Electric vehicle owner survey

Summary of key findings

August 2025

For the better

EV owner survey summary of key findings

The RAC surveyed over a thousand Western Australian Battery Electric Vehicle (EV) owners in December 2024 to learn about their motivations and experiences of EV ownership.

Snapshot of respondents:

1,095
respondents

- Males (63%) vs females (35%)
- Perth/Peel metro (91%) vs regional WA (9%)
- Live in a separate house (87%), semi-detached/duplex/triplex (7%), apartment/unit (6%)
- 75% have owned their EV for less than 3 years
- 48% drive less than 200km, 38% drive 200km to 399km, 15% drive 400km+ per week

1. Almost everyone thinks they made the right decision purchasing an EV

- Nearly all EV owners (96%) believe they made the right decision to purchase an EV over a traditional internal combustion engine (ICE) vehicle (e.g. petrol/diesel, LPG).
- Top three reasons for choosing to buy an EV instead of an ICE vehicle:
  - EVs are easier to service and maintain (70%)
  - EVs are cheaper to power (67%)
  - EVs reduce my contribution to air pollution (66%).
- Things EV owners like the most about their vehicles: convenience and cost savings of home charging (often using solar panels), driving experience, environmental benefits (lower emissions), minimal maintenance.

> *"...I love it is pollution free when I drive it. I love it is sophisticated, progressive, capable, cheap to run, luxurious in its feel, and it is just so much more responsive and quicker than all those slow dirty smelly noisy polluting ICE cars. I totally and completely love it."*
>
> ***- EV Owner***

- EV owners are concerned about: adequacy of EV charging infrastructure (especially in the regions), range anxiety and having to plan for longer journeys, high purchase cost.

Common perceptions about EVs

Perceived: EVs are more expensive.

Actual: EVs are costly to purchase but they're cheaper to run and I can charge at home.

Cost is a major barrier to purchasing an EV according to prospective buyers[1]. While EV owners acknowledge the high purchase price, they also overwhelmingly commented on the financial benefits and convenience of home charging and cost savings from lower maintenance and not having to refuel.

Perceived: EVs aren't more environmentally friendly than ICE vehicles.

Actual: EVs help to reduce my personal contribution to air pollution and I can charge using solar energy.

Prospective buyers are increasingly sceptical about the environmental benefits of EVs[2], which is very different from EV owners' environmental motivations. EV owners spoke about reducing their personal contributions to air pollution and charging EVs using solar panels to minimise environmental impacts. Research has found that the perceived green value of EVs is an important driver of customers' buying intention, and conversely, green scepticism has a decisive but negative influence.

Australia's uptake of Battery EVs (BEVs) and Plug-in Hybrid EVs (PHEVs) made up 13 per cent of Australian new car sales in 2024, which is below the global average (22 per cent) and continues to lag behind countries such as Canada (17 per cent), the European Union (21 per cent), the United Kingdom (28 per cent), China (48 per cent) and Norway (92 per cent)[3].

To encourage greater uptake of low and zero emissions vehicles:

- Governments and industry should address common misperceptions about EV ownership by highlighting the positive experiences of EV owners. This might include raising community awareness of the cost benefits and convenience of operating an EV, and the environmental benefits associated with the use of EVs.
- The Australian Government's New Vehicle Efficiency Standard (NVES) (introduced in January 2025) encourages auto makers to supply more efficient vehicles to meet an average carbon emissions target across the fleet of new cars sold each year[4]. Increased competition between brands and economies of scale is anticipated to bring down the cost of EVs but there should be ongoing monitoring of the effect of the NVES on vehicle prices to ensure this happens.
- The WA and Australian Governments should set and deliver ambitious targets (including timeframes) for low and zero emissions vehicles for their respective government fleets. Given that governments operate some of the largest vehicle fleets in the country, fleet purchase targets not only set an example for private fleet operators to follow[5], but also supplies EVs to the second-hand market, typically after three to five years once leases expire[6]. The WA Government increased its fleet EV target from 25 per cent of all new vehicle orders in eligible categories by 2025/26[7] to at least 50 per cent of all new orders in eligible categories (small/medium/large passenger vehicles and small/medium SUVs) from 1 July 2025[8]. Despite the higher target, WA has the lowest government fleet target compared to other Australian jurisdictions[9] and the target applies to less than a third of state fleet vehicles[10]. It is not clear how progress is to be tracked, underscoring the need for greater monitoring and possible extension of the target as more EV options become available that meet operational requirements. The Australian Government has mandated that 75 per cent of new passenger vehicles must be low emission vehicles (with a preference for zero emissions) by 2025, and while fleet EV purchases for 2024 were on track, no new target has been set from 2025 onwards[11].

