TRANSURBAN INSIGHTS: ELECTRIC VEHICLES

February 2024

Transurban Insights reports use data and research from our business, as well as surveys we commission, to explore specific issues relevant to road transport. We share these insights with government and industry and use them to inform driver and community education campaigns.

In this edition of Transurban Insights we examine current levels of hybrid and electric vehicle ownership, and barriers to adoption. We also explore the impact different incentives would have on electric vehicles uptake.

Research

1,682 respondents aged 18+ with a driver licence from: Brisbane, Melbourne and Sydney (Australia); the Greater Washington Area, covering Virginia and Maryland (United States); and Montreal (Canada)[1]

Survey commissioned by Transurban and conducted by Nature

Online survey conducted in mid-2023

Availability and price

Incentives

Electric vehicles will play a key role in tackling greenhouse gas emissions over the coming decades, and new research shows that many Australians and North Americans are considering purchasing an electric vehicle as their next car.

Road transport generates around 12% of global greenhouse gas emissions.[2] Most of these emissions come from the fossil fuels burned to power vehicles. Low and zero emission vehicles – such as hybrids and electric vehicles – have the potential to minimise road travel's environmental impacts as well as improving air and noise pollution.

A survey of 1,682 people across Australia and North America, commissioned by Transurban, found that ownership of hybrid and electric vehicles in the cities surveyed is low (between 13% to 15%) (Figure 1), but the number of people who would like for their next car to be an electric vehicle is much higher at 40% in the Australian cities surveyed, and 35% in Montreal and the Greater Washington Area.[3] These people were also more likely (between 53% and 57%) to buy an electric vehicle as their next car (Figure 2).

Of those who would like their next car to be an electric vehicle, most expect to buy their next car within three years (Figure 3). And of those who are likely to buy an electric vehicle as their next vehicle, most want a sports utility vehicle (SUV), (Figure 6).

In 2021, we found 42% would like their next car to be an electric vehicle, but high purchase cost, lack of charging infrastructure and concern around how much it would cost to charge were holding them back. Our research found these concerns still persist (Figure 7). Lower cost of electricity to charge at home or work, more public electric vehicle charging stations and government incentives when buying a new electric vehicle (e.g., cash back schemes) would incentivise those considering taking the plunge into electric vehicle ownership (Figure 6).

[1] *More than 300 respondents from each Australian city, the United States and Canada*
[2] *Hannah Ritchie, 2020, Our World in Data: Sector by sector: where do global greenhouse gas emissions come from?, accessed November 2023*
[3] *Figures calculated by multiplying % of respondents who rated 'desire to purchase' between 3-5 and intention to purchase between 4-5*

Key findings:

40% of respondents in the Australian cities surveyed would like for their next car to be an electric vehicle, compared to 35% in the Greater Washington Area and Montreal

Sports utility vehicles (SUVs) are the most preferred vehicle model

Australians spend on average $39,857 on new SUVs, much less than the cheapest electric SUVs on the market which start at $44,400

Most people in the Australian cities surveyed would be willing to pay somewhere between $20,000 to $79,000 for an electric vehicle

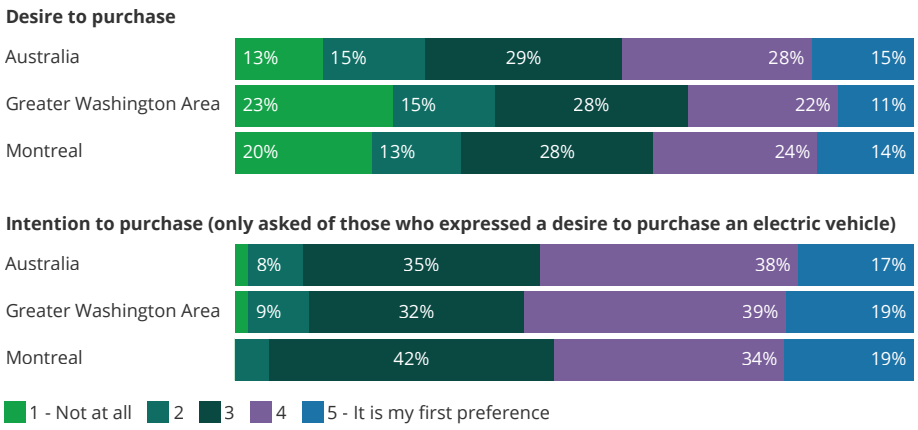
Most people in the Greater Washington Area and Montreal would be willing to pay somewhere between USD/CAD20,000 to 59,000 for an electric vehicle

