



ACT
Government

2021-22 Minister's Annual Report

under the Climate Change
and Greenhouse Gas
Reduction Act 2010

Presented by
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Minister for Water, Energy
and Emissions Reduction



ISBN: 978-1-921117-87-9

Acknowledgment to Country

Yuma

Dhawura nguna ngurumbangu gunangu Ngunnawal. Nginggada dindi dhawura Ngunnawal bun yindjumaralidjinyin.
Mura bidji mulanggaridjindjula.
Naraganawaliyiri yarabindjula.

Hello

This country is Ngunnawal (ancestral/spiritual) homeland.
We all always respect elders, male and female, as well as Ngunnawal country itself.
They always keep the pathways of their ancestors alive.
They walk together as one.

The Environment, Planning and Sustainable Development Directorate acknowledges the Ngunnawal people as Canberra's first inhabitants and Traditional Custodians. We recognise the special relationship and connection that Ngunnawal peoples have with this Country. Prior to the dislocation of Ngunnawal people from their land, they were a thriving people whose life and culture was connected unequivocally to this land in a way that only they understand and know, and is core to their physical and spiritual being. The disconnection of the Ngunnawal people from Culture and Country has had long-lasting, profound and ongoing health and well-being effects on their life, cultural practices, families and continuation of their law/lore. The Environment, Planning and Sustainable Development Directorate acknowledges the historic dispossession of the Ngunnawal people of Canberra and their surrounding regions. We recognise the significant contribution the Ngunnawal people have played in caring for Country as for time immemorial they have maintained a tangible and intangible cultural, social, environmental, spiritual and economic connection to these lands and waters.

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Produced by the

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Contents

Foreword	1
2021-22 at a glance	2
Introduction	2
Part A: Actions taken in 2021-22	5
Renewable electricity supply.....	5
Review of the Act.....	5
Sustainable Household Scheme and the Big Canberra Battery.....	5
Home energy efficiency	6
Gas transition pathway	7
Support to reduce energy costs and emissions	8
Other engagement initiatives	8
Reducing Government emissions	10
Expanding zero emissions vehicles.....	10
Local, national, and international leadership.....	12
Part B: Effectiveness of Government actions	13
ACT Greenhouse Gas Inventory	13
Agency specific performance	13
ACT Renewable Energy Target compliance	14
Part C: Cost Benefit Statement	16
Climate change policy costs and benefits	16
Energy Efficiency Improvement Scheme.....	16
Emissions reductions and industry development	16
Households and businesses	17
Appendix A – Progress on actions	18
ACT Climate Change Strategy 2019-25	18
Canberra’s Living Infrastructure Plan: Cooling the City	27





Foreword

The ACT is a leader on climate change action. We are recognised nationally and internationally and 2021-22 was yet another good year in our climate leadership journey.

This Annual Report showcases significant achievements made by the ACT Government and the ACT community in responding to climate change in 2021-22. It also demonstrates our commitment to transparency and accountability for the work we do to reduce emissions in a cost-effective manner. In 2021-22 we brought our emissions down to 47% below 1990 levels. We should all be proud of these achievements, but we must be ready to work even harder to do our share to address this global problem.

For the third year in a row the ACT was powered by 100% renewable electricity supplied by 11 large feed-in tariff supported projects. We will continue to maintain our 100% renewable electricity supply into the future and focus our attention on the remaining sources of emissions. Our biggest challenges now are to reduce our emissions from transport and gas, which together account for around 80% of the ACT's emissions.

In 2021-22 we made significant progress in a range of areas and laid important groundwork for future work. For example, the Sustainable Household Scheme has helped thousands of Canberrans to access no interest loans for energy generation and storage such as rooftop solar and household battery systems, electric vehicles and chargers, energy efficient products such as electric heating and cooling, and hot water.

Our work on accelerating the uptake on zero emission vehicles has continued. We published the Electric Vehicle Charging Outlook for the ACT and progressed our program to support the delivery of 50 public electric vehicle (EV) chargers across the ACT. We have now installed more than 150 EV chargers to support the Government fleet's transition to zero emission vehicles. The groundwork for a new zero emissions vehicle strategy was undertaken and the new business fleet advisory program was launched in April 2022.



Tackling the important work of transitioning away from fossil fuel gas and developing the pathway to electrification has begun. It is an exciting time for Canberra as we prepare to electrify our city and accelerate the uptake of zero emissions vehicles. We're doing this because an all-electric Canberra will allow us to power our city, homes, businesses, and transport in a cleaner and sustainable way. I look forward to future reports setting out how our community is successfully making the transition to a zero emissions city.

Shane Rattenbury MLA,

Minister for Water, Energy and Emissions Reduction

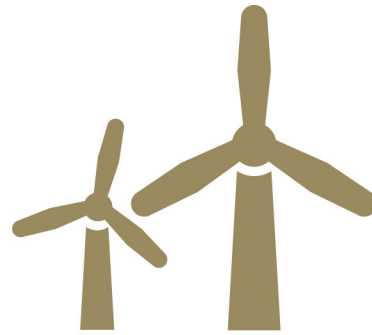
Introduction

In 2010, the ACT Legislative Assembly passed the *Climate Change and Greenhouse Gas Reduction Act 2010* (the Act). The purpose of the Act is to promote the development of policies and practices to address climate change, to set targets to reduce greenhouse gas emissions and to provide monitoring and reporting in relation to the targets. For each financial year, the Minister must prepare a report on:

- The actions taken during the year to exercise the functions required of the Minister under the Act;
- The effectiveness of government actions taken to reduce greenhouse gas emissions; and
- The findings of a cost-benefit analysis of any government policies or programs implemented to meet the targets.

This report outlines the ACT Government's actions against the requirements of the Act for the 2021-22 financial year.

2021-22 at a glance



ACT powered by
100%
renewable
electricity



Big Canberra
Battery project of
250MW
started

100% of new ACT Government
passenger vehicles were
zero emissions,
where a fit-for-purpose
zero emission vehicle
was available



Greenhouse gas emissions
47%
lower ↓
than 1989-90 levels



Published the
Electric Vehicle Public Charging Outlook

Programs supported

 **households, schools and businesses**
to reduce their emissions

Funded community projects
to reduce emissions and increase climate resilience




The
\$50 million

Home Energy Support Program for low income households commenced

Established the

\$5 million

Community Clubs program offering rebates for energy efficiency upgrades, solar and energy storage systems



Established a zero emission vehicles

business fleet advisory service

Funded **gas to electric upgrades**



at the Fyshwick depot and Yarralumla Nursery



Developed options to prevent future gas connections in greenfield developments



Commenced a program to install **public electric vehicle chargers**



←
Everyday
climate



Sustainable
household
scheme



↑
Everyday
climate
choices



Everyday
climate
choices

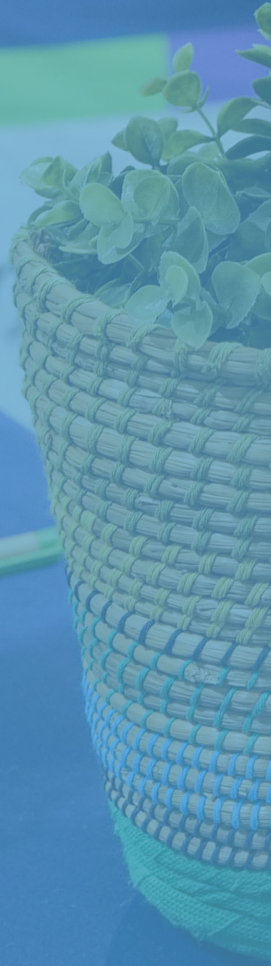
Support for
Concession
Card holders



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Part A: Actions taken in 2021-22

The ACT is a leader on climate change action, recognised nationally and internationally for its climate leadership.

