

# A SUSTAINABLE TERRITORY

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## The ACT Government sustainability framework

The ACT Government is committed to pursuing sustainability across all of its policies and programs. The Government recognises the interdependent social, economic and environmental elements of sustainability and adopts a triple bottom line approach through policy making, program development and annual reporting. It also recognises the need for a long-term perspective on sustainability and engaging the community in major government decision making.

The Government has principal environmental protection legislation and a range of policy documents that provide the framework for supporting sustainability. These policies and action plans are reviewed as necessary to keep up to date. The key documents include:

- Climate Change Action Plan 2 (AP2): A New Climate Change Strategy and Action Plan for the ACT (2012);
- A new climate change strategy towards a net zero emissions Territory by 2045 is currently under development;
- *Climate Change and Greenhouse Gas Reductions Act 2010*;
- The ACT's Transition to Zero Emissions Vehicles Action Plan 2018-2021;
- The Territory Plan;
- ACT Planning Strategy – Planning for a Sustainable City (2012), review underway;
- Transport for Canberra – Transport for a Sustainable City 2012–2031 (2012), review underway;
- ACT Waste Management Strategy;
- ACT Nature Conservation Strategy 2013-23 (2013);
- *Nature Conservation Act 2014*;
- ACT Water Strategy 2014–44: Striking the Balance (2014);
- *Environment Protection Act 1997*; and
- ACT Sustainable Energy Policy – Energy for a Sustainable City 2011-2020.

## **Supporting the community to reduce the ACT's footprint**

The ACT Government is committed to continuing its work to manage the environment sustainably and welcomed the Commissioner for Sustainability and the Environment's seventh ACT State of the Environment Report 2015. The Report provided a favourable assessment of the ACT Government's management of the environment and presented key information on the current and emerging state of the ACT environment. The Report acknowledged:

- the high priority the ACT Government has placed on addressing climate change and environmental protection;
- the ongoing development and implementation of the ACT Government's wide ranging climate change mitigation strategies and projects, particularly in the area of supporting renewable energy; and
- the specific work the ACT Government has done to develop a long-term Climate Change Adaptation Strategy.

The Commissioner did, however, highlight the ACT community's high levels of resource consumption and waste production, reflecting our relative affluence, and that greater effort is needed to reduce this high per capita consumption rate.

Recommendations in the State of the Environment Report are helping to direct the ACT Government's future actions and strategies to protect the environment.

## **A new climate strategy for the ACT**

The ACT Government is committed to reducing emissions and building the resilience of our community to climate change impacts. A key focus of the ACT Government in 2017-18 has been the commencement of developing a new climate strategy towards a net zero emissions Territory by 2045. This work will continue through 2018-19. This new strategy will set a clear direction for meeting our greenhouse gas reduction targets and building resilience to climate change impacts.

Community consultation during 2017-18 identified strong community interest in, and support for, climate action. During the consultation, the Government spoke to over 1,000 community members, received 100 written submissions and engaged thousands of Canberrans through the Your Say website and online platforms. The ideas gathered during the consultation will be further assessed during 2018-19 and used to inform the development of the new strategy. There will be continued engagement with stakeholders as the strategy is developed.

To support this new climate strategy, the ACT Government set a new principal target of net zero emissions by 2045 in May 2018. This brings the current legislated target forward by five years.

Additionally Government has set interim targets to set the pathway to net zero emissions from the current target of 40 per cent emissions reductions below 1990 levels by 2020. These new targets are:

- 50-60 per cent emissions reductions (on 1990 levels) by 2025
- 65-75 per cent emissions reductions (on 1990 levels) by 2030
- 85-95 per cent emissions reduction (on 1990 levels) by 2040

The new climate strategy will set policy and action towards achieving the first of these targets with a vision out to net zero emissions.

### **Leading the way on zero emissions vehicles**

'The ACT's Transition to Zero Emissions Vehicles Action Plan 2018-2021' (released in April 2018) sets a clear direction for supporting and encouraging the shift to electric cars and electric bikes in the ACT. Actions outlined in the plan include shifting to 100 percent of new fleet passenger vehicles leased being zero emissions vehicles from 2020-21. The Plan has established the ACT as a leader in electric vehicles policy and sends a clear signal to market to support the transition to zero emissions vehicles.

### **Adapting to a changing climate**

Climate projections for our region indicate warmer conditions with increased frequency of natural disasters, including drought and bushfire, and severity of extreme weather events such as wild storms, flash flooding and prolonged heatwaves. To enable us to adapt to a changing climate, and to change the way we do things to cope with a changing climate, in August 2016 the ACT Government released its *ACT Climate Change Adaptation Strategy: Living with a warmer climate*.

In 2018-19, the Government continued to implement the Adaptation Strategy's 27 short-term actions to 2020 to help reduce the risk from climate change impacts and help build resilience in human and non-human communities. Progress will be included in the Minister's annual report on climate change under the *Climate Change and Greenhouse Gas Reduction Act 2010*.

There are a number of actions to transition Canberra's urban environment to be liveable and fit-for-purpose (sustainable) in a future climate. These mean changes to business as usual in urban development and a new living infrastructure strategy to sustain our 'bush capital'.

## Reducing greenhouse gas emissions

The ACT has the most ambitious greenhouse gas reduction and renewable energy targets of any jurisdiction in Australia, including a legislated emissions reduction target of 40 per cent below 1990 levels by 2020 and net zero emissions by 2045, with firm interim targets out to 2045.

AP2 establishes a clear strategy for the Territory to meet its 2020 emissions reduction targets and become a sustainable and net zero emissions community. In support of this goal, the ACT Government has legislated a 100 per cent renewable electricity target by 2020. The ACT is on track to meet these ambitious targets.

Emissions in 2016-17 were 18 per cent below 2010-11 levels. Emissions per person have also dropped dramatically, with emissions per person in Canberra now lower than they were in 1990. However, emissions still remain above 1990 levels. The 2017-18 greenhouse gas inventory will be brought to Government in December 2018.

The heavy lifting in emissions reductions to 2020 is being achieved through innovative approaches to securing renewable energy including 40MW of solar and 600MW of wind generation, roof-top solar, voluntary GreenPower purchases, and the ACT's share of the national Renewable Energy Target. The ACT-supported Sapphire wind farm located in northern New South Wales commenced generating renewable electricity in early May 2018, bringing the ACT's renewable electricity supply percentage up to 51 per cent. The Crookwell 2 wind farm is due to come online in late 2018, and stages 2 and 3 of the Hornsdale wind farm will commence feed-in tariff supported renewable electricity generation in 2019. These large-scale generation projects will see the ACT's renewable electricity supply increase to around 77 per cent by June 2019, and reach 100 per cent in 2020.

