NSW GOVERNMENT

NSW Electric Vehicle Strategy

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Ministers' foreword

The Hon. Andrew Constance MP
Minister for Transport and Roads

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Minister for Energy and Environment

Australia is a nation that loves to travel.

From young adults saving up to buy their first car, right through to retirees hitting the road to explore Australia's vast countryside, travelling is central to Australia's way of life.

Over past decades, vehicle technology has improved significantly, allowing Australians to travel faster, more safely and in greater comfort. Technologies like airbags and ABS have saved countless lives, while transitioning from leaded to unleaded fuels has helped to reduce deadly air pollution.

Over the coming decades, vehicle technologies like hydrogen and autonomous vehicles are again set to transform the way Australians move. In the more immediate future, electric vehicle (EV) technology will revolutionise the use of Australia's roads.

EVs are high performing vehicles that are cheaper to run, quieter on the road and do not emit tailpipe air pollution or greenhouse gas emissions. They also stand to dramatically improve health outcomes for communities, particularly pregnant women and babies, people with chronic illnesses, and the elderly, through reduced toxic exhaust emissions. Most of the biggest manufacturers across the world are introducing more EVs into their fleets, creating a big opportunity for the people of New South Wales to also benefit from the technology.

New South Wales must act decisively to capture this opportunity. The world is moving to decarbonise in response to climate change and Australia is one of 191 countries that have committed to keeping global temperature rises to well below 2°C under the Paris Agreement. Failing to act could see our State miss out on better quality, cheaper EVs which do not make it to New South Wales because policy settings are better overseas.

The Electric Vehicle Strategy is our plan to make New South Wales the easiest and most affordable place to buy and use an EV in Australia. It is also a critical element of NSW's multi-faceted approach to revolutionising our road and transport network. Under this strategy, stamp duty on EVs will be slashed, drivers will have access to a world-class road network of ultra-fast charging stations and motorists will be supported to make their next vehicle an EV. It is a bold plan, designed to drive record numbers of EVs onto our roads and accelerate our fleet of the future.

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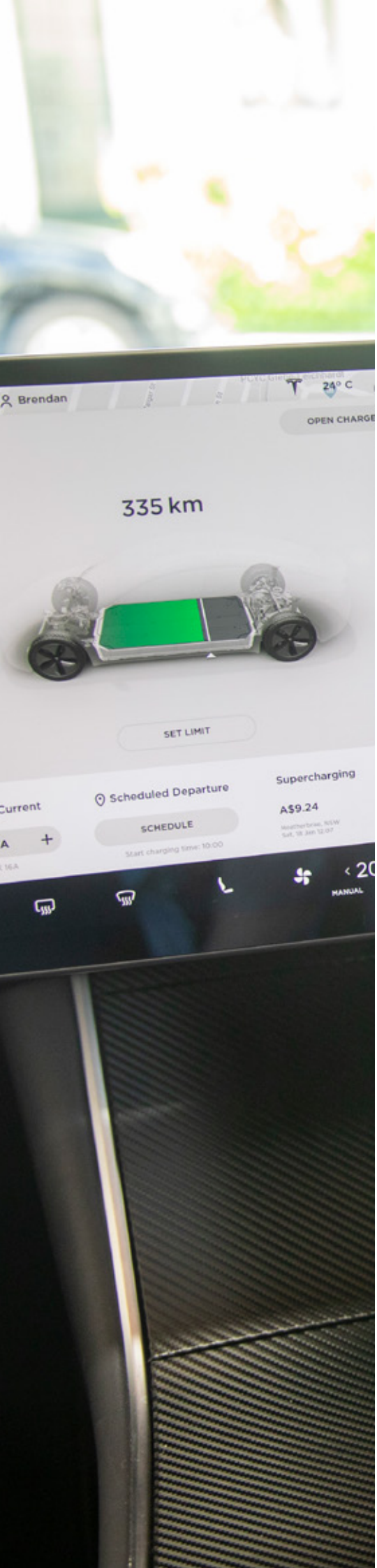


Introduction

Communities, businesses and governments around the world are adopting new technologies and innovations that improve our way of life and create a more prosperous future. This is particularly so for the transport sector, where advances in technology are transforming the way people travel. Improvements in the road safety features of cars, real-time information and digital ticketing for public transport, and on-demand rideshare apps, are just some examples of how technology has improved transport.

The same is true for technology advances in the vehicle fleet itself, with the reduced environmental and health impacts, falling cost and high-quality driving experience of electric vehicles (EVs) making them an increasingly attractive option for motorists. Global demand for EVs has increased dramatically, with total stock reaching over 10 million in 2020 compared to less than 20,000 in 2010, with battery electric models driving the expansion (International Energy Agency, 2020). Ambitious government policies in some of the world's biggest economies like the US and UK, new companies like Tesla, as well as EV commitments from some of the world's biggest car makers including Volkswagen, Hyundai, General Motors, Toyota and Ford, are also accelerating this change.

New South Wales is well placed to embrace the EV opportunity. New South Wales:

- has strong geological prospects for several of the minerals crucial in the manufacture of EV batteries
- has a highly skilled workforce capable of contributing to the production and installation of EV infrastructure
- regularly trials and adopts world-leading technologies across the transport sector to modernise our road network and services, and
- has vast renewable energy sources ready to provide cheap electricity to fuel EV fleets allowing New South Wales to bring home jobs in the renewable electricity that powers these vehicles, unlike most jobs in the petrol and diesel supply chain that are interstate or overseas.

The NSW Government is committed to increasing the uptake of EVs, allowing more people to benefit from their cheaper running costs and a cleaner, quieter and more sustainable transport network. Currently, battery EVs make up only about 0.68% of new car sales in New South Wales. This compares to international market leader, Norway, where battery EVs made up 55% of new vehicle sales in 2020 and plug-in hybrid and battery EV sales combined made up 75% of sales. In the UK, battery EVs made up 7% of new vehicle sales in 2020.

The EV Strategy is the NSW Government's plan to accelerate the State's vehicle fleet of future. The Strategy is expected to increase EV sales to 52% by 2030-31 and the NSW Government's objectives are to achieve that goal and see the vast majority of new car sales being EVs by 2035.

Background

What is an electric vehicle?

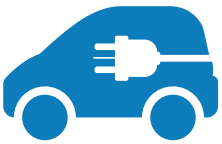
There are a number of different types of EVs.

Battery EVs

Full EV powered entirely by electricity. Battery EVs produce no tailpipe emissions.

Hydrogen fuel cell EVs

Use a fuel cell instead of a battery and yet to achieve market breakthrough.



Plug-in hybrid EVs

Have both a small battery and petrol or diesel engine and can be run both on fuel and electricity.

The NSW Electric Vehicle Strategy mainly provides support for battery and hydrogen fuel cell EVs which produce no tailpipe exhaust emissions and have the capacity to be zero emissions when powered by renewable energy.

Electric vehicle trends

International context

According to the International Energy Agency, global demand for EVs increased by 43% in 2020 compared to 2019, with three million new EVs registered in 2020 (IEA, 2020). The increase in demand is driven in large part by the growth of new EV policies in international jurisdictions.

