of energy specialists allowed formal measurement and verification of existing CNG Fund projects to be undertaken, as well as improved data monitoring and analysis. This work helps with greenhouse gas emissions modelling and projections, and will be used to support CNG Fund applications to enable upgrades across Government infrastructure that reduce costs and emissions.

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

The ESP underpins implementation of the CNG Framework by providing key baseline and tracking data against the target of carbon neutrality 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 greenhouse gas emission reduction measures to meet their own and whole-of-government goals and objectives.

ACT Climate Change Council

Data from the ESP is central to agency CNG Fund applications, annual ACT Government greenhouse gas inventory reporting (see Part 2), and sustainability data reporting in agency annual reports. Other benefits in terms of information and cost savings are achieved through provision of data for:

- agency Resource Management Plans
- negotiation of Government energy supply contracts
- whole-of-government GreenPower electricity purchasing and
- monthly independent third party checking of utility invoices.

Since April 2015, ESP data has also provided accurate data to meet the Government's international reporting requirements under the Carbon Disclosure Project.

D. CONSULT BUSINESS AND COMMUNITY

ACT Climate Change Council

The ACT Climate Change Council (Council) is an advisory body to the Minister for Climate Change and Sustainability, responsible for providing advice on reducing greenhouse gas 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 in 2016–17 were:

- Professor Barbara Norman
- Professor Penny Sackett
- Professor Will Steffen
- Dr Frank Jotzo
- Mr Toby Roxburgh
- Ms Karen Jesson and
- Ms Dorte Ekelund.

Ms Ekelund stood down from the Council during the financial year, in line with her resignation from the ACT Public Service. Mr Ben Ponton, Director-General, EPSDD was appointed to the Council in September 2017.

The Council advised the Minister on several key issues during the reporting period, including:

- interim greenhouse gas reduction targets
- technical, policy and economic advice on development towards zero net emissions by 2050, at the latest and
- community engagement on climate change.

Also in 2016, the ACT Climate Change Council (Professor Will Steffen) released a fact sheet[12] outlining key climate projections for the ACT.

12 www.environment.act.gov.au/__data/assets/pdf_file/0005/1105934/Climate-Change-Council-Climate-Change-Factsheet-2016.pdf

E. PROMOTE ACTIONS OR STRATEGIES BY BUSINESS ENTITIES

The Actsmart Business Recycling program provides assistance and accreditation to businesses to encourage and support the adoption of efficient waste management and recycling. The program focuses on encouraging participants to improve the way they deal with their waste, to redirect waste away from landfill and to strive to improve sustainability and reduce the ACT's carbon footprint.

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, commenced on 1 July 2012. The program is open to ACT businesses, community groups and owners corporations with electricity bills up to $20,000 per annum and/or up to 10 full-time equivalent staff.

F. PROMOTE INVOLVEMENT IN CLIMATE CHANGE FORUMS

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

In 2016, the ACT Government initiated a Climate Action Roundtable: a forum where Australian jurisdictions and cities can come together to identify opportunities in addressing climate change cooperatively towards meeting the Paris Climate Agreement target of zero net emissions by 2050.

The first Climate Action Roundtable was convened by the ACT Government and held on 26 August 2016. The first meeting highlighted the importance of working cooperatively amongst jurisdictions towards net zero emissions with smarter, cleaner, and more resilient infrastructure and services.

The second Climate Action Roundtable, hosted by the Queensland Government, outlined the following three priorities for the group going forward:

- recognition of the impacts of climate change already being felt in Australia
- confirmation of a joint collaborative submission to the 2017 national climate policy review and
- establishment of a Senior Officer Working Group to develop a forward work program and report to the next Roundtable meeting in Adelaide in late 2017.

Australian States, Territories and capital cities are actively engaged in taking action on climate change. There is a significant opportunity for Australian sub-national governments to share knowledge, address common challenges and work together on climate change mitigation and adaptation.

The ACT is a member of a number of international climate change network and reporting bodies, including:

- Carbon Disclosure Project
- Compact of States and Mayors
- Compact of States and Regions
- States and Regions Alliance
- RegionsAdapt
- International Council for Local Environmental Initiatives (ICLEI)
- Under2MOU and
- Cities for Power Partnership.

Benefits of these groups for the ACT include information sharing, networking, ensuring accurate data analysis and reporting, engaging with sub-national governments, and aiding benchmarks for ACT climate change policies and actions. The ACT also has the opportunity to demonstrate leading best practice in addressing climate change so that other jurisdictions and cities can follow.

G. PROMOTE THE COMMERCIALISATION, GENERATION AND USE OF RENEWABLE ENERGY

Renewable Energy Industry Development

Through the ACT's successful, innovative and award winning reverse auction process for large-scale renewable electricity production, the ACT has secured an estimated $500 million in local investment benefits and an international reputation as a centre for renewable energy innovation and investment. The ACT Government has been using this investment to expanded opportunities for companies already in the ACT, develop new research and trades training programs, and create opportunities for new and emerging companies.

For example, leading international companies including Continental Wind, Neoen, Global Power Generation, and Siemens have established a strong physical presence in Canberra, joining existing Canberra industry leaders including Windlab and Reposit Power. As well as directly contributing to the ACT's economy, this is consolidating our reputation as a renewable energy leader as these companies increasingly use Canberra as a base for their Australian asset management and wider Asia-Pacific operations. Already, around 2000 megawatts of renewable energy projects around the world are managed from Canberra. By comparison, this equates to around 20% of the total deployed renewables capacity in Australia.

The Renewable Energy Skills Centre of Excellence at the Canberra Institute of Technology (CIT) is now offering Australia, and the region's, only Global Wind Organisation accredited wind safety and technical training. Siemens and its subcontractors will provide the first intake of students and in subsequent intakes we anticipate demand from Australia and the region. The ANU's successful partnership with Windlab to offer Australia's only masters course in wind development is now in its second year and has already been delivered to more than 50 students. ITP Renewables, a leading Canberra renewables consultancy, has established a lithium-ion battery test lab at CIT with ARENA funding, and Canberra installer EPC Solar will partner with CIT to deliver battery storage trades training from 2018.

The $12 million industry funded Renewable Energy Innovation Fund (REIF) is supporting the <2 degrees Renewables Innovation Hub, a collaborative co-working space located in Canberra's wider renewable energy precinct. Since opening in late 2016, the Hub has helped more than 25 businesses, and held more than 60 targeted industry events. Canberra's leading co-working community, Entry 29, has recently taken on the management of the Hub and it is expected this will support the Hub's transition to increased self sufficiency over time. REIF funding of up to $2 million has also been put towards a commercialisation grants round, which is providing seed funding to innovative cleantech start-ups, many now based, or soon to become based, at the Hub.

