



**SUBMISSION TO THE NATIONAL ELECTRIC
VEHICLE STRATEGY
CONSULTATION PAPER**

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Dr Michael Kane, Dr Ian Jeffreys, Mark Rice MPA, BEcon, Greg Miskowycz BEng (Civil),
MIEAust, John Ewing, A Grade Motor Mechanic, MIAME, Associate Member SAE-A,
Andrew Kirk, Principal Technical Researcher

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INTRODUCTION

As Queensland's largest member-owned mutual, RACQ is proud to be the independent advocate for our nearly 1.8 million members on roads, in their homes and within our communities.¹

Firstly, RACQ welcomes and supports the new Commonwealth Government's commitment to decarbonising the Australian economy including the transport sector. We note the swift action to introduce fringe benefit tax exemptions for electric vehicle (EVs) as well as centrepiece legislation to establish an overall 2030 emissions reduction of 43 per cent below 2005 levels. We also welcome the opportunity to provide input into the National EV Strategy, recognising the key role this policy will play in facilitating the transition to zero/low emission vehicles and reducing overall transport emissions.

RACQ is committed to net zero and understands the urgent need for action to avoid the worst impacts of climate change. Accelerating the decarbonisation of transport – which accounts for 10 per cent of Australia's total emissions – is fundamental and necessary to achieve this goal.

However, the availability of zero emission vehicles for sale in the Australian market is currently insufficient and narrow, overly expensive and does not reflect the diverse needs of RACQ members. We know, from frequently talking and engaging with our members, that a large proportion of the population still see these vehicles as beyond reach, unproven, or requiring further education and explanation. Australia has a lot of work ahead to ease the friction and hesitancy that persists across the country. Governments cannot do it by themselves. They require committed partners such as motoring bodies.

Queensland is the most decentralised mainland state with large populations residing in dispersed towns and cities from Cairns to Townsville, Mackay to Winton and Gladstone, to Rockhampton and the Wide Bay-Burnett region, to Toowoomba and the Darling Downs, to the south east including the Sunshine Coast, Brisbane and the Gold Coast. RACQ advocates for practical and affordable ways to address decarbonisation while maximising benefit to our members and their diverse needs. This includes deploying a range of zero/low

emission technologies to deliver on our national decarbonisation requirements. Together, we must get the transition right, in a fair and balanced way, or risk disenfranchising significant cohorts of the population, be they income-based, industry-influenced, age, socio-economic or geographic. If the agenda is seen as too 'ideological' without the sense that motorists are being listened to, then it will achieve mixed success while expending considerable goodwill and capital from electorates across Australia.

Regional Queenslanders will feel a 'city versus the bush' divide; low-income earners will feel left behind; mining towns or our valuable agricultural sector devalued; or older Australians will feel the transition is too fast for them after a lifetime of driving an internal combustion engine (ICE) car. The policy settings need to respond to the different needs, perceptions, and circumstances of the whole motoring population for the National EV Strategy to work. Most want to see the transition benefit the economy with new industries and good jobs as a pre-requisite and improved motoring affordability at its heart.

By and large, our members want to do the right thing by the planet, future generations and the national economy. They are willing to learn about the challenges and opportunities and will give governments a good chance to introduce the right policy framework to initiate positive change. Many will see their own personal expense as a necessary investment in doing things cleaner and smarter for a pay-off in the long run. They might see this investment as an important step in securing the liveability of future generations and protecting our communities and industries from increasing impacts of droughts, floods, fires, and cyclones.

However, the public needs information they can trust, followed by responsible decisions that will open supply, encourage them to purchase and operate, and ultimately provide the infrastructure to make EVs viable and long-lasting. Cost-of-living and purchase price still loom as the ultimate policy drivers across both transport and energy.

When RACQ was formed in 1905, there were only 50 cars in Queensland and the founding members were mainly medical professionals. Over the next several decades RACQ became a mass membership-based organisation. We grew quickly not because the technology enabling cars fundamentally changed but because the scale of production grew massively, and the price of cars became affordable for the average person. Today RACQ predicts a similar scaling up of global EV and battery manufacturing production will bring the price of EVs down to an affordable purchase price for all Australians, not just the wealthy few, within this decade – but only with concerted Commonwealth Government leadership and action, and industry partnerships.

RACQ has a 2030 strategic vision to be a trusted partner for our members, providing solutions for them to live and move, safely, securely and sustainably. We want to support our members (and Queenslanders) in the transition to electric, connected and automated vehicles as well as provide access to emerging mobility solutions. We will achieve our 2030 vision through three strategic focus areas - Members and Community, Mobility and Home. These focus areas underscore the significant transition and convergence of mobility, renewable energy, home and climate management.

RACQ member and consumer insight surveys² found that 49% of respondents who were identified as “early adopters”, 33% of “the masses” and 17% of “the late adopters” were very likely to consider buying an EV. When thinking about buying an EV, purchase cost is the most likely reason why Queenslanders would not consider buying an EV. Convenience of charging and distance travelled per charge were also important deciding factors.