Cheaper electricity at home or work, more public charging and lower cost models would help incentivise electric vehicle ownership

Figure 1: Percentage of people who own an electric or hybrid vehicle – Australia, GWA, Montreal

Q. Do you own an electric or hybrid vehicle (car, SUV, etc.)?

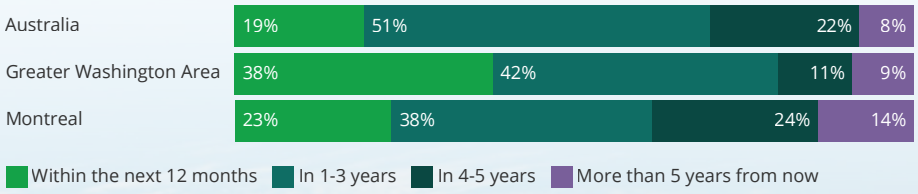
Figure 2: Preference for next car to be an electric vehicle – Australia, GWA, Montreal



Desire Q. To what extent would you want to buy an electric vehicle as your next car/SUV/truck, even if there are reasons you can't or won't be able to? This could be any type of battery, fuel cell, or hybrid electric vehicle.

Only asked of those who expressed a desire to purchase an electric vehicle.
Intention Q. And how likely are you to buy an electric vehicle as your next car/SUV/truck? This could be any type of battery, fuel cell, or hybrid electric vehicle.

Figure 3: (Of those who would like for their next car to be an electric vehicle) When people expect to buy next vehicle – Australia, GWA, Montreal



Only showing responses of those who intend to purchase an EV as their next vehicle.
Q. When do you intend to buy your next vehicle?

Availability and price

Electric vehicles are becoming increasingly popular. In Australia, 8.1% of new car sales in 2023 were electric, up from just 3.8% in 2022 (Figure 5). In 2020, electric vehicle sales accounted for 0.78% of car sales in Australia, compared to 4.2% globally.[1] A similar adoption rate has been seen in the US, with electric vehicle sales rising in the US from 2.3% in 2020 to around 9% in 2023.[2]

SUVs have become the most popular model of vehicle sold in Australia (Figure 4). In 2013 they made up around 16% of new car sales, but now they account for more than half of all new car sales.[3] SUVs and their larger counterpart the pickup truck, which is similar to an Australian ute, are also popular in the US and Canada.

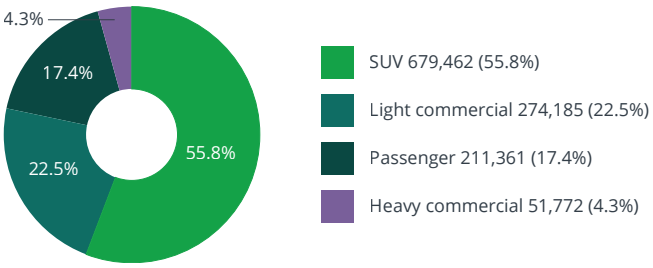
Because SUVs are bigger and heavier than sedans they tend to use more fuel and emit more greenhouse gases. It has been reported that their rapid rise in popularity has effectively wiped out the climate gains from electric vehicles.[4] Given most people plan to buy a new car within three years, with most likely to choose an SUV, it's critical that consumers are provided with affordable electric options.