International electric vehicle policies

- The US under the Biden Administration plans to spend $174 billion to drive EV uptake and upgrade its 640,000 Government fleet of vehicles to EVs
- Norway plans to end sales of new petrol and diesel vehicles by 2025
- The UK plans to ban the sale of new petrol and diesel vehicles by 2030
- Sweden offers a grant for up to 25% of the purchase price of low emissions vehicles and 50% of the price for home charging points
- Japan plans to end the sale of petrol and diesel cars by the mid-2030s
- France will spend €1.3 billion to drive the uptake of EVs before prohibiting the sale of petrol and diesel vehicles by 2040
- Germany plans to put 10 million EVs on the road and install 1 million charging stations by 2030
- China requires all automakers and car importers to manufacture or import at least 12% EVs
- Canada will spend CAD$600 million to incentivise the uptake of EVs and develop a coast-to-coast fast charging network
- Singapore has a plan to ensure all vehicles in the country are low-emissions or zero emissions vehicles by 2040
- New Zealand plans to invest NZ$300 million in electric vehicles and upgrade its Government fleet to be emission-free by 2025-26

Car makers

Many car makers are responding to the growing demand for EVs by committing to electrifying their fleets and retooling their production lines towards EVs.

Car maker electric vehicle commitments

- Toyota will produce 5.5 million EVs per year by 2030
- Volvo will be a fully electric car company by 2030
- Ford will phase out internal combustion engines in Europe by 2030
- General Motors will phase out internal combustion engines in light duty vehicles by 2035
- Hyundai will phase out internal combustion engines by 2040
- BMW will offer electric models across 90% of its range by 2023 and plans for 50% of global deliveries to be electric by 2030
- Honda will only sell EVs in Europe by the end of 2022
- Jaguar Land Rover will only sell EVs through its Jaguar brand from 2025 and through its Land Rover brand from 2036 globally
- Stellantis will offer EVs across 100% of its range by 2030
- Volkswagen will spend over US$30 billion to develop EVs by 2023, and intends electric models to make up 40% of its fleet by 2030

Table 1 Announcements by car makers related to electric light-duty vehicles (battery EVs and plug-in hybrid EVs) (IEA, 2020).

Original equipment manufactuer	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BMW Group			25		15-25%					10
BAIC Group	2				1.3					50%
Changan Automobile (Group)					33					
Daimler		10			25%					50%
Dongfeng Motor Co.	1	30%	1		1				1	1
FAW					40%					60%
Ford		40				100%*				
GM Group			22		30	1				1
Honda										40%†
Hyundai–Kia					1 29					
Mazda		1								5%
Renault–Nissan		20 20%								
Maruti Suzuki	1									1.5
SAIC					30%					30
Stellantis					38%* 31%**					70%* 35%**
Toyota Group	1				15					>1
Volkswagen			1		20% 3 75				26	70%* 50%**
Volvo (Geely Group)	1	1	1	1	50%					100%*

% of sales electric | Annual sales (million) | Cumulative sales (million) | New EV models (number)

* European market only
** Chinese and US markets only
† Includes both EVs and fuel cell EVs

NSW Context

In 2019, the NSW Government released its Electric and Hybrid Vehicle Plan (the Plan). The Plan has helped to kick-start the EV market in New South Wales and build critical EV infrastructure in the State.

Under the Plan, the NSW Government:

- is supporting at least 20 fast chargers in regional New South Wales and is trialling chargers in commuter carparks in Greater Sydney
- added 36 battery EVs, 23 plug-in hybrid EVs and 2741 hybrid EVs to the NSW Government fleet between January 2019 and March 2021
- has delivered an online NSW EV guide which provides information on available EV models, benefits of EVs, EV charging, and a total cost of ownership calculator.

The NSW Government has also committed to transitioning the State's 8000 buses to zero emissions technology. Over 50 electric buses were rolled out across Sydney in early 2021 in the first phase of this work, helping to reduce air pollution and greenhouse gas emissions. The transition to zero emissions buses also provides opportunities for local industry and manufacturing businesses, and supports the development of skills which can be utilised across other areas of the transport network including freight vehicles and light passenger vehicles.

In addition to this, the NSW Government has announced a target of net zero emissions from electricity used to run Sydney Trains and NSW TrainLink by 2025, which will be achieved progressively over the next four years, starting by offsetting all emissions from our stations' electricity use by 2022.

In March 2021 there were 7135 light battery EVs registered in New South Wales, making up about 0.1% of light vehicles on NSW roads. In 2020, battery EVs made up 0.68% of new light vehicle sales in New South Wales.

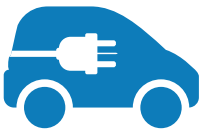
The NSW Government has also set carbon emissions reduction objectives of net zero by 2050 and 35% by 2030 and has set out its emissions reduction plan for the next decade in the Net Zero Plan Stage 1: 2020–2030.

Benefits of electric vehicles

There are a range of benefits of increasing EV uptake in New South Wales.

Lower running costs

Switching to an electric vehicle can save about **$1000** in running costs a year



EVs have lower running costs and require less maintenance than petrol and diesel cars. An average NSW driver is likely to save around $1000 in running costs per year by switching to an EV.

These savings are even higher for vehicles that are on the road more often, including taxis, buses, freight and rideshare vehicles. For example, a taxi driver can save up to around $4500 per year by switching from a hybrid petrol car to a battery EV or even more if switching from a traditional petrol vehicle. For buses, the recent trial in Sydney found that the State can achieve reductions in operating and maintenance costs by switching from diesel to electric buses, with a full fleet transition estimated to achieve between $1.1 and $1.9 billion in environmental cost savings.

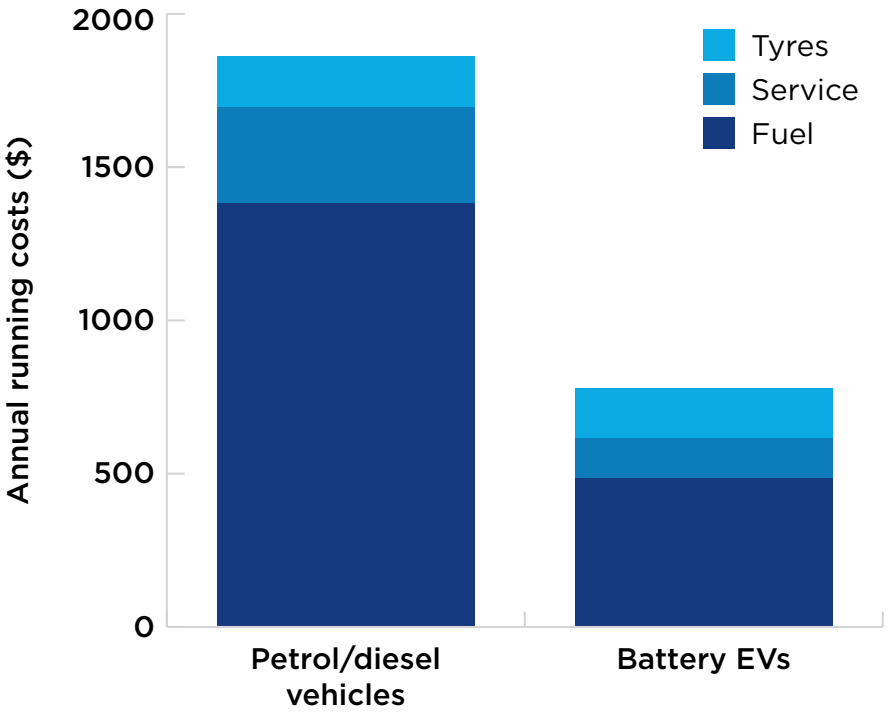


Figure 1 Comparison of annual running costs for small and medium passenger petrol/diesel vehicles and battery electric vehicles.