Modelling the potential uptake of EVs in the Australian market, CSIRO presents several different scenarios for EV sales and fleet share. When rapid uptake of EVs is assumed, CSIRO forecasts that EVs could account for 80% of new vehicle sales by 2030 and all new car sales by 2035. Their more conservative modelling suggests that 80% of new sales will be EVs in about 2035, with all new car sales being EVs between 2040 and 2045³.

As such, we will continue to support our members who have internal combustion engine vehicles with relevant products and services. However, RACQ does not want to see Australia as a dumping ground for ICE vehicles as the world transitions to EVs. We believe the new strategy should provide a clear statement of standards for continued supply of ICE vehicles.

RACQ members are encouraged by the following attributes of EVs:

- Lowers costs to run and maintain - 59% of respondents
- That purchase prices are moving towards parity with ICE - 52%
- Charging is becoming more convenient (51%) and distance between charges is increasing (48%)
- They are more environmentally friendly - 30% of respondents

But they also remain concerned about:

- The purchase cost remaining higher than ICE - 57% of respondents
- Range anxiety - 56%
- Recharging needs - 48%⁴

RACQ supports the Commonwealth Government’s goals of making EVs more affordable, expanding choice and uptake, reducing emissions, reducing costs, and supporting local industry development and manufacturing.

While current State and Commonwealth Government measures to support EV uptake are welcomed, a consistent, overarching, national strategy on zero/low emission vehicles is required. The Government’s consultation paper offers the prospect of much-needed national leadership.

RACQ provides policy advice on the following seven key areas:

1. EV Supply and Incentives – a comprehensive and targeted framework is required to bolster EV supply and uptake, especially in the used car market.
2. Fuel efficiency and CO₂ emissions standards – a robust fuel efficiency standard should be the cornerstone of any EV framework. If designed well, it will encourage EV uptake as well as uptake of lower emission ICE vehicles and provide for a lower Total Cost of Ownership for RACQ members and motorists.
3. Charging Infrastructure – a vast, visible, convenient, and affordable charging ecosystem, including AC ‘slow’ and DC ‘fast’ charger networks is required for longer trips and every day needs at home, in the community and in the workplace.
4. Transport Taxation – Australia’s transport taxation system is no longer fit for purpose and needs to be reformed. The current system is inherently

regressive, with those least able to pay often charged the most. An updated system needs to be simple and address clear policy objectives as well as putting roads funding on a secure and sustainable footing over the long term.

5. Consumer Education – motorists must have easy access to critical information and advice to purchase, drive, and maintain EVs. A nationwide education campaign must explain why the transition is needed to achieve Australia’s emissions reduction targets and how it can deliver medium to longer term social, health and economic benefits for consumers and for the nation (as the purchase price of EVs become affordable before the end of the decade).
6. EV and electrification manufacturing and economic development opportunities – creating jobs in manufacturing and other economic development opportunities, such as research and development and climate resilience, is essential to bring the population along and engender trust and goodwill.
7. EV research, servicing and repair skills and knowledge – strategies targeting tertiary, TAFE/ vocational education and schools are required to support the skills and knowledge transition so that Australia has the required workforce to fix and service EVs through every phase of the transition.

While the main focus of any National EV Strategy should be supporting the uptake of ‘ready for supply’ EVs, policy consideration and support should be given to emission reduction strategies and technology development for a diversity of vehicles and road users across all localities. Stronger emission regulations will also incentivise the Original Equipment Manufacturers (OEMs) – the vehicle manufacturers – to import new technology (improved safety) vehicles into Australia. OEMs are unlikely to introduce new safety technology in future ICE vehicles for safety conscious developed nations that have all largely committed to EV adoption.

While over time, EVs will satisfy the transport needs of almost all Australians, especially those living and working in metropolitan areas, the National EV Strategy must have a wider geographic focus and consideration of supporting technologies and approaches to electrification of Australia’s transport system. This is especially important in Queensland as Australia’s most decentralised mainland state.

The Intergovernmental Panel on Climate Change (IPCC) has concluded that electrification will play the key role in land transport, but biofuels and hydrogen

(and derivatives) could play a role in decarbonisation of freight in some contexts⁵. In addressing support measures, RACQ urges Governments to pay particular attention to the needs and options for those Australians living and working in outer suburban areas and remote and regional Australia. Battery EVs are likely to be the most appropriate technology for the mobility needs of our large population centres. They are already a known quantity in terms of technology and global production pathways and commitments. However, complementary low-emission technologies for heavier vehicles will be appropriate, even necessary, in regional and remote areas of Queensland and Australia.

In remote and regional localities, we urge the Commonwealth Government to consider the use of biofuels (renewable diesel and ethanol) to complement full electric (using range extender technologies), particularly in heavier vehicles. Other energy technologies that could assist the transition include hydrogen fuel cell (with heavier freight), synfuels and hybrid flex fuel internal combustion engines.

