



THE ACT'S TRANSITION TO ZERO EMISSIONS VEHICLES

**ACTION PLAN
2018-21**



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FOREWORD

As part of its leadership on climate change, the ACT Government has world leading targets to reduce the ACT's greenhouse gas emissions. The ACT is on track to achieve a 40% reduction in emissions on 1990 levels by 2020. The ACT Government also has a target to achieve net zero greenhouse gas emissions by 2050 at the latest.

Greenhouse gas emissions created by transport are one of the biggest challenges in achieving these targets. Transport is expected to create over 60% of the ACT's emissions by 2020, with the majority created by the use of private cars. It is critical that we reduce greenhouse gas emissions from vehicles, as well as displace car travel with more walking, cycling and public transport.

Zero emissions vehicles offer a clean, reliable and smart option for travel in Canberra. From 2020 in the ACT, all electricity will be from renewable sources – so using a zero emissions vehicle charged in the ACT will result in no greenhouse gas emissions.

Zero emissions vehicle technology is taking off globally. As well as reducing greenhouse gas emissions, they are reducing air and noise pollution in cities. The actions outlined in this paper are the first steps in supporting the rapid uptake of zero emissions vehicles in the ACT as part of the broader plan to ensure Canberra grows into a highly sustainable and liveable city.



The ACT has a network of 20 public charge points for electric vehicle owners

WHY CHOOSE A ZERO EMISSIONS VEHICLE?

Zero emissions vehicles result in less air pollution and are generally cleaner to run, helping to keep Canberra's environment clean and healthy. They are also quieter, reducing overall noise levels in urban areas. In addition, running costs for zero emissions vehicles are likely to be lower than for conventional vehicles due to decreased fuel cost and reduced servicing and insurance costs.¹ Electric bikes also provide an opportunity for gentle exercise, helping to increase wellbeing. Importantly, zero emission vehicles do not produce greenhouse gases when they run, and from 2020 will not result in any greenhouse gas emissions when they are charged in the ACT, due to our 100% renewable electricity target. Using zero emission vehicles therefore makes an important contribution to taking action on climate change.

BENEFITS OF ZERO EMISSIONS CAR OWNERSHIP IN CANBERRA

- » Zero stamp duty on new zero emissions vehicles
- » 20% discount on registration fees
- » Annual savings from reduced running costs
- » Help to reduce greenhouse gas emissions and keep our environment clean and healthy
- » Quieter driving and reduced noise pollution

BENEFITS OF RIDING AN ELECTRIC BIKE RATHER THAN DRIVING

- » Minimal running costs
- » No parking fees or traffic jams
- » Incidental exercise
- » Reduce greenhouse gas emissions
- » Extended range compared to a standard bicycle

THE GLOBAL SHIFT TO ZERO EMISSIONS VEHICLES



THE SHIFT TO ZERO EMISSIONS VEHICLES IS ALREADY WELL UNDERWAY

- » In 2017 the United Kingdom and France announced their intention to ban the sale of new petrol and diesel cars by 2040, with all cars to be fully electric.
- » Since this time, other countries have also committed to phasing out new petrol and diesel car sales including Scotland, India, China, Norway and the Netherlands.
- » Major car manufacturers are also making the shift to zero emissions vehicles.
 - » In 2017, Volvo became the first major car manufacturer to set a date for phasing out vehicles powered solely by an internal combustion engine, with all its cars to be electric or hybrid from 2019.
 - » General Motors has announced an intention to phase out petrol and diesel powered vehicles for an 'all-electric future'.
- » Electric bikes are increasing in popularity as they become more widely available and as prices decrease.



Table 1: Countries that have committed to banning petrol and diesel vehicle sales

Country	Commitment	Timeframe
United Kingdom	Ban the sale of new conventional petrol and diesel vehicles	2040
Scotland	Phase out new conventional petrol and diesel vehicles	2032
The Netherlands	All new cars sold are zero emissions	2030
Norway	All new cars sold are zero emissions	2025
India	Ban the sale of new conventional petrol and diesel vehicles	2030
China	Ban the sale of new conventional petrol and diesel vehicles	Not specified



ACT Government staff traveling for work on e-bikes

WHAT IS A ZERO EMISSIONS VEHICLE?