Cleaner air and health benefits

While all vehicles contribute to air pollution through road, brake and tyre wear, battery and fuel cell EVs do not produce tailpipe emissions of particle and gaseous air pollutants like petrol and diesel vehicles. Road transport air emissions are released near the ground and frequently within communities resulting in relatively high population exposure.

Statistics show that motor vehicles account for 62% of Sydney's nitrogen oxides (NOx) emissions, 24% of volatile organic compound (VOC) emissions and 14% of particulate matter (PM2.5) emissions (EPA, 2012) – all of which have direct and indirect effects on health of our communities. Motor vehicles are also a significant contributor to fine particle and ozone pollution in the Sydney basin area. Moreover, about 70 premature deaths each year are associated with long term exposure to vehicle pollution in the NSW Greater Metropolitan Region with vehicle exhaust emissions contributing 69% of the fine particle exposures associated with these deaths (Broome et al, 2020).

Reducing tailpipe emissions from vehicles can deliver significant health benefits for New South Wales, particularly for people living with, or more susceptible to, cardiovascular and respiratory health conditions like asthma and reduce other secondary health impacts caused by these emissions.

New job opportunities

Increasing the uptake of EVs in New South Wales presents an opportunity to create new jobs in the EV industry. These jobs could occur across many parts of the EV market, from manufacturing EV components through to installing, managing and maintaining EV infrastructure like chargers. There will also be new jobs created in the electricity industry to generate electricity needed to power EVs.

Improved fuel security

Australia currently relies heavily on international imports for our liquid fuels. The light passenger vehicle fleet uses 57% of the total liquid fuels used by the transport sector. Increasing the uptake of EVs in New South Wales reduces the State's reliance on imported liquid fuels, improving fuel security by relying on electricity generated in Australia.

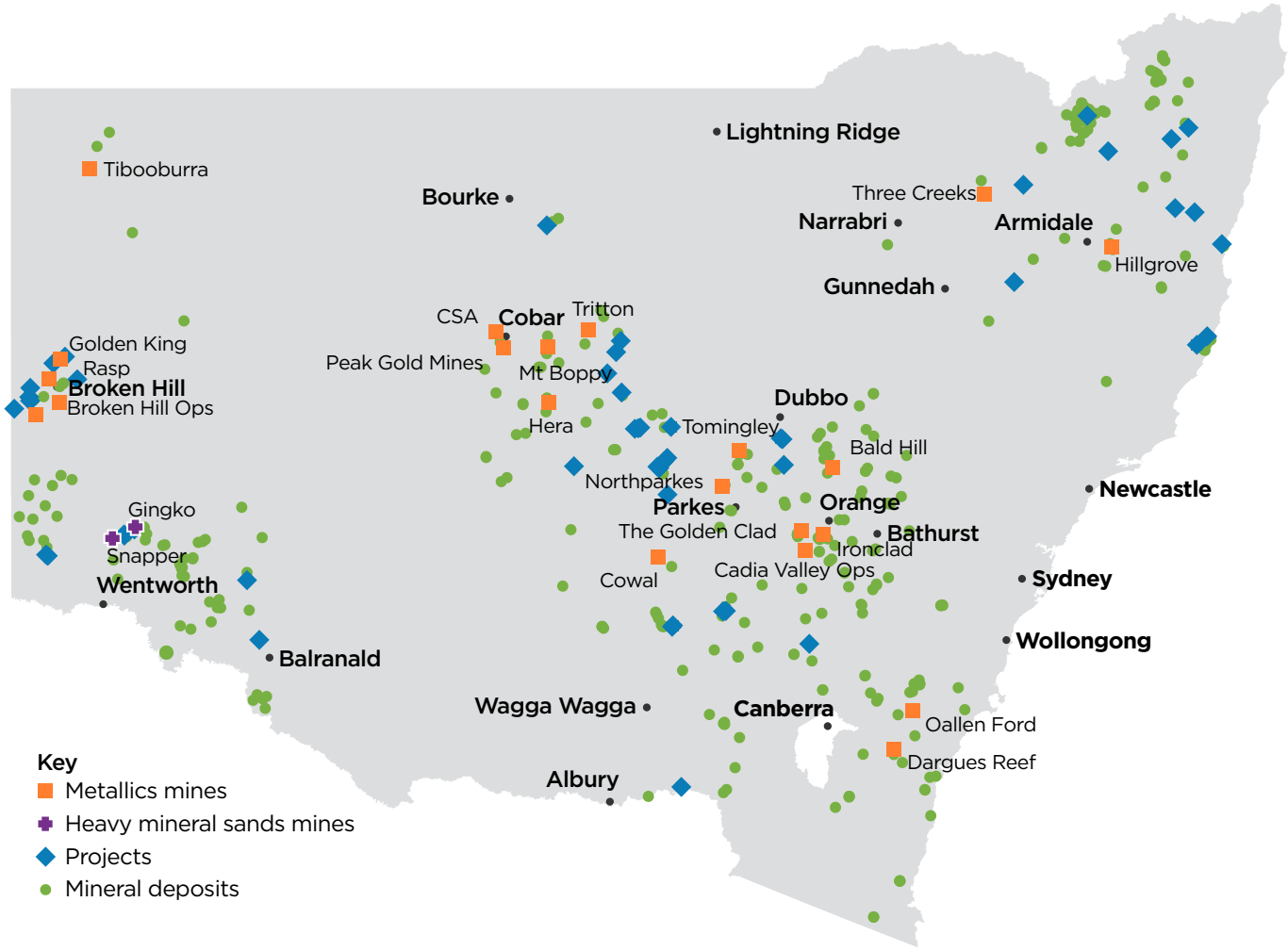


Figure 2 Mineral deposits in New South Wales.

New mining opportunities

New South Wales has a significant mineral endowment of nickel and cobalt which is used in EV battery manufacture as well as deposits of copper, a crucial mineral required in wiring and transmission of energy. Demand for these minerals will increase as EV charging networks widen, leading to more jobs in New South Wales.

The rise in EV uptake globally will continue to create new markets for these minerals, which could attract new mineral exploration, mining and processing investment in New South Wales and provide skilled and well-paid jobs in regional New South Wales.

Modernised road network

The Australian road network primarily relies on petrol and diesel vehicles to transport passengers and commuters from point A to point B. Future mobility and technology innovations such as EVs are part of modernising transport for the community and businesses to make ours a world class network. The NSW Government has focused on ensuring that NSW regions also benefit from this modernisation, including through the installation of regional EV charging infrastructure.

