



**ACT**  
Government

# ZERO EMISSIONS GOVERNMENT FRAMEWORK

2018–19 IMPLEMENTATION UPDATE  
TO ACTPS STRATEGIC BOARD

NOVEMBER 2019

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We wish to acknowledge the traditional custodians of the land we are meeting on, the Ngunnawal people. We wish to acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region.

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## LIST OF ABBREVIATIONS USED FOR ACT GOVERNMENT AGENCIES

**CIT** Canberra Institute of Technology

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

**CSD** Community Services Directorate

**EDU** Education Directorate

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

**HD\*** Health Directorate/Canberra Health Services

\*in July 2018 the Canberra Health Services (CHS) was created. The targets reported on in this document are for a combined HD/CHS. This is due to CHS being created after the targets were set. From 2019/20 onwards HD/CHS are treated as two separate entities.

**JACS** Justice and Community Safety Directorate

**TCCS** Transport Canberra and City Services



# SUMMARY

THE ZERO EMISSIONS GOVERNMENT FRAMEWORK (ZEG FRAMEWORK) SUPPORTS ACT GOVERNMENT DIRECTORATES TO REDUCE GREENHOUSE GAS EMISSIONS IN THEIR OWN OPERATIONS. SIGNIFICANT EMISSIONS REDUCTIONS HAVE BEEN ACHIEVED SINCE THE RELEASE OF THE ZEG FRAMEWORK (PREVIOUSLY TITLED CARBON NEUTRAL GOVERNMENT FRAMEWORK) IN 2014.

As at 2019, the ZEG Framework focuses on activities that eliminate greenhouse gas emissions from transport and natural gas sources. This is because once the ACT transitions to 100% renewable electricity in 2020, actions that reduce electricity use, despite cost savings, don't reduce emissions. The ZEG Framework supports rapid emissions reductions that contribute to the following targets:

- greater than a 33% reduction in emissions from Government operations by 2025 (from 2020 levels), and
- zero emissions from Government operations by 2040.

These targets are guided by the following principles:

- Government leading by example
- Demonstration of low emissions technologies
- Cost-effective greenhouse gas emissions abatement, and
- Transparency and accountability.

This report provides an overview of emission sources and emission reduction activities in ACT Government operations during the 2018–19 financial year. More information about Directorate specific activities can be found in [individual agency annual reports](#).

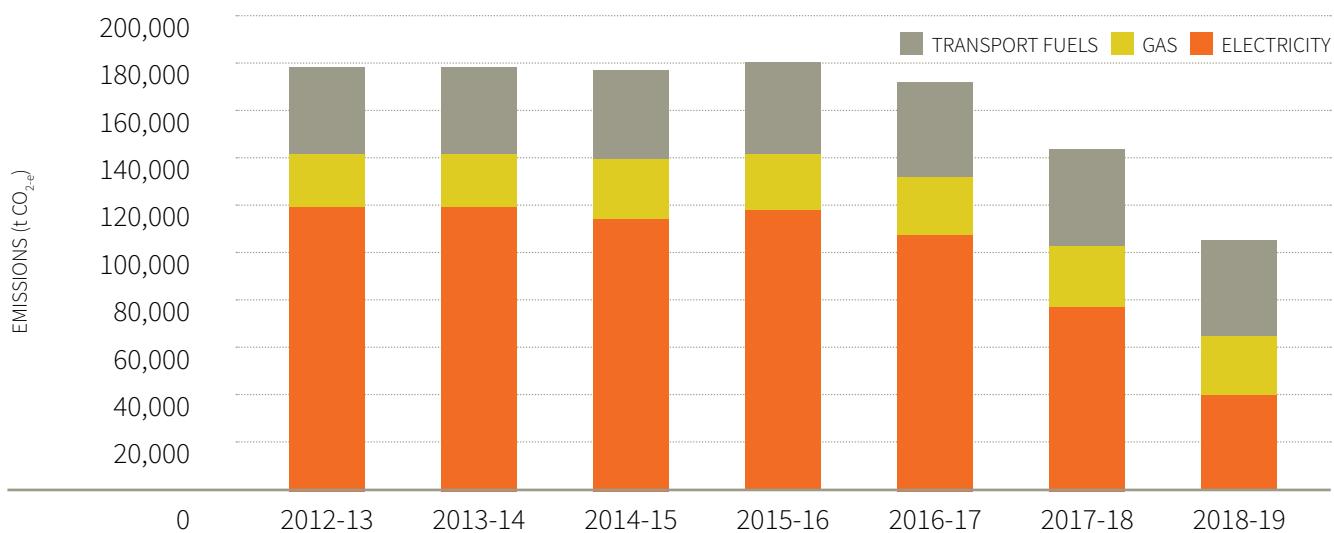
# GREENHOUSE GAS EMISSIONS FROM ACT GOVERNMENT OPERATIONS

*“ACT Government emissions decreased 26% from 2017-18 to 2018-19. Overall, emissions have reduced by 40% since 2012-13.”*