Renewable electricity supply

For the third year in a row the ACT was powered by 100% renewable electricity, with 11 large feed-in tariff supported projects completed and the ACT electricity systems continuing to deliver reliable, affordable and renewable energy.

In September 2020, the ACT Government announced the two successful winners of the fifth ACT Renewables Auction to ensure the ACT's electricity supply remains 100% renewable into the future. Two projects were secured through the auction to deliver 200MW of renewable electricity to the ACT: Global Power Generation's Berrybank wind farm in Victoria; and Neoen's Goyder wind farm in South Australia. The Goyder wind farm is in the construction stage whilst Berrybank is expected to start generating in late 2022.

Completed a 10-year review of the Climate Change and Greenhouse Gas Reduction Act 2010 (ACT)

In its tenth year of operation, the *Climate Change and Greenhouse Gas Reduction Act 2010 (ACT)* (the Act) was reviewed to:

- Assess the effectiveness of the Act in achieving its objects from 2010 to 2020.
- Assess the appropriateness of the Act in achieving the intended outcomes to 2030 and beyond.
- Identify and recommend changes to the Act (including the Objects of the Act itself) so that it can achieve the intended outcomes to 2030 and beyond.

The review found that the Act provides high-level, relatively simple legislation that has enabled successful policy development and outcomes. To date, the Act has been highly effective in allowing the ACT Government to set the groundwork for action, develop policy and successfully meet emissions reduction and renewable energy targets.

The review outlined recommendations so that the Act continues to drive effective action to meet the Government's climate objectives and promote greater transparency, accountability and evidence-based policy decisions. The ACT Government agreed to nine recommendations, agreed in principle to one and noted two. This led to the formulation of the *Climate Change and Greenhouse Gas Reduction Act Amendment Bill 2022*, which was presented to the Assembly in June 2022.

Delivery of the Sustainable Household Scheme and the Big Canberra Battery Project

The Sustainable Household Scheme

The Sustainable Household Scheme has helped thousands of Canberra households access rooftop solar and household battery systems and energy efficient products such as electric heating and cooling, and hot water. In addition, it has provided access to new and used Electric Vehicles and charging infrastructure. Installation and use of these products has supported households to live more comfortably, reduce their energy use and cut down their living expenses.

Since its launch in September 2021 to the end of June 2022, the Scheme has demonstrated itself to be a key component in the ACT's transition to net-zero emissions. Over 1,500 zero-emission energy products have been applied for and over 1300 products have now been installed under the Scheme. In adding renewable energy sources to meet the demand of the Territory, the Scheme has generated over 25 MW of renewable power, approximately 3.8% of the Territory's energy demand. The Scheme has reduced the ACT's CO₂ emissions by around 1,075 tons through upgrades from gas to electric products. This has reduced ACT household's annual running costs by about \$12.4 million.

The Big Canberra Battery Project

The Big Canberra Battery Project will provide \$100 million to support the development of at least 250MW of large-scale batteries. This will support the ability of the ACT's electricity system to deliver reliable, affordable renewable energy in several ways. Batteries procured under the transmission-scale stream will provide a range of network services that will support the electricity network's ability to provide reliable electricity while also supporting the national grid's transition to one characterised by renewable electricity and storage. Batteries procured under the ACT Government sites stream will support the ACT's zero-emissions Government objectives by making the best use of installed rooftop solar. The cost savings achieved through this stream will reduce the ACT's Whole-of-Government electricity purchase costs, while showcasing the potential of larger behind-the-meter batteries. Batteries procured under the neighbourhood-scale batteries stream will have the potential to support the efficient operation of the distribution network. A more resilient and efficient distribution network has the potential to reduce certain components of electricity costs for consumers, such as network costs.

Expressions of interest have been successfully delivered and the Territory has now created a shortlist of proponents for the transmission-scale stream that will be invited to respond to the second stage (Request for Proposal). The Territory will deliver the three streams under separate future procurements.

Supported households to increase their homes' energy efficiency

Sustainable Home Advice Service

Sustainable Home Advice is a free email, phone and in-home assessment service for ACT residents wanting independent advice on how to reduce utility bills, minimise CO₂ emissions and improve household comfort. During the year, 2,429 residents received advice through email, phone and in-home energy assessments. This is more than double the number from 2020–21 (1,011).

This program delivered free online workshops on energy efficiency. Workshop topics included understanding solar for your home, understanding EVs, transitioning from gas to all electric homes and staying warm on less. These workshops supported the launch of the Sustainable Household Scheme as residents were required to attend a workshop as part of applying for the interest free loans. 3,729 residents attended 48 workshops.

Renters' Home Energy Program

Recognising the challenges for renters seeking to improve their home's energy efficiency, the ACT Government offered free in-home or phone-based energy assessments and energy saving materials to all renters in the ACT, with 133 renters supported in 2021–22. In 2021–22, 74% of renters who provided feedback reported that their home had become more comfortable after they had made the recommended energy-saving changes. An online home energy assessment self-assessment tool was used by 126 rental households, and 418 homeowners.



Researched an appropriate gas transition pathway for the ACT

Work commenced on research and analysis to help identify the most appropriate pathway for the ACT to transition off gas, including detailed technical and economic modelling work. This work will inform development of a plan during 2022-23 to implement the gas transition.

Reviews have begun to ensure ACT Government programs and regulations that support household investments (including the Sustainable Household Scheme, Home Energy Support Program, Energy Efficiency Improvement Scheme, Business Energy and Water Program) include appropriate attention to the benefits of phasing out natural gas use.

Developed options to prevent future gas connections in greenfield developments

A detailed assessment of the interplay of national and jurisdictional energy law was completed in 2021-22. This work has informed advice on how to examine options for preventing new gas mains connections in greenfield development, which will be a key part of the ACT Government's effort to transition to zero emission from gas use.

Provided additional support to targeted households to reduce energy costs and lower emissions

Low Income Household Energy Efficiency Program

The Low Income Household Energy Efficiency program, delivered by St Vincent de Paul, has delivered 4,610 energy assessments for vulnerable households since the program began in October 2015. The program is a free in-home service that also provides draught proofing, education and other energy saving materials.

Legislation for minimum energy efficiency standards for rental homes

Introduction of minimum energy efficiency standards for rental homes has progressed. Following analysis in mid-2021, a Regulatory Impact Statement (RIS) was released in late 2021. It presented a preferred option for rental homes with less than R2 insulation to be required to install or upgrade to a minimum of R5. The R value is a measure of thermal performance and R5 is what is typically installed in new builds in Canberra.

Community consultation and stakeholder engagement in November and December 2021 heard views on the proposed minimum standard and how it should be implemented. A listening report summarising the feedback was released in March 2022.

This standard will target the worst performing properties and is expected to commence in April 2023 with the minimum standard being phased-in over several years.

Home Energy Support Program

The Home Energy Support Program is a \$50 million commitment over four years to improve building efficiency and sustainability for social and public housing, low-income owner occupiers and low performing rental properties. A further \$3.1 million has been committed to provide financial support for low-income homeowners to install rooftop solar.

A pilot program was delivered for rental providers involved with the *Affordable Community Housing Land Tax Exemption Scheme* for the quarter commencing 1 April 2022. The pilot provided a rebate of up to \$5,000 for eligible rental providers to help with the upfront costs of installing ceiling insulation upgrades in their rental property. In 2021-22, 57 applications were approved for rental providers to upgrade their ceiling insulation.