Quieter roads

Many people are concerned about the level of road traffic noise in their neighbourhood. EVs are quieter than petrol and diesel vehicles, and produce hardly any noise at lower speeds. That's why some EVs use acoustic vehicle alerting systems which make just enough noise for pedestrians to hear them approaching. Quieter roads help to improve the amenity of public spaces, allowing more people to enjoy outdoor areas and to live near busier roads with less noise disruption.

Lower greenhouse gas emissions

The transport sector is a significant and growing source of greenhouse gas emissions. In 2019, transport was responsible for 28 million tonnes of carbon dioxide equivalent (Mt CO2e) of emissions, making up 20% of NSW emissions, with almost 50% of those from passenger vehicles. Transport emissions are currently projected to become the leading source of emissions by 2035, overtaking both electricity and other stationary energy sources.

Increasing the number of EVs on NSW roads and powering them with renewable energy will help to reduce emissions across the transport sector, contributing towards the State's objective to achieve net zero emissions by 2050.

Balanced energy supply

Some EVs can act like a home battery, allowing households to store excess rooftop solar electricity on sunny days and use that electricity at times when the sun is not shining. By integrating EVs into the electricity grid in a smart way, and optimising charging times, EVs can help households to take control of their electricity bills and improve the reliability of the grid.

Policy principles

Increasing the number of EVs on the road requires strategic planning and direction. This Strategy has been developed based on the following four principles.

- It will prioritise overcoming the biggest barriers to electric vehicle uptake.
- It will maximise the economic and public health opportunities that arise from increasing the number of electric vehicles on NSW roads.
- It will be consistent with the State's objective to achieve net zero emissions by 2050.
- It will adopt a fair and sustainable revenue model to build and operate the road network into the future.

Principle 1

The strategy will prioritise overcoming the biggest barriers to electric vehicle uptake

The top three barriers to the widespread uptake of EVs are:

1. **Upfront costs:**
   Currently, the average EV sold into the NSW market is about $28,000 more expensive than the average petrol or diesel car. While the average price of an EV is expected to fall, with many categories reaching price parity by 2027 (BloombergNEF, 2021), helping to reduce upfront costs in the next few years will help to create a vibrant EV market in New South Wales and allows drivers to access the lower running cost benefits sooner
2. **Range anxiety:**
   NSW EV drivers currently have access to around 450 public chargers across the State; however, many of these are located too far apart or charge at slower rates, meaning drivers have to wait longer before getting back on the road. Rolling out a world-class, ultra-fast charging network will give motorists confidence that they can quickly recharge their car when and where they need to.
3. **Model availability:**
   There are currently only around 30 plug-in hybrid and battery EV models for sale in New South Wales, many of which are relatively expensive, luxury models. This compares to more than 75 EV models available in the UK. Bringing more affordable EV models into the NSW market is a key part of helping more people benefit from the EV driving experience.

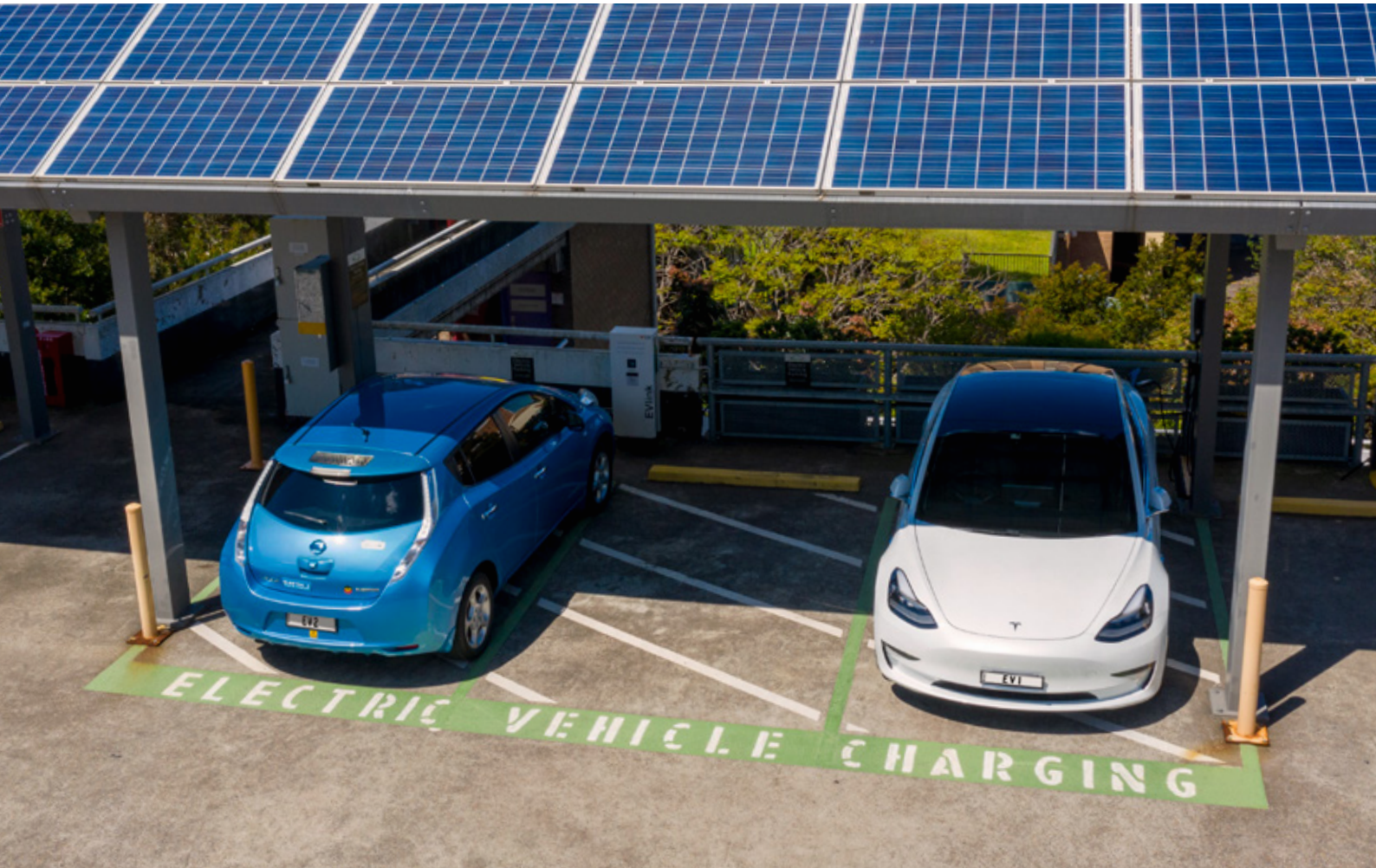
The strategy will work to address these barriers in ways that are targeted and cost-effective and create a sustainable market for EVs in New South Wales in the long term.

Principle 2

The strategy will maximise the economic and public health opportunities that arise from increasing the number of electric vehicles on NSW roads

The health of our NSW communities is paramount. Encouraging the rapid adoption of EVs and other environmentally conscious technology across the transport network will immediately reduce air pollution and vehicle emissions. EV adoption is part of a broader, multi-faceted solution for NSW roads that extends to encouraging other modes of transport, including active and public transport.