In 2018-19, emissions from Government operations totalled 105.2 kilotonnes of carbon dioxide equivalent (CO<sub>2</sub>-e).

This represents a decrease in emissions of 26% from the previous financial year and an overall reduction of 40% since 2012-13 (See Figure 1). There have been increases in natural gas and transport emissions due to service delivery growth in health care and public transport. However, emissions savings have been achieved by improving energy efficiency in Government operations.

Figure 1: ACT Government greenhouse gas emissions by source from baseline year to 2018-19



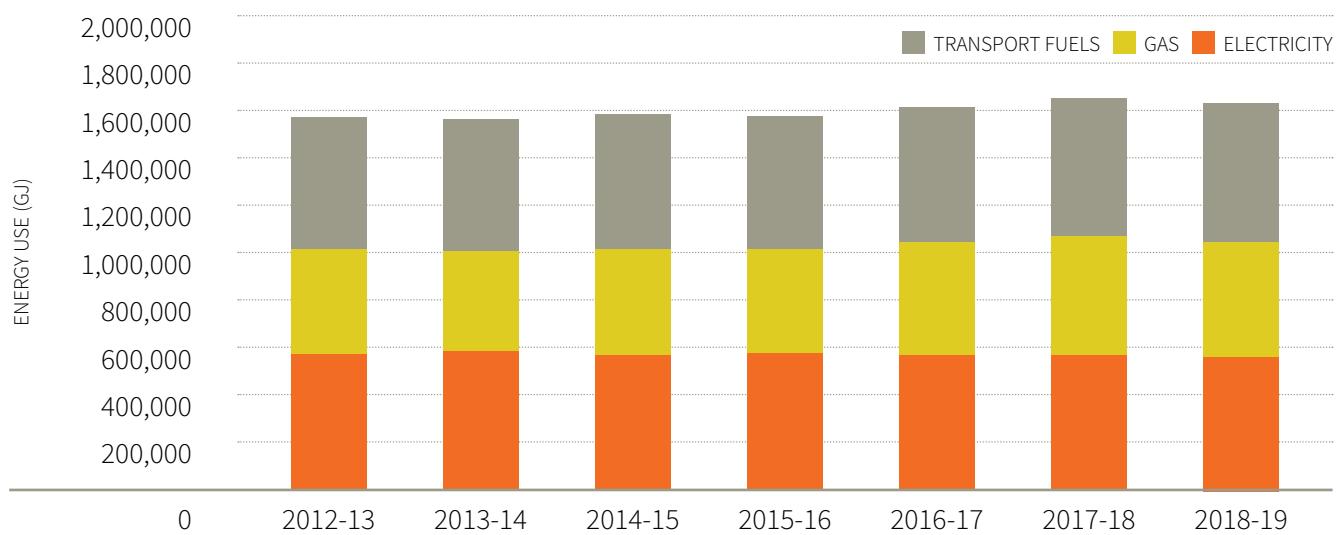
## Notes:

- Since 2017, the ACT Government has engaged an external party to independently calculate its greenhouse gas emissions inventory (GGI). The ACT Government GGI is consistent with the requirements of the ZEG Framework and uses the same methodology used to calculate the Whole of ACT GGI.
- Previous years' figures are recalculated annually to reflect improved data availability and methodology. In practice, this means that other reports for the same period may be slightly different.



In 2018–19, 62% of the Government’s greenhouse gas emissions (emissions) came from electricity and natural gas used in Government facilities (see Table 1), while 38% of emissions came from transport fuels used by the corporate fleet, Transport Canberra buses and other vehicles.