From 31 March 2022, eligible homeowners could access a rebate of up to \$2,500 for the installation of rooftop solar. The program has an option to pay the balance of the solar system with an interest-free loan through the Sustainable Household Scheme. In 2021-22, 17 households received a rebate for the installation of rooftop solar.

Reduced emissions through engagement initiatives

Community partnerships

The ACT Government funds three organisations (Canberra Environment Centre, SEE-Change and Conservation Council ACT Region) to engage the community on a range of environmental and sustainability issues, initiatives, policies and programs.

Electric Bike Library

The Canberra electric bike library lets Canberrans try out e-bikes for free for a fortnight. This increases confidence for purchases. The library, which is funded by ACT Government and run by SEE-Change in collaboration with Switched on Cycles, provides standard e-bikes and cargo style e-bikes, as well accessories such as child seats, grocery baskets and pannier bags. The library will be expanded in 2022-23 to include a larger range of electric bikes and increased opening hours.

Renewable Energy Innovation Fund (REIF)

To date, REIF has provided funding support for local start-ups, research organisations such as the Australian National University Battery Storage and Grid Integration Program, and renewable energy innovation ecosystems, such as the ACT Renewables Hub. The REIF was established in 2016 with \$12 million in funding from the successful proponents in previous ACT renewables auctions. Additional funding was secured as part of the ACT Renewables Auction 5 which was completed in 2020. The new funding provides the opportunity to review and design the future scope, funding model and impact of the REIF.

Canberra Institute of Technology (CIT) Renewable Energy Centre of Excellence

The CIT Renewable Energy Centre of Excellence commenced as a project from a previous renewable energy auction. It continues to be a national centre of excellence in training for wind, solar and battery maintenance, and operations. In 2021-22, CIT launched a new electric vehicles (EVs) training lab and began training mechanics and emergency responders in handling EVs. The Centre for Excellence also delivered a training program for insulation installers to support the inclusion of insulation as an activity under the Energy Efficiency Improvement Scheme.

The Battery Storage Grid Integration Program

The Battery Storage Grid Integration Program at the Australian National University, which received seed funding through the REIF, continues to be a leading source of technical and policy advice on storage systems and their use in a modern electricity system.

Next Gen Program - delivering household batteries

The Next Gen Program continued to provide support for installation of battery storage in ACT homes and businesses. More than 2,960 storage systems, or 14.2MW of sustained peak output, have been funded. An additional 840 have been approved but not yet installed. The process for accepting approved installers was made more flexible while maintaining quality, leading to an increase in the number of suppliers from 14 to 25.

Vehicle2Grid and Vehicle2Home

A vehicle-to-grid (V2G) trial in collaboration with ActewAGL and funding from the Australian Renewable Energy Agency (ARENA) is being overseen by the Australian National University. This trial is working on V2G reliability and viability to support the grid in the transition to zero emissions vehicles (ZEVs). V2G enabled chargers are installed and the V2G pilot will conclude in 2023.

The ACT Government participated in the first Industry Reference Group meeting for the RACE to 2030 Cooperative Research Project “My V2X” which will run to June 2025. The project will explore V2G and Vehicle2Home.

Supported community clubs to invest in technologies to reduce their energy costs and lower emissions

The Building Energy Efficiency Upgrade Fund ‘Community Clubs Program’ launched in October 2021 and provided eligible clubs with access to \$75,000 rebates for energy efficiency upgrades, installation of solar and energy storage systems and building envelope upgrades. 19 clubs have registered for the program, 18 clubs have undergone site energy assessments and four clubs have received approval to begin upgrades.

Supported ACT Government agencies to transition to zero emissions operations, with a focus on reducing emissions from gas and transport

Zero emissions vehicle fleet

The ACT Government continues to lead in the transition to ZEVs. In 2021-22, there were 74 new ZEV leases, making up 100% of new passenger leases where a fit-for-purpose ZEV was available. In 2021-22, 50 new EV chargers were installed at ACT Government facilities bringing the total number of chargers to over 150 across Government sites, with more than 200 additional chargers due to be installed by the end of 2022.

Other commitments progressed from the 10th Parliamentary and Governing Agreement include collaboration with Transport Canberra and City Services to implement a pathway for the ACT to use only zero emissions public transport and garbage trucks and continuing to deliver the ARENA co-funded Realising Electric Vehicle-to-grid Services (REVS) V2G project. After a successful pilot project, the ACT Government is also supporting the expansion of the electric tipper truck trial.

Zero emissions facilities

The 'Zero Emissions Government Facilities Guidelines' were developed to ensure future facilities are fossil-fuel-gas free and current facilities aim for all electric retrofits. This work is in line with the 10th Parliamentary and Governing Agreement to ensure all new ACT Government buildings and facilities are fossil-fuel-gas free, including new leases.

The Social Cost of Carbon Fund

The Social Cost of Carbon Fund had \$1,340,000 of funding available in 2021-22 based on the interim price of \$20 per tonne of CO₂ from Government operations. The funds are used in emissions reduction projects, such as the electrification of gas heating systems. Three building-based projects commenced under the fund in 2021-22 to remove natural gas assets from Government facilities:

- Installation of solar photovoltaic system and replacement of gas workshop heaters with electric heaters at 255 Canberra Avenue.
- Installation of an all-electric heating system at Fadden Public School.
- Replacement of heating system in one glasshouse at Yarralumla Nursery.

Supported the expansion of the number of zero emissions vehicles in the Territory

Established a Fleet Advisory Service

The Fleet Advisory Service launched in April 2022 to support Canberra businesses and community organisations transitioning their fleets to ZEVs with sixteen businesses receiving detailed support by 30 June 2022.

The Service provides information on, and experience with, evolving ZEV technology to businesses, community and not-for-profit sectors to guide, equip and supported them to successfully adopt the move to ZEVs. A coordinated approach to transitioning fleets to ZEVs that supports both industry and the public is critical to achieving Government targets.

Published an Electric Vehicle Public Charging Outlook

The ACT Public Charging Outlook was published in December 2021. This is part of setting out a plan for the development of a network of public ZEV chargers in key transport corridors and destinations in the ACT and detailing how these will be developed over time. The Outlook covers:

- the number of public chargers required to support expected ZEV growth in the ACT, and the type and speed of the chargers
- where demand for the chargers is expected to occur across Canberra
- how charging providers can work with ACT Government and energy providers to install chargers in the ACT.

Government also developed scenarios of ZEV penetration, analysing overseas experience and considering financial models for different charging options and the needs of different user groups. This analysis and consultation will support ACT Government and the ZEV industry in the delivery of 50 new public EV charging stations.

Supported new publicly accessible electric vehicle chargers

In December 2021, the ACT launched a program to support 50 public EV chargers in the ACT through a two-stage competitive grants funding process. The Request for Proposal stage was completed in June 2022, it is expected that installation of chargers across the ACT will commence in the second half of 2022 and be completed by mid 2023.

Development of a new ZEV strategy and sales target

The ACT Government has consulted extensively, both internal to the ACT Government and externally, on an ambitious target for sales of vehicles to be zero emissions in 2030. Analysis and research has been conducted to inform Government on an appropriate level for the target. Research topics include ZEV sales targets in other jurisdictions, expected ZEV uptake rates under different possible future scenarios, and expected additional ZEV sales to be expected under different policy settings.