- The WA and Australian Governments should set ambitious targets (including timeframes) for low and zero emissions vehicle sales across the whole passenger fleet. This can help to increase market confidence in EVs and focus government initiatives (such as the delivery of charging infrastructure) to achieve this goal. Most states and territories already have an EV sales target. For example, the NSW Government target is for EVs to represent more than 50 per cent of new car sales by 2030/31 and the Queensland Government target is for 50 per cent of new car sales to be EVs by 2030 and 100 per cent by 2036[12].
- The WA and Australian Governments should continue to offer incentives, taxation exemptions and subsidies that encourage uptake of low and zero emissions vehicles particularly while EV market penetration remains low. For example, the Australian Government's Fringe Benefits Tax (FBT) exemption for low and zero emissions vehicles can save workers approximately $5,000 each year on the average cost of an EV when taking out a novated lease[13]. There is the added benefit of EVs filtering into the second-hand market if vehicles are traded in at the expiration of novated leases[14], which also assists affordability. The FBT exemption for BEVs is due to continue until at least 2027 but the exemption for PHEVs ceased on 31 March 2025[15]. It is critical that the FBT exemption is not withdrawn prematurely, particularly while BEV uptake remains price-sensitive and volatile[16].
- Governments at all levels should consider other measures to support EV uptake in the short term until market demand is stronger, for example stamp duty relief, registration concessions or exemptions, and possible behavioural incentives such as discounted parking for EVs. In Queensland, electric and hybrid vehicles (up to $100,000 in dutiable value) receive a discounted rate of stamp duty of $2 per $100, compared with a rate of $3 to $4 per $100 for petrol/diesel vehicles (up to $100,000 in dutiable value)[17]. The Northern Territory offers free registration for new and existing EVs and a stamp duty concession of up to $1,500 for vehicles with a dutiable value of up to $50,000[18].
- Care needs to be taken by governments to ensure that future policy developments (for example any new national/state approaches to road user charging) do not act as a deterrent to the uptake of low and zero emissions vehicles by reducing EV affordability.

2. For many, home charging is convenient, green and cost effective

- The majority (91%) of EV owners charge their vehicles at home at least 1-2 times a week.
- EV owners reported high levels of satisfaction with home charging (77% said they are 'very satisfied' and 14% said they are 'somewhat satisfied').
- For the EV owners who charge their vehicles at home:
  - 66% plug in during the day (9am-3pm) mainly to make use of solar power
  - 34% plug in overnight (11pm-6am) to take advantage of cheaper electricity tariffs
  - 16% charge later in the afternoon (3pm-6pm) often to coincide with coming home from work.

> *"Daytime charging allows me to use solar power to charge the vehicle free from the sun"*
>
> *"I have a large solar system and can charge it for free from the sun, so my cost is zero"*
>
> *"I get cheaper power after 9pm"*
>
> ***- EV Owners***

- Compared to home charging by 95% of EV owners who live in a separate house, only 56% of EV owners who live in an apartment/unit charge their EV at home at least 1-2 times a week and 32% never do so. EV owners who live in an apartment/unit and charge their vehicles at home are more likely to charge overnight (42%) or in the early evening (6-9pm) (30%) although nearly a third (30%) typically charge their EV during the day. Reasons given for charging in the evening include these being the hours allocated to use the building's charger or for convenience (plugging in on arriving home from work).
- 79% of EV owners have solar panels at home and 18 per cent also have a solar battery.
- For those without, 58% indicated that they had considered installing solar panels, and 67% had considered installing a solar battery since purchasing their EV. High cost and extended payback period were the main barriers to both although housing situation, particularly for those renting or living in apartments, was another key reason given for not installing solar panels.
- Compared to 14% of EV owners in separate houses without either solar panels or a battery, 89% of apartment dwellers go without.