**Figure 2:** ACT Government energy use by source from baseline year to 2018-19.



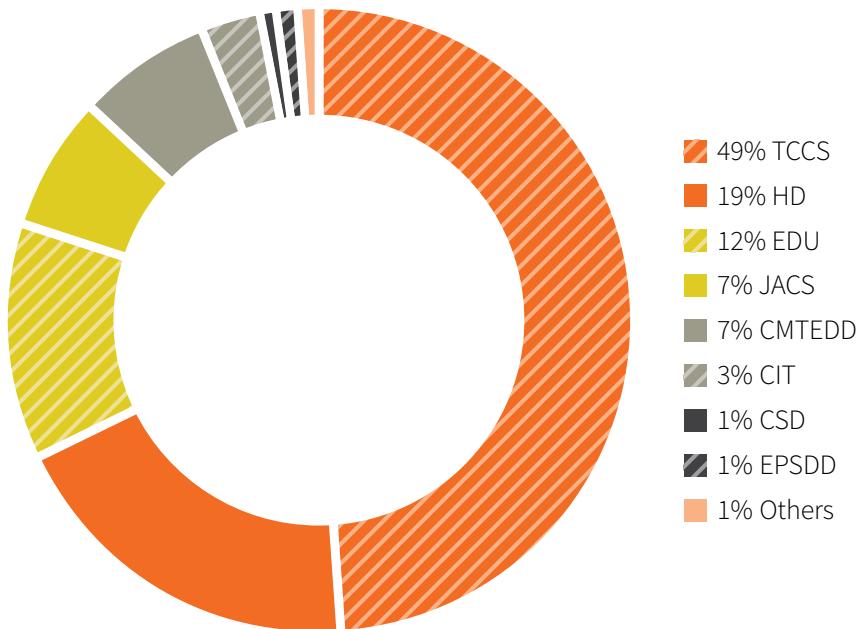
In 2018–19, energy use from Government operations was 1,636,483 gigajoules (GJ). This is a slight reduction compared to 2017–18 and slight increase compared to 2012–13. The steady trend in energy use shown above reflects the energy efficiency measures the government has put in place compared to the growth in service delivery.

**Table 1:** Whole of ACT Government energy consumption and associated emissions 2018–19.

EMISSION SOURCE	CONSUMPTION	EMISSIONS (t CO <sub>2</sub> -e)
<b>STATIONARY ENERGY</b>		
Electricity (kWh)	153,164,442	39,057
Natural Gas (GJ)	429,803	22,148
<b>TOTAL</b>		<b>61,205</b>
<b>TRANSPORT FUELS</b>		
Unleaded petrol (L)	405,130	966
Ethanol blends (L)	28,491	61
Diesel (L)	12,791,761	34,810
Natural Gas (GJ)	80,585	4,368
<b>TOTAL</b>		<b>40,205</b>
<b>Total emissions</b>		<b>101,410</b>

**Data source:** ACT Government Enterprise Sustainability Platform (extracted 26 September 2019).

**Figure 3:** Proportion of ACT Government emissions by agency 2018–19.



As shown in Figure 3 and Table 2, Transport Canberra and City Services Directorate continue to be the ACT Government's largest source of emissions, followed by the Health Directorate and Education Directorate. Through the new ZEG Framework the Government continues to pursue energy efficiency and emissions reduction projects in its facilities, including The Canberra Hospital, schools and the Transport Canberra bus fleet.