Collaborated to reduce emissions and advance action on climate change locally, nationally, and internationally

Climate Change Council

The ACT Climate Change Council (the Council) advises the Minister for Water, Energy and Emissions Reduction (the Minister) on matters relating to reducing greenhouse gas emissions and building resilience and adapting to climate change.

The Council plays an important role in informing climate change policies in the ACT, liaising with business and community, and scanning the horizon for the challenges and opportunities associated with creating a prosperous, climate-ready net-zero emissions Territory. It seeks to provide leadership by listening to community views and attitudes, understanding best international practice on climate change, and raising awareness of climate change risks and community benefits from effective climate action.

During 2021–22, continuing Council members were Professor Mark Howden (Chair), Dr Paul Bannister, Associate Professor Chris Brack and Ms Sophia Hamblin Wang. Ms Karen Jesson (November 2021) and Mr Ben Ponton (30 June 2022) ceased their membership during the reporting period. Four new Council members were appointed from 1 February 2022, Dr Tom Longden, Dr Arnagretta Hunter, Ms Mia Swainson and Associate Professor Aparna Lal. Two Observers also joined the Council from the Dhawura Ngunnawal Caring for Country Committee, Ms Roslyn Brown and Mr Djibin Mudford.

Council members have a diverse range of skills and experience in areas such as climate change science, energy efficiency, community, health, business and economics.

Over the 2021–22 reporting period, the Council held five formal meetings and provided climate change and adaptation advice to the Minister for Water, Energy and Emissions Reduction as well as the ACT Government including on the draft ACT Zero Emissions Vehicle Strategy and on achieving the ACT's 2025 emissions reduction targets.

The Council has also presented climate change advice across portfolios, including the Climate Action Cabinet Subcommittee and other Ministers. Topics covered include 'Cool Cities. Cool Roads', renewable gas certificates, the hydrogen economy, electric vehicles and the Social Cost of Carbon Reports.

Further information on the work of the Council is available on the [Council's website](#).

Led changes to the national energy objective

The ACT is leading a national energy policy agenda with the Australian Government and other jurisdictions to ensure that specific recognition of emissions reduction goals is included in the national energy objectives, which includes the National Electricity Objective (NEO), the National Gas Objective (NGO) and the National Energy Retail Objective (NERO).

In September 2021, the Energy National Cabinet Reform Committee (ENCRC) agreed that the ACT and Queensland would bring forward a paper on the incorporation of emissions reduction in the national energy objectives.

International engagement

The ACT is a leader on climate change action and continues to engage with other jurisdictions on a national and international scale, through partnerships such as the Under 2 Coalition, Global Covenant of Mayors for Climate and Energy and the Cities Power Partnership.

The ACT transparently reports its climate change actions and greenhouse gas emissions annually through the international Carbon Disclosure Project.

Part B: Effectiveness of Government actions

ACT Greenhouse Gas Inventory

Every year the ACT Government publishes the Territory’s greenhouse gas emissions.

Total greenhouse gas emissions in 2021-22 were 1,647 kt CO₂ equivalent in the ACT. This represents a 47% reduction from 1989-90 levels. This has been largely due to the ACT achieving its Renewable Energy Target in recent years. The remaining 3% reduction required to meet the 2025 interim target requires changes to point-of-consumption technologies (e.g. zero emissions vehicles and/or a transition away from natural gas) and achieving this can take time. The COVID lock down period in August 2021 is likely to have reduced transport emissions and emissions could increase in 2022-23 as travel returns to normal.

Per capita emissions were 3.6 t CO₂ equivalent in 2021-22, representing a 62% reduction from 1989-90 levels. Table 1 shows a snapshot of our progress towards our 2025 emissions reduction target (50 to 60% less than 1990 emissions).

Transport is the largest source of emissions at 58%, followed by natural gas combustion at 20% and waste decomposition 8%.

Table 1: ACT emissions over time and 2025 target (kt CO_{2-e})

Year	1989-90	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2025 Target
Total Emissions (kt CO _{2-e})	3,098	4,081	3,821	3,823	1,719	1,774	1,647	1,549 to 1,239
Per capita emissions (t CO _{2-e} / per person)	11	9.9	9.0	8.7	3.9	3.9	3.6	

Agency specific performance

Government aims to demonstrate leadership in the transition to zero emissions. In support of this goal, the ACT Government has set a target of achieving zero emissions from government operations by 2040, five years ahead of the community zero emissions target.

Achieving Government’s 100% renewable electricity target in 2020 cut Government emissions by around 60%. Efforts to achieve zero emissions from government operations are now focussed on replacing fossil fuels, such as petrol and natural gas, with renewable electricity. Key measures supporting the government transition to zero emissions are:

- *Zero-emission transition plan for Transport Canberra* which outlines the approach to a zero emissions bus fleet by 2040;
- *ACT Zero Emissions Vehicle Strategy* which outlines the transition of the government passenger fleet to ZEVs;
- *Electrification of government gas assets 2021-22* budget measure will develop a whole of government program to replace natural gas assets in government operations at end of life.

ACT Government agencies have five-year emissions reduction targets that they report against annually using the 2019 calendar year as a baseline. Table 2 shows each directorate’s 2021–22 (financial year) performance against the baseline. In 2021-22 ACT Government emissions were 1.9% below the baseline levels.

Table 2: Greenhouse gas emissions by Directorate 2021-22*¹.

Directorate	Baseline (t CO ₂ -e)	2021-22 emissions (t CO ₂ -e)	Emissions as a percentage of baseline
ACT Health Directorate	319	395	+23.8%
Canberra Health Services	10,349	7,471	-27.8%
Chief Minister, Treasury and Economic Development Directorate	4,113	5,168	+25.7%
Community Services Directorate	598	529	-11.5%
Education Directorate	6,337	6,580	+3.8%
Environment, Planning and Sustainable Development Directorate	789	558	-29.2%
Justice and Community Services Directorate	3,543	3,370	-4.9%
Major Projects Canberra	16	81	+406.3%
Transport Canberra and City Services Directorate	39,029	39,698	+1.7%
TOTALS	65,093	63,850	-1.9%

ACT Renewable Energy Target compliance

The ACT Government committed to deliver 100% renewable electricity for the Territory from 2020 under the *Climate Change and Greenhouse Gas Reduction Act 2010*. In 2021–22, for the third financial year, the ACT Government successfully met its target to source 100% of the Territory’s electricity from renewable sources. This means voluntarily surrendering 2,224,349 large-scale generation certificates (LGCs) to the Clean Energy Regulator on behalf of all ACT electricity users.

The ACT Government published a methodology ([the acquittal methodology](#)) for assessing compliance with this 100% renewable electricity target. In the acquittal methodology, electricity consumption (demand) is accounted for as the electricity imported into the ACT electricity grid from where it connects to the NSW transmission grid. This means that electricity generated in the ACT (such as from rooftop solar, large-scale solar farms and landfill gas generators) acts to reduce electricity consumption and, consequently, reduces the amount of electricity required to be imported from the transmission grid. In addition, the ACT’s share of Commonwealth Large-scale Renewable Energy Target (LRET) in the ACT and the ACT’s share of Below Baseline NSW region National Electricity Market (NEM) renewable generation contributes towards the overall number of LGCs to surrender. The methodology also accounts additional LGCs to surrender for electricity generated by ACT landfill gas.

It should be noted that LGCs are surrendered based on an estimate of the ACT’s electricity consumption each financial year (see Table 3). Any discrepancy between LGCs surrendered and ACT electricity consumption is reconciled at the end of that financial year. If too many certificates have been surrendered, the excess LGCs are carried forward to the following year.