The August 2021 edition of our U*rban Mobility Trends* report found that high purchase price was the number one barrier to adoption in the Australian cities surveyed. In this survey we explored how much people would pay for an electric vehicle and found most people in the Australian cities surveyed would be willing to pay somewhere between $20,000 to $79,000, in the Greater Washington Area and Montreal most people would be willing to pay between USD/CAD20,000 to 59,000 (Figure 7).

In 2023, there were 91 models of electric vehicles available in Australia,[4] compared to 50 available in the US,[5] and 84 in Canada.[6] As it stands, there are 29 fully electric SUV models available in Australia, priced from $44,400 (for the BYD Atto 3) and $239,000 (for the Lotus Electre).[8] The median price of an electric SUV in Australia is around $85,000.[9] This is much higher than the price people generally spend on new cars, with Australians spending an average $37,362 on new cars and $39,857 on new SUVs.[9]

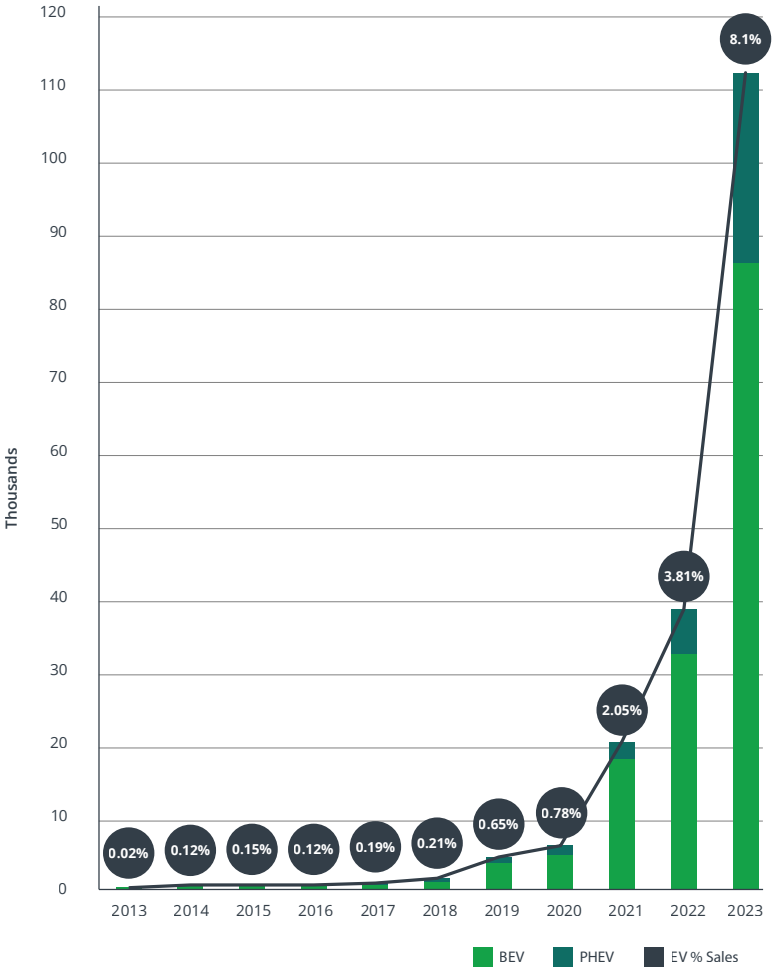
The New Vehicle Efficiency Standard announced by the Australian Federal Government in early 2024 should increase the supply of affordable electric vehicle models available for Australians. The standards set an average emissions target for car manufacturers and incentivise carmakers to supply low or zero emission vehicles. Global bans on the sale of petrol and diesel vehicles coming into effect from 2035 are also expected to have an impact on future purchases and production volume.