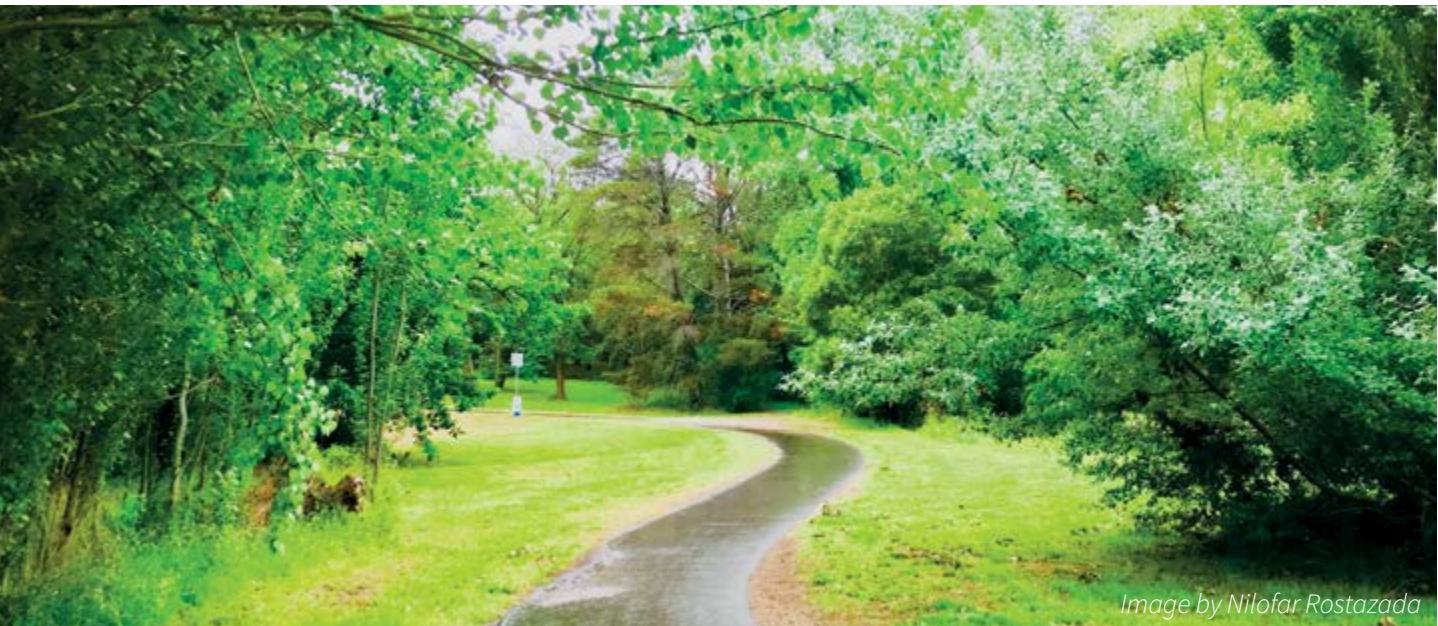
**Table 2: ACT Government emissions by agency 2018–19.**

AGENCY	STATIONARY EMISSIONS (T CO <sub>2</sub> -e)	TRANSPORT EMISSIONS (T CO <sub>2</sub> -e)
ACT Audit Office	10	2
ACT Electoral Commission	8	0
ACT Legislative Assembly	302	4
Canberra Institute of Technology	3,400	52
Chief Minister, Treasury & Economic Development Directorate	6,701	788
Community Services Directorate	970	147
Cultural Facilities Corporation	752	8
Education Directorate	12,539	63
Environment, Planning & Sustainable Development Directorate	410	706
Health Directorate*	19,123	692
Independent Competition & Regulatory Commission	6	0
Justice and Community Safety Directorate	5,647	1,538
Transport Canberra and City Services Directorate	15,084	36,204
Occupancy - Unallocated	10	0

**Notes:**

- Emissions reported against agencies may differ from those quoted in annual reports, due to timing and availability of data as well as changes to administrative arrangements during the year.
- \*Health Directorate (HD) refers to Canberra Health Services (CHS) and the HD. The targets reported on in this document are for a combined HD/CHS. This is due to CHS being created in July 2018 after the targets were set. From 2019/20 onwards the HD and CHS are treated as two separate entities.





*Image by Nilofar Rostazada*

## DIRECTORATE CARBON BUDGETS

Directorates are required to set emission reduction targets for each financial year. The targets are set using the previous calendar year as the baseline. The ZEG Framework supports Directorates in developing a common approach to setting targets. From 2020, the ACT will be powered by 100% renewable electricity, therefore the focus will be on reducing emissions from natural gas use and transport within Government operations.

Table 3 shows directorate targets set for 2018–19. Targets are influenced by factors such as increasing service delivery, heating and cooling requirements (which vary considerably from year to year due to weather) and vacant buildings.

**Table 3:** 2018-19 Emissions Reduction Targets

DIRECTORATE	TARGET
Chief Minister stream (CMTEDD)	-1%
Treasury stream (CMTEDD)	-1.5%
Vacant premises (CMTEDD)	-90%
Community Services	-3.5%
Education	-2%
Environment, Planning and Sustainable Development	-4%
Health	N/A*
Justice and Community Safety	0%
Transport Canberra and City Services	7.8%
<b>Total</b>	<b>4.4%</b>

### Notes:

- Vacant premises (within the Treasury stream of CMTEDD) are those parts of Government-owned office facilities managed by ACT Property Group. These areas are temporarily vacant due to a variety of operational reasons (e.g. office renovation, vacant prior to demolition, used for ‘churn space’ for office relocation).
- \*No target was set due to the upgraded utility meter at the Canberra Hospital reading significantly different to the previously installed utility meter.