Consideration is being given to an alternative methodology for calculating LGCs. This is also provided in Table 3. This alternative methodology has a different approach to the treatment of landfill gas and ACT grid solar, and may be used in future years.

¹ *Data source: ACT Government Enterprise Sustainability Platform (extracted 12/09/2022). Note that some data reported for 2021-22 in the table above may differ slightly from figures reported in the Directorates 2021-22 Annual Reports. Subject to when the data is extracted, if the actual billing data is not available, the Enterprise Sustainability Platform provides estimates using an accrual function. Accruals are calculated from the average annual daily consumption of the most current 12-month period applied for the number of days of missing data. The date of data extraction can result in variations to reported figures.

Table 3: 100% Renewable electricity target acquittal.

2021-22	Current methodology	Alternative methodology
Electricity received from the NEM	2,730,479	
Electricity flow in the ACT [Electricity supplied to ACT customers]		3,000,784
Greenpower purchases in the ACT	-	
ACT's share of below baseline NSW region NEM renewable generation	91,810	91,810
ACT's share of Commonwealth Policies (LRET)	507,596	507,596
Grid connected generation within the ACT		
Total supply other than LGCs	599,406	599,406
Additional LGCs to surrender for ACT grid solar	64,670	
Additional LGCs to surrender for ACT landfill gas	28,606	
Electricity generated by renewable sources in the ACT and exported to the distributor		177,029
	93,275	177,029
LGC's to be surrendered	2,224,349	2,224,349
LGCs surrendered 30 June 2022	2,169,654	2,169,654
LGCs carried forward from prior year	76,038	76,038
LGCs to be carried forward	21,343	21,343

Part C: Cost Benefit Statement

Climate change policy costs and benefits

Government actions to reduce emissions are designed to benefit industry, households, businesses and the community. For example, the Energy Efficiency Improvement Scheme is continuing to deliver energy and cost savings for participating ACT households and small to medium businesses for the lifetime of installed technologies. Other programs have delivered additional savings for households and businesses, and the ACT's large-scale feed-in tariff system has provided support to the renewable energy industry while also delivering substantial emission reductions for the ACT. Together, the Energy Efficiency Improvement Scheme, the Small and Medium Feed-in-Tariff Scheme and the Large Scale Feed-in-Tariff Scheme, are estimated to have cost a representative ACT household around \$358 in 2021–22. The majority of this cost (approximately \$300) is due to increased pass through costs associated with the Large-Scale Feed-in-Tariff. This cost is forecast to reduce in 2022-23.

Activities completed under the Energy Efficiency Improvement Scheme in 2021–22 offset this impact, with millions of dollars in lifetime energy bill savings delivered across participating ACT households and businesses. Retailers pass through compliance costs of the Energy Efficiency Improvement Scheme to customers through their electricity bills. In 2021–22, the average pass-through cost of compliance for a representative household is estimated to be \$20.32 per annum.

In recent years, the costs of meeting our 100% renewable electricity target have been lower than originally anticipated, due to higher wholesale electricity prices. The average small-scale FiT scheme pass-through costs for a representative household consuming 6,370 kWh annually in 2021–2022 was around \$36.82. The large-scale FiT scheme pass-through costs for representative household were around \$300.86 in 2021–22. ACT electricity prices remain competitive with other jurisdictions, even while delivering 100% renewable electricity.

Energy Efficiency Improvement Scheme

The Energy Efficiency Improvement Scheme delivers energy efficiency benefits to households and businesses. This supports the ACT by reducing emissions associated with energy use as well as reducing energy use and costs. Since the Scheme commenced in 2013 up to 30 June 2022:

- around 80,000 households and businesses have benefited from the Scheme, including more than 21,000 priority households
- more than 4,300 small- and medium-sized businesses received commercial LED lighting upgrades, reducing business energy use and cost.
- Over 700,000 tonnes of carbon dioxide equivalent emissions were saved.

Emissions reductions and industry development

Under the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* and through five rigorous and competitive reverse auctions the ACT Government has contracted 11 solar and wind sites which secure 841MW of renewable electricity per year.

Under the large-scale FiT scheme, the ACT Government, on behalf of the consumers, make FiT support payments to

generators for the eligible electricity they generate and sell on NEM. In return, the ACT Government receives Large-scale Generation Certificates (LGCs) and voluntarily surrenders them to meet the Territory's commitment for 100% renewable electricity. The large-scale FiT scheme aims to provide security and stability for investment in the renewable industry. In addition, it helps offset the impact of fluctuating wholesale prices on Canberra consumers. However, due to the nature of the energy market, the ACT consumers pay the difference between the FiT price and the wholesale market price. This means that if wholesale prices are above the agreed FiT price between the Government and generators, then ACT consumers pay a proportionally smaller amount on their electricity bills to offset the FiT support payment. On the contrary, if the wholesale prices fall under the agreed FiT price, the ACT consumers pay a proportionately higher amount on their electricity bills to compensate the FiT support payment.

The ACT small-and-medium scale FiT scheme supports the generation of electricity by eligible solar systems with less than 200 kW capacity. A total of 9,876 solar systems were registered as FiT generators in 2021-22, with a total generation of 38,370MWh from combined capacity of about 34.39MW. Similar to large scale FiT scheme, the small scale FiT scheme contributes to the ACT's 100% renewable electricity target.

Households and businesses

Supporting low-income households

The cost impact of climate change measures, while being marginal on the community as a whole, may have disproportionate impacts on lower income households. To address this, a number of Government policies are in place to help low income households suffering financial stress due to energy bills, helping to reduce costs and improve thermal comfort.

These include programs for low-income households and renters, utility concessions and requirements on energy retailers to assist consumers suffering financial hardship.




In 2021–22, around 1,068 low-income households accessed support through home energy assessments, energy efficiency upgrades including draught-proofing, rebates and zero-interest loans for energy efficient appliance purchase, and education via workshops.

In 2021–22, the Utilities Hardship Fund continued to support energy consumers impacted by the COVID-19 health emergency. Eligible customers can receive \$100 vouchers from participating retailers. Additional funding has been committed to improve energy literacy in the community so consumers better understand their bills, rates and services to help in times of need.

In 2021–22, the Energy Efficiency Improvement Scheme continued to deliver energy savings in low income, priority households. The Priority Household Target, which mandates what percentage of energy savings must be delivered in priority households, was set at 40 per cent for the 2021 and 2022 compliance period and will be maintained for 2023. Activities delivered under the Energy Efficiency Improvement Scheme, in conjunction with complementary programs, will help expand opportunities for low-income priority households in the Territory to take up energy efficient technologies and reduce their energy use and costs.

The Energy Efficiency Improvement Scheme supported the delivery of the Energy Efficiency Improvements in Public Housing program, with 1,110 energy efficient electric heaters and hot water systems installed from 1 July 2021 to 30 June 2022.

Appendix A – Progress on actions

 Delivered/BAU	The initiative has been completed and/or is now ongoing	 Work progressing	Work on this initiative has begun	 Yet to Commence	Work on this initiative has not yet commenced
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The majority of actions in the ACT Climate Change Strategy 2019-25 are *Work Progressing* (47), or *Delivered/BAU* (34), including those actions that are now integrated into business-as-usual operations. A small number of actions are *Yet to Commence*(2).






Similarly, the majority of actions in the Living Infrastructure Plan are *Delivered/BAU* (5) and integrated into business-as-usual operations, or *Work progressing* (9), with one *Yet to Commence* (1).