H. PROMOTE THE COMMERCIALISATION AND USE OF OTHER TECHNOLOGIES

Next Generation Energy Storage Grants

The most recent Next Generation Renewables Auction secured $25 million in industry funding to support the roll-out of 'smart' battery storage to up to 5,000 ACT homes and businesses, which is one of the largest programs of its type in the world.

Energy storage technology allows consumers to use more of the electricity they produce from their rooftop solar installation and provides significant benefits and potential savings for the operation of the electricity grid.

During 2016–17, around 150 energy storage systems were installed under the program, representing significant interest for a relatively new technology and highlighting how the ACT remains at the forefront of renewable energy innovation. Continued interest from stakeholders is expected to continue in 2017–18 and well over 200 installations are anticipated by the completion of the first grants round on 31 December 2017.

On 20 September 2017 the ACT announced a further $4 million in funding to continue supporting the installation of solar-coupled energy storage systems in Canberra homes and businesses.

The funding is being awarded to installers through a competitive grants process which ensures the best value for money for the ACT, and that batteries are only installed by skilled and accredited tradespeople with recognised experience and commitment to the local renewable energy industry. This is the third competitive grants process and follows from $2.6 million already awarded in previous funding rounds.

The program currently provides a subsidy of $825 per kW of Sustained Peak Output of the battery, which equates to a saving of around $4,000 for an average household system. Each system installed will collect critical data to inform industry research and development, and further position Canberra as a world leader in this 'sunrise industry'.

There are eight battery installers currently operating under the program. They are ActewAGL Retail, SolarHub, Evergen, Power Saving Centre, EPC Solar, IT Power Renewables, Energy Matters and Origin Energy.

I. PROMOTE RESEARCH AND DEVELOPMENT

ANU Battery Storage and Integration Program

In September 2016, the ANU was granted up to $5 million over five years as part of the Renewable Energy Innovation Fund, which was established following the Territory's first and second wind auctions, to establish the ACT as a centre for world-class battery storage research, commercialisation and business development.

This contribution was leveraged with $3 million in cash and in-kind contributions from ANU, including a $2 million commitment for new lab infrastructure to support battery storage and integration and is complementary to the Government's roll-out of up to 5,000 residential smart batteries over the next four years.

Greenhouse gas emission methodologies

In December 2016 the Minister for the Environment and Climate Change released the 2015–16 ACT Greenhouse Gas Inventory. The inventory, prepared by independent consultants Pitt&Sherry, provides an assessment of total greenhouse gas emissions and the amount of emissions per person in the ACT.

The 2016–17 ACT greenhouse gas inventory will be prepared later in 2017. Minor methodology amendments were made in 2017 to include emissions from biological processing of waste.

Since the 2011–12 inventory (released in 2014), the ACT has used its own unique electricity emissions factor that takes into account the renewable energy target (RET) implementation of the transition to 100% renewable electricity by 2020. These ACT electricity emissions factors have been used by ACT Government agencies to calculate emissions from electricity commencing from 2014–15. The full electricity emissions factor report can be found on the EPSDD website at www.environment.act.gov.au/cc/acts-greenhouse-gas-emissions/measuring-act-electricity-emissions.

J. SUPPORT THE DEVELOPMENT OF APPROACHES TO ADDRESS CLIMATE CHANGE

In 2016, the ACT Government initiated a Climate Action Roundtable: a forum where Australian jurisdictions and cities can come together to identify opportunities in addressing climate change cooperatively towards meeting the Paris Climate Agreement target of zero net emissions by 2050.

The first Climate Action Roundtable was convened by the ACT Government and held on 26 August 2016. The first meeting highlighted the importance of working cooperatively amongst jurisdictions towards net zero emissions with smarter, cleaner, and more resilient infrastructure and services.

The second Climate Action Roundtable, hosted by the Queensland Government, outlined the following three priorities for the group going forward:

- recognition of the impacts of climate change already being felt in Australia
- confirmation of a joint collaborative submission to the 2017 national climate policy review and
- establishment of a Senior Officer Working Group to develop a forward work program and report to the next Roundtable meeting in Adelaide in late 2017.

K. CONSIDER AND RECOMMEND AMENDING TERRITORY LAW, GOVERNMENT POLICY OR PRACTICE

In accordance with Section 11 of the ***Climate Change and Greenhouse Gas Reduction Act 2010***, the greenhouse gas inventory method was updated through a disallowable instrument in September 2016. This made minor technical amendments to the calculations of the method to ensure the greenhouse gas inventory is compiled with international best practice.

The two key changes are:

1. using a waste emission model that incorporates ACT specific data from landfill sites to improve the accuracy of accounting, while remaining consistent with the methods used in the National Greenhouse Gas Inventory and National Greenhouse and Energy Reporting System and
2. the use of an extrapolation calculation to synthetic gas data as provided by the National Inventory system to better estimate the current year's emissions value.

L. ASSESS THE IMPACT OF CLIMATE CHANGE

In 2016 the ACT Climate Change Council (Professor Will Steffen) released a fact sheet[13] outlining key climate projections for the ACT.

ACT greenhouse gas inventory

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

In December 2016 the Minister for the Environment and Climate Change released the 2015–16 ACT Greenhouse Gas Inventory.The estimate of total greenhouse gas emissions for the ACT in 2015–16 is 4,040 kt CO_2-e.This total includes the net impact of both emissions and removals of CO_2-e in the land use, land use changes and forestry sector, which is estimated to be a small net greenhouse gas sink in the ACT. Per capita emissions rose between 2013–14 and 2014–15 but fell slightly in 2015–16, as population growth outpaced the modest increase in emissions.

M. SUPPORT PUBLIC EDUCATION

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

The Actsmart website is Government's central sustainability information portal. The website facilitates an ongoing dialogue with the community on climate change and sustainability issues and makes sustainability information and web tools readily available to the community, households, schools and businesses. It provides extensive and up-to-date online information, news, links and a variety of interactive tools and opportunities to develop personal plans of action which helps ACT residents, businesses, schools and community organisations better manage their energy, water and waste and live more sustainably.

N. 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 2016–17 is at Appendix A.

No other functions have been given to the Minister under the Act as at 30 June 2017.

13 www.environment.act.gov.au/__data/assets/pdf_file/0005/1105934/Climate-Change-Council-Climate-Change-Factsheet-2016.pdf


CAPITAL OF AUSTRA
BY 2020

2. GREENHOUSE GAS EMISSIONS FOR 2016–17 FROM ACT GOVERNMENT OPERATIONS

In 2017, the ACT Government engaged an external party to independently calculate the ACT Government's greenhouse gas emissions inventory (GGI). The ACT Government GGI is consistent with the requirements of the Carbon Neutral Government Framework and now uses the same methodology used to calculate the ACT GGI.