¹ *About RACQ - RACQ is Queensland’s largest member-owned club with almost 1.8 million members. We have been part of the Queensland community for 117 years. Today we provide insurance, banking, roadside assistance, travel and solar energy products, services, and solutions across the state. Everything we do aims to benefit our members and our community. Every day we advocate for issues that matter to our members, including fair fuel prices, better and safer roads, resilient communities and the future of mobility.*

² *During 2022 RACQ undertook two surveys that engaged 1,139 members and non-members across Queensland to better understand Queenslanders’ attitudes and behaviours towards EVs.*

³ https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2021/csiro-ev-forecast-report.pdf

⁴ *Attributes which encourage or discourage the purchase of EVs (RACQ Member and Consumer Insights Survey 2022)*

⁵ *p10-5, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter_10.pdf*

LIST OF RACQ POSITIONS AND RECOMMENDATIONS

RACQ supports the Commonwealth Government acting decisively to decarbonise Australia's transport sector while delivering affordable transport options for RACQ members and the wider Australian community. This paper outlines our positions and recommendations on behalf of our members and responds to the key questions identified in the strategy consultation paper in the Appendix attached.

RACQ supports a continued supply of internal combustion engine (ICE) vehicles to Australia but does not want to see Australia as a dumping ground for ICE vehicles in the global transition to EVs. RACQ supports the adoption of fuel efficiency and CO₂ emissions standards for all new vehicles.

RACQ considers Battery EVs (BEVs) most appropriate for light vehicles and the mobility needs in Australia's large population centres (our major cities and the adjacent hinterlands) and should be the main focus of Commonwealth Government support.

Electrification is the only technology that can deliver within the timeframes required to address our national climate change commitments. Australia cannot decarbonise the transport system and achieve its overall reduction targets without full-scale electrification.

Electrification is not suitable in all applications, especially more remote communities. To support the mobility needs, climate resilience and economies of regional and remote Queensland, RACQ urges the Commonwealth Government to consider the use of advanced biofuels and synthetic fuels coupled with low-emission, fuel-specific drive trains.

Range extenders (be they combustion or, in the longer-term, fuel cell⁶), powered by advanced biofuels and synthetic fuels and coupled with EV drivetrains, could provide a favourable solution, especially for heavy vehicles during long haul trips and for regional and remote areas.

In urban and point-to-point, heavy freight situations hydrogen-fuels will compete with battery electric for dominance. However, RACQ does not see any evidence of price affordability pathways or global OEM investment at scale into hydrogen light vehicle manufacturing capacity to achieve 2030 targets.

Therefore, RACQ does not see that hydrogen will be the answer for light vehicle emissions reduction for the next 10 to 15 years.

RACQ calls on the Commonwealth Government to recognise the need for a diverse EV charging ecosystem across Australia.

RACQ makes the following 29 recommendations to the Commonwealth Government:

EV incentives

1. Implement financial EV support measures to drive EV supply and consumer uptake.
2. Limit specific EV support to plug-in battery EVs (BEV) and limit any fringe benefit taxation incentives to the first three years of ownership to encourage fast turnover into the second-hand market.
3. Give policy focus to addressing diesel urban freight and bus fleets due to their additional negative impact (beyond greenhouse gas emissions) on public health.
4. Carry out a range of policy responses to support the uptake of low-emission trucks and buses including:
 - Best-practice pollution standards in 2024 including upgraded engine and tyre-specific standards to reduce emissions from new diesel trucks (i.e. Euro-VI Stage C standards) and upgrades to standards as per European regulation update intervals.
 - Removal of Australian Design Standard regulatory barriers to cleaner trucks (i.e. to allow truck widths up to 2.67 metres from 2023, provided trucks satisfy safety requirements consistent with the Performance Based Standards)
 - Examine the feasibility of sales targets to accelerate the transition to zero-emission trucks and buses.
 - Commit additional funding to fleet depot electric charging over a timeframe of at least the next four years to reflect the long lead times to acquire bus and commercial EVs in Australia and the challenge of fleets reaching sufficient scale to underpin economically scaled electric charging depots.

5. Provide support for the taxi and ridesharing industry including vehicle leasing or purchase incentives for taxi rank charging facilities.

Bolstering supply of used and second-hand EVs

6. Design the EV strategy to bolster EV supplies in the second-hand market. It should include a strong focus on increasing uptake in Government and corporate fleets with conditions to ensure rapid throughput to the second-hand market. Any tax benefits on new EVs (for fleets and private owners) should only apply for the first few years (maximum of three) of ownership to encourage on-sale and supply to the second-hand market.
7. Consider rapid depreciation and immediate expensing of EVs as a key measure to bolster turnover and second-hand EV supplies. This measure will incentivise the EV uptake in our small and medium-sized businesses, and is likely to be particularly beneficial in encouraging uptake and on-selling of electric utes (when they become available in Australia).

Australian Design Rules and regulations

8. Review the Australian Design Rules - the vehicle design rules - with the aim of removing barriers for zero/low emission vehicles on Australian roads⁹. Differences in the ADRs compared to the design rules in other similar markets overseas adds additional barriers for OEMs to import low emission vehicles and EVs. Reducing these barriers will aid the import of EVs and reduce the cost of producing Australia-specific models, e.g. harmonising the maximum allowable truck width rule (the current Australian standard is 5cm narrower than the European Union's and 10cm narrower than the United States').