'Zero emissions vehicle' refers to vehicles that do not emit any greenhouse gas emissions, and includes plug-in hybrid electric, battery electric and hydrogen fuel cell electric cars, as well as electric bikes. Other zero emissions forms of transport, such as walking and cycling, are not addressed in this action plan but are recognised as vital for an effective zero emissions transport network and are encouraged and supported in the Transport for Canberra strategy.

TYPES OF ZERO EMISSIONS PASSENGER VEHICLES

A battery electric vehicle is fuelled solely by electricity and does not use any conventional fuels.

A plug-in hybrid electric vehicle (also known as a range-extended vehicle) is fuelled by electricity as well as having either a petrol or diesel tank to extend the range of the vehicle for long trips. These vehicles can be run either on electricity or fuel, but are considered to be zero emissions vehicles as it is most likely that the vehicle will be run on electricity for the majority of trips (due to lower cost for charging than re-fuelling).

A fuel cell electric vehicle uses a fuel cell to power an electric motor. Fuel cells use oxygen from the air and compressed hydrogen as fuel. Hydrogen that is created using renewable electricity is a zero emissions fuel source.

Note: A hybrid vehicle uses an engine powered solely by petrol, diesel or LPG with an electric motor and battery recovering deceleration energy and boosting efficiency and is not considered to be a zero emissions vehicle.

TYPES OF ELECTRIC BIKES THAT ARE LEGAL TO RIDE IN AUSTRALIA

A power assisted pedal cycle has electric-power assist available when pedalling and when not pedalling (via a throttle), with no restriction on when electric-power assist is available. Output is up to 200 watts.

A pedelec electric bike has electric-power assist only when pedalling, and only up to a speed of around 25 kilometres per hour, after which the electric motor cuts out. Output is up to 250 watts.

CANBERRA LEADING AUSTRALIA ON ZERO EMISSIONS VEHICLES

The ACT has Australia's most generous financial incentives for the purchase and registration of zero emissions passenger vehicles.

- » In 2014 the ACT was the first Australian jurisdiction to introduce a variable motor vehicle stamp duty scheme. Under this scheme zero emissions vehicles registered for the first time are exempt from stamp duty.²
- » The ACT also offers an annual vehicle registration discount of 20% for zero emissions vehicles.³

In addition to these financial incentives, the ACT Government has encouraged the uptake of zero emissions vehicles.

- » Signed a memorandum of understanding with other Australian jurisdictions to work together to promote the uptake of electric vehicles.⁴

- » Adopted zero emissions vehicles in the Government fleet—in 2017 there were 17 battery electric vehicles and 7 plug-in hybrid vehicles in the fleet (plus 62 hybrid vehicles).
- » Purchased eight electric bikes for the fleet to encourage staff to ride to meetings rather than driving.
- » Began a trial of two battery electric buses and one hybrid bus running on diesel. The trial began in August 2017 and will run until late 2018, with the trial buses servicing a number of routes throughout Canberra. The results of this trial will provide information on issues to consider in making the transition to a zero emissions bus fleet.
- » Continued to investigate opportunities for zero emissions fuel production in the ACT, including the proposed deployment of 20 hydrogen-powered Hyundai fuel cell electric vehicles (FCEVs) into the Government fleet by 2019–20.
- » Facilitated the installation of further charging points in the ACT and on major routes to Canberra.
- » Streamlined the approvals process for installation of publicly accessible electric vehicle charging points.



ACT Government electric vehicle fleet

ACT Parks and Conservation Service staff traveling on work e-bikes





WHERE TO NEXT?

The ACT Government is committed to reducing greenhouse gas emissions from transport through encouraging active travel, providing high quality low emissions public transport options and encouraging the transition to zero emissions vehicles.

The ACT's next transport strategy, Transport for Canberra, and climate strategy, ACT's Climate Strategy to a Net Zero Emissions Territory, will include the transition to zero emissions vehicles as a key focus.