The *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* was reviewed in 2017. The review found that the Act had been successful in stimulating competitively priced wind and solar projects that proceeded to commercial operation and that the construction of all the generators awarded feed-in tariff entitlements under it was on track.

The 2016 Next Generation Renewables Auction was also reviewed in 2017, as required under legislation. The Next Generation Renewables Auction was the final large-scale renewables auction run by the ACT Government and awarded large scale feed-in tariff entitlements to the 91MW Crookwell 2 wind farm and the 109MW Hornsdale stage 3 wind farm. The review of the auction found that it had enhanced the ACT's reputation as a renewable energy hub, was transparent and well received by industry, achieved a high level of competition and delivered high value-for-money outcomes.

The ACT's large scale feed-in tariff supported renewable electricity projects will also deliver more than \$500 million in local benefits to the Territory by 2020 by investing directly in jobs, trades training and research partnerships, and supporting key industry development initiatives such as the Renewables Innovation Hub. Established in December 2016, with support from the industry funded Renewable Energy Innovation Fund (REIF), the Renewables Innovation Hub is a flexible, collaborative co-working and office space bringing together innovative startups and pioneering organisations from Australia and from around the world to develop the ACT's vibrant renewable energy and cleantech sectors. There are currently 25 startups and ventures supported at the Hub and during the last year there were over 90 events attended by more than 2500 people.

The most recent Next Generation Renewables Auction, finalised in September 2016, secured industry funding to support the roll-out of up to 36MW of solar battery storage in up to 5,000 homes and small businesses in the ACT by 2020. Batteries installed under the Next Generation Energy Storage program will capture and provide valuable data through an online platform. This opens significant research and development opportunities which, together with the ACT's other energy investments, will continue to ensure the ACT is at the centre of the global renewable energy revolution. The number of systems installed to-date is around 700, with the rate of installation expected to increase through 2018.

In a first for the ACT, a trial of a residential precinct without gas is to take place at Ginninderry in West Belconnen. Residents of this precinct will be provided with incentives to install highly energy efficient appliances and energy demand management systems. All homes will include solar panels. These all-electric households will assist in testing the costs and other effects of living without gas. This trial is important for the ACT as it will assist in identifying how future developments are powered and how the ACT can reduce emissions from energy use involving gas.

*AP2* and its supporting legislation, the *Climate Change and Greenhouse Gas Reduction Act 2010*, were reviewed in 2015-16 to update ACT climate change policy and incorporate the latest climate change science as well as changes to the national and international policy environment.

The review of *AP2*, published in November 2015, demonstrated the success of the policy to date, with detailed updates on each action. It also presented an emissions projection to 2020 showing the ACT was on track with current measures to reach its greenhouse gas reduction targets.

The review of the *Climate Change and Greenhouse Gas Reductions Act 2010* was passed through the Legislative Assembly in May 2016. It found the Act was meeting its objectives in reducing emissions and securing business and investment for renewable energy. Following these reviews, the ACT is now developing its next climate change strategy for reducing emissions beyond 2020 with a short-term focus to 2025. This will be reviewed and updated every five years to ensure it remains current and reflects the latest climate science, as well as technical and policy options.

## Improving energy efficiency

The Energy Efficiency Improvement Scheme (EEIS) was established under the *Energy Efficiency (Cost of Living) Improvement Act 2012* (the Act). The EEIS commenced operation on 1 January 2013 and is currently legislated until December 2020. The objectives of the Act are to:

- encourage the efficient use of energy;
- reduce greenhouse gas emissions associated with stationary energy use in the Territory;
- reduce household and business energy use and costs; and
- increase opportunities for priority households to reduce energy use and costs.

The Act sets a Territory wide energy savings target and obligates ACT electricity retailers to meet an individual Retailer Energy Savings Obligation by undertaking activities in households or small-to-medium enterprises. Smaller Tier 2 retailers can achieve their obligation by paying an 'Energy Savings Contribution'. Energy Savings Contributions from Tier 2 retailers offset the cost of administering the EEIS and fund complementary programs such as Actsmart Energy Programs and Solar for Low Income Households.

The Scheme provides targeted assistance to low income households through a 20 per cent Priority Household Target. More than 71,000 households and businesses have participated in the Scheme since 2013, including over 17,800 priority low income households.

A new pilot program, launched in November 2017 as a partnership between the ACT Government and ActewAGL, had installed high efficiency heaters in 211 public housing homes in its first six months. The new systems will help some of ACT's most vulnerable households to reduce their energy bills in winter and improve the comfort of their homes during summer.

Energy efficiency savings from the EEIS in 2020 are estimated to be \$3.20 per week on average across all ACT households, with participating households saving around \$5.00 per week. More than 1.2 million energy saving items have been installed to date, saving hundreds of thousands of tonnes of greenhouse gas emissions. EEIS activities have been delivered to a large variety of buildings across the Territory with 50 Canberra suburbs having had participation rates above 30 per cent. As a result of the EEIS, it is estimated that over 30 fulltime equivalent staff and contractors are currently used to deliver energy efficiency activities, including local electricians and plumbers.

An independent review of the Scheme is underway and stakeholders have been involved in workshops and focus groups to determine how well the EEIS is working, to what extent it has achieved its statutory objectives so far, whether it remains appropriate for the future and how it can be improved.

The Government's Actsmart range of programs will continue to support households, schools and businesses in 2018-19 by providing education and expert advice on waste, water and energy efficiency programs.

The Actsmart Sustainability Hub continues to provide an online sustainability portal to engage the community on climate change matters and to provide integrated information, advice and support to Canberra and the region. The Hub outlines detailed information on the action the Government is taking towards climate change, and provides self-help tools, programs and advice to the community, households, schools and businesses to assist them in becoming more sustainable and to reduce emissions. Included on the portal is the Carbon Challenge, a webtool to assist all ACT residents become more sustainable in their daily lives through setting household sustainability challenges and receiving advice and support to reduce living costs and emissions.

The Low Income Program assists low income householders to improve energy efficiency in their homes and reduce energy bills by providing advice, energy efficient appliances and fittings. The program will continue to provide support to householders with draught proofing, curtain retrofit program and education to reduce energy and maintain comfort. The program has assisted over 10,000 vulnerable households with energy efficiency savings. The annual energy savings achieved from the energy efficient appliances and retrofits installed in 2016-17 are 763 MWh and 230 tCO<sub>2</sub>-e

The ACT Solar for Low Income Program received \$2 million over four years in the May 2016 Budget to provide financial assistance for low income households to install solar panels. The initiative is in recognition of the need to maintain equity as energy prices increase and to remove barriers for low income households to benefit from household solar. In 2017-18, more than 200 roof top solar systems were installed with an average annual saving per vulnerable household of more than \$700. In 2018/19, the program will install a further 120 rooftop solar systems to low income households. Funding for the program is sourced from Tier 2 retailers contributions under the *Energy Efficiency Improvement Scheme*.