Figure 4: Sales by segment in Australia, 2023



Sources: Federal Chamber of Automotive Industries VFACTS report, December 2023

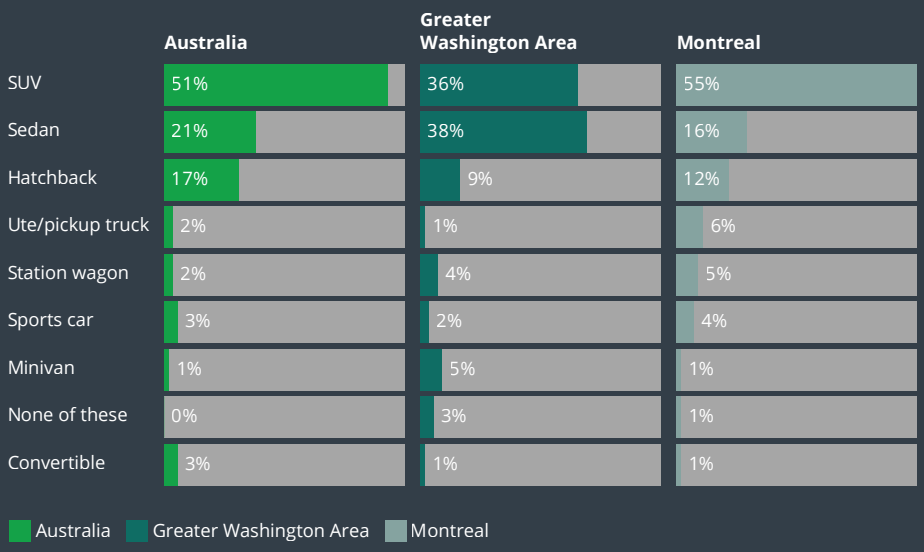
Figure 5: EV sales in Australia, 2013 to 2023



Sources: Electric Vehicle Council, 2023 State of Electric Vehicles; Federal Chamber of Automotive Industry, 2024, VFACTS

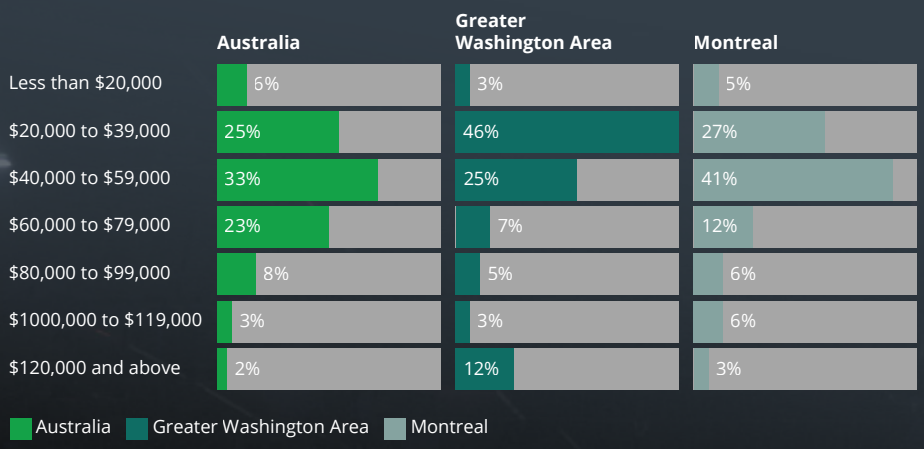
[1] *Electric Vehicle Council, August 2021, State of Electric Vehicles Report*
[2] *US Energy Information Administration, 31 January 2024, Electric vehicles and hybrids surpass 16% of total 2023 US light-duty vehicle sales. Accessed February 2024*
[3] *ABC News, 15 July 2023, Australia's love of big cars is undoing the benefits of the shift to EVs. Retrieved November 2023*
[4] *Electric Vehicle Council, June 2023, State of Electric Vehicles Report*
[5] *US Department of Energy: Energy Efficiency & Renewable Energy, Alternative Fuels Data Centre, accessed November 2023*
[6] *Canadian Automobile Association, EV Buyers Guide: Availability of EVs in Canada, accessed November 2023*
[7] *Transurban analysis based on data from the Electric Vehicle Council, February 2024*
[8] *Canstar Blue research, September 2023*

Figure 6: (Of those who are likely to buy an electric vehicle as their next vehicle) Model preference for next vehicle – Australia, GWA, Montreal



Only asked of those who expressed a desire to purchase an electric vehicle.
Q. Regardless of the type of electric vehicle, what electric vehicle body type would you be most likely to buy?