There are also many opportunities to grow the economy and create jobs from the widespread adoption of EVs both in New South Wales and internationally, including by producing valuable minerals needed to make batteries and building and maintaining EV infrastructure. There will also be new jobs created in generating the electricity needed to power the vehicle fleet. Whereas most jobs in the production of petrol and diesel are based interstate or overseas, electrifying mobility would allow the State to bring those energy jobs back to New South Wales.



Principle 3

The strategy will be consistent with the State's objective to achieve net zero emissions by 2050

Australia is one of 191 countries that have committed to keeping global temperature rises to well below 2°C under the Paris Agreement. The NSW Government is taking action by committing to reducing emissions by 35% by 2030 compared with 2005 levels and achieving net zero emissions by 2050 while continuing to grow the economy, create jobs and reduce the cost of living.

The electrification of light vehicles is a key pathway for decarbonising the transport sector in a way that creates jobs and reduces the cost of driving and is important to achieving the State's net zero emissions objective.

Given that light vehicles stay on the road for around 15 years on average, moving to net zero emissions for light vehicles will require the vast majority of new car sales to be battery or fuel cell EVs by 2035.

Principle 4

The strategy will adopt a fair and sustainable revenue model to build and operate the road network into the future

Given they are powered by electricity rather than petrol or diesel, EVs do not pay fuel excise that other motorists currently pay at the bowser. Fuel excise is currently levied at 42.7 cents per litre. While EVs only make up a small part of the NSW vehicle fleet today, as more people buy EVs, the fuel excise revenue needed to help pay for road construction and maintenance is expected to go into long-term structural decline. Without a proper plan to manage the increase in EVs, this will affect the State's financial capacity to fund the future construction of new road infrastructure and maintain the quality and safety of existing roads. Therefore the Strategy will create the framework for a modern road funding model that will actively incentivise the purchase of EVs, while also setting the foundations for a road funding system that is fair and sustainable in the long term.

Actions

The NSW Government has identified five areas for action required to make New South Wales the easiest place to buy and use an EV in Australia:

Action 1 — **Helping drivers buy an electric vehicle**

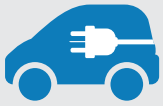
Action 2 — **Building a world-class electric vehicle charging network**

Action 3 — **Making it easy to drive an electric vehicle**

Action 4 — **Creating jobs and growing the economy**

Action 5 — **Keeping road funding fair and sustainable**

Table 2 Applicability of NSW actions to vehicle types.

Type of vehicle	No stamp duty*	Rebate	Fleet incentives	Public charging network	Priority driving lanes	Road user charge**
 EVs	✓	✓	✓	✓	✓	✓
 Plug-in hybrids	✓	-	-	✓	-	✓

* From 1 September 2021 for EVs under $78,000. All other EVs and plug-in hybrids will pay no stamp duty from 1 July 2027 or when EVs make up 30% of new car sales.

** From 1 July 2027 or when EVs make up 30% of new car sales.

Action 1

Helping drivers buy an electric vehicle

While EVs are expected to come down in price in the next few years, many EV models remain expensive, making cost one of the key barriers to increasing their market share. To help reduce the upfront cost of buying an EV, the NSW Government will remove stamp duty on EVs, offer EV rebates, provide fleet incentives and use the NSW Government fleet to bring a range of cheaper EV models into the State.

The NSW Government will remove stamp duty on electric vehicles

The cost of stamp duty in New South Wales is currently $3 per every $100 for cars under $45,000, and $1350 plus $5 per every $100 for cars above $45,000. The NSW Government will encourage EV uptake by removing this inefficient tax, which makes it harder for motorists to switch to an EV. Stamp duty will be removed for EVs under $78,000 purchased from 1 September 2021 and all EVs including plug-in hybrids from 1 July 2027 or when EVs make up at least 30% of new car sales (whichever is earlier), when the road user charge is introduced.

The NSW Government will offer $3000 rebates on new electric vehicle purchases

The NSW Government will provide rebates of $3000 on the purchase of the first 25,000 EVs sold in New South Wales from 1 September 2021. Rebates will only be available for cars retailing under $68,750, making sure the rebate is going to the cars more people can afford. Fleets will not be eligible.

The NSW Government will provide fleet incentives to help local councils and businesses buy electric vehicles

Fleet buyers are important participants in the new vehicle market in New South Wales. Fleet vehicles typically drive further and have higher petrol and maintenance costs, so fleet operators can realise greater savings by switching to EVs.

As fleet buyers purchase large numbers of vehicles at a time, their bulk purchasing power can also have influence on vehicle availability. Supporting fleet buyers will help encourage car makers to increase the range of EVs available in the NSW market, which will benefit all EV purchasers. Noting that fleet buyers replace their vehicles more frequently, typically every three to five years, encouraging fleets to purchase EVs will also help to build the second-hand EV market in the future.

As previously committed under the NSW Net Zero Plan: 2020–2030, the NSW Government will offer incentives to support medium to large sized fleets, such as local councils, businesses, car leasing companies and car share companies, to purchase battery or hydrogen fuel cell EVs. The incentives will be offered through a reverse auction process, ensuring the Government maximises value for money and uptake of EVs in New South Wales.

The NSW Government will target an all-electric passenger fleet by 2030

As of mid-2020, there were only 11 battery EV models available on the Australian market (Electric Vehicle Council, 2020). In order to bring more affordable models into New South Wales, importers need to have confidence in the local market.

The NSW Government will use its bulk purchasing power to incentivise importers to increase the range of EV models they sell in New South Wales. It will do this by setting a target of electrifying NSW Government passenger vehicle fleet procurement by 2030, with an interim target of 50% EV procurement by 2026. NSW Government fleet vehicles are typically resold on the second-hand market after three to five years, which will mean a higher number of second-hand light EVs will be available to NSW drivers.

The NSW Government will also conduct a strategic review of NSW Procurement's Approved Vehicle List and associated procurement processes, to make it as easy as possible for Government agencies to buy EVs.

Action 2

Building a world-class electric vehicle charging network

Currently New South Wales has limited public fast charging infrastructure for drivers of EVs. Motorists who are considering buying an EV are often concerned they might run out of charge and won't be able to find places to easily recharge their vehicle, especially on longer trips. This is commonly referred to as 'range anxiety'. Range anxiety is consistently identified as one of the biggest barriers to purchasing an EV.

The NSW Government will invest $171 million over the next four years to ensure widespread, world-class EV charging coverage so current and future EV drivers can be confident they can drive their vehicles whenever and wherever they need to. Of the total investment:

- $131 million is for ultra-fast charging infrastructure in areas with limited off-street parking, as well as to build EV Commuter Corridors and Super Highways across the State,
- $20 million is for destination charging infrastructure in or near commuter carparks and other popular Transport for NSW sites
- $20 million is for destination charging infrastructure at regional tourist locations, such as motels, restaurants and wineries.