The program objectives are:

- reduced cost of living for low-income households;
- increased uptake of solar by low-income households;
- enhanced social equity by providing more equitable distribution of solar energy, and
- increased penetration of solar in the ACT.

The Actsmart Business Energy and Water Program provides advice and financial assistance to small businesses to help reduce energy and water consumption. 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 lifetime energy savings from the upgrades installed since the program commenced in July 2012 are 40,080 MWh, equivalent to the energy used by 5,482 houses a year. On average a small business participating in the program will save \$2,500 annually from energy bills.

## Sustainability in the Built Environment

Under the *Planning and Development Act 2007*, the Minister for Planning may set out the main principles that are to govern planning and land development in the ACT through a written statement, the Statement of Planning Intent. The Directorate must perform its functions taking the Statement into consideration. Minister Gentleman's Statement of Planning Intent 2015 establishes four key planning principles and associated actions for the next 3-5 years.

The Territory Plan is the key statutory planning document in the ACT. Development in the ACT (except Designated Areas) is required to comply with the plan, which manages land use change and development in a manner consistent with the strategic directions set by the ACT Government, Legislative Assembly and the community.

Together with Transport for Canberra, the *ACT Planning Strategy* establishes how the Territory will develop to meet environmental, social and economic challenges. A refresh of the *ACT Planning Strategy* is being undertaken in 2018 which will develop and deliver on a range of strategic planning initiatives including:

- Support for the ACT Government's commitment to achieving a net zero emissions Territory by 2045; and
- Provide a refreshed focus around housing choice and affordability, new infrastructure initiatives, increased community participation, changing demographics and household structures, changing retail and employment patterns.

Together with *Transport for Canberra*, the *ACT Planning Strategy* sets out a planning and transport framework to guide future growth of our city. These strategies prioritise development along the major transport corridors and in the town centres and around group centres to achieve a more compact city form.

The approach being taken by the ACT Government to integrate land use and transport planning will contribute to the development of Canberra as a compact, accessible and efficient city. It will deliver on the Government's vision for a connected, liveable and prosperous city with strong communities and a growing economy.

- The Government's focus on urban renewal and intensification around the city centre, town and group centres and along transit corridors is an important step if we are to achieve our desire for a more compact and vibrant city. The City Renewal Authority is developing a sustainability strategy to provide clear direction and measurable targets for development. It aims to encourage and support positive social and environmental sustainability outcomes in the City Renewal Precinct, such as: Supporting statutory greenhouse gas emissions targets
- Promoting innovative building and public domain design
- Nurturing social connectedness and a more equitable city; and
- Achieving environmentally sustainable development through urban design.

Creating a more compact city, and encouraging active travel with more people walking, cycling and using public transport, will inform the demand for additional road and other urban infrastructure. The exercise involved in active travel will also improve the health and wellbeing of our community, thereby reducing the demand for additional health infrastructure and services.

Integrating stormwater into the urban fabric will assist in the cooling of our urban environments. Stormwater management through water sensitive urban design in urban renewal projects allows for improved amenity and greater use of open space areas.

The *City and Gateway Draft Urban Design Framework* (the Draft Framework) is currently being finalised to set the planning directions and design guidance for the Federal Highway and Northbourne Avenue corridor into the city centre to achieve sustainable and compact urban form outcomes along this transit corridor. The Draft Framework is a joint initiative between the ACT Government and the National Capital Authority to enhance the premier approach to the National Capital and create a liveable, connected and sustainable city that represents the values and aspirations of the community and offer wider lifestyle choices and business opportunities.

The ACT Government has commenced a Housing Choices project and released a discussion paper in November 2017 to enhance and inform the conversation on how we can better meet the housing needs of our residents. Improving the diversity of housing choice is an important issue that affects all current and future Canberrans. Input received from the community will be used to inform future updates to government policies and our planning framework for the ACT.

The ACT Government is also looking to ensure sustainable outcomes in newly developed suburbs, and is considering a range of initiatives including ways to encourage sustainable and liveable design outcomes. For example, the new Ginninderry development at West Belconnen has achieved a 6 Star Green Star – Communities rating, which is the highest rating available under the Green Building Council of Australia's national rating tool.

## **Sustainability in Transport**

Integrated transport networks shape the way cities grow and prosper. The ACT Government is building an integrated transport network through delivering on key government priorities including *AP2*, *Transport for Canberra* and the *ACT Planning Strategy*. These policies encourage increases in the number of people using active travel and public transport with reductions in greenhouse gas emissions and traffic congestion, as well as less air pollution.

In 2018-19, the Government will invest in active travel infrastructure across a number of Capital work and Capital Upgrade Projects. These projects will include:

- Improvements to the community path network including pedestrian and cycling infrastructure in priority suburbs;
- Improvements to active travel links in Canberra's town centres, including completion of the Belconnen Active Travel Infrastructure upgrades linking the University of Canberra and the Belconnen town Centre;

- \$3.25 million from 2017-18 to increase safety measures around schools, including capital works and school crossing supervisors at 20 crossings, to improve road safety and encourage walking and cycling to school; and
- \$2 million over four years to improve active travel infrastructure around 50 primary schools and promote walking and riding to school.

The Government will continue the implementation of Canberra's light rail project. Supporting the Government's vision of delivering a truly sustainable and creative city, light rail will be a catalyst for Canberra's change into a more global city.

Light Rail Stage 1 has made significant progress in the past year with construction well underway. The 2018-19 year will see Light Rail Stage 1 construction completed and operations commenced. Building upon the project approach to sustainability using the Infrastructure Sustainability Council of Australia (ISCA) 'IS Rating' as a framework, the project has achieved an IS Rating of 'Excellent'.

Light rail is a sustainable transport mode and highly suited to Canberra. In addition to its modern design features and its integration with the urban environment, Canberra's light rail will be 100 per cent powered by renewable energy through the ACT Government's achievement of its renewable energy target.

In addition, in order to lower the carbon footprint of light rail, Canberra Metro is minimising the use of imported materials and using local and recycled materials and finishes in the construction where suitable.

Funding of \$10 million during 2018-19 has also been provided so that Transport Canberra may advance designs and approvals processes for the second stage of light rail in Canberra. The next stage of light rail, connecting the City to Woden via Parkes and Barton, will create a north-south light rail 'spine' in Canberra.