> *"Currently we rent and our landlord has not been receptive to installing solar panels at this time."*
>
> *"Live in an apartment and would need to go through strata... so strata pain means it won't happen."*
>
> *"I live in an apartment complex – strata will not allow it."*
>
> ***- EV Owners***

Charging an EV using renewable energy can deliver additional cost and environmental benefits

The life-cycle emissions of BEVs are already lower than a comparable petrol vehicle by 55 per cent. A BEV emits close to 150g CO_2-e of lifecycle greenhouse gas emissions under WA's existing mixed grid[19] compared to a petrol vehicle that emits close to 350g CO_2-e. However, operating on a fully renewable grid, the life-cycle emissions of a BEV would be 86 per cent lower than a petrol equivalent (dropping to around 50g CO_2-e)[20]. Recharging an EV using renewable energy can therefore help to realise greater clean air and associated health benefits by reducing lifecycle emissions.

Cheaper electricity tariffs (during off peak periods) can reduce the cost of charging an EV but it is still not as cheap as charging from the sun during daylight hours. When paired with rooftop solar, a household battery can store excess solar generated during the day for use charging an EV during evening peak hours or at other times when sunlight is limited. This not only helps to stabilise the grid by smoothing out demand spikes and reduce costs to all households over time[21], but also enables greater self-consumption of renewable energy. Reducing the amount of electricity that needs to be purchased will deliver cost savings, noting however the initial financial outlay needed for battery purchase and installation.

To make home EV charging easier, greener and more cost effective:

- Reduce barriers to recharging using renewables through government policies and initiatives that improve community access to solar and other distributed energy resources. For example, from 1 July 2025 the WA Government Residential Battery Scheme will offer rebates for residential batteries of up to $1,300 for Synergy customers and $3,800 for Horizon customers. The scheme will complement the Australian Government's Cheaper Home Batteries Program for a combined rebate of up to $5,000 and $7,500 respectively towards the cost of a 10kWh battery installation once certain eligibility requirements are met. Rebates will be complemented by a means-tested program providing low and medium-income households no-interest loans of up to $10,000 and 10 years to repay[22]. A complementary $50m Local Battery Manufacturing Program of direct grants and low-interest loans is being offered by the WA Government in 2025-26 to assist industry[23].
- The WA and Australian Governments should work together to address regulatory, technical and market barriers to the adoption of bidirectional EV charging. Bidirectional charging allows for electricity to flow both ways between an EV and an external electricity system, potentially unlocking cost savings, increased energy security, and a source of revenue for EV owners if selling electricity back to the grid (known as vehicle-to-grid or V2G charging). New national regulatory standards were introduced for V2G charging in 2024[24]. The National Roadmap for Bidirectional EV Charging estimates that by 2030 hundreds of thousands of households could be using this technology, but this will require critical actions and policy settings including minimum interoperability standards and national consistency on grid connection requirements[25].
- Charging an EV at home can be more challenging for people living in apartments. To make home charging convenient for everyone, the WA Government should consider planning system incentivisation and/or minimum requirements for EV charger provision in new developments, and guidance and financial incentives to assist EV charger installation/use in existing strata complexes. For example, the NSW Government EV Ready Buildings Grant in 2023 assisted with retrofitting existing apartment buildings by co-funding the assessment and installation of EV infrastructure upgrades[26]. Alternative finance options that could also support the installation of EV chargers in existing apartment buildings include zero/low-interest financing (and/or targeted schemes for low-income residents), and subsidies (particularly for difficult installations)[27]. The WA Government is undertaking a five-year statutory review of the state's strata law that is due to conclude in 2025[28]. Any amendments to the Strata Titles Act 1985 should seek to facilitate EV charging connections (and complementary infrastructure such as solar panels) by strata residents.
- Governments and industry should raise community awareness to support and incentivise positive charging practices e.g. guidance on managing charging times, refining and promoting the use of time-of-use tariffs, and encouraging smart charger adoption.