Fuel efficiency

9. Move quickly to design and introduce fuel efficiency/CO₂ emissions standards for all vehicle classes that targets alignment with comparable countries' standards. The fuel standards should be technology agnostic and apply to all new vehicle classes.

EV charging ecosystem

10. Fund and implement policy measures to support

public and private charging infrastructure, including funding for:

- fast/rapid DC EV chargers, especially on national, freight and tourism corridors
 - regional tourism AC destination charging networks
 - development of a national system of DC charging price transparency to ensure consumers are empowered to seek out the cheapest options for charging EVs.
11. Support incentives and policies and remove roadblocks for EV charging for existing building stock, particularly for apartment body corporates. Focus should also be on incentivising landlords to install EV charging in rental properties.
 12. Remove Fringe Benefit Tax on most workplace charging.

Transport taxation

13. Reform Australia's overall Commonwealth and State transport taxation system which is no longer fit for purpose. Any new system must be designed to be broad based (removing a range of existing transport taxes) while being favourable to EV uptake.

Consumer and community education

14. Fund the development and implementation of education campaigns – using credible and trusted third parties – to raise awareness and understanding about EVs targeting the diverse demographic of road users and communities of interest across Australia.
15. Support EV education for second hand car dealers, given their role in selling the majority of EVs to consumers.

EV manufacturing and electrification economic development

16. Support research and development into the use of ethanol as an electric range extender for regional/remote Australia, particularly for heavy vehicles.
17. Develop a biofuel electrification strategy with the agricultural and biofuels industries, universities and other interested parties, such as RACQ.
18. Establish manufacturing innovation hubs focused on the electrification of transport in partnership with universities and industry within states and regions that have transport manufacturing capacity and potential.
19. Support research, development and manufacture of

- electric power-assisted caravans and trailers.
20. Implement policies to maximise the economic, employment and skills development opportunities for mineral extraction and processing for electrification and EV manufacturing and servicing.
 21. Review Commonwealth tourism strategies to support adoption of EVs and craft within the Australian tourism sector.

EV servicing and technical skill requirements

22. Undertake a full analysis of the skills shortages and workforce capability required to appropriately accommodate for the implementation of the EV Strategy.
23. Work with State Governments and education sectors – especially TAFEs and universities– to provide research, education and training qualification programs (including for the existing workforce) and apprenticeship opportunities to service, maintain and repair Australia’s growing fleet of EVs. There are also opportunities to design and manufacture batteries, EVs (starting with trucks, buses and caravans) and other related technologies, such as EV chargers.

Other recommended policy measures and monitoring

24. Progress changes to the Australian Fuel Quality Standards, ensuring it can support Euro 6d compliant light vehicles.
25. Review and reconsider the proposed Diesel Fuel Minimum Stockholding Obligation in light of future EV policy and likely EV uptake.
26. Reinstate the now-retired ABS Survey of Motor Vehicle Use, or implement a similar reporting framework, to report on vehicle usage and fuel usage.
27. Introduce an impact evaluation reporting framework across the implementation period to keep track of the EV Strategy key outcome areas and goals.
28. Additional monitoring should be implemented to capture:
 - The effect of EV charging on the electricity grid
 - Progress of charging infrastructure rollout
 - Industry engagement and investment in EV related infrastructure and related industries like mineral extraction, vehicle recycling, and research and development.

29. Review regulations to permit the full range of micro-mobility vehicles in lower speed road environments, supported by investment in separated pathways and active transport infrastructure to increase usage of personal e-mobility options.

⁶ Fuel Cell Guide, <https://www.fuelcell.co.uk/direct-ethanol-fuel-cells/>

⁷ U.S. is 2.6m and Europe is 2.55m, whereas Australia 2.5m

⁸ Road design rules and road rules which are particular to Australia are also barriers. Line markings narrower than overseas or unique state-based rules require the development of Australian specifications in ADAS. These can be a barrier to importing globally designed vehicles into Australia. Less state-based regulation and more nationally agreed regulation would help with this issue.

QUEENSLAND CONSUMER INSIGHTS

A well-considered strategy should facilitate an easy, affordable, rapid yet fair and just transition to EV uptake. Consumer and member insights are a valuable tool to develop a well-considered policy.

Among many surveys carried out to engage the public, RACQ recently conducted two to engage 1,139 members and non-members to better understand Queenslanders' attitudes and behaviours towards EVs. These views have informed the recommendations made in this submission and insights are provided throughout. The surveys included residents from south east Queensland as well as rural and regional areas; and covered diverse age and gender backgrounds. Three main consumer segments were identified in the research, early adopters who are more open to new technologies and tended to be younger, the masses who represent the traditional consumer base and open to exploring new options but not as progressive as early adopters, and finally the late adopters who are unlikely to be as engaged in new transport options unless there is a clear benefit to them.