Transport Canberra and City Services will work on the infrastructure needs of our growing city, connecting Transport Canberra buses, light rail and active travel, with Canberra's vital local services.

The Government is also currently monitoring the Eco-friendly Road Resurfacing trial undertaken in Kelleway Avenue, Nicholls. This innovative approach to road resurfacing utilises recycled materials such as printer toner and recycled road pavement for use in the final asphalt mix. Approximately 160 tonnes of asphalt was laid, saving some 2.24 tonnes of carbon dioxide.

Trials of alternative energy buses will continue in the Transport Canberra bus network in 2018-19. Transport Canberra will ensure its new bus procurement program is open to potential alternative fuel bus manufacturers during 2018-19.

## Sustaining our natural environment

Environmental protection will continue to be a high priority for the Government during 2018-19. Conserving the Territory's environment for future generations entails balancing development needs with the responsible and efficient conservation and use of natural resources.

The ACT Government continues to protect biodiversity and strengthen the resilience of the landscape to disturbances and threats, including climate change. Over 60 per cent of the ACT is national park, nature reserve or designated water catchment. The ACT is home to some of Australia's largest, best connected and diverse Yellow Box-Blakely's Red Gum Woodland, a critically endangered ecological community. Additionally, a large proportion of the few remaining sites supporting natural temperate grasslands in the ACT is protected as nature reserve.

The first progress report on implementation of the *Nature Conservation Strategy 2013-23* released in May 2016 highlighted the significant on-ground investment that is restoring, connecting and maintaining important threatened woodlands, improving our lowland grasslands and restoring aquatic habitat in the Murrumbidgee.

Between 2013 and the end of 2017 there has been significant progress in:

- Working with stakeholders in restoring priority landscapes and enhancing regional connectivity;
- community monitoring (citizen science) by continuing to support Canberra Nature Map – a mobile application allowing anyone to report plant and animal sightings;
- captive breeding, plant propagation and translocation of fauna species, some of which such as the Eastern Bettong and Eastern Quoll are Australian firsts;
- improved systems for management of biosecurity, including the threat of new weeds and pests; and
- engaging community through ParkCare and Landcare.

These achievements have only been possible by working closely with The Woodlands and Wetlands Trust, Greening Australia, catchment groups and volunteers, rural landholders, and research institutions such as the CSIRO (Commonwealth Scientific and Industrial Research Organisation) and ANU (Australian National University). Australian Government and complementary ACT Government funding, including through the National Landcare Program, have been key sources of investment.

The ACT Government will continue the research and monitoring of the management of eastern grey kangaroo populations including monitoring the effectiveness of the trial of fertility control methods.

The ACT Government will provide ongoing funding to deliver targeted weed control in the Territory's nature parks, conservation areas, urban parks and places and unleased rural lands. This is in line with meeting the objectives in the *ACT Weeds Strategy 2009-2019*.

The 2018-19 Budget also provides funding to assist the Woodlands and Wetlands Trust to construct a Woodlands Learning Centre in Throsby. The Centre would be a nation-leading facility dedicated to introducing the public to our unique and endangered woodland environments by relying on smart technology and field based experiences.

## **Protecting our clean air**

The ACT Government continues to work to reduce air pollution and improve air quality in the ACT.

Following the National Clean Air Agreement, entered into by Environment Ministers on 15 December 2015, the ACT has delivered on commitments outlined in the agreement to reduce air pollution.

The ACT Government continues to build on its initiatives to improve the ACT's air quality by being the first jurisdiction to legislate the stricter emissions and efficiency standards for domestic wood heaters sold in the ACT. The ACT passed legislative changes to give effect to the standards in the Ambient Air Quality National Environment Protection Measures for particulate matter (PM2.5) emissions; and the Australian Standards for new domestic wood heaters emissions (AS4013) and efficiency (AS4012).

This, combined with the regulation of fire wood merchants to ensure sustainable use of natural resources, the Actsmart Wood Heater Replacement Program which has removed over 1,100 old wood heaters, and the annual public education program "*Burn Right Tonight*" which encourages more efficient use of wood heaters, places the ACT at the forefront nationally in reducing air pollution.

## **Sustainability in Catchment Management**

The Government is committed to targets to limit demand for potable drinking water and increase the use of cost effective fit-for-purpose non-potable water.

The *ACT Water Strategy 2014–44: Striking the Balance* released in August 2014 guides management of the Territory's water supply, management and catchment practices.

The *ACT Water Strategy* will ensure:

- improved integrated catchment management across the ACT and region;
- long term security of water supplies to meet the needs of a growing population and the environment;
- improved water conservation and water sensitive urban design to reduce per capita potable water use by 25 per cent (and by 40 per cent in new developments, extensions and refurbishments);
- strategic investment in catchment management and water security;
- integrated water cycle management in the planning and design of urban environments;

- safe and clean water for the ACT; and
- strong community involvement in water resource management.

The ACT seeks to manage water quality to ensure that water leaving the ACT is of the same quality or better than that entering the ACT. Announced in 2014, ACT Healthy Waterways (Basin Priority Project), a \$93.5 million joint Commonwealth and ACT Government initiative, recognises the importance of improving water quality and protecting our waterways for future generations. Healthy Waterways will deliver new water quality infrastructure in six priority catchments across the ACT: Fyshwick, Lower Molonglo, Tuggeranong, Upper Molonglo, West Belconnen and Yarralumla. The majority of these projects will create naturalized features such as rain gardens, swales, ponds and wetlands.

Coupled with Healthy Waterways is an innovative public education campaign – H2OK Keeping our Waterways Healthy. It encourages people to be vigilant and prevent pollutants entering ACT and Region water bodies, impacting on water quality and consequently reducing amenity and recreational value of these important natural assets.

The ACT and Region Catchment Management Coordination Group was established in February 2015. Membership consists of local government, ACT, NSW and Commonwealth Governments, community representation through the Upper Murrumbidgee Catchment Community Committee and Icon Water. It aims to facilitate collaboration across the region to increase efficiencies and outcomes for improved catchment management, addressing actions under the thematic areas of Governance, Development, Community, Land and Biodiversity, and Water.

The Group has supported the development of a draft *ACT and Region Catchment Strategy* which was finalised in late 2016.

The Government also continues to support catchment focused citizen science through Waterwatch and Frogwatch.

## **Sustainability in Waste Management**

Waste management is an important part of building a sustainable city. The ACT is one of the leading jurisdictions in Australia, with over 70 per cent of our waste being used and recycled. However, it is an issue that touches all of us, and we can all do more to drive resource recovery towards 90 per cent.