Some delays have been encountered as government priorities have been re-aligned in response to the Covid pandemic and the 10th Parliamentary and Governing Agreement. The Government has responded to changes and challenges in an adaptive and flexible manner seeking to maximise the use of existing resources to deliver on emerging priorities of the. The ACT Government will continue to manage and progress all outstanding actions, and where possible, accelerate the delivery of delayed activities.

ACT Climate Change Strategy 2019-25

Community leadership



The Climate Choices website was launched to focus on encouraging community-driven solutions to climate change. This is a go-to source for practical steps to save money, reduce greenhouse gas emissions and adapt to climate change. Free resources and advice, as well as information about grants and rebates is available on the Everyday Climate Choices website. In 2021-22, the scope of the Community Zero Emissions Grants was expanded to support projects that increase climate resilience.

Code	Action description	Status
1.01	Expand the scope of the Community Zero Emissions Grants to support community projects that reduce emissions and / or increase resilience to climate change and prioritise projects that offer replicable solutions.	 Delivered/BAU
1.02	Support and enable community action on climate change by providing tools and resources and recruiting a dedicated climate change community liaison in the Environment, Planning and Sustainable Development Directorate.	 Delivered/BAU
1.03	Deliver the Actsmart programs to encourage and support community efforts to reduce emissions and improve sustainability outcomes.	 Delivered/BAU
1.04	Enable community members to share ideas for ongoing improvements to the strategy via Government digital platforms.	 Work progressing
1.05	Work with the ACT Climate Change Council to encourage community participation in climate change initiatives.	 Delivered/BAU

Code	Action description	Status
1.06	Work with the local Traditional Owners and the Aboriginal and Torres Strait Islander community to integrate traditional knowledge into landscape management.	 Delivered/BAU

Just Transition

As part of supporting low income households and vulnerable sectors of the community to participate in responding to climate change, the new \$50 million Home Energy Support Program was launched in 2022 with rebates for solar power systems for low-income households. Additional support measures are to be introduced in 2022-23. As part of supporting re-training of workers, the Canberra Institute of Technology (CIT) launched a new electric vehicles (EV) training lab to train mechanics and emergency responders in handling EVs.

Code	Action description	Status
2.01	Partner with community service organisations to identify vulnerable and disengaged sectors of the community and implement measures to support their participation in shifting to net zero emissions.	 Work progressing
2.02	Engage with industry and workers to identify sectors likely to be affected by the transition to a net zero emissions economy and support re-training of workers where needed.	 Work progressing










Transport

The ACT Government is leading by example in the transition to zero emission vehicles (ZEV) through the Government's ZEV fleet and by encouraging ZEV uptake more broadly. Key activities included publishing an Electric Vehicle Public Charging Outlook, supporting the increase of ZEV chargers, the development of a new ZEV Strategy and the zero-emission transition plan for Transport Canberra which outlines the approach to a zero-emissions bus fleet by 2040 or earlier.

The Zero-Emission Transition Plan for Transport Canberra released in 2020 outlines the approach to a zero-emissions bus fleet by 2040. Transport Canberra have completed the procurement process for 12 Battery Electric buses, expected to arrive by the end of the year and are progressing the procurement of a further 90 Battery Electric buses. Transport Canberra continues to work with the energy sector to progress the electrical infrastructure upgrade requirements for existing depots. Following an independent review of shared micro mobility (e-scooters) in 2021, the ACT Government commenced refining and expanding services, first in the Bruce precinct in April 2022 and then planning for Canberra-wide expansion by the end of 2022 and the inclusion of e-bikes. Shared micro mobility supports people with first and last mile solutions to connect to public transport, particularly high frequency rapid services.

The ACT Government also undertook preparatory work to review the active travel strategic cycle network and priority walking areas and the update of the Active Travel Framework. This also includes the development of best practice infrastructure guidance for intersections and quick build infrastructure such as protected cycle lanes and place-making, to make streets more people friendly. The final plan is expected to be completed by March 2023 and will assist in informing a pipeline of investment of supportive infrastructure such as paths, quick build interventions, shade and seating that will make active travel more attractive because it is safer, and more connected and comfortable.

To support people to use the network, the ACT Government continues to deliver the schools program which makes walking and cycling to school safer and easier. It will commence other initiatives that encourage the switch to active travel including travel planning in workplaces and general education initiatives. A wayfinding strategy is being rolled out that includes maps, signage and pavement markings that make using the integrated network more seamless and intuitive. A new Road Safety Action Plan will explore slower speed limits in residential areas and the expansion of the community-led Slower Streets initiative will make local streets friendlier and more conducive to active travel.

Code	Action description	Status
3.01	Expand the Actsmart Home, School and Business programs to include travel choices and integrate with the work of the Active Travel Office.	 Delivered/BAU
3.02	Explore options for implementing a reward scheme for community members who increase their use of public transport and/or active travel.	 Delivered/BAU
3.03	Plan for a compact and efficient city with improved access to sustainable transport options by delivering up to 70% of new housing within our existing town and group centres and along key transit corridors.	 Delivered/BAU
3.04	Prioritise improving public transport services and supporting infrastructure, including buses, light rail stage two and connecting services.	 Work progressing
3.05	Maximise accessibility to the rapid bus and light rail networks through feeder services and expanding the Park and Ride network.	 Work progressing
3.06	Expand and promote the Active Travel Office and schools-based active travel initiatives.	 Work progressing
3.07	Finalise an active travel strategic plan and update the Active Travel Framework to provide coordinated active travel networks across the Territory.	 Work progressing
3.08	Implement the Municipal Infrastructure Standards for Active Travel and develop best practice guidance for industry and stakeholders to inform better design outcomes for active travel infrastructure.	 Work progressing
3.09	Prioritise walking and cycling and enhance active travel infrastructure to improve safety and connectivity of the active travel network.	 Work progressing
3.10	Support bike share schemes and other measures to improve the effectiveness and accessibility of cycling as a 'last kilometre' solution.	 Delivered/BAU
3.11	Finalise and implement the End-of-Trip Facilities General Code to encourage improved bicycle parking and end-of-trip facilities in commercial developments.	 Delivered/BAU
3.12	Trial and evaluate innovative approaches to planning and development that prioritise active travel and public transport.	 Work progressing
3.13	Implement car free days and consider car free areas, shared zones and traffic calmed streets.	 Work progressing

Code	Action description	Status
3.14	Support car share schemes and transport-on-demand solutions across the ACT region.	 Delivered/BAU
3.15	Investigate and implement options for encouraging a shift to public transport and active travel through planning and a smarter approach to parking.	 Work progressing
3.16	Explore and implement new approaches to improving the productivity of key transport corridors through prioritisation of public transport and/or active travel.	 Work progressing
3.17	Improve efficiency and usability of public transport through the adoption of emerging smart cities technologies such as smart street lights, congestion monitoring, real time data and optimisation of timetables to reduce journey times.	 Work progressing
3.18	Investigate options for dedicating a greater proportion of road space and public realm space to sustainable transport modes.	 Work progressing
3.19	Consider options for reforming car registration fees to incentivise efficient road use.	 Work progressing
3.20	Explore and trial financial incentives such as increased registration discounts, rebates and low interest loans to encourage the uptake of zero emissions vehicles and electric bikes.	 Delivered/BAU
3.21	Implement the Zero Emissions Vehicles Action Plan 2018–2021 and explore ways to encourage investment in public EV charging stations, identify new actions to support the uptake of zero emissions vehicles from 2021 onwards.	 Delivered/BAU
3.22	Amend Road Rules to facilitate the safe use of new sustainable personal mobility options, such as electric scooters	 Delivered/BAU
3.23	Investigate regulatory options to drive the transition to zero emissions commercial vehicle fleets.	 Work progressing

Energy, buildings and urban development

The ACT is continuing to lead the way in energy by being powered by 100% renewable electricity for the third year in a row and influencing the national energy policy agenda to ensure that emissions reduction is included in the national energy objectives. We are also researching an appropriate gas transition pathway for the ACT and finalising work to legislate for minimum energy efficiency standards for rental homes. The Sustainable Household Scheme has demonstrated itself to be a key component in the ACT's transition to net-zero emissions with over 1,500 zero-emission energy products applied for and over 1,300 installed under the Scheme.