RACQ found that 49% of early adopters, 33% of the masses and 17% of late adopters were very likely to consider buying an EV. RACQ found that attitudes were more progressive toward EVs in younger metropolitan consumers than those in rural and regional areas. Engagement with EVs drops amongst Queenslanders living approximately 20-30 kms from a town centre or CBD, potentially due to range concerns and infrastructure access.

When thinking about buying an EV, three in five Queenslanders consider the cost to run and maintain the vehicle as the most important reason to consider buying an EV. What is also clearly discouraging consumers from buying EVs is purchase price and concerns about charging, particularly with distance travelled per charge. Despite this, our research shows that at least 28% of Queenslanders are considering a plug-in EV for their next purchase.

Queenslanders have diverse attitudes about EVs and are open to learning more:

- 67% strongly agreed or slightly agreed that EVs are key in reducing emissions
- 69% strongly agreed or slightly agreed that in future most new cars will be electric
- 73% strongly agreed or slightly agreed that EVs will remain too expensive in the medium term for most people.

RACQ also found that 82% of Queenslanders don't know anything or know a little bit about EVs and 70% are interested in learning more, leading to the importance of community education strategies.

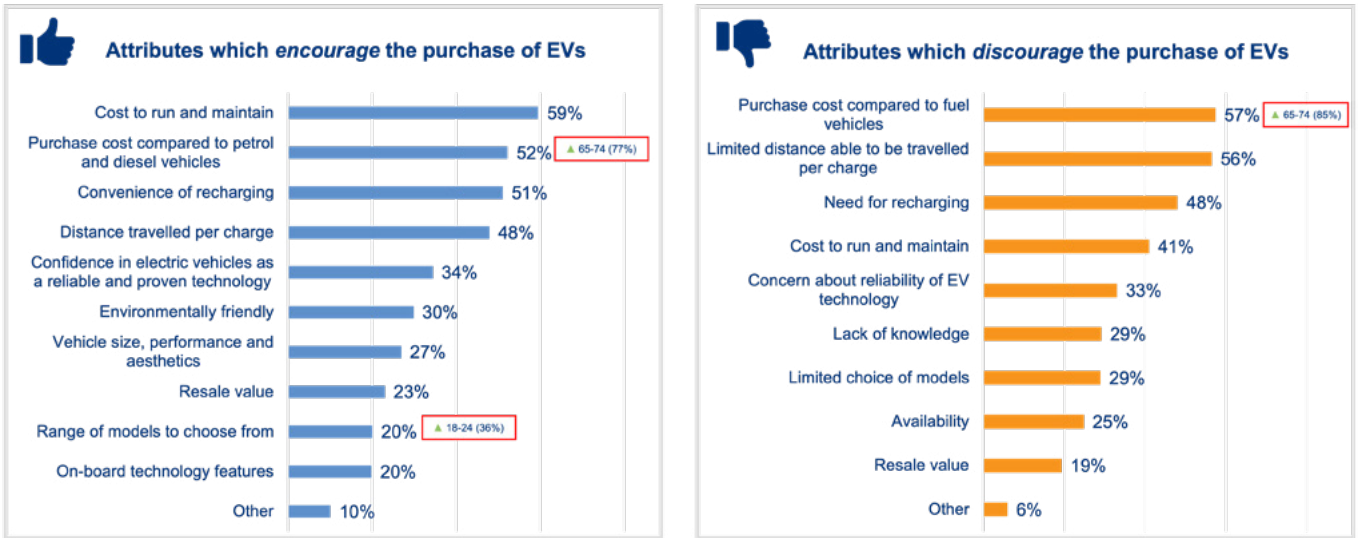


Figure 1. Attributes which encourage or discourage the purchase of EVs (RACQ Member and Consumer Insights Survey 2022)