The NSW Government will adopt a coordinated approach to delivering on-street charging infrastructure and make those location details available on an open data platform. This information will provide customers with greater visibility of charging locations, as well as enable app developers to create products that further improve the customer experience of owning and using an EV.

What is ultra-fast and destination charging?

Ultra-fast chargers have a capacity of 350 kilowatts (kW). Drivers plugging into an ultra-fast charger can recharge between 200 and 400 kilometres (km) in no more than 15 minutes. These chargers are best suited for people who need to get back on the road quickly.

Destination chargers have a capacity of between 7 kW and 25 kW. Drivers can recharge between 40 km and 140 km per hour. These chargers are best suited for places like commuter carparks and motels where people leave their cars parked for longer periods of time.

The chargers will be powered by electricity from renewable energy projects.

The NSW Government will ensure households in areas with limited off-street parking live no more than 5 km from an ultra-fast charger

About 30% of drivers are unable to access private off-street parking where they can recharge their EV. This includes many tenants and apartment owners who rely on street parking. The NSW Government will run a competitive funding process to co-fund the deployment of charging infrastructure for EVs, so households in areas with limited off-street parking live no more than 5 km from an ultra-fast charger.

The NSW Government will invest in EV Super Highways and Commuter Corridors across New South Wales

NSW EV drivers already have access to the largest regional network of EV fast chargers in Australia, with 59 EV fast charging sites featuring 153 charging stations available across New South Wales as of July 2020, and another 35 underway.

The NSW Government will build on this progress by co-investing in more ultra-fast chargers at 100 km intervals across all major highways in New South Wales – creating 'EV Super Highways' across the State. This will help regional residents and businesses share in the benefits of EVs by improving their access to charging infrastructure and encouraging more city-based EV drivers to travel to regional areas, boosting local tourism.

The NSW Government will also invest in 'EV Commuter Corridors' across Sydney, to make sure drivers have no more than 5 km to drive to the next ultra-fast EV charger along these roads.

See Figures 3 and 4 on the following page.

Figure 3 Indicative map of NSW EV Super Highways.

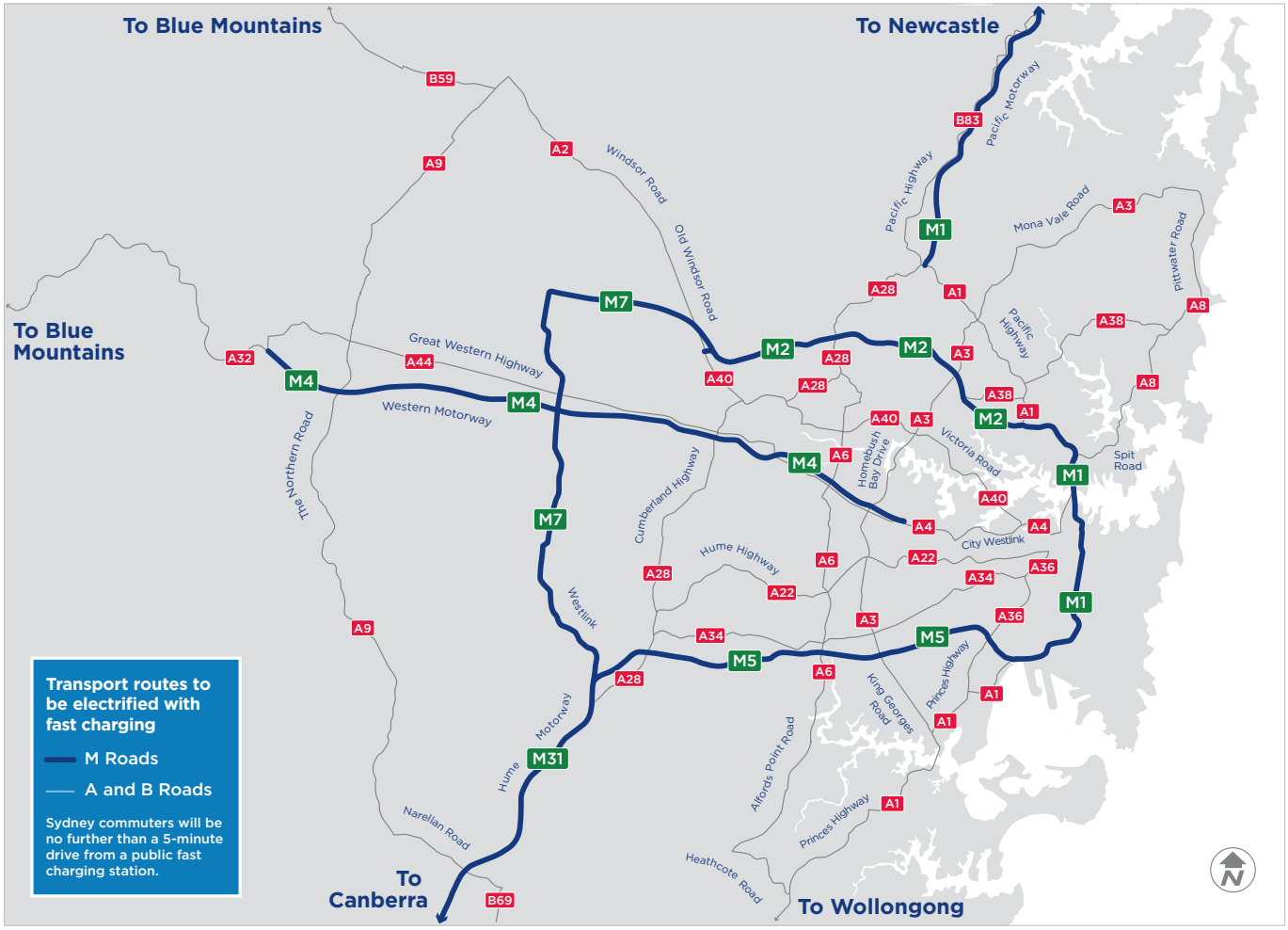


Figure 4 Indicative map of Sydney EV Commuter Corridors.