Code	Action description	Status
4.01	Legislate a 100% renewable electricity target from 2020 onwards.	 Delivered/BAU
4.02	Develop and implement a Sustainable Energy Policy 2020-25 that sets out actions to deliver sustainable, affordable and reliable energy to the Territory and drives the continued development of the renewable energy industry in the ACT.	 Work progressing
4.03	Amend planning regulations to remove the mandating of reticulated gas in new suburbs.	 Delivered/BAU
4.04	Conduct a campaign to support the transition from gas by highlighting electric options and savings opportunities to the ACT community.	 Work progressing
4.05	Develop a plan for achieving zero emissions from gas use by 2045, including setting timeframes with appropriate transition periods for phasing out new and existing gas connections.	 Delivered/BAU
4.06	Introduce mandatory disclosure of energy performance for all rental properties	 Work progressing
4.07	By 2021 introduce legislation for staged minimum energy performance requirements for rental properties to come into force in 2022-23.	 Work progressing
4.08	Expand the Actsmart Household Energy Program to provide free, tailored in-home energy assessments for renters.	 Delivered/BAU
4.09	Continue to upgrade to efficient-electric appliances in existing public housing properties where technically feasible and assess the cost and benefits of shifting to all-electric public housing.	 Delivered/BAU
4.10	Ensure all newly constructed public housing properties are all-electric (fitted with electric appliances) from 2019.	 Delivered/BAU
4.11	Continue to deliver the solar for low income program and investigate options for providing solar to public housing.	 Delivered/BAU

Code	Action description	Status
4.12	Trial facilitating access to interest free loans or other innovative finance for gas to electric upgrades and deep retrofits of low income homes.	 Delivered/BAU
4.13	Provide information and training tailored to first home buyers, home owners and owner-builders to support higher awareness of zero emissions, climate-wise homes.	 Delivered/BAU
4.14	Facilitate demonstration projects showcasing zero (or negative) emissions climate-wise homes.	 Work progressing
4.15	Design, and commit to a timeframe for implementing, higher minimum energy performance and climate resilience standards for new buildings that will deliver efficient, zero emissions buildings.	 Work progressing
4.16	Provide information and facilitate education and training of developers and design and construction practitioners in zero emissions technologies and systems and climate-wise design.	 Yet to Commence
4.17	Develop a new residential energy assessment tool that adequately assesses the year-round thermal performance of buildings in the Canberra climate.	 Work progressing
4.18	Trial incentives and other measures to encourage all-electric, high efficiency apartment and commercial buildings.	 Work progressing
4.19	Expand the Energy Efficiency Improvement Scheme to increase support for low income priority households and further encourage a shift from gas to high efficiency electric appliances.	 Delivered/BAU
4.20	Encourage the use of smart financing by medium and large businesses and organisations to support energy efficiency improvements, space heating upgrades and zero emissions vehicle fleets.	 Work progressing
4.21	Review planning regulations and identify opportunities to require sustainable, climate-wise built environment and landscaping including through developing a Climate-wise Code.	 Work progressing
4.22	Implement Canberra's Living Infrastructure Plan to achieve 30% urban canopy cover, increase surface permeability, account for the value of living infrastructure and assess local needs for managing heat.	 Work progressing

ACT Government leadership






Following the focus on having 100% renewable electricity, efforts to achieve zero emissions from government operations are now focussed on replacing fossil fuels, such as petrol and natural gas, with renewable electricity. 100% of newly leased ACT Government passenger vehicles were ZEVs in 2021-22 where a fit-for-purpose ZEV was available, and a total of over 150 EV chargers have been installed across Government sites. The 'Zero Emissions Government Facilities Guidelines' were developed to ensure future facilities are fossil-fuel-gas free and current facilities aim for all electric retrofits. The Social Cost of Carbon Fund is supporting emissions reduction projects, such as the electrification of gas heating systems.

Code	Action description	Status
5.01	Reflect climate change projections and risk vulnerabilities in disaster and emergency prevention, preparedness, response and recovery, particularly for extreme heat, bushfire and flash flooding.	 Delivered/BAU
5.02	Encourage community preparedness for climate risks through targeted Emergency Services Agency outreach and the Actsmart sustainability programs.	 Work progressing
5.03	Reduce staff travel needs by co-locating staff in centralised offices, providing facilities for teleconferencing, exploring co-working hubs and supporting flexible work arrangements and explore incentives to support staff use of public transport and active travel.	 Work progressing
5.04	Implement a user-friendly sustainable procurement approach for goods and services and capital works that ensures greenhouse gas and adaptation outcomes are considered in all procurement decisions.	 Work progressing
5.05	Ensure the social cost of carbon and climate change adaptation outcomes are considered in all ACT Government policies, budget decisions, capital works projects and procurements.	 Work progressing
5.06	Ensure all new Government capital works projects with a budget of more than \$10 million either seek or are consistent with an independent sustainability rating such as an Infrastructure Sustainability rating from the Infrastructure Sustainability Council of Australia (ISCA), or a Greenstar rating from the Green Building Council of Australia or equivalent, and review ratings at least every five years.	 Delivered/BAU
5.07	Foster partnerships with sub-national governments and non-government organisations locally, nationally and internationally to promote climate action and increased ambition.	 Delivered/BAU
5.08	Join the Global Green and Healthy Hospitals network to improve sustainability performance and reduce emissions from ACT health facilities.	 Delivered/BAU
5.09	Develop and implement a roadmap for transitioning Transport Canberra buses to zero emissions by 2040 at the latest while continuing to improve service levels, and review progress every five years.	 Delivered/BAU
5.10	Establish and implement a pathway to a zero emissions ACT Government health sector by 2040 informed by an assessment of all current and planned public health facilities	 Work progressing

Code	Action description	Status
5.11	Invest an interim price of \$20 per tonne of emissions from Government operations into measures to meet the Zero Emissions Government target from 2020-21, and arrange for an independent body to develop a social cost of carbon for application from 2025.	 Work progressing
5.12	Establish a pathway to zero emissions ACT Government schools supported by an interim emissions reduction plan to 2025.	 Work progressing
5.13	Ensure all newly built or newly leased Government buildings and facilities are climate-wise and all-electric (where fit for purpose).	 Delivered/BAU
5.14	Replace all space and water heating systems in Government facilities with electric systems at the end of their economic lives (where fit for purpose).	 Work progressing
5.15	Ensure all newly leased ACT Government passenger fleet vehicles will be zero emissions vehicles from 2020–21 (where fit for purpose).	 Delivered/BAU
5.16	Investigate the use of innovative finance options such as Energy Performance Contracting as a method of reducing costs and emissions in Government assets.	 Delivered/BAU

Waste avoidance and management





A food and garden organics (FOGO) trial with 5,000 households started in 2021. A FOGO collection service will be extended to all households in time via the development of a new purpose-built facility.