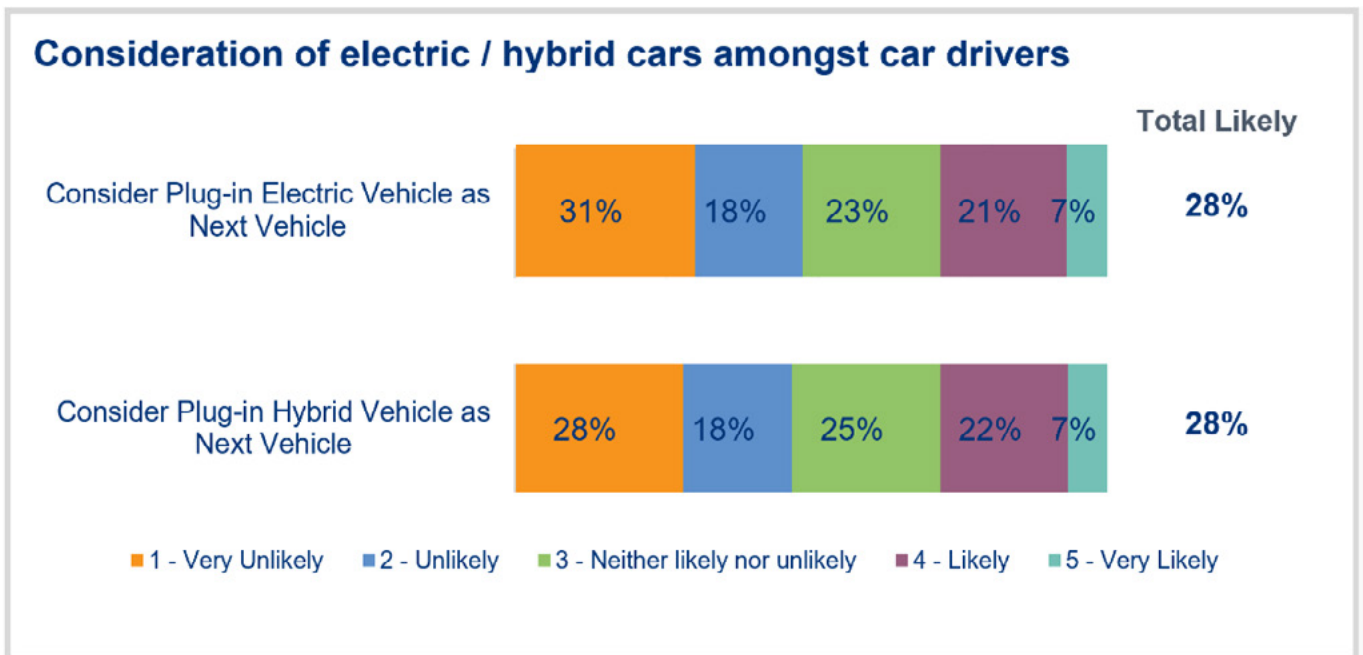


Figure 2. Likelihood for EV or Hybrid as Next Vehicle (RACQ Member and Consumer Insights Survey 2022)

WHY AUSTRALIA NEEDS A NATIONAL ELECTRIC VEHICLE STRATEGY

A well-considered strategy should facilitate an easy, affordable, and rapid yet fair and just transition to EV uptake.

RACQ recognises the need to decarbonise the Australian economy, and in particular the road transport/mobility sectors given that globally road transport is overwhelmingly responsible for the majority of transport emissions (see Figure 3). According to the IPCC “it’s now or never, if we want to limit global warming to 1.5°C.” The central action to averting climate disaster is the need for immediate and deep emissions reductions across all sectors if we are to meet the goals of the Paris Agreement. For transport, the IPCC has stated that electrification in combination with low-emission energy sources has the potential to rapidly reduce emissions⁹.

The fuel efficiency of the overall Australian vehicle fleet is tracked in Figure 4. Trends in fuel consumption 2012-2020, has worsened in recent years. Data from the latest and final 2020 Survey of Motor Vehicle Use¹⁰ showed that from 2016 to 2020 the average fuel efficiency for passenger vehicles increased, from 10.6 litres/100km in 2016 to 11.1 litres/100km in 2020¹¹. The 2020 fuel efficiency 11.1 litres/100km equates to approximately 250 grams of CO₂ per km¹². This compared to the global average for cars and vans of 6.9 litres /100km¹³. In 2020, the Survey of Motor Vehicle Use reported the whole Australian fleet consumed 33,000 million litres of fuel. This equated to approximately 76 million tonnes of CO₂ each year.

Trends in Queensland’s transport emissions, by category

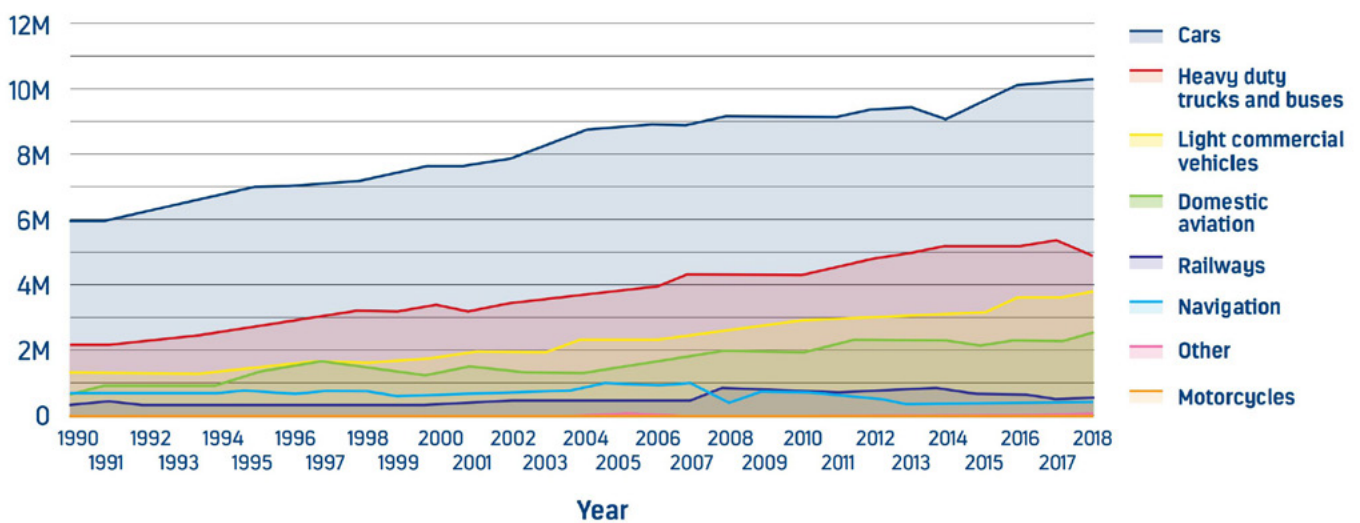


Figure 3: Queensland Transport emissions by vehicle type (Queensland State of the Environment Report 2020, <https://www.stateoftheenvironment.des.qld.gov.au/pollution/greenhouse-gas-emissions/transport-sector-greenhouse-gas-emissions>)