The Government released the *ACT Waste Management Strategy 2011-2025: Towards a Sustainable Canberra* in December 2011. The current waste strategy outlines a comprehensive framework to increase resource recovery to over 90 percent by 2025.

In 2016-17, the Actsmart Business Recycling Program accredited 439 sites, recycling approximately 15,380 cubic metres of mixed recyclables, 16,860 cubic metres of paper and cardboard, and 1,693 cubic metres of organic material. This is equivalent to 6,383 t CO<sub>2</sub> avoided. In 2018-19, the Actsmart Public event program continue to support event holders to reduce waste, energy and water at events. In 2017-18, more than 190 events ranging from larger events such as the National Multicultural Festival and Canberra Show to smaller events including school fetes and festivals.

The Government will continue to provide waste education to schools and the community and produce engaging promotional materials designed to encourage greater rates of recycling.

As an outcome of the Waste Feasibility Study, established in 2015, the Government released a Waste Feasibility Roadmap for industry and community consultation. The roadmap identifies a range of recommendations to transform the way waste is managed in the ACT and improve resource recovery.

A key recommendation of the roadmap is the diversion of organics from landfill. The government has allocated \$0.2m in 2018-19 to commence investigation into options. This initiative will support the ACT's resource recovery and carbon neutrality targets by diverting organics from landfill and reducing greenhouse gas emissions.

The bulky waste household collection service for concession card holders will continue in 2018-2019, providing one free collection per dwelling for eligible concession card holders. Additionally, \$0.2m will be provided to GIVIT to establish a program for the donation of unwanted goods to people in need. This will include people whose lives have been disrupted by domestic violence and natural disasters.

The government will start a Container Deposit Scheme on 1 July 2018. Consumers will be able to return empty beverage containers and receive a 10 cent refund for each container. The Canberra model will use social enterprises as return points, which provides employment opportunities to people with a disability. In addition, refunds can be donated straight to charity. This model is strongly supported by the Canberra community.

The Act provides for modern, comprehensive and robust regulation across all commercial waste activity, rewarding responsible practices in waste collection, transportation, recovery and reuse and discouraging the disposal of waste into landfill. The regulatory framework established by the Act directly supports the achievement of the resource recovery objectives in the *ACT Waste Management Strategy 2011-2025*.

The Government has allocated \$25.291 million in 2017-18 through to 2021 to expand the landfill cells at Mugga Lane Resource Management Centre. These works will continue the provision of the ACT's landfill needs beyond 2020, when current capacity is expected to expire.

The Government will rehabilitate the West Belconnen Resource Management Centre before its closure and subsequent transfer to the Ginninderry development in 2020. The Government will also progressively rehabilitate landfill cells at the Mugga Lane Resource Management Centre which have reached maximum capacity. The rehabilitation of ACT landfills is a mandatory requirement under the *Environment Protection Act 1997*. Both projects will be delivered over four years, from 2017-18 through to 2020-21, at a total cost of \$34.845 million.

The commencement of a green waste collection service has been welcomed by the Canberra community. It is currently operating in Tuggeranong, Weston Creek and Kambah. Collections in Belconnen commence September 2018, and all other parts of Canberra, including Gungahlin, Molonglo Valley, the Inner North and Inner South will commence mid-2019.

A further \$1.6m has been allocated to deliver a new Regulatory Management System. This will enable ongoing monitoring of the waste sector and comprehensive reporting of all waste activities.

As the city grows, there is a need to incorporate best practice waste management principles, while maintaining design flexibility. The Government has allocated \$0.2 million to update the development control code and educate the industry. This will enhance waste management and resource recovery in multi-unit developments.

The government is also investing in other waste management initiatives.

ACT NoWaste will continue to undertake educational programs to promote waste minimisation. These include tours of waste facilities, presentations to community groups and a presence at major community events.

The recent opening of the Recycling Discovery Hub at the Materials Recovery Facility in partnership with Re.Group provides waste and sustainability education for schools and community groups. The facility uses contemporary education strategies to ignite interest, inspire behavioural change and showcase sustainability and recycling innovation in the ACT. The centre incorporates hands-on learning, virtual reality technology, product life cycle displays and tours of the materials recovery facility, landfill, landfill gas power station and solar farm.

## **Sustainability in Public Housing**

The ACT Government is committed to creating dwellings that are energy efficient, provide maximum thermal comfort and are cheap to run for people who are among the most vulnerable in Canberra's community. Public housing is administered through Housing ACT in the Community Services Directorate.

Between 2007 and 2017, the ACT Government spent \$30 million to improve the energy efficiency of public housing. Approximately 8,900 dwellings (around 75 per cent of housing stock) have already had works undertaken, including draught sealing and installation of ceiling and wall insulation, pelmets and curtain rods, energy efficient hot water systems and heating appliances.

Through the public housing renewal program, the ACT Government is replacing 1,288 dwellings from multi-unit public housing complexes along Northbourne Avenue and in other areas of Canberra.

The ACT Government aims to construct new dwellings to either Australian Standard AS 4299 Adaptable Class C or Liveable Housing Design Guidelines Gold Level, except in unfavourable situations. For example, there are some instances where Adaptable Class C or Liveable Gold are not feasible due to site constraints, such as the fall of a block. In new constructions, and as part of major upgrades, water saving measures and sanitary fixtures are provided that reduce the consumption of potable water, and reduce the flow to the sewer and stormwater systems. These measures include the installation of water tanks, dual flush cisterns, water efficient shower heads and flow regulators/aerators.

Public housing dwellings meet a minimum six star energy rating and in some instances, such as in multi-unit complexes, they exceed this rating. New dwellings are designed to maximise solar gain, and include construction wall and ceiling insulation to enhance building thermal efficiency. Double window glazing, as necessary, and draught seals are also provided to windows and doors to reduce heat loss. The ACT Government has commenced a window furnishings program, which offers further assistance to reduce heat loss. Dwellings are also equipped with energy efficient appliances.

In 2017-18, the ACT Government trialled a partnership with ActewAGL to include public housing properties in the Energy Efficiency Improvement Scheme. The trial program replaced over 200 existing inefficient gas wall heaters with highly efficient electric heat pump units.

Over the next three years, the ACT Government will invest a further \$7.0 million to improve energy efficiency in public housing. This funding will be used to provide an estimated 2,200 highly efficient heaters and hot water units, energy audits and education programs to tenants to help them better manage energy consumption and costs. The program will ensure that the most inefficient heating and hot water systems are decommissioned and replaced, maximising the benefits to low income households and reducing greenhouse gas emissions.