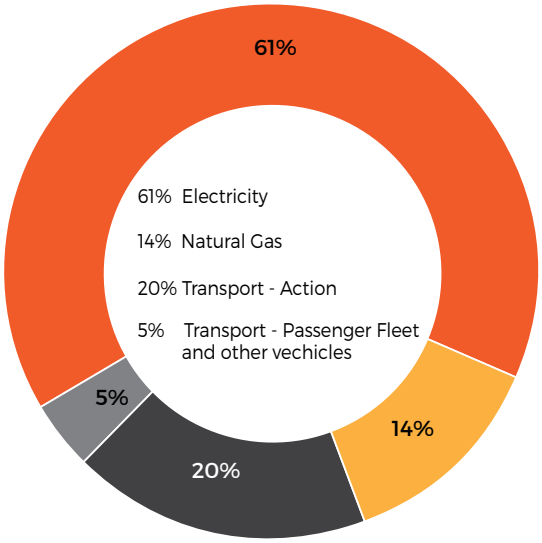
In addition to the greenhouse gas emissions associated with transport fuels, natural gas used in ACT Government facilities and ACT Government electricity consumption currently reported (known as scope 1 and 2 emissions), other indirect emissions (known as scope 3 emissions) may be accounted for in future inventories.

In 2016–17, emissions from ACT Government operations totalled 154.6 kt of CO_2-e. This represents a decrease of 7 per cent from the previous financial year and an overall reduction of 11% since 2012-13 (See Figure 1). Savings have been achieved by improving energy efficiency and increasing the proportion of renewable electricity used by the ACT Government. These savings have offset increases in natural gas and transport emissions.

In 2016–17, 75% of the ACT Government's greenhouse gas emissions came from electricity and natural gas used in Government facilities, while 25% of emissions came from transport fuels used by ACTION buses, passenger vehicles and other vehicles (see Figure 2).

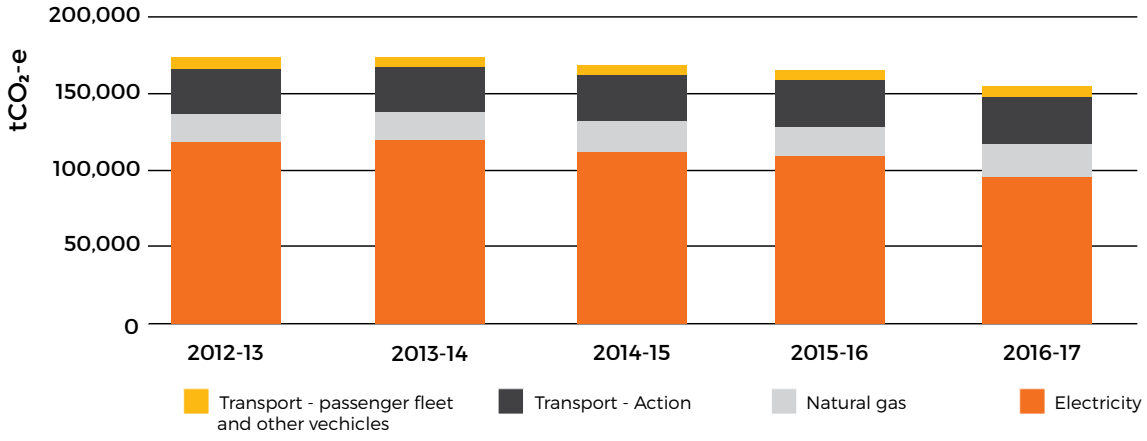
The proportion of ACT Government emissions associated with electricity consumption is expected to decrease in coming years, as the Territory moves towards 100% renewable electricity.

Figure 2: ACT Government greenhouse gas emissions by source 2016–17.



An annual report on implementation of the Carbon Neutral ACT Government Framework is made available on the EPSDD's website.

Figure 1: ACT Government greenhouse gas emissions by source from baseline 2016–17.
(Note that previous years have been recalculated to reflect improved data availability and methodology).




SCHOOL EARTH HOUR
First Prize
Second Prize

3. EFFECTIVENESS OF GOVERNMENT ACTIONS TAKEN TO REDUCE GREENHOUSE GAS EMISSIONS DURING 2016–17

The Minister has received 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 to address their environmental resource use.

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

Policy/ Program title	Description of work in 2016–17	Resulting milestones/ emissions reductions (if applicable and quantifiable)
Data Centres (SSICT)	In January 2018 Macarthur House will be closed, including its current data centre. A new, state of the art data centre facility will host all of the Business and Technical Systems previously hosted at Macarthur House.Contract efficiency requirements were specified. The new data centre (DC2) is estimated to have an improvement of approximate 29% in Power Unit Efficiency (PUE). Meaning 29% less electricity is consumed to operate the same ICT workload.	PUE statistics will be available from the new facility from February 2018.
Lighting upgrades (CMTEDD Corporate; ACT Property Group (ACTPG); all other facilities managers)	A number of areas of the Directorate have undertaken a program of replacement of old fluorescent light fittings with light emitting diode (LED) fittings: > LED lighting upgrades in the Revenue Management Division tenancies of 220 Northbourne Avenue; > Sensor lights installed at Canberra Nara Centre; > Investigated potential LED lighting upgrades at other CMTEDD locations; > Ensured that efficient lighting was installed at new office locations; > Continued rollout of LED lighting at GIO Stadium; > Continued replacement of lighting to LED at Exhibition Park in Canberra; > Roll out of LED lighting along the National Arboretum Canberra Events Terrace and Gallery of Gardens. ACTPG has completed lighting upgrades in the following locations tenanted by other Directorates: > 14 at TCCS and EPSDD works depots; > 20 schools; > North Building; and > Capital Linen Services.	In 2016–17, CMTEDD achieved an 18% reduction in electricity consumption in Revenue Management Division tenancy after the LED lighting upgrade.