Figure 7: Maximum price people are willing to pay for an electric vehicles



Prices are in local dollars, respectively: Australian Dollar, United States Dollar, and Canadian Dollar.

Q. What is the maximum price you would be willing to pay for an electric vehicle of any type?

Incentives

The survey also tested the relative impact different incentives would have on uptake of electric vehicles. It found a range of factors would help increase uptake, however lower electricity costs to charge vehicles at home was rated as impactful by the most respondents in the Australian cities surveyed and the Greater Washington Area. In Montreal, government incentives for new vehicles (e.g. cash back) were rated as impactful by the most respondents (Figure 8).

While zero-emissions vehicles are generally more expensive than their petrol-fuelled counterparts, they are much cheaper to run. Infrastructure Partnerships Australia has calculated that when price parity is achieved, which could be as early as 2025, owners of zero-emission vehicles will save at least $3,600 over an eight-year lifespan even after their hypothetical road-user charge of four cents per kilometre is applied.[1]

In Australia, government incentives are available however they vary between states, including rebates, stamp duty exemptions and registration discounts.

In Victoria, a decision by the High Court to repeal the state road-user charge for electric vehicles is expected to prevent other states from pursuing plans to introduce road user charges on electric vehicles – creating an opportunity for the Federal Government to consider broader road user funding reform. A similar national approach could be taken with electric vehicle incentives, with this research finding that people would be most incentivised by cheaper home electricity, access to more charging infrastructure and more affordable electric vehicle models (Figure 8).

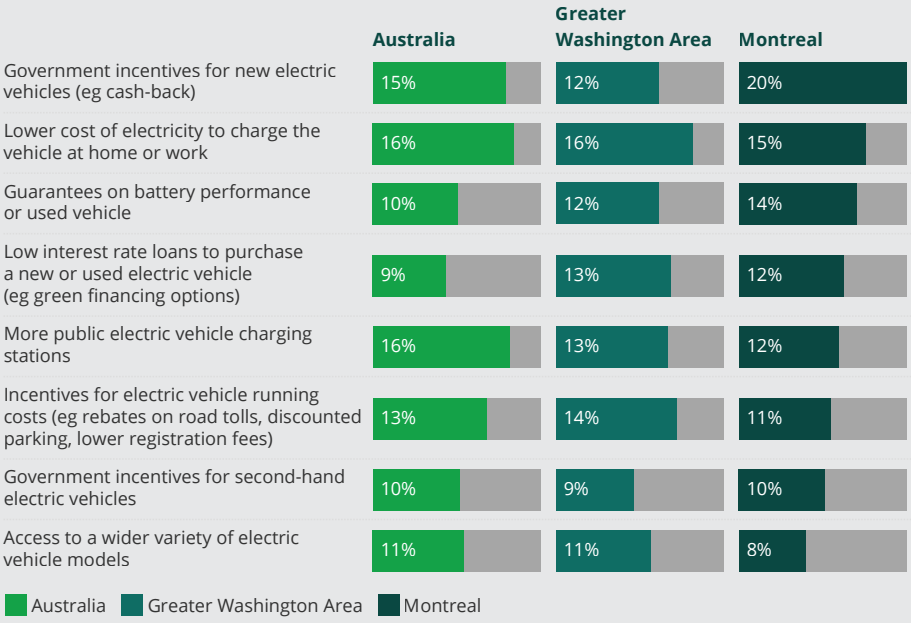
Research from the Electric Vehicle Council found that approximately 90% of Tesla owners surveyed reported using public chargers less than once a week and these vehicles were being driven as far as petrol or diesel vehicles – highlighting that driving range isn't a major barrier for existing owners.[2] Despite this, availability of charging infrastructure is still a major concern for between 11% and 16% of those surveyed (Figure 9).