## **How is the Government reducing its own footprint?**

The Government has committed to achieving carbon neutrality in its operations by 2020. To support this target the Government released the Carbon Neutral ACT Government (CNG) Framework to enable and coordinate a whole-of-government approach to achieving carbon neutrality in a cost-effective manner.

Government emissions have reduced by 11 per cent since 2012-13. Considerable emissions reductions will occur as the ACT approaches 2020 when the electricity component of ACT Government energy usage is converted to renewable sources.

Formal carbon budgets commenced for directorates in 2016-17, requiring more efficient use of energy within Government. Accountability to meet annual energy targets is placed on Directors-General. Performance against energy targets is reported to the Head of Service on a quarterly basis and are underpinned by a comprehensive set of utility data captured in the Government's Enterprise Sustainability Platform. Directorates' targets and reports were published publically for the first time in 2017-18 and will continue to be made publically available to 2020.

To assist agencies in emissions reductions and energy efficiency, funding is available through the Carbon Neutral Government Fund. The cost savings from the reduction in utility use are used to repay loans over an agreed timeframe thereby enabling the funds to be used for additional projects. The Fund has been used to provide funding for over 27 projects with \$14.8 million funding provided as loans as at May 2018.

Projects supported under the Fund include upgrades to more efficient heating and cooling systems, installation of a smart building management systems, lighting technology and water heaters across various Government schools, hospitals and other public buildings and an electric heating and cooling system to transition off natural gas at the North Building in Civic.

## **Sustainability in Health**

As one of the largest energy consumers within the ACT Government, ACT Health is faced with the challenge of meeting increasing service delivery demand resulting from the growth in the Canberra population, an increasing elderly population and more prevalent chronic disease with the community.

The *ACT Health Sustainability Strategy 2016-2020*, and the *ACT Health Resource Management Plan 2016-2020*, influences service delivery and provides guidance to ACT Health executive and staff when making operational management decisions. The Sustainability Strategy 2016-2020 provides a roadmap for a collaborative, sustainable future and contains actions for six focus areas:

- Resource Management Plan
- Buildings and Infrastructure
- The Digital Health Environment
- Our People
- Partnerships and External Service Delivery
- Procurement

To enhance the Building and Infrastructure element of the Strategy, the ACT Health Sustainability-Environmental Principles and Guidelines – Building and Infrastructure Projects (Ecological and Sustainable Development - ESD) were developed to inform capital infrastructure projects and major refurbishment works. These Guidelines are included within the Facilities Management standard specifications to be considered and applied to all new and existing projects. In addition, the ACT and Commonwealth Governments initiatives are discussed with ACT Health and supported as applicable.

Consideration of whole-of-life cycle sustainable options in design and functionality will influence the reduction in carbon emissions. The delivery of more sustainable buildings via the Health Infrastructure Services Program will assist to meet any forecasted increase in service delivery demand.

During 2017-18, ACT Health staff settled into the new office accommodation at Bowes Street, Woden. The tenancy was entered into under a Green Lease arrangement with the aim of driving a reduction in the impact this building has on the environment through improved operation performance.

In mid-2018, the Canberra of University Hospital (UCH) is set to open and this new facility will provide Canberrans with mental health and rehabilitation services under a contemporary service delivery model. The UCH has been built with sustainable principles in mind, including:

- Design, Construct and Maintain procurement model ensuring the design phase considered long term maintenance and whole of life costing;
- Building Integrated Modelling to provide a continually updated “digital twin” of the facility detailing all architectural and building services to enable optimised maintenance and operation;
- Independent Commissioning Agent retained throughout the construction phase with an additional two year building tuning process to ensure the facility is properly commissioned and operates efficiently;
- Inclusion of an Energy Rider in the contractual obligations to ensure the maintenance and operational contractors operate the facility efficiently; and
- Installation of a 50kW photovoltaic solar array.

Under the delivery of the Upgrade and Maintenance ACT Health Assets (UMAHA) project, Health Infrastructure Services have multiple projects underway that support sustainable building practices and the reduction of energy consumption across the ACT Health portfolio of buildings. Aligned with the recent finalisation of the Strategic Asset Management Plan (SAMP) current projects include the replacement of the Canberra Hospital chillers with high-efficiency chillers, including an installed optimisation package that will greatly reduce the electrical energy required to support the cooling of the Canberra Hospital. Other projects include boiler upgrades, hydraulic upgrades, detailed analysis of energy consumption use of electricity, gas and water, review of all sub-metering, upgrade of the Building Management System and associated building analytics and a review of space utilisation as it relates to energy consumption.

The ACT Health infrastructure portfolio consists of various health facilities spread across the Territory. This geographical situation requires ongoing strategic thinking around sustainable models of care and the transportation of patients between these facilities.

ACT Health has installed 16 electric vehicle charge stations at six health sites across Canberra. These electric vehicle charge stations will allow for the expansion of ACT Health’s electric vehicle fleet and greater flexibility with respect to electric vehicle charging facilities. ACT Health also continues to implement strategies in support of Transport for Canberra – Transport for a Sustainable City 2012 – 2031.

The Canberra Hospital benefits from the production of electricity via a 500KW photovoltaic solar array positioned on the roof of the Southern Multi Storey Car Park with the energy being utilised internally to power this infrastructure.

ACT Health continues to roll-out the LED Lighting replacement program for existing hospital infrastructure, with Phase one of the LED component already completed. Phase 2 and Phase 3 are progressing.

ESD initiatives incorporated into the ACT Health infrastructure builds, upgrades and improvements aimed at reducing carbon emissions and energy costs in the pursuit of carbon neutrality include:

- investigation of heat pumps for transitioning heating loads from gas to electricity;
- whole of life cycling costing analysis;
- implementing energy efficient improvements (including renewable and energy efficient technologies);
- facade improvements;
- LED lighting;
- water capturing and recycling;
- investigation of solar hot water options;
- sustainable waste, water saving and procurement measures;
- continued use and implementation of Actsmart programs;
- implementing the whole-of-government policy on transport arrangement; and
- strengthening sustainability governance arrangements – lead by Executive.

## **Sustainability in Schools**

The Government is assisting schools to reduce water and energy consumption, waste going to landfill as well as supporting the sustainable management of school grounds through programs and best practice guides implemented through *Actsmart Schools*. All ACT schools are registered with *Actsmart Schools*, with 16 ACT public schools achieving five star accreditation. On average, a school accredited under the Actsmart Program reduces waste to landfill by 21 per cent and energy by 20 per cent.