FUTURE ACTIONS

To support and accelerate the transition to zero emissions vehicles, the ACT Government commits to the following actions.

- » At least 50% of all newly leased ACT Government fleet passenger vehicles will be zero emissions vehicles in 2019–20 (where fit for purpose⁵).
- » All newly leased ACT Government passenger fleet vehicles will be zero emissions vehicles from 2020–21 (where fit for purpose).
- » Amend the Parking and Vehicle Access General Code to require all new multi-unit and mixed-use developments to install vehicle charging infrastructure.
- » Work with local and state governments to facilitate the installation of charging stations on major routes to and from Canberra including routes to Sydney and coastal areas.
- » Permit zero emissions vehicles to drive in transit lanes until 2023.
- » Conduct a feasibility assessment for the installation of covered car parks with solar powered vehicle charging stations.
- » Investigate providing incentives to encourage the use of electric bikes including through more secure bike parking and bike charging stations.
- » Amend tax arrangements to allow ACT Government staff to salary sacrifice an electric bike.
- » Support new and innovative businesses in the zero emissions vehicles sector to maximise job creation and economic development in the ACT.
- » Investigate the potential use of electric vehicle batteries to support the electricity grid at times of peak demand.
- » Review parking and traffic regulations to ensure that priorities offered to zero emission vehicles can be enforced; and provide specific zero emissions vehicle number plates for easy identification and enforcement of zero emissions vehicles related regulations (e.g. ensuring only zero emissions vehicles park and charge in allocated spaces for vehicle charging).

ARE ZERO EMISSIONS VEHICLES AVAILABLE?

Electric cars are available for ordering or purchase through local car dealerships. Several major car manufactures are expected to release new electric vehicle models in Australia in 2018 across a range of price brackets, with the average price expected to decline as they become more widely available. More than 200 battery electric and plug-in hybrid cars are registered in the ACT.

SUPPORT FOR MAKING THE SWITCH

While running costs may be lower, zero emissions vehicles can be more expensive to buy. In addition to the stamp duty exemption and registration discount offered in the ACT, households and businesses can access reduced rate car loans for the purchase of zero emissions vehicles through a number of lenders supported by the Australian Government's Clean Energy Finance Corporation.⁶

ARE THE LIFECYCLE IMPACTS OF ZERO EMISSIONS VEHICLES LOWER THAN FOR CONVENTIONAL VEHICLES?

Research shows that even taking into account the energy and materials used in manufacturing electric vehicles, they still have lower greenhouse gas emissions and less overall environmental impact than conventional petrol and diesel vehicles, even if charged with greenhouse gas emissions intensive electricity.^{7,8} In the ACT, the environmental outcome is even better as we will have 100% renewable electricity by 2020.

Batteries can be re-purposed or recycled at the end of their useful life. ACT Government will work with other jurisdictions and vehicle manufacturers to encourage continual improvement in battery reuse and recycling technologies and systems to recover materials and minimise the whole-of-life impacts of zero emissions vehicles.

CHARGING POINTS

The existing network of public charging points across the ACT provides good options for charging your vehicle when needed. Publicly accessible charging stations in the ACT and region can be found on the website www.plugshare.com.

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1. electricvehiclecouncil.com.au
 2. www.revenue.act.gov.au/motor-vehicle-duty
 3. www.accesscanberra.act.gov.au
 4. www.environment.act.gov.au/cc/what-government-is-doing/national-and-international-activities
 5. Available electric vehicle models may not be suitable to replace some vehicle types, such as off-road vehicles and service vehicles.
 6. Clean Energy Finance Corporation, <http://www.cefc.com.au/>
 7. 'Electric vehicle life cycle analysis and raw material availability', European Federation for Transport and Environment, October 2017, <https://www.transportenvironment.org>.
 8. 'Cleaner Cars from Cradle to Grave: How Electric Cars Beat Gasoline Cars on Lifetime Global Warming Emissions', Union of Concerned Scientists, 2015, <https://www.ucsusa.org>.