This shows there is more still to do to educate consumers on the practical benefits of electric vehicles, which is why we have rolled out a range of initiatives to highlight the benefits of electric vehicles, and address misconceptions around them, to our more than 10 million customers. This includes incentives such vehicle giveaways, an industry event for fleet managers and customer experience program. Around 10% of Transurban's fleet is electric or hybrid, and in 2023 we deployed an electric incident response vehicle – the first of its kind in Australia.

Read more about our electric vehicle initiatives on our website.

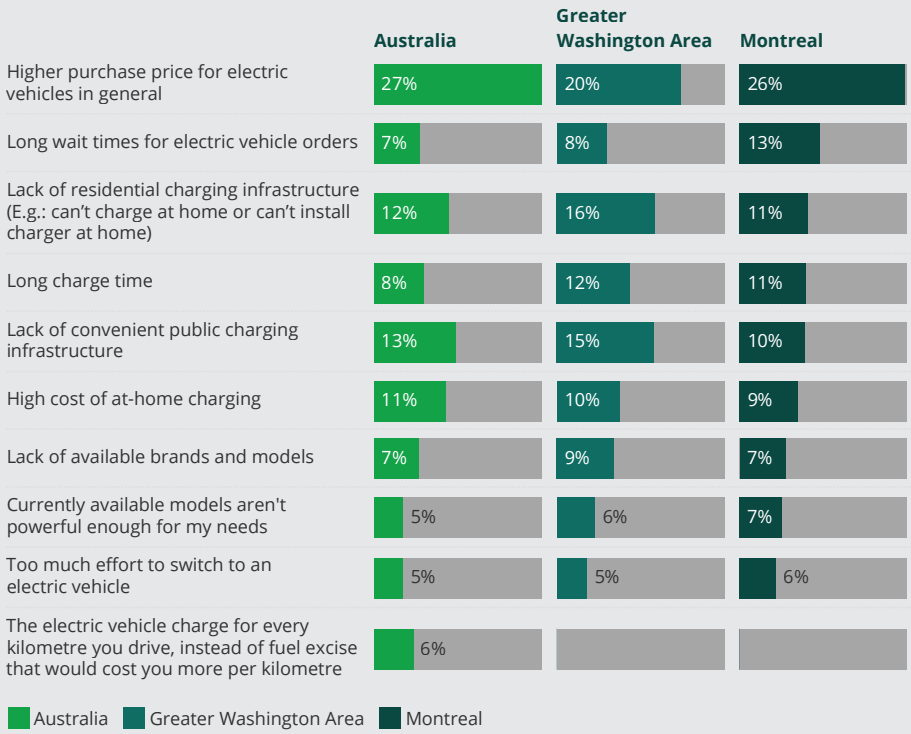
[1] *Infrastructure Partnerships Australia, 2019, Road User Charging for Electric Vehicles*
[2] *Electric Vehicle Council, September 2022, Insights into electric vehicle ownership: A survey of Tesla Owners Club Australia members in partnership with the Electric Vehicle Council*

Figure 8: (Of those who would like for their next car to be an electric vehicle) What would incentivise people who are considering buying an electric vehicle – Australia, GWA, Montreal



Only asked of those who expressed a desire to purchase an electric vehicle.
Q. Thinking about your decision to buy a new or second-hand/used electric vehicle, please distribute 100 points across each of the statements shown below based on their impact on your decision making. Please give more points to those statements most impactful and fewer or no points to those less impactful statements, ensuring your answers total 100.

Figure 9: (Of those who would like for their next car to be an electric vehicle) What is stopping you from buying a new or used electric vehicle – Australia, GWA, Montreal



Only asked of those who expressed a desire to purchase an electric vehicle.
Q. Thinking now about the things stopping you from buying a new or second-hand/used electric vehicle, please distribute 100 points across each of the barriers shown below based on their impact on your decision making. Please give more points to those statements that represent the biggest barriers and fewer or no points to those statements that represent the smallest barriers, ensuring your answers total 100.

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