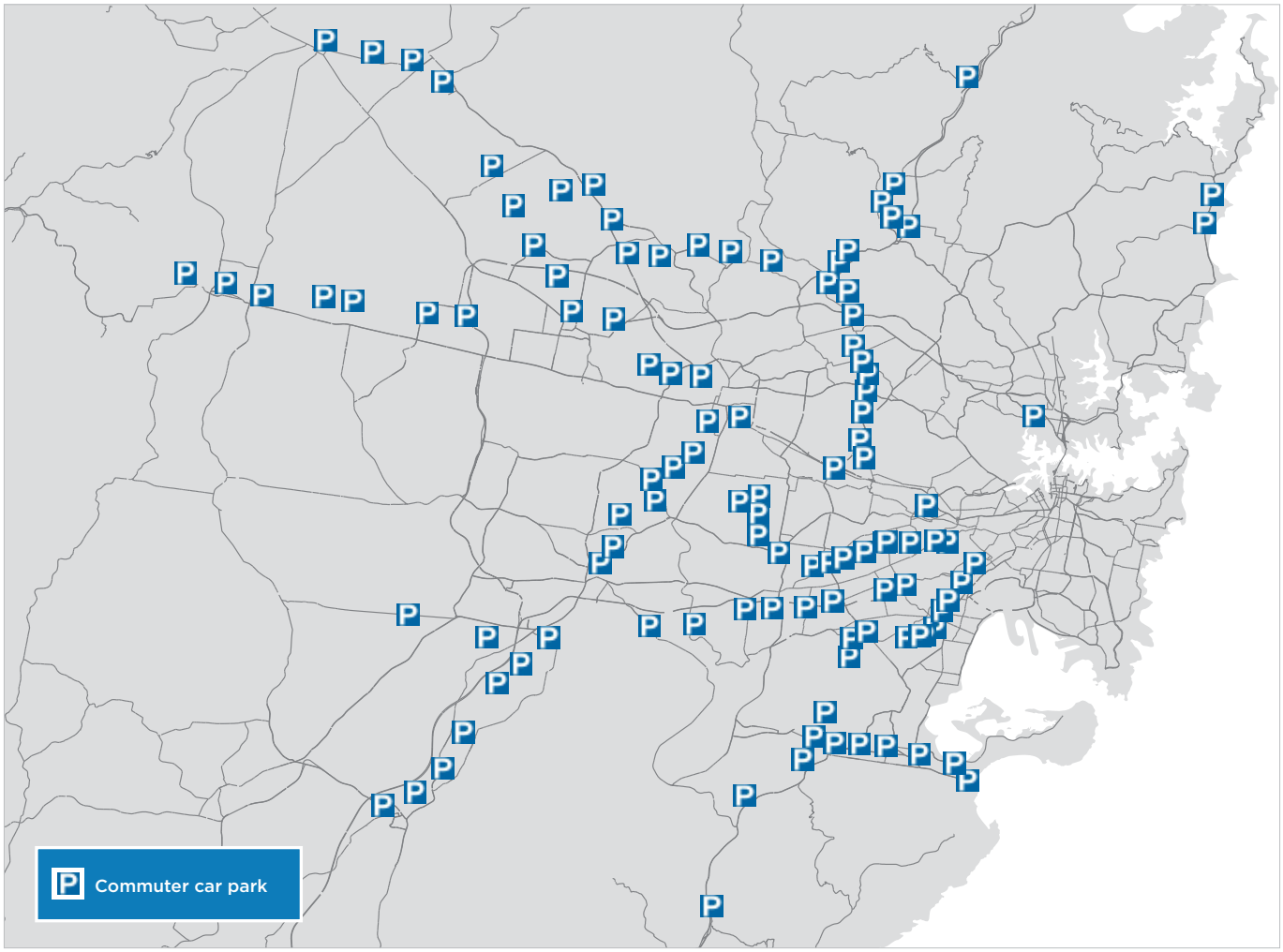


Figure 5 Indicative map of carparks to have destination chargers installed.

The NSW Government will support more destination chargers at commuter carparks and other key government locations

Many commuter carparks across New South Wales are already designed for the easy addition of EV charging and are ideal places for motorists to make the most of destination chargers while they are at work.

The NSW Government is currently trialling the installation of destination chargers at some commuter carparks. Under this strategy, the NSW Government will roll out the next stage of charging infrastructure at commuter carparks and other Transport for NSW sites across the State. The location of the chargers will encourage drivers to use public transport and other modes of transport as part of their commute and will tackle the first mile/last mile challenge many countries now face, taking more vehicles off congested roads and ensuring a more seamless connection between different journey modes.

The NSW Government will also ensure most future commuter car parks are supported by the necessary wiring and electrical capabilities, and adequate space considerations, so that EV infrastructure can be installed quickly and in response to the EV demand of local commuters.

The NSW Government will ensure new buildings and precincts are ‘EV ready’

Many buildings are not currently designed in a way that easily accommodates the installation of charging infrastructure in the carpark. They lack the necessary wiring, electrical infrastructure and accessible space needed to install charging infrastructure. Retrofitting EV infrastructure into existing buildings can be expensive and technically challenging. Depending on the size, layout and age of the building, this can cost approximately $75,000 for an apartment building with 20 car spaces. Ensuring that EV electrical infrastructure is built-in when a building is under construction is much cheaper and can save apartment owners at least 75% for the same building size if planned for upfront. The NSW Government will update relevant regulations to make sure all new buildings and precincts are constructed and wired to be ‘EV ready’.

The NSW Government will manage the integration of electric vehicles into the electricity grid

Increased numbers of EVs will put demand on the electricity grid as more vehicles are plugged in to charge. The NSW Government will work to ensure that the increase in EV uptake is appropriately integrated with the electricity system, including with rooftop solar, batteries, and with smart chargers to manage the impact on peak electricity demand. With bidirectional charging capabilities, EV batteries can help support the grid at peak demand times in the future.

The NSW Government will empower councils to take action

The NSW Government will also work with local councils to support pilots of roadside charging infrastructure in conjunction with kerbside parking for EVs. These pilots will be used to inform the development of EV parking and charging guidelines for local councils in New South Wales.

Action 3

Making it easy to drive an electric vehicle

In addition to improving access to public EV charging infrastructure, the NSW Government will update policies and legislation to allow EV drivers to use transit lanes such as T2 and T3 lanes for a limited time to encourage the uptake of EVs.

The NSW Government will work with local councils to make sure that carpark designations like signage is fit for purpose, including by allowing priority parking spots for EVs to recharge and ensuring that charging locations and nearby parking spots are readily accessible for EV users.

Action
4

Creating jobs and growing the economy

The NSW Government is committed to maximising the employment and economic benefits from increasing the uptake of EVs in the State. New South Wales has a highly skilled workforce and a diverse range of minerals that can be leveraged to unlock new economic opportunities for the State to grow.

The NSW Government will promote investment in the minerals needed to make electric vehicle batteries

Global demand for EVs is expected to grow quickly. The NSW Government is working closely with the Commonwealth Government to assist battery mineral project owners in our State to de-risk projects and encourage investments. By acting now to identify and promote opportunities to mine and value-add by downstream processing of cobalt, nickel and rare earth elements, regional New South Wales can benefit from these changes in global demand. The NSW Government will turbocharge its agenda to tap these resources and promote investment in high tech minerals in New South Wales.

The NSW Government will support EV-ready regional destinations

The continued growth of NSW's regional tourism industry will rely on the ability of small regional businesses to cater for an increasing number of EV drivers. The NSW Government will support EV ready destinations across the State by providing $20 million in grants to small regional businesses such as motels, wineries and restaurants to install charging points for their guests.

The NSW Government will also roll out 'EV Tourist Drives' across the State, promoting scenic regional driving routes that have the charging infrastructure needed to support an EV road trip. This initiative will encourage EV drivers to take a holiday in regional New South Wales, growing those local economies and supporting more regional jobs in the tourism industry.

The NSW Government will drive a skills and training agenda for the electric vehicle industry

This Strategy is expected to support 670 jobs, in particular jobs in the renewable electricity, minerals and the EV infrastructure sectors. The NSW Government will work to identify skills needs and opportunities for NSW workers to take up the EV jobs of the future. The NSW Government is investing $318 million in skills in partnership with the Commonwealth and its JobTrainer program and will work to use these funds to create future focused careers in the transport sector.