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

Policy/ Program title	Description of work in 2016–17	Resulting milestones/ emissions reductions (if applicable and quantifiable)
General Building Management (CMTEDD Corporate; ACTPG; all other facilities managers)	Activities at the CMTEDD facilities 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 at Canberra Nara Centre; > Winyu House achieved NABERS Energy rating of 5 stars for both base building and tenancy area. > Base Building NABERS Rating reassessment in April 2016 achieving an energy rating of 4.5 star at Canberra Nara Centre; > Fine tune temperature control at Canberra Nara Centre and Winyu House to reduce energy use for heating and cooling; ACTPG conducts regular analysis of the directorate's priority facilities on a strategic basis, as well as ongoing month to month and ad-hoc requests for assistance where energy use has increased at a facility, and is assisting in directorates achieving their energy reduction targets (carbon budgets).	
Solar Power (CMTEDD Corporate, ACTPG)	Winyu House in Gungahlin was built with a 74kW solar PV 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 with an ongoing maintenance program. The National Arboretum Canberra has taken a $283,000 loan under the Carbon Neutral Government Fund to replace the diesel generator at the work depot with solar PV system. The construction of the 30kW solar PV system will commence in 2017–18. ACTPG commissioned a solar feasibility study into the development and application of car-park solar systems, to allow broad consideration and development of business cases to deploy the technology across any suitable ACT Government sites.	
ICT Sustainability (SSICT)	In 2017–18 Shared Services ICT is implementing a whole of government ecologically sustainability business improvement to install PaperCut software across Government. PaperCut is a pull printing system that saves paper by only printing when the person is at the printer. PaperCut reports on paper savings by counting how many prints are not collected. This improvement is already in use in CIT with success rate of reduce prints. CIT can now report on: > Greenhouse gas emissions saved > Trees saved > Value saved (from cost per page).	

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

Policy/ Program title	Description of work in 2016–17	Resulting milestones/ emissions reductions (if applicable and quantifiable)
ICT recycling (SSICT)	Shared Services ICT engaged a vendor to manage resale and disposal of ICT Assets (such as obsolete computer and television equipment, old cables and other ICT hardware), on behalf of the Government. The method in which the Government disposes of our ICT devices and associated consumables is crucial in minimising our environmental waste footprint. Since the initial engagement of Capital Easy in 2009 (now trading as Reuse-RecycleIT), no ICT equipment processed through them has been sent to landfill.	The 2016–17 return to consolidated revenue from disposed assets is $500,000.
GreenPower (ACTPG)	ACT Property Group purchased 7,700 MWh (megawatt hours) of GreenPower on behalf of the ACT Government, representing an indicative 5% of the ACT Government's energy consumption for 2016–17.	
Energy Project Officers (ACTPG)	The two Senior Energy Project Officers and one Energy Project Officer 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 Government-owned or leased built environment assets from a whole of government perspective. Analysis of the Directorate's priority facilities on a strategic basis, as well as ongoing month to month and ad-hoc requests for assistance where energy use has increased at a facility, is assisting in Directorates achieving their energy reduction targets (carbon budgets). Energy Project Officers liaise with facility owners, managers, tenants, contractors and capital works teams to assist in achieving the best energy outcomes for facilities. Energy Project Officers have provided support to several strategically significant whole of government activities: > whole of government gas contract; > whole of government electricity contracts; > whole of government small market electricity meter upgrade; > Streetlight Energy Performance Contract evaluation panel membership; > Provision of system administrator support to the Enterprise Sustainability Platform used for whole of government utility consumption and cost tracking, and emissions annual reporting; and > Advice on utility price expectations.	Enabled The Canberra Hospital Solar PV and LED lighting upgrade to be funded and initiated implementation. Incorporated sustainability into major procurement of services. Advised on improvements to sustainability of major facility procurement. Ongoing analysis of energy use in ACTPG owned facilities, to manage consumption and associated emissions for government tenants. Provision of workshops as part of the Carbon Neutral Government Team. Progressing CNGF projects and applications across Government including the National Arboretum Canberra, North Building, Capital Linen Service, Erindale College BMS Upgrade and CIT Bruce Microgrid.

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

Policy/ Program title	Description of work in 2016–17	Resulting milestones/ emissions reductions (if applicable and quantifiable)
Whole of Government Contractual Support (ACTPG)	ACT Property Group is the lead area in relation to electricity contracts within ACT Government. WhoG Electricity contract activities within the 2016–17 financial year period were: > Contract management; > Data portal administration, bulk data acquisition and provision, and analytical services; and > Managing the upgrade of small market meters to interval data meters, providing 15 minute rather than monthly consumption data. The Whole of Government unit within PCW Goods and Services manages the whole of Government gas contracts for small and large sites. ACTPG Senior Energy Project Officers have been involved in an advisory role for the Gas Contract being conducted by PCW, providing services essential to the procurement such as: > provision of utility consumption data sets to accurately inform scope and overall contract value; > utility price forecasting on the Small and Large gas markets to allow forward planning of budget arrangements; > advice on the technical requirements of the gas contract for service and data provision, to allow improved management of utilities and cost; and > advice on requirements of the data provision to allow integration to the Enterprise Sustainability Platform. In addition, the Chiller Maintenance Contract includes Environmentally Sustainable Development principles in the request for tender evaluation and contractual requirements. The HVAC Maintenance Contract enables maintenance contractors to be performance managed by robust energy efficiency key performance indicators delivering energy and emissions savings to the Territory. ACTPG Senior Energy Project Officers have played a key role in the Streetlight Energy Performance Contract procurement process as a Tender Evaluation Panel member. Primary contribution was expertise in LED lighting, Electricity contract implications and pricing, communications technologies and information systems. ACTPG Senior Energy Project Officers provided assistance and input to the Smart Modern Strategic (SMS) Procurement Water Project, in the form of: > provision of utility data sets to inform scope of works; and > provision of advice to SMS and Directorates on interval/sub-metering on priority sites.	The Whole of government Electricity Contract continues to make significant savings to government, isolating the Government from the financial impacts of significant wholesale electricity cost increases. Streetlight Energy Performance Contract has progressed through Request For Proposal, Request For Tender and is currently in the Detailed Facilities Study phase. The Energy Performance Contract is expected to be entered into during 1st quarter FY 2017–18. It is expected that there will be substantial energy saving resulting from the contract.

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

Policy/ Program title	Description of work in 2016–17	Resulting milestones/ emissions reductions (if applicable and quantifiable)
Sustainable transport (CMTEDD Corporate, Goods and Services Procurement)	CMTEDD has 5 electric vehicles, 2 hybrid vehicles, and 2 e-bikes in the directorate fleet. CMTEDD actively encourages staff to use sustainable transport options, including using ACTION bus, car pool and ride to meetings if possible. CMTEDD has participated in the ACT Government e-bike Fleet Trial project from November 2016. Two e-bikes are located at Canberra Nara Centre available for staff to use for work travel. CMTEDD and other ACT Government agencies have agreed a shared ebike fleet arrangement in other locations. Staff are also encouraged to use other technologies to replace travel need both locally and interstate, such as Web-conference and teleconference. Goods and Services Procurement is investigating the reduction of overall number of vehicles in the ACT Government fleet through measures including fleet rationalization and car-pooling. The selection of more fuel efficient vehicles is being progressed under the current lease arrangement.	By 30 June 2017, 81 CMTEDD staff have completed e-bike induction training. A new vehicle booking tool is being piloted as a means to better understand vehicle utilisation and therefore manage demand down. The draft whole of government fleet policy incorporates the appropriate level of environmental considerations, and allows for a weighted criterion of sustainability to be included in value for money evaluations before vehicles are leased.