3. Public chargers aren't used as often but still need to be available

- Public charging and destination charging facilities (for example, at shopping centres and workplaces) are used less frequently than home charging, with in each case over four in ten having never used them.
- On average, only 7% of EV owners use public charging facilities, and 9% use destination charging facilities at least 1-2 times per week. However, some EV owners use these facilities more often. Among EV owners who live in an apartment/unit, 38% plug in at public charging facilities, and 24% at destination charging facilities, at least 1-2 times a week. Regional owners are also more likely to use a public charging or destination charging facility at some point (12% of regional EV owners use a public charging facility weekly and 75% ever do so, while 11% use a destination charger at least 1-2 times a week and 71% ever do so).
- While satisfaction with public charging is lower than for other elements of EV ownership, 67% still reported satisfaction with it.
- When EV owners were asked what improvements they would like made to public/destination charging facilities in WA, suggestions included:
  - more charging stations, particularly fast chargers, in more locations, especially in regional/rural areas;
  - increasing the reliability and maintenance of existing chargers; and
  - enhancing charge station amenities (e.g. with shade and restrooms).

> *"More chargers in more locations with faster charging"*
>
> *"I regularly use public charging stations and often find them out of order or occupied. I live in regional WA so going to an alternative charger isn't always practical."*
>
> *"More reliable chargers – having chargers that work most of the time and not out of action for a long period of time, and keep up with the maintenance of the chargers."*
>
> ***- EV Owners***

The public EV charger conundrum

The survey shows that a sizeable proportion of EV owners rarely, if ever, use public charging infrastructure (91 per cent are charging at home at least 1-2 times a week, only 7 per cent use public chargers 1-2 times a week, and over 4 in 10 do not use them at all). This could be because EV owners do not regularly drive their EV long distances (48 per cent of EV owners typically drive less than 200km a week and 4 in 10 have not driven their EV more than 300km from home) or they are less likely to in an EV, especially if they can use an ICE vehicle (see below). Most EV owners are still broadly satisfied with public charging, and low usage levels indicate why it is not a particular obstacle for them. And yet, inadequate public charging infrastructure (particularly in regional areas) is raised as a barrier to EV purchase[29] and is a concern held by EV owners.

EV owners prefer to charge their vehicles at home due to convenience and lower cost yet want the reassurance that public charging networks are available should they need it. Increasing access to public EV charging does not only rely on increasing the number of public EV chargers but also improving the availability of existing chargers. EV owners can be frustrated by public chargers that are out of order and/or are not easy to use because a specific cable or payment system is required.

Australia has a high number of EVs per public charging point compared with other countries, at 76 per public charging point as of 2024 (compared with 33 in the United States, 28 in Canada, 25 in the United Kingdom and 13 in the European Union[30]). Regional areas also have fewer public charging stations compared to cities. In Western Australia where there are large distances between towns, this can exacerbate range anxiety due to uncertainty about accessing a charging station when needed[31].

To make it easier to charge an EV away from home:

- Action and additional investment is needed to fill network gaps and install charging infrastructure in the areas where it is, and will be, needed most. For example, public charger provision in regional areas can present additional challenges where commercial charge point operators struggle to recover costs due to lower public charger utilisation rates. Regional electricity grids may also be unable to accommodate the power demands of new charging stations without capacity being expanded first[32]. Government delivery and/or incentivisation plays an important role in these locations to ensure geographical coverage and equitable access.
- While government is investing in public charging infrastructure, there are still large areas without public charger access in WA. The WA EV Network comprises 110 charging points in 49 locations across the state including isolated locations where chargers are supported by standalone power systems[33]. The Australian Government is building a national network of fast EV chargers, partnering with the NRMA to deliver 117 EV chargers on key highway routes connecting all capital cities, with a view to installation at an average distance of 150km apart, including nearly 30 sites proposed for WA. Site selection for new EV chargers will target known blackspots and prioritise regional and remote communities[34]. However, inland routes in WA away from the government EV charging networks (such as Brand Highway and Great Northern Highway) were highlighted multiple times in the survey as lacking adequate charging infrastructure and are examples of where government intervention may be needed.