The Government will build on the continued success of this initiative in 2018-19 by:

- delivering the *Actsmart Schools Energy Program* – conducting audits and providing advice, assisting schools to establish student energy teams and utilise a student energy kit to encourage the whole school to adopt sustainable behaviours;
- providing assistance to schools to establish and maintain a waste and recycling system by offering support to staff and student teams and providing a range of resources such as an interactive waste display and a waste PowerPoint for the waste and recycling system to be explained to the whole school community;
- providing professional development for teachers in the areas of energy efficiency, waste management and sustainable management of school grounds;

- monitoring water usage and providing advice and assistance to schools to reduce water consumption as part of the Education Directorate's *Smart Meter Program*; and
- collecting accurate data for monitoring, reporting progress and the accreditation of schools.

LED lighting upgrades at 20 ACT public schools will be completed in 2016-17 utilising funds from the Carbon Neutral Government Fund (CNGF).

A major upgrade of the Building Management System at Erindale College and Active Leisure Centre will be commenced and completed in 2017-18 with funding sourced through the CNGF.

The implementation of environmental and sustainable design principles in landscaping will continue to be expanded in 2017-18, focusing on outdoor learning areas. These design principles increase infiltration into the subsoil, improve water quality and the microclimate, and encourage biodiversity.

ACT public schools will be supported in the identification of opportunities to re-invest their Feed-in-Tariff income to support sustainability upgrades at their individual school sites, including energy and water conservation measures, recycling and waste diversion programs, landscaping and curriculum development.

To support active transport to schools, improvements will be made to cycle facilities at four ACT public schools.

A building tuning program will be undertaken at six ACT public schools, with the aim of improving building heating, ventilation and air-conditioning operational efficiency and building thermal performance.

Additional activities in 2017-18 will include:

- a roofing upgrade at Mt Stromlo High school will include installation of substantial insulation to improve thermal comfort;
- commencement of a program to install high efficiency boilers in schools;
- progressive upgrade of utility meters at schools;
- continuation of the program to replace diesel fleet vehicles with hybrid vehicles; and
- commence a program to install ceiling fans in all remaining classrooms

## **Sustainability in Justice and Community Safety**

The Justice and Community Safety (JACS) Directorate is committed to achieving carbon neutrality and is continuing to undertake numerous measures to support Environmentally Sustainable Development (ESD) across its property portfolio.

The Directorate's holistic approach to increasing environmental resource efficiencies includes resource awareness, incorporating design solutions for new facilities and undertaking targeted sustainability projects at existing facilities to contribute to a sustainable future for the ACT.

The ACT Government is already on track to source all of its electricity demand from renewables. Going forward the key sources of ACT Government emissions, including JACS, are from the consumption of natural gas and transport fuel. These sources of emissions now drive the focus for emissions reduction at JACS.

The JACS *Sustainability Management Plan (SMP) 2018-20*, is aligned to the Carbon Neutral ACT Government Framework, and provides a roadmap for JACS to transition to zero emissions. The SMP seeks to:

- drive value for money energy supply upgrades with a return on investment over the life of the infrastructure at high emitting and water usage sites;
- embed sustainability principles into all aspects of our business, including new build/expansion of sites;
- harness the financial power of the Carbon Neutral Government (CNG) Fund to deliver energy efficiency opportunities;
- commence coordinated planning for electric vehicles and charging infrastructure; and
- accredit sites under the ACT Government's Actsmart waste recycling program.

To facilitate the implementation of the Sustainability Management Plan and to ensure sustainability outcomes are embedded into everyday business, JACS has a Sustainability Manager within the Corporate Division to provide guidance, leadership and coordination to the Directorate to achieve identified environmental targets. The Directorate has a program of works focused on implementing energy efficiency measures through the use of Better Infrastructure Funds appropriated annually through the Budget process. JACS Energy efficiency measures recently completed and or currently underway include:

- Gungahlin, Joint Emergency Services Centre (JESC) – replacement of lamps to maximise lighting energy efficiency technology
- Gungahlin, JESC – improve lighting controls, installation of light sensing technology
- Gungahlin, JESC – upgrade works to the building management system including integration lighting time schedule
- Emergency Services Agency Training Centre – heating and ventilation improvements and building management system upgrade.
- Greenway Ambulance - installation of a solar photovoltaic system.
- Rural Fire Services, Jerrabomberra – external lighting upgrade.

The JACS Directorate actively participates in the Actsmart Business Recycling Program to reduce waste, water and energy consumption. JACS is committed to undergoing accreditation through the Program to improve recycling, to lower waste to landfill and increase knowledge on resource use.

JACS will continue to undertake a range of energy efficiency works to implement ESD measures across the property portfolio of the Directorate through:

- targeted energy audits to understand energy usage and to inform potential opportunities and energy efficiency projects
- upgrades to building management systems, heating ventilation and air conditioning systems, and addressing power factors at high energy use sites;
- installation and expansion of solar panels and solar hot water systems at selected sites; and
- incorporating sustainable solutions for all new facilities.

## **Sustainability – Community and Services**

In 2016-17, the Community Services Directorate's emissions were estimated at 2.8 kt CO<sub>2</sub>-e, representing 1.4 per cent of total ACT Government emissions, and 0.06 per cent of total ACT emissions.

The Directorate currently operates out of nine sites. Due to the range of services and activities supported by the Directorate, the premises it occupies cater for diverse user needs including office accommodation, community and health support services, youth detention services, full time youth residences, after hours community use and function room hire. As such, the accommodation specifications and energy usage demands for each site are different.

The Directorate is assessing all of its owned and leased sites, and evaluating options for cost effective energy efficiency and greenhouse gas reduction opportunities, noting that some parts of the Directorate are expecting to be relocated to purpose built ACT Government office accommodation in 2020.

To date, a number of initiatives have been identified by the Directorate to continue to reduce its carbon footprint and improve energy efficiency. These include:

- Upgrades to energy efficient and low emission lighting, heating, ventilation and cooling systems;
- Installation of solar rooftop panels at the Gungahlin and Tuggeranong Child and Family Centres;
- Generation of electricity from solar ground mounted panels and a wind turbine at West Belconnen Child and Family Centre for use by the centre, with surplus returned to the grid;
- Investigation of opportunities to transition away from natural gas systems;

- On-going staged transition to hybrid and electric vehicles in the Directorate's corporate fleet, and reduction in fleet size;
- Actsmart Office Waste and Recycling Program accreditation of all Directorate owned sites;
- National Australian Built Environment Rating System (NABERS) assessments to achieve a minimum 4.5 green lease rating for leased sites;
- On-going staff awareness and behaviour change initiatives such as introduction of mobile phone, battery and soft plastic recycling options, promotion of reusable cups and training on waste recycling; and
- Investigation of opportunities to integrate sustainability measures into Directorate programs and service delivery, including through implementation of the ACT Government's Environmentally Sustainable Procurement Policy and Digital Government Initiative.