3.2 EDUCATION DIRECTORATE (EDU)

Policy/Program title	Description of work in 2016–17	Resulting milestones/ emissions reductions (if applicable and quantifiable)
Sustainable Developmentof Public School Facilities:Technical Output Specifications P - 6	On 28 June 2017 EDU approved the Sustainable Development of Public School Facilities Technical Output Specifications for schools from grades pre-school to year 6. The specifications guide the design and construction of public preschools and primary schools in the Territory.	The Technical Specifications target a 30% improvement in the energy efficiency of new school facilities above that required by the Building Code of Australia.

3.3 HEALTH DIRECTORATE (ACT HEALTH)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
ACT Health Sustainability Strategy 2016–2020	During this financial year, ACT Health reviewed the Sustainability Strategy 2010–2015 and has now had the Sustainability Strategy 2016–2020 endorsed by the ACT Health Executive Council. 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 (RMP).	The Strategy 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 are 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 minimised 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 2016–2020 (RMP)	The RMP is a key element of the Carbon Neutral Government Framework 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 EPSDD on activities being managed to address the reduction of water, electricity and gas consumption, waste production and recycling initiatives.	ACT Health continues to monitor all actions within the RMP to report on reduction in greenhouse gas emissions. The RMP includes Key Performance Indicators and energy target information to assist in the management of ACT Health's performance. ACT Health actively participates in reporting across government to the lead EPSDD.
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 internal Carbon Neutral Government website for use by all Directorates.	ACT Health uses these Guidelines to articulate the requirement for the provision of a detailed requirement that 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.
ESP Database	Relevant ACT Health business units utilise the ESP to manage energy, water usage, reporting and monitoring.	ACT Health utilises the ESP database on a monthly basis to analyse energy and water bills (-/+ variances). The ESP continues to be utilised to gather data for the ACT Health Annual Report and RMP. ACT Health continues to work with the whole of government Senior Energy Project Officers and the Carbon Neutral Government team who provide support and administrative assistance with the management of the ESP database.

3.3 HEALTH DIRECTORATE (ACT HEALTH)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
Whole of government Carbon Neutral Government Fund (CNGF)	In line with the project plan guiding the management of CNGF monies granted, ACT Health completed the installation of a 500 kw solar PV system on the top of Building 26 at the Canberra Hospital.The energy being generated from the system is utilised within the Canberra Hospital campus and assist to reduce the use of electricity on the campus. The installation of energy efficient LED lighting was ongoing at the Canberra Hospital campus during the 2016–17 financial year.	The joint project originally commenced during the 2015-2016 financial year, with the solar PV installation completed at the end of 2016. The energy efficient lighting installation 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 managed in a positive light.
ACTSmart Initiatives: ACTSmart Office Waste/Recycling Program	ACT Health continues to liaise with the EPSDD to have staff trained in waste management.	ACT Health continues to work with the Domestic Services contractor to ensure: > Contractor cleaning staff undertake ACTSmart training. > ACT Health sites / wards / office areas are provided with ACTSmart training. > ACT Health sites have options for waste segregation. > Waste bins have appropriate ACTSmart signage for better waste segregation.
ACTSmart Govt Energy and Water Audits	ACT Health utilises the Green Team Kit to undertake energy audits of its infrastructure to identify potential efficiencies.	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.
Waste Management Plan	ACT Health continues to utilise and refer to this Plan as part of usual business operations.	Waste management plan provides for governance 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 contract.
Transport for Canberra	ACT Health has five electric vehicles (EV) in its fleet and will undertake an assessment of vehicles as they become due to expire in order to procure more energy efficient vehicles (where available). ACT Health procured 2 e-bikes for use by staff when travelling during their work day.	ACT Health maintained its EV fleet at five vehicles during this financial year. The EV are utilised on a regular basis. ACT Health has collaborated with the EPSDD EV feasibility study and continue to seek guidance from EPSDD on a whole of government approach to the management of corporate vehicles. 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.

3.3 HEALTH DIRECTORATE (ACT HEALTH)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
Implementation of Towards Zero Growth Healthy Weight Action Plan	This Plan was originally developed by ACT Health but is now being coordinated by the Chief Minister, Treasury and Economic Development Directorate (CMTEDD).ACT Health continues to contribute to a variety of strategies aimed at increasing active transport, which has an important co-benefit of reducing greenhouse gas emissions through lessening car use.	Reports on implementation are regularly provided to the ACT Government Strategic Board.
Climate Change Adaptation (ACT Health Summer Plan)	The Summer Plan has been developed as a specialised appendix to the ACT Health Emergency Plan to assist ACT Health and the ACT health sector ensure appropriate preparedness and response mechanisms are in place to effectively mitigate the risks and manage the consequences of: > extreme heat events; and > elevated fire danger conditions (bushfire season) in the ACT.	The Plan has no quantifiable milestones, however provides a comprehensive approach to relevant summer natural hazards across the Prevention, Preparedness, Response and Recovery spectrum.

3.4 TRANSPORT CANBERRA AND CITY SERVICES (TCCS)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
TCCS Resource Management Plan (RMP)	TCCS RMP 2016–17 was endorsed by the acting Director-General in December 2016 with 16 actions to increase efficiency and management of energy, water, waste and sustainable procurement.	As at 30 June 2017: > 12 actions are on track and > 4 actions are experiencing delays. Further details are provided throughout this document.
TCCS Sustainability Program	TCCS Sustainability Program forms Action 1 of the RMP with a dedicated officer to deliver the Carbon Neutral Government Framework across the Directorate.	> Workplan developed for delivery of the TCCS RMP and Carbon Neutral Government Framework to 2018. > Performance Reporting Schedule developed for TCCS RMP and TCCS Carbon/Energy Budget. > Completed development of sustainability for TCCS staff inductions. > TCCS Sustainability Program was nominated for 2017 Public Service Excellence Awards for Collaboration. > TCCS was nominated for the Corporate Award at the 2016 Actsmart Business Sustainability Awards. > TCCS and EPSDD worked collaboratively on a trial information technology (share-point) system to track Carbon Neutral Government Framework actions.
TCCS Carbon/ Energy Budget 2016–17	TCCS 2016–17 Carbon/Energy Budget set a 1% reduction in stationary energy for 2016–17.	> Data for 2016–17 is not yet available, however TCCS was achieving a 2.2% reduction in stationery energy as at quarter 3.