# ZERO EMISSIONS GOVERNMENT PROGRAM HIGHLIGHTS

## ZEG FUND

The Zero Emissions Government Fund (the Fund) was established in July 2012 to provide a funding mechanism for agencies to implement energy efficiency and emission reduction projects. Directorates repay the loan through the cost savings generated from projects, with additional savings to remain with agencies once loans are repaid.

The Fund has supported 34 projects to the value of approximately \$17.5 million. Projects include:

- lighting upgrades
- heating, ventilation and cooling (HVAC) upgrades
- installation of smart building management systems
- off-grid solar photovoltaic battery storage systems, and
- electric vehicles.

These projects make ongoing annual cost, greenhouse gas and energy savings. Savings from projects are currently estimated to be more than \$2.5 million per year. In addition, projects are estimated to save more than 9,000 tonnes of CO<sub>2</sub>-e per year.

In 2018–19, the Fund supported six new projects, with approximately \$2.5 million allocated towards gas reduction, energy efficiency and renewable energy projects.

**Table 4:** Projects supported by the Zero Emissions Government Fund

DIRECTORATE/ AGENCY	DESCRIPTION OF PROJECT	FUNDED AMOUNT
JACS	Upgrade of HVAC system and installation of solar PV system at Tuggeranong Police Station.	\$967,208
TCCS	Heating upgrade and solar PV system at Tuggeranong bus depot.	\$1,324,577
TCCS	Electric truck feasibility trial.	\$50,000
TCCS	Installation of solar PV systems at nine depots	\$167,225
TCCS	Installation of a solar PV system at Kippax Library.	\$49,742
TCCS	Installation of a solar PV system at Gungahlin Cemetery.	\$36,114

## ZERO EMISSIONS VEHICLES

The ACT Government released '[The ACT's Transition to Zero Emissions Vehicles Action Plan 2018-2021](#)' (Plan) in April 2018. The Plan contains a range of actions to accelerate the uptake of zero emissions vehicles in the ACT, including incentives for consumers to purchase zero emissions vehicles, installation of charging stations and a commitment to a zero emissions government fleet. Government passenger fleet targets are:

- At least 50% of all newly leased ACT Government fleet passenger vehicles will be zero emissions vehicles in 2019–20 (where fit for purpose).
- All newly leased ACT Government passenger fleet vehicles will be zero emissions vehicles from 2020–21 (where fit for purpose).

As of August 2019, the ACT Government has 31 electric vehicles in its fleet, and this number will increase to more than 80 zero emissions vehicles by mid-2020. This includes 20 hydrogen fuel cell electric vehicles. It is expected that at least 300 of the around 600 vehicles in the Government passenger fleet will be zero emissions by 2023 as internal combustion engine vehicles will be replaced with zero emissions vehicles through the ACT Government's fleet provider when new leases are commenced across all Directorates from 2020.

During the 2018-19 financial year, Government began works to install electric vehicle charging stations at ten Government buildings. The first two new charging stations were installed at Winyu House, Gungahlin accompanied by two new electric vehicles. As of end of September 2019, 47 electric vehicle charging stations for our fleet have been installed and this is expected to reach a total of 50 by November 2019. This is the largest fleet-based private network of charging stations in Australia. These installations will support the zero emissions vehicles new lease targets in 2019-20, and more charging stations will be installed to support the ongoing uptake of these vehicles.

EPSDD has engaged with all Directorates to assist with:

- installation of electric vehicle charging stations
- identifying fit for purpose vehicles to be replaced with electric vehicles
- working with the fleet provider to improve residual values for electric vehicles
- working with fleet managers to discuss opportunities and challenges of zero emissions fleet, and
- User-testing trials of electric fleet vehicles.

In recognition of its leadership in supporting the transition to zero emissions vehicles through the Zero Emissions Vehicles Action Plan, the ACT won the Cities Power Partnership Award for sustainable transport in 2019.

## ENTERPRISE SUSTAINABILITY PLATFORM

The Enterprise Sustainability Platform (ESP) is a database that enables a whole-of-government approach to achieve net zero emissions, by providing accurate and comprehensive sustainability data on gas and electricity use, fleet fuel, water use and total emissions. The ESP underpins implementation of the Framework through:

- Greenhouse Gas Inventory reporting
- carbon budgets and sustainability data reporting in agency annual reports, and
- administration of the Fund.