## **Sustainability – Improvements to the management and operations of our public lighting**

Following an extensive procurement process for the ongoing operations and maintenance of the Territory's streetlights, the ACT Government signed an energy performance contract with Electrix to manage Canberra's streetlight network from 1 May 2018 for a period of seven years. The focus during this period will be on three key outcomes: keeping the lights on; increasing energy efficiency of the network; and contributing to Canberra being a smart city. It is the first energy performance contract for streetlight services in Australia and represents a market-based solution for upgrading and maintaining our streetlight network.

A significant proportion of the ACT's streetlights will be upgraded as part of the new contract, delivering new LED lamps to streetlights in areas that currently have the most inefficient incandescent lights. A new digital control maintenance management system will also be delivered as part of the upgrade, which will enable real time monitoring of the network, with automatic detection of faults such as failures or cable problems.

The ACT Government owns approximately 80,000 lights on streets, footpaths, arterial roads and in various public parks and other open spaces around the ACT. The number of ACT streetlights increases over time as new roads and suburbs are built. Public lighting is the ACT Government's highest use of electricity (25 per cent) and produces 18 per cent of the Government's greenhouse gas emissions. The *Carbon Neutral Government Framework* noted the importance of energy efficiency upgrades of streetlighting.

Through improved energy efficiency of the streetlight network, the Government will consume less electricity and significantly reduce its greenhouse gas emissions. Upgrading the Territory's streetlights will give us a safer, more sustainable, leading digital city.

## **Sustainability – Better Infrastructure Fund in 2018-19**

The *Better Infrastructure Fund* provides resources to extend the useful life or improve the service delivery capacity of existing Territory physical infrastructure assets. This asset enhancement process also aims to improve the sustainability of government operations and services.

The Budget allocates \$55 million for *Better Infrastructure Fund* projects in 2018-19 and \$249 million over the four years to 2021-22 covering:

- land, waste and water demand management;
- transport infrastructure including public transport and active travel;
- urban infrastructure including street lighting and the storm water network;
- education infrastructure including environmentally sustainable initiatives in schools and energy management measures in the Canberra Institute of Technology;
- health and community services infrastructure including energy efficient improvements; and
- improvements to government buildings including energy efficiency upgrades to lighting, heating, ventilation and cooling systems, and removal of hazardous material.

## **Strengthening Community Engagement**

The Government has been involving the community in all aspects of climate change and environment policies. The Government is committed to supporting the community in undertaking activities that complement the delivery of environmental priorities. The Government continues to provide support to community partners including the Canberra and South East Region Environment Centre, the Conservation Council and SEE-Change ACT.

Stemming from AP2, the *Climate Change Community Engagement Strategy* was released in 2014 to affirm the Government's commitment to effective engagement with the community. Actions under this commitment are continuing with an annual program of activities.

The ACT Climate Change Council advises the Minister for Climate Change and Sustainability and the Government on reducing greenhouse gas emissions and adapting to future climate change. Comprised of experts and leading practitioners in the fields of climate science, community work, business and planning, this Council continues its community engagement activities and advice on mitigation and adaptation policy. The Sustainability Alliance, a selection of business leaders, professionals and academics formed in 2017, continues to provide advice to EPSDD on sustainability issues.

To support the development of a new climate strategy, the Climate Change Ministerial Advisory Group (CCMAG) was established by the Minister for Climate Change and Sustainability. This group comprises community members and organisational representatives relevant to climate change policy implementation. The role of CCMAG is to advise the Minister from a community perspective on matters relating to the development of the ACT Government's climate change strategy and net zero emissions goals and adapting to climate change.

The Actsmart Sustainability web hub ([Actsmart.act.gov.au](https://actsmart.act.gov.au)) continues to be the entry point for members of the community looking for programs and advice to save energy and water, reduce waste and cut greenhouse gas emissions. More than 94,000 visitors engaged via the Actsmart website in 2017-18.

The business community is engaged through an annual Actsmart Business Sustainability Expo held in September each year to bring innovative sustainability options, provided by forty industry exhibitors, to more than 300 business owners visiting the Expo.

Each year the Actsmart team engage the community at events including the National Multicultural Festival and Canberra show to encourage action on sustainability at workplaces, homes and schools. In 2017-18, more than 1,500 people were directly engaged at these two events.

The Actsmart Home Energy advice workshops delivered advice and education on reducing your energy, understanding solar, building a six star home and draught proofing. In 2017-18, more than 1,000 householders attended 30 workshops.

In 2017-18, 3,000 householders interacted via the digital space via the Actsmart Carbon Challenge – an interactive challenge based tool for householders to take action in reducing their own carbon footprint.

In October and November 2015, the ACT Natural Resource Management Body (ACT NRM) hosted participatory workshops to help identify options for climate change adaptation in priority ecosystems (natural temperate grasslands, box-gum woodlands, river corridors and wetlands). Workshops used scenario planning and adaptation pathways techniques and included a diverse range of stakeholders from: ACT and NSW government expert advisory bodies, community groups (Frogwatch, Waterwatch, Friends of Grasslands), researchers (CSIRO, ANU, University of Canberra) and non-government organisations (Greening Australia, Kosciusko2Coast, Conservation Council).

Annual Rural Grants and ACT Environment Grants continue to provide ACT rural landholders and community groups with grants to improve sustainable agriculture and protect and enhance habitat across the landscape.

Community volunteering for the environment is going from strength to strength. Citizen science or community monitoring by Waterwatch volunteers, ParkCare groups and individuals is increasing through the use of smart phones and new apps to record and report native plants and animals, weeds and pests and water quality. In the Canberra Nature Map's first year (2015), over 200 people lodged 7,200 plant and fungi reports. In 2015, 180 Waterwatch volunteers also surveyed over 200 sites across the Upper Murrumbidgee catchment.

In 2016-17, funding for community gardens was made available to not-for-profit groups to support building/expanding community gardens. The community gardens program has been extended into the 2018-19 financial year to enable the community to participate in achieving carbon neutrality.

In 2017-18, the ACT Government provided six not for profit community organisations with grant funding to develop innovative solutions to support the ACT's transition to net zero emissions. The successful projects covered a variety of program priority areas from waste, transport and building, with the theme of social engagement represented across all projects. In 2018-19, a further \$150k of funding will be available to support innovative projects across the energy, transport, buildings and waste sectors that focus on improved sustainability and environmental outcomes, and engage the community.