3.4 TRANSPORT CANBERRA AND CITY SERVICES (TCCS)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
TCCS Sustainability Working Group	TCCS Sustainability Working Group was established in 2015 and act as key advisers on sustainability matters across the Directorate. Members comprise senior officers representing branches, business units and line areas as well as inter-directorate members from CMTEDD and EPSDD.	> All five meetings planned for 2016–17 were held. > 49 actions created; 30 actions completed; 4 actions continuing; 14 actions under development; 1 action deferred. > Sustainability Working Group hosted a presentation on recycling soft plastics with 30 participants attending including TCCS, ACT Health, EPSDD, CMTEDD, CIT, and EDU. > Seven presentations provided to members including collaboration tools; e-bikes, locked-print and digi-mail; Enterprise Sustainability Platform; Zero Emissions Territory and Carbon Neutral Government Framework Review.
Enterprise Sustainability Platform (ESP)	The ACT Government's Enterprise Sustainability Platform (ESP) is used to monitor and manage electricity, gas and water use at Directorate, Division and individual site level.	> 36 registered users as at June 2017. > 3 training sessions in ESP conducted. > 14 TCCS staff members trained during 2016–17.
Actsmart Business and Office Recycling Program	Under Action 12 of the TCCS RMP, all relevant TCCS sites have signed up to the Actsmart Recycling Program.	> As at June 2017: > 41% of TCCS sites are assessed. > 6% are accredited.
Operational Energy Conservation Measures	TCCS 2016–17 Carbon/Energy Budget identified key priority sites for LED lighting upgrade.	> LED lighting upgrades implemented at Kippax Library, Tuggeranong Depot and Belconnen Bus Depot with total estimated annual savings of 348 MWh and 191 tCO_2-e.
	Action 3 of TCCS RMP 2016–18 identifies investigation of renewable energy at key TCCS sites.	> Renewable energy investigation commenced for Birrigai Outdoor School; Ron Reynold's Centre; Canberra Cemeteries; Kippax Library and Belconnen Parks Depot.
Methane harvesting	Harvesting landfill methane continued from the landfills at Mugga Lane and West Belconnen.	> Methane capture generated enough electricity to supply over 3,400 homes for one year.
ACT Waste Feasibility Study	The ACT Waste Feasibility Study was established in 2015–16 and a solid baseline of opportunities has been created to improve waste services and recycling within our community and support achievement of our Waste Strategy 2011–2025.	> The study continued to investigate options for recovering resources from landfill with a strong focus on removing organic matter from landfill which is responsible for the majority of the methane emissions. > The final report on the study is due to be presented to government in October 2017.
Public Transport Network	Alternative energy bus trial.	> First two of three alternative energy buses scheduled for delivery July 2017 for trial in 2017–18.
	Development of a service plan to increase efficiencies of the bus network and plan for integration with light rail in 2018.	> Service plan for bus network integration with light rail under consideration by Government.
	Fleet replacement program.	> 56% of in service fleet at the end of 2016–17 were Euro 5 or better emission standard compliant.

3.4 TRANSPORT CANBERRA AND CITY SERVICES (TCCS)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
TAMS Fleet Services	TCCS Fleet program operates a fleet of vehicles consisting of passenger and light commercial vehicles, agricultural equipment (eg mowers, tractors, etc), trucks, buses, plant and equipment (eg skid steers, loaders, pavers, elevated work platforms, etc).	> Target of 30% electric/hybrid/plug-in hybrid achieved for passenger fleet vehicles deemed suitable in 2016–17. > A successful trial of Global Navigation Satellite System on the mowing fleet of the Place Management to improve productivity, mowing fleet optimisation and budget savings. > A successful trial of the Trimax Pegasus mower on sport grounds for a better turf management, operational efficiency and cost reduction.
Roads - Streetlights	Ongoing program to replace older/ high wattage streetlight luminaries with energy efficient equivalents.	> As at 30 June 2017, 4,917 LEDs have been installed on the street light network.This includes new green field developments and maintenance retrofits.
	Energy Performance Contract for ongoing operations and maintenance of the Territory's streetlights.	> A multiple staged procurement process to award an Energy Performance Contract was undertaken in 2016–17.
Active Travel	The Active Travel Office serves as the single point of contact within Government on active travel policy and implementation, including coordination and engagement with the community on active travel matters.	> Inaugural Canberra Walk & Ride Week held March 2017. > Website and social media presence improved with three lunchtime seminars/webinars hosted for ACT Government staff. > Park and Pedal launched with five carparks in the scheme.
Facilities Management	TCCS Facilities managed two ebikes located at 496 Northbourne Avenue for staff to use for work purposes.	> E-bike fleet recorded 844 kilometres travelled as at June 2017 with 73 staff members inducted.
	My-Way cards introduced by numerous areas across the Directorate for staff to use for work purposes.	> My-Way cards made available for staff in 490 and 496 Northbourne Avenue.
Stormwater Value Capture project	Stormwater Value Capture project was commissioned during 2016–17 and is continuing to look at ways to optimize the street sweeping program.	> This project is midway through the project life.To date the project has been able to identify key attributes to inform the street sweeping optimisation including land use; tree canopy coverage; water body impairment; and land imperviousness.Results of the project will be known in 2017–18.
Roads ACT	Roads ACT recycled asphalt millings into new asphalt and continued to resurface roads using recycled materials, such as printer toner and recycled road pavements for a low carbon asphalt mix.	> Following on from the trial carried out in 2015–16, Roads ACT now incorporate recycled asphalt millings into new asphalt and continue to resurface roads using recycled materials such as printer toner and recycled pavements for a low carbon asphalt mix, as business as usual.
WEED IT Unit	The WEED IT unit has made significant improvements to the efficiency, effectiveness and safety in the delivery of the arterial roads weed control program.	> Terry McLeary, City Services was highly commended at the 2017 Public Service Excellence Awards for significant improvements in the efficiency, effectiveness and safety with the weed control program. > The WEED IT unit has reduced the time taken to deliver the kerb and gutter weed control program by more than 400%.

3.4 TRANSPORT CANBERRA AND CITY SERVICES (TCCS)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
Capital Works	Capital works projects aimed to apply ecologically sustainable development principles where possible including trees and plantings; greater areas of permeable paving that allows for absorption of stormwater on site; and new or upgraded lighting installations. Projects also sought to reuse/recycle items where feasible and to find suppliers of furniture or other landscape materials as close to site as possible to reduce transport emissions.	> Upgrade to Spence and Kambah shops has been completed and includes the planting of new trees to create a greater canopy in the public realm, reducing the heat island effect. > The project has also included new public seating, lighting and landscaping improvements using sustainable materials.
Light Rail Project	Project Delivery: development of plans to guide project sustainability through design and construction and planning for operations. The Canberra Light Rail Project is set for achieving zero net carbon emissions such that the Project activities are demonstrated to be carbon neutral for the Delivery and Operation Phases.	> Preparation of Sustainability Benchmarking Report supporting early project design. > Preparation and implementation of Delivery Phase Sustainability Plan. > Drafting of Operations Phase Environment and Sustainability Plan to support low carbon light rail operation (commencing 2018).