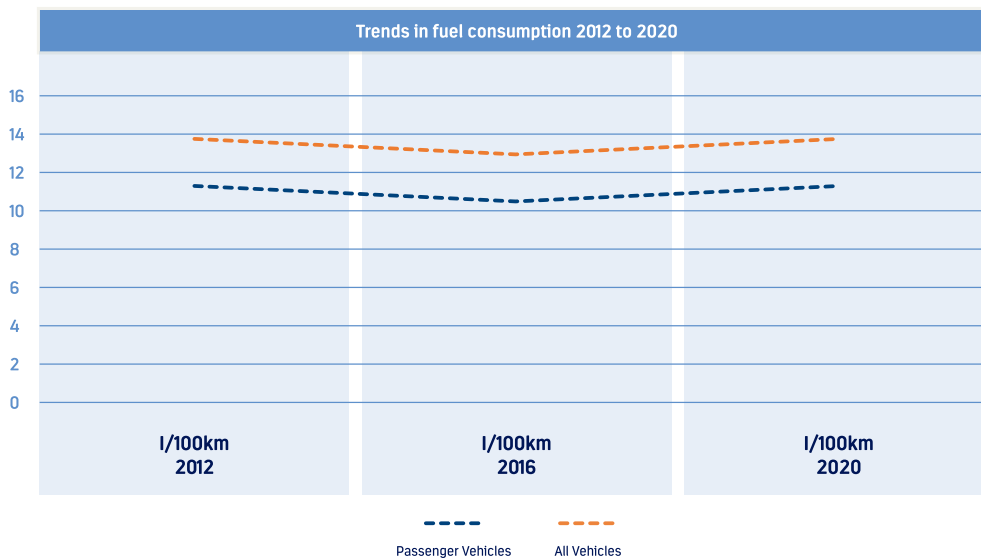


Figure 4: Trends in Fuel Consumption in Australia 2012-2020, (ABS Survey of Motor Vehicle Use 2020 Report)

When considering newer passenger cars in the Australian fleet (those manufactured between 2015 and 2020) the average fuel use was 10.5 litres/100kms which equates to approximately 240 grams per km. This is substantially higher than the EU target for new vehicles.

A well-planned transition to electric and low emission technologies will bring certainty for industry and consumers, providing a clear path for transitioning to a decarbonised transport system. RACQ does not want to see Australia as a dumping ground for ICE vehicles as the world transitions to EVs. We call on the strategy to provide a clear statement of standards for continued supply of ICE vehicles.

“Nearly 70% of Queensland consumers surveyed believed that in the future most new cars will be electric, with only 9% disagreeing.”

RACQ member and consumer insights survey 2022

The unit costs of some forms of renewable energy and of batteries for passenger EVs have fallen, and their use continues to rise.

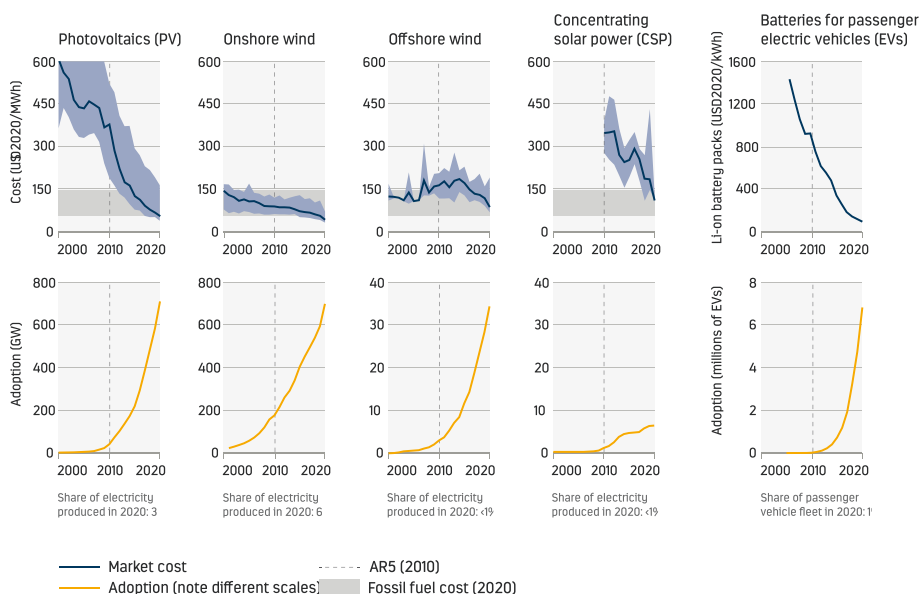


Figure 5: Global costs of renewable technologies and battery EVs and uptake (IPCC 2022, p16, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf)