The NSW Government has also announced specialised training to support the introduction of electric buses in New South Wales, as part of a partnership between TAFE NSW and Volvo Bus Australia. This will involve short courses to help mechanics upskill in EV technologies, such as working safely with high voltage systems.

Action 5

Keeping road funding fair and sustainable

Currently, NSW drivers contribute to the cost of road maintenance and construction through a combination of the fuel excise charge, stamp duty and registration costs. The uptake of EVs brings many positives, including lower vehicle running costs, better air quality and quieter roads. However, with the actions that New South Wales is taking to drive the uptake of EVs, the amount of revenue from the fuel excise available to fund critical roadwork is projected to decline over the coming years. Without rethinking the way our roads are funded, the quality of the road network is likely to deteriorate.

The NSW Government will reform the road taxation system by:

- from 1 September 2021, phasing out stamp duty on EVs sold for less than $78,000 (including GST)
- from 1 July 2027 or when EVs make up at least 30% of new car sales (whichever is earlier):
    - phasing out stamp duty on all EVs
    - introducing a distance-based road user charge (RUC) for EVs.

The RUC rate will be set at 2.5 cents per kilometre for EVs and 2 cents per kilometre for plug-in hybrids. The distance-based charge will reflect an EV driver's use of the road network and will create a more efficient and fairer taxation framework for the State's vehicle fleet of the future.

The RUC is shaped by the following principles:

- Drivers of EVs should not pay on average more under the RUC than they currently pay through stamp duty and fuel excise.
- The RUC should not commence until EVs reach a significant (30%) share of total new car sales in New South Wales (forecast to be from 1 July 2027).
- The RUC should apply to all EV and plug-in hybrids that receive a stamp duty exemption at the point of purchase.
- The implementation of the RUC should minimise the administrative burden on drivers.
- The implementation of the RUC will be designed in consultation with key industry stakeholders, including relevant exemptions for kilometres driven on private roads.

Projections

Through the actions outlined in this strategy the NSW Government plans to stimulate the market to increase demand for and availability of EVs in New South Wales, allowing more consumers to benefit from the new transport technology.

Under the strategy, EVs are expected to make up 52% of new car sales in 2030-31 and it is the NSW Government's objective to achieve that uptake and see the vast majority of new car sales as EVs by 2035.

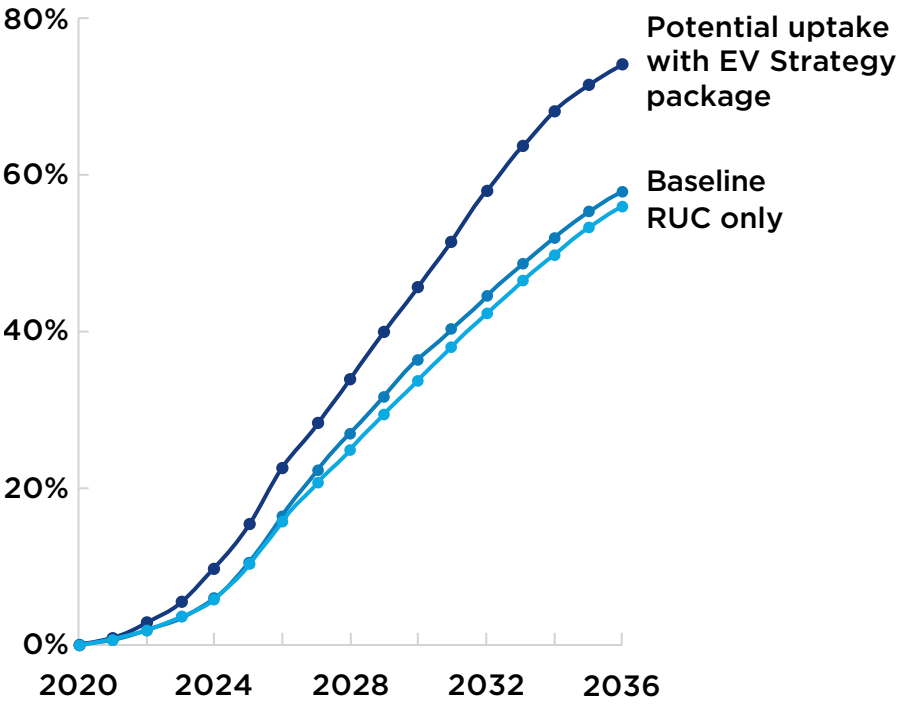


Figure 6 Share of battery electric vehicles in annual sales.

Keeping track and strategy review

The implementation of the strategy and progress of EV uptake will be reviewed regularly, with a first initial review by mid-2023 and subsequent three yearly reviews.

The impact of the EV Strategy in supporting progress towards net zero emissions, delivering clean air and associated health benefits, and realising economic benefits for New South Wales will be reported within future State of the Environment Reports.

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Cover photo: Person charging their electric vehicle (Quentin Jones/DPIE); **Page 3:** Peak hour traffic, Sydney (Bob Peters/DPIE); **Page 4:** Person driving a Tesla (Quentin Jones/DPIE); **Page 5:** Electric bus (Transport for NSW); **Page 6:** Person charging their electric vehicle (Quentin Jones/DPIE); **Page 7:** An electric vehicle (Quentin Jones/DPIE); **Page 9:** Tesla charging stations (DPIE); **Page 11:** Group exercise, Sea Acres National Park (John Spencer/DPIE); **Page 13:** Mobile phone showing electric vehicle charge (Quentin Jones/DPIE), Capital Wind Farm Bungendore (Rosie Nicolai/DPIE); **Page 14:** Darling Harbour rooftops with solar panels (Lisa Madden/DPIE); **Page 15:** NRMA electric vehicle charging (Transport for NSW), Electric vehicles under a solar powered electric vehicle charging station (Quentin Jones/DPIE); **Page 16:** Young family (Adam Hollingworth/DPIE); **Page 17:** Electric vehicle (Quentin Jones/DPIE); **Page 19:** Person driving an electric vehicle (Quentin Jones/DPIE); **Page 20:** Person charging their electric vehicle (Quentin Jones/DPIE); **Page 21:** Mennekes electric vehicle charging plug (DPIE); **Page 22:** Shops on Belmore Road in Riverwood, South Sydney NSW (Adam Hollingworth/DPIE); **Page 25:** Apartment buildings in Homebush, Inner West Sydney, NSW (Adam Hollingworth/DPIE), Electric vehicles (DPIE); **Page 26:** Newcastle, NSW (John Spencer/DPIE); **Page 27:** Electric bus (Transport for NSW); Broken Hill Solar farm (DPIE); **Page 28:** Tesla charging stations (DPIE), Roche Estate vineyard. Pokolbin, NSW (Jamie Plaza Van Roon/DPIE); **Page 29:** Road works between Bega and Bemboka, NSW (Jamie Plaza Van Roon/DPIE); **Page 30:** Slow shutter speed of M5 highway (Salty Dingo/DPIE); **Page 31:** Food and Wine Fair (Simone Cottrell/Botanic Gardens Trust).