The ESP is essential in every emission reduction project the Government undertakes. Understanding how government uses energy and alerting agencies to anomalies in billing supports facility managers to identify opportunities to make savings.

The delivery of engagement with Directorates and agencies will continue to be a focus for the ESP, including targeted training and information sessions for agencies and officers across Government.

# CASE STUDIES

## MARGARET HENDRY SCHOOL - FIRST ACT ZERO EMISSION PUBLIC SCHOOL

The Margaret Hendry School is the first ACT public school designed to source its energy requirements from renewable electricity alone. A range of sustainable design features have been integrated into the school to achieve zero emissions in its operation. The range of initiatives include:

- solar passive orientation
- a 100kW solar system
- automated LED lighting with integrated motion sensor control to save power
- double glazing to reduce heating and cooling demand
- electric boosted solar hot water to provide low cost, zero emission hot water, and
- external shading to keep learning environments naturally cooler.

The air conditioning system has been designed to allow the transfer of heat from one part of the building to another to improve energy efficiency and the cooling system flushes cool night air into the school buildings during summer evenings to reduce the need for cooling during the day.





## ELECTRIC FIRE TRUCK

The ACT Emergency Services Agency is partnering with Rosenbauer to work towards an Australian-first plug-in hybrid electric fire truck. The development of the plug-in hybrid electric fire truck is an important step towards transitioning to a zero emissions emergency vehicle fleet. The use of a single electric fire truck would see a reduction of diesel fuel consumption by approximately 185,000 litres and a reduction of engine oil disposal by approximately 400 litres over a ten-year period. This partnership is anticipated to lead to the first fully operational plug-in hybrid electric fire truck in the Asia-Pacific region by 2022.

## ALEXANDER MACONOCHE CENTRE (AMC)

The AMC is the highest emitting facility within the JACS property portfolio, consistent with its scale and operational demand. The latest AMC energy audit was completed in October 2018 providing tailored recommendations to reduce greenhouse emissions. Funding from the ACT Government 2018-19 Better Infrastructure Fund was allocated to implement recommended upgrades including the installation of three energy efficient boilers. The next recommendation to be implemented will include an upgrade of the AMC building management system due to be completed in 2019-20.



## ELECTRIC AUTONOMOUS MOWER TRIAL

TCCS completed a six-week trial of a fully electric autonomous mower at Gungahlin Enclosed Oval in June 2019 in conjunction with EPSDD. The mower utilised GPS navigation for precision mowing and created efficiencies for staff who were able to simultaneously perform other tasks such as edge trimming. Information gathered from the trial will inform broader fleet replacement options into the future.

## ACTIVE TRAVEL FOR TCCS STAFF

During 2018-19, TCCS held a series of lunch-time sessions to promote active travel to staff including salary packaging for e-bikes, bike maintenance and a panel discussion on riding to work during winter. In April 2019, TCCS staff joined forces to collectively ride over 9,000 km over four weeks under the Cycle Works Challenge achieving 3rd place overall in the ACT. This is the equivalent of taking 130 passenger vehicles off the road for a day or a saving of approximately 1.6 tonnes of greenhouse gas emissions. An additional cargo e-bike will be introduced to the e-bike fleet in 2019-20 to allow staff to carry bulky items to and from work sites and special events.

# NEXT STEPS

In 2020 when the ACT achieves its 100% renewable electricity target, emissions from electricity will be zero. As a result, the majority of Government emissions in 2020 will be from natural gas and transport fuels. In response the ACT Government will continue to show leadership by continuing to implement the ZEG Framework.

The priority areas in the ZEG Framework include:

- Transition to a zero-emissions passenger vehicle and bus fleet
- Shift to high efficiency, all-electric and climate-wise Government buildings and facilities
- Consider the ‘social cost of carbon’ and climate change adaptation outcomes in all policies, budget decisions, and procurement and capital works decisions, and
- Monitor climate change projections and ensure infrastructure and services are resilient to climate change impacts.

The ZEG Framework and associated Government emissions reduction targets will be monitored and reviewed in line with the ACT Climate Change Strategy 2019-2025. By pursuing these priorities, the ACT Government aims to lead by example to inspire others to take action on climate change.