- Government has an important role in providing financial support for the provision of public charging infrastructure and/or not prematurely withdrawing existing financial supports. The WA Government should extend its Charge Up Grants scheme. The grants co-fund up to half the cost of purchasing and installing EV chargers by not-for-profits, small businesses and local government authorities through the installation of up to four EV chargers per site and up to five sites per applicant. These can be public DC chargers, destination chargers or workplace chargers, intended to capture locations where people are likely to spend time during the day in order to encourage daytime charging when solar power is most abundant. The third round of grant funding closed on 30 June 2025[35]. Conservative grant uptake has seen the expenditure of $4.5 million in the first two funding rounds out of a total scheme budget of $15 million[36]. An extended scheme could help boost the installation of chargers, for example by increasing the amount of installation funding offered or expanding applicant eligibility in instances where the charger is publicly available (e.g. at major shopping centres).
- The WA and Australian Governments should improve amenities at existing and proposed public chargers within state/national EV charging networks, for example lighting, CCTV and shelters.
- Governments and industry should improve and/or invest in the operational availability (“uptime”) of existing public chargers. For charge point operators this could mean real time monitoring of charger performance, provision of live status updates to users, and conducting regular scheduled (rather than reactive) maintenance. Australia recently introduced minimum operating standards for government-supported public EV charging infrastructure that establish standards for annual uptime (reliability of operations), connector and payment types, site accessibility and safety[37]. Governments should consider whether a stronger legislated approach is needed that could include uptime guarantees, monitoring to check that chargers are meeting minimums, and financial penalties for non-compliance. It could also mean offering financial support for infrastructure that enhances the consumer experience (e.g. platforms that provide EV drivers with real-time charger availability information).

4. Most driver requirements can be met by EVs but two car households can hedge their bets

- Half (50%) of the EV owners surveyed only own an EV but the other half (50%) also own at least one ICE vehicle.
- For the EV owners who also own an ICE vehicle, the main reasons given for using their ICE vehicle in place of an EV are:
  - **Practical** (where ICE vehicles are used for towing, transporting bulky items, offroad driving, and in households where the ICE vehicle is used exclusively by another family member)
  - **Necessary** (where ICE vehicles are used if EV infrastructure is lacking such as on long journeys and in remote areas with limited charging facilities), and/or
  - **Preferred** (in situations where specific configurations/uses have limited options in EVs such as convertible cars or classic cars driven for pleasure).

EV hesitancy

Earlier research has found that barriers to purchasing an EV include perceived limitations relating to vehicle practicality and suitability for offroad and rural conditions[38]. However, the experience of half of EV owners in this survey without an ICE vehicle has been that their EV meets all their requirements. Contrary to the perception that it is not worth considering the purchase of an EV because offroad/heavy lifting tasks are not possible, the survey found that EV owners in households with more than one vehicle can easily manage this by using their EV as a primary vehicle and switching to an existing ICE vehicle for any (as yet) unmet functionality.

It is important to note that gaps in functionality are reducing as EVs continue to evolve and new models are progressively coming onto the market (prompted also by the NVES). There are now electrified utes and large SUVs available in Australia and more new models are expected from 2025 that will increase the choices available to EV drivers requiring increased towing, bulk transport/people moving and/or offroad driving capabilities. Owners' actual experience also suggests that the majority of trips are well within the average range for an EV on a single charge. While this varies by battery size, current EV models have a driving range of around 400km with some new models reaching over 600km[39].

To increase confidence in EVs:

Governments and industry should address common misperceptions that might be contributing to EV hesitancy and reliance on ICE vehicles as a fallback:

- Raising awareness of EV capabilities through community education and highlighting the positive experiences of EV owners might help to address practicality concerns.
- Improved availability and reliability of public charging infrastructure (see above) may also help to combat range and charger concerns on longer journeys and trips outside of the metropolitan area.
- For households that have more than one vehicle[40], reinforcing the message that there is little to no risk in replacing one of the cars with an EV given that EVs meet most driver's requirements and any gaps in functionality are rapidly diminishing.

References

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