3.5 ENVIRONMENT, PLANNING AND SUSTAINABLE DEVELOPMENT DIRECTORATE (EPSDD)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
Action 12 - Design and Construction of New Buildings	The Public Housing Renewal Taskforce is building new public housing to Housing ACT's standards with modern designs that take advantage of natural sunlight and ventilation, delivering minimum six star energy ratings.	
ACT 100%-by-2020 renewable electricity target	In May 2016, the ACT Government legislated a new renewable electricity target of 100%-by-2020 (increased from 90%-by-2020). The target mandates the proportion of the ACT's electricity supply that must be offset by renewable electricity by 2020.	In 2016–17, the ACT's renewable electricity supply increased from 20.8% in 2015–16 to 32.3% in 2016–17. In 2016–17 the Williamsdale and Mugga Lane solar farms began large feed-in tariff supported generation as did the Ararat and Hornsdale Stage 1 wind farms. The 2016 Next Generation Renewables Auction also secured funding from wind farm proponents to support the rollout of solar battery storage across the ACT. By June 2017, the number of installed batteries was around 200. The reverse auctions have also secured more than $500 million in local industry investment and development benefits.
Energy Efficiency Improvement Scheme (EEIS)	From 1 July 2016 to 30 June 2017, 179,131 energy saving items were installed in 8,564 households under the EEIS. Of these, 1,085 households were priority (low-income) households. During this period, 1,065 businesses received EEIS activities.	The claimed abatement for all activities from 1 July 2016 to 30 June 2017 was 51,038 t CO_2-e. There were 5,404 t CO_2-e claimed for priority (low income) households, towards the annual EEIS Priority Household Target of 20%.

3.6 JUSTICE AND COMMUNITY SAFETY (JACS)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
Climate Change and Greenhouse Gas Reduction Act 2010 (the Act)	Under the Act all Directorates are required to annually set energy and greenhouse gas (GHG) emission reduction targets to assist the ACT Governments commitment to achieve Carbon Neutrality across its operation by 2020.	To help drive down consumption, energy profiles within JACS portfolio are being analysed to determine what sites and options are best suited for energy efficiency upgrades. During the reporting period, JACS has installed a more efficient gas boiler at the Alexander Maconochie Centre (AMC). This new installation of infrastructure is expected to yield significant savings in gas consumption at the site over the long term. To date, the savings in gas consumption are yet to be justified due to the increase of services at the AMC.
Resource Management Plan	JACS Resource Management Plan (RMP) provides strategic direction for the Directorate to implement sustainability, energy efficiency and carbon reduction initiatives and action across the Directorates operations and assets.	The RMP has been reviewed and updated, as part of the ongoing monitoring and auditing requirements set out in the Plan. A strategy has been developed to decrease JACS energy consumption and focus is on high consuming energy sites. Plans for energy efficiency upgrades were developed and has been worked on to increase staff awareness, eg switching off lights and computers after leaving the office.
JACS Procurement, Contract Management and Assurance Framework	Sustainable Procurement - Use procurement to advance the priorities of government and achieve value for money through a consideration of environmental, social and economic cost and non-cost factors on a whole of life basis. This approach seeks to add value, using procurement to require social and environmental standards, encourage suppliers to adopt socially responsible and ethical practices and support innovation in the market.	JACS integrates the practice of sustainability into the procurement of goods, services and construction where appropriate. Sustainability considerations are addressed during the procurement planning process. For example, JACS purchase paper reams with recycled content.
ACT Sustainable Energy Policy 2011-2020	Under the ACT Sustainable Energy Policy 2011-2020, Measure 15 states that: "The ACT Government will support the roll-out of electric vehicle support infrastructure through the provision of enabling assistance and will introduce electric vehicles into the ACT Government fleet in 2012–13".	JACS has purchased two hybrid cars in 2016–17. 50% of the new fleet acquisitions have been sustainable in 2016–17. JACS will continue to look for opportunities to include additional hybrid vehicles in its fleet where it is appropriate to do so.
JACS Energy Efficiency Capital Upgrade Program (CUP) allocation	An internal Energy Efficiency CUP is available to upgrade JACS high consuming energy sites.	Projects which can be realised in 2017–18 were planned and potential energy efficiency upgrades. These projects include LED lighting upgrade at Gungahlin Joint Emergency Service Centre, the installation of solar panels at the AMC and planned heating, ventilation and air conditioning system upgrade at the Emergency Services Agency (ESA) training centre.
JACS Sustainability Committee	The JACS Sustainability Committee has been established since 2011. The committee compromises representatives from each business unit and oversees the implementation and monitoring of initiates to ensure efficient and effective outcomes are achieved in our RMP.	The committee is meeting quarterly and the last meeting was held in May 2017 to provide feedback and inputs on JACS sustainability initiatives. For example, the battery recycling trial at 12 Moore Street was reviewed and strategies to increase staff awareness discussed.
Actsmart Business Recycling Program	Actsmart is the ACT Government's office recycling program aimed at assisting offices improve the efficiency of their waste management system.	JACS is committed to seek accreditation under the Actsmart Business Recycling Program across various business units and operational sites to improve current levels of recycling and reduce general waste to landfill. All staff are encouraged to educate themselves about the Actsmart recycling program online.

3.7 COMMUNITY SERVICES DIRECTORATE (CSD)

Policy/ Program title	Description of work in 2016–17	Resulting milestones/emissions reductions (if applicable and quantifiable)
Fleet	Community Services Directorate (CSD) is continuing to introduce more fuel-efficient vehicles into the fleet upon lease expiry as well as reducing the fleet size where possible. There has been a large reduction in the fleet size following the closure of Disability ACT and Therapy ACT. Improved vehicle efficiency and reduced greenhouse gas emissions have been achieved across 2016–17 through the incorporation of more fuel efficient vehicles, including an increased number of hybrid vehicles.	CSD fleet size has reduced from 135 to 111 during 2016 – 17. This has reduced greenhouse gas emissions by 12% which equates to 75 t CO_2-e. CSD will continue to look for further sustainable options for transport.
Lighting	LED lighting upgrades continue across CSD with the latest upgrade being the external perimeters at the Bimberi Youth Detention Centre.	A reduction in energy costs has been achieved. Further opportunities for energy efficient fluorescent or LED lighting upgrades have been identified at the Child and Family Centres.
Heating Ventilation Sand Cooling	North Building, Canberra City is currently having a major heating cooling and ventilation system upgrade.	Future energy reduction costs.
Housing ACT	Housing ACT continues to gain a 6 star minimum rating for new Housing ACT properties and improve ratings for its facilities.To achieve these ratings new Housing ACT properties include: double glazing – reducing heat transfer, reverse brick veneer – internal brickwork skin providing thermal mass storing heat in winter, thermal barrier in summer reducing the demand for heating and cooling.High windows – increasing natural light and reducing need for artificial lighting. Housing ACT is reducing water consumption with the installation of dual flush toilets and water saving shower heads to Housing ACT properties. It is placing the hot water supply close to the kitchen if possible and selecting water efficient shower heads taking into consideration continuous hot water systems. All windows and doors are designed and fitted to minimise drafts entering living spaces. All external doors, including the door between the garage and living area, are fitted with draught excluders. All exhaust fans have back draught dampers.	Sustainably friendly housing reducing energy costs.