Code	Action description	Status
6.01	Support food rescue organisations to avoid food waste.	 Work progressing
6.02	Implement the Actsmart programs and household waste education programs to reduce waste generation and increase recycling	 Work progressing
6.03	Introduce a food and garden waste collection for all households (including multi-unit dwellings) from 2023, and support with an education program from 2020.	 Work progressing
6.04	Develop and consult on a scheme for requiring large organic waste producers such as hospitality and food retail businesses to have a separate organic waste collection.	 Work progressing
6.05	Identify opportunities to reduce emissions from organic waste treatment including sewage such as through the use of anaerobic digestion and composting, and investigate potential sites for organic waste processing.	 Work progressing

Land use and biodiversity

The impacts of climate change are now routinely considered in reviewing and delivering action plans for threatened species and communities. For example, the endangered Canberra Grassland Earless Dragon are threatened by habitat loss, fragmentation and degradation, predation and climate change. In 2021–22, funding was provided to establish a successful captive breeding program at Tidbinbilla.

The Capital Food and Fibre Strategy Discussion Paper was released in November 2021 and provided an opportunity to shape the future of our agriculture industry. Key themes for the strategy were eco-sustainability; drought and climate change resilience; increased production capacity; innovation; and enhanced participation.

Code	Action description	Status
7.01	Identify opportunities to increase resilience of terrestrial and aquatic habitats at risk from climate change and implement land management changes and relevant on-ground works with delivery partners.	 Work progressing
7.02	Ensure action plans for threatened species and communities consider the impact of climate change.	 Delivered/BAU
7.03	Identify suitable sites in the ACT for 'carbon sinks' and develop a plan for planting trees or using soil carbon in these areas to sequester carbon with consideration of biodiversity outcomes and competing land uses.	 Work progressing
7.04	Encourage sustainable farming practices which are fit for the current and future climate and enhance soil and water quality, and work with farmers to identify opportunities for net zero emissions farming and innovation to increase resilience.	 Work progressing





Industry Development and Innovation

The Renewable Energy Innovation Fund has continued to support grant recipients, as well as the Australian National University Battery Storage and Grid Integration Program, and renewable energy innovation ecosystems, such as the ACT Renewables Hub.

Code	Action description	Status
8.01	Work with industry to support innovation, research and partnerships that will enable and accelerate the transition to a net zero emissions economy.	 Work progressing

Monitoring, evaluation and reporting, and increasing ambition


The Government is committed to full transparency and maintaining a rigorous approach to reporting. This year for the first time the Greenhouse Gas Inventory includes aviation emissions.

Code	Action description	Status
9.01	Improve data capture, integration and sharing across Government to enable accurate tracking and reporting of progress.	 Delivered/BAU
9.02	Collect and report ACT travel data at least every two years on a range of journey types.	 Work progressing
9.03	Collect and report data to monitor progress against resilience indicators, including continuation of the longitudinal survey and climate-related health impacts and costs.	 Work progressing
10.01	Investigate opportunities for implementation of negative emissions technologies in, or supported by, the ACT.	 Yet to Commence

Canberra's Living Infrastructure Plan: Cooling the City


Accounting for living infrastructure

The completed urban tree asset register individually identifies over 809,000 public urban street and open space trees on the TCCS estates, unleased land and residential verges. In addition, permeable paving, soil cells and irrigation systems are captured.

Code	Action description	Status
1	Complete inventory and mapping of living infrastructure and expand the public urban infrastructure asset management system to include urban living infrastructure to inform investment decision making, whilst investigating steps to implement an accounting framework, such as the United Nations System of Environmental Economic Accounting (SEEA), to value urban living infrastructure.	 Work progressing



Adopting targets

A baseline and methodology has been established for assessing tree canopy cover. In 2021-22, more than 10,000 trees were planted in streets and parks on public unleased land as part of the Transport Canberra and City Services tree planting program.

Code	Action description	Status
2	Achieve 30% tree canopy cover (or equivalent) and 30% permeable surfaces in Canberra's urban footprint by 2045.	 Work progressing

Microclimate assessments

The Microclimate Assessment Guide has been drafted. A basic set of requirements for living infrastructure, cool materials, shade and other measures that reduce urban heat is being developed and will be delivered under Canberra's Living Infrastructure Plan action 6. A pilot precinct-based microclimate assessment planning controls is now being tested.

Code	Action description	Status
3	Prepare a Microclimate Assessment Guide and mandate its use to inform policy and forward planning studies for centres, urban renewal projects and urban intensification precincts, with initial assessment of priority locations to inform a city cooling works program.	 Work progressing
4	Introduce requirement(s) for microclimate assessments of significant developments located in centres, urban renewal projects and urban intensification precincts, to assist with development assessment.	 Delivered/BAU



Improving processes and community resources

[Gawari Ngilanmanyin - Remembering the Bush – A Climate-wise Landscape Guide for the ACT](#) was completed and is now publicly available. A study on planning controls for living infrastructure and urban heat was completed in June 2022 with recommendations for tree canopy cover and permeability to be incorporated into the Planning System Review and Reform project.

Code	Action description	Status
5	Prepare a guide for use by the community and built environment professionals to support effective landscape plans, and increase the opportunity for healthy, climate resilient and biodiverse gardens and public lands.	 Delivered/BAU
6	Require multi-dwelling, mixed use and commercial development applications (DA) to have landscape plans that demonstrate how surface treatments and tree canopy cover targets will be met, and change the processes for certification of DA compliance accordingly.	 Work progressing
7	Expand Actsmart web-based information and programs to incorporate the Climate-wise Landscape Guide to encourage and support community efforts to improve sustainability outcomes.	 Yet to Commence

Planning our future urban forest

The Tree Protection Act has been reviewed and public consultation on the Draft Urban Forest Bill 2022 (to replace the Tree Protection Act) has concluded. The [Urban Forest Strategy](#) was launched in March 2021.







Code	Action description	Status
8	Review and update the ACT Tree Protection Act 2005 to ensure consistency with the objectives of the Plan and suitability to Canberra's changing climate.	 Work progressing
9	Develop a strategic plan for the public urban forest that outlines how the urban forest can be maintained and enhanced to improve amenity in a changing climate and deliver biodiversity outcomes.	 Delivered/BAU

Learning and doing

The Whitlam Living Infrastructure Demonstration Precinct was completed in June 2022 by Suburban Land Agency in partnership with Transport Canberra and City Services and Environment, Planning and Sustainable Development Directorate. The established trees, plants and garden beds, 3 types of gutter treatments designed to re-direct water into gardens and 4 permeable driveways.

Plantings have been increased along key walking and cycling routes, open spaces and community places including shops and schools and micropark 'Oasis' trials have been undertaken. City Walk has been transformed by garden beds with 3,000 plants, street furniture, tree planting and 635 square metres of lawn.

A trial of Water Sensitive Urban Design in Jamison Carpark is underway and involves the installation of a water system that supports tree health and growth, provides localised stormwater treatment and reduces the need for supplementary watering of trees.

Code	Action description	Status
10	Trial city cooling initiatives in high priority locations.	 Work progressing
11	Trial local park upgrades in high priority locations including watered grass, trees, seats, lights and drinking fountains.	 Delivered/BAU
12	Support the amenity and safety of active travel on trunk cycle and pedestrian routes with tree canopy shade and water points at key destinations.	 Work progressing
13	Showcase best practice climate-wise design through display houses and exhibition sites in Government projects.	 Delivered/BAU
14	Support trials and demonstration projects to retrofit infrastructure to allow hydration of open spaces using stormwater.	 Work progressing
15	Investigate ways to encourage and incentivise living infrastructure on existing and future buildings in Canberra.	 Work progressing