APPENDIX

COST OF LIVING STATEMENT 2017–18

Section 15 of the *Climate Change and Greenhouse Gas Reduction Act 2010* requires the Government to report on the findings of a cost-benefit analysis of government policies and programs implemented to meet the climate change targets in the Act. This document represents the statement under this commitment for 2017–18.

TOTAL ENERGY CONSUMPTION

ACT households consumed approximately 7,441 kilowatt hours (kWh)[14] of electricity and 43 gigajoules (GJ)[15] of gas on average during the year. This equates to an annual electricity and gas GST exclusive bill of $1,504 and $1,312 respectively in 2017–18, 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[16] with children after accounting for GST.

Retail electricity prices paid by ACT households compare favourably with other jurisdictions. The ACT has among the lowest electricity prices nationally[17]. However, energy consumption tends to be higher in the ACT 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.

14 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 typically has lower costs.

15 ActewAGL website

16 Page 52, 2017–18 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'.

17 Australian Energy Market Commission - 2016 Electricity Price Trends Final Report

AP2 COST IMPACT

Currently, there are two actions identified in AP2 that had a cost of living impact in 2017–18. These were the Energy Efficiency Improvement Scheme and the Large-scale Feed in Tariff scheme. Together, these schemes contributed approximately $62.40 to an average electricity bill in 2017–18, similar to the contribution in 2017–18 ($63.40). 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 as the cost of these schemes is passed on via electricity tariffs.

AP2 Cost Impact per household			
2017–18	Average Large scale feed in tariff pass through AP2 cost ($)	Average EEIS pass through AP2 cost ($)	Average Cost of Energy ($)
Electricity	$25.75	$36.68	$1,504
Gas	$0	$0	$1,312
Total	$25.75	$36.68	$2,816

Costs	%
Energy Costs (% of Median HH Income with children)	1.95%
AP2 Costs (% of Electricity and Gas Costs)	2.02%

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 2017–18, the average pass-through cost for a four person household was $36.68, compared to $38.02 in 2017–18. This is due to a small decline in the costs of the scheme.

The total estimated energy bill savings to have been received by participating premises under the EEIS in 2017–18 is approximately $18.5 million. This equates to average savings for participating households of $264 in 2017–18, or an average saving across all ACT households of $118. 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.

2017–18 saw the commencement of the Mugga Lane Solar Park, Williamsdale Solar Farm and Ararat and Hornsdale Stage 1 wind farms. Previously, the Coonooer Bridge Wind Farm commenced in 2015–16. The Royalla Solar Farm, the first renewable energy generator to start generating under the scheme commenced in 2014–15.

The average scheme pass-through costs for a four person household was $25.75 in 2017–18, compared to $25.37 in 2017–18. These costs remained largely constant in real terms as these were only escalated by inflation in 2017–18 by the Australian Energy Regulator. These costs will rise in the future as more renewable energy generators come online.

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 2016 to 30 June 2017, 9,629 households and businesses participated in the EEIS. Of these, 1,085 households were priority (low-income) households.

FUTURE AP2 COSTS

Three more wind farms are expected to start generating in 2017–18. 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 was secured in 2016 under the Government's Next Generation Renewables Auction. The Next Generation Renewables Auction is supporting 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 less than $5.50 per household per week in 2020.

GLOSSARY

ActewAGL ..... ActewAGL Retail electricity provider

ACT Health .... Health Directorate

ACTPG ..... ACT Property Group

AMC ..... Alexander Maconochie Centre

ANU ..... Australian National University

AP2 ..... AP2: A new Climate Change Strategy and Action Plan for the Australian Capital Territory

ARENA ..... Australian Renewable Energy Agency

BMS ..... building management system

BoM ..... Australian Bureau of Meteorology

CIT ..... Canberra Institute of Technology

cleantech ..... an industry term used to describe products or services that improve operational performance, productivity, or efficiency while reducing costs, inputs, energy consumption, waste, or environmental pollution.

CMTEDD ..... Chief Minister, Treasury and Economic Development Directorate

CMA 1 ..... Meeting of the Parties to the Paris Agreement

CNG ..... Carbon Neutral ACT Government

CNGF ..... Carbon Neutral Government Fund

COAG ..... Council of Australian Governments

COP22 ..... the 2016 United Nations Climate Change Conference

CSD ..... Community Services Directorate

CSIRO ..... Commonwealth Scientific and Industrial Research Organisation

CUP ..... Capital Upgrade Program

DIY ..... do it yourself

e-bikes ..... electric assisted bicycles

EDU ..... Education Directorate

EEIS ..... Energy Efficiency Improvement Scheme

EPSDD ..... Environment, Planning and Sustainable Development Directorate

ESA ..... Emergency Services Agency

ESP database Enterprise Sustainability Platform

EV ..... electric vehicle

FiT ..... feed-in tariff

FY ..... financial year

GJ ..... gigajoule

HVAC ..... heating, ventilation and cooling

ICLEI ..... International Council for Local Environmental Initiatives

ICT ..... information and communication technology

JACS ..... Justice and Community Safety

kW ..... kilowatt

kWh ..... kilowatt hours

LED lighting .. low emitting diode lighting

MJ ..... mega joule

m^2 ..... square metres

m^3 ..... cubic metres

MWh ..... megawatt hours

NABERS ..... National Australian Built Environment Rating System

NARCliM ..... NSW and ACT Regional Climate Model

NILS ..... No Interest Loans Scheme

NOAA ..... National Oceanic and Atmospheric Administration (USA).

owners corporation
the governing body of a block of units consisting of the unit owners or their representatives

PCW ..... Procurement Capital Works

PUE ..... Power Unit Efficiency

PV ..... photovoltaic

REIF ..... Renewable Energy Innovation Fund

RET ..... renewable energy target

RMP ..... Resource Management Plan

solar PV ..... solar photo voltaic system

SSICT ..... Shared Services ICT

SMS Procurement
Smart Modern Strategic Procurement

TCCS ..... Transport Canberra and City Services Directorate

t CO_2-e ..... greenhouse gas emissions in tonnes of carbon dioxide equivalents

US Embassy .. Embassy of the United States of America