The IPCC has stated with high confidence that EVs powered by low-emissions electricity offer the largest decarbonisation potential for land-based transport, on a life cycle basis¹⁴. EVs are the logical affordable technology for the decarbonisation of Australia's transport system by 2030 given that globally:

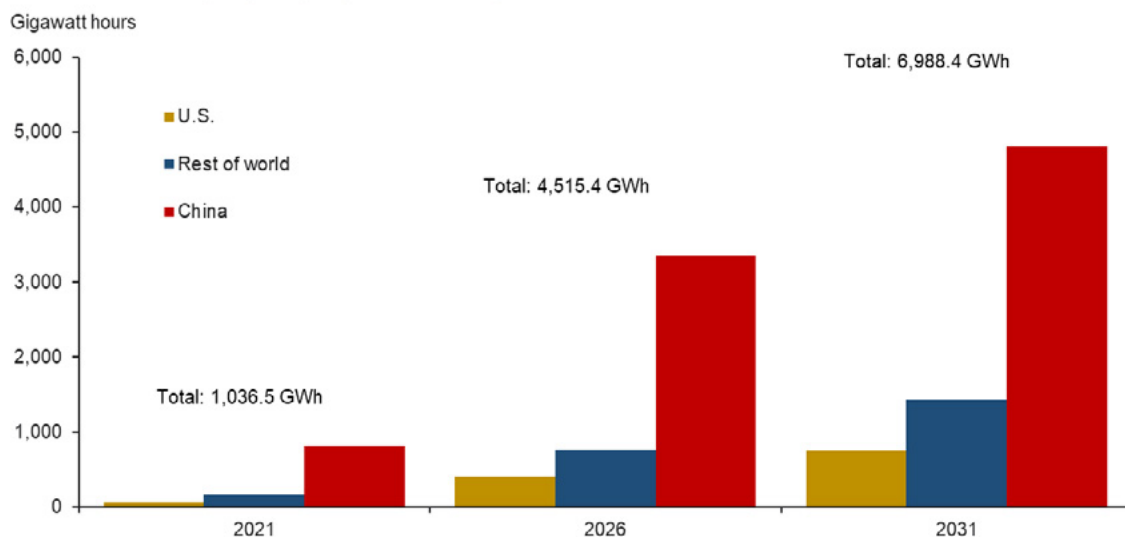
- Government policy settings in key European, Asian and North American markets are supporting road transport electrification transition
- Global vehicle and battery manufacturers are transforming and investing at scale in their EVs manufacturing and supply chains capacity¹⁵
- Consumers in key European, Asian, and North American markets are demonstrating strong market acceptance and demand
- Total Cost of Ownership (TCO) – and eventually purchase price – of EVs compared to internal combustion engine (ICE) vehicles show a pathway

to affordability within the present decade across most, if not all, passenger and urban and medium freight vehicle types.

To gauge the extent of the scaled-up investment and production capacity for EVs, the Federal Reserve Bank of Dallas expects the scale of the global lithium-ion battery manufacturing capacity in 2031 to reach 6,988.4 GWh per annum, the equivalent of 116.5 million new EVs with 60kWh battery packs (see Figure 6).

According to an analysis of data and projections from the world's leading automakers, there has been a significant increase in EV investment, with nearly US\$1.2 trillion through 2030 to be spent on developing and manufacturing millions of EVs, batteries and accessing raw materials¹⁶.

Lithium-Ion Battery Capacity Expected to Surge Around the Globe



NOTE: GWh is gigawatt hours.
SOURCE: Benchmark Mineral Intelligence.

Figure 6: Lithium-Ion Battery Capacity Projections Globally (Benchmark Mineral Intelligence, <https://www.dallasfed.org/research/economics/2022/1011.aspx>)

⁹ p10-4, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter_10.pdf

¹⁰ Collection and publication of the ABS Survey of Motor Vehicle Use ceased after the 2020 report. As key piece of evidence describing the state of the motor vehicle fleet, the Commonwealth Government should reinstate this publication. This task could be undertaken by the ABS or BITRE (BITRE now publishes the related work – the Motor Vehicle Census).

¹¹ For all vehicles fuel efficiency worsened from 13.1 litre/100kms in 2016 to 13.8 litres/100kms in 2020, which equates to approximately 320 grams of CO₂ per km.

¹² Assuming 2.3035 kg of CO₂ per litre

¹³ <https://www.iea.org/reports/cars-and-vans>

¹⁴ C8, p36, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf

¹⁵ Just in the USA, there is a massive recent wave of investment into new EV and battery gigafactories— Planned investment into the production of lithium-ion batteries exceeds \$40 billion, part of the build out of the US domestic supply chain for batteries and EVs. <https://www.dallasfed.org/research/economics/2022/1011.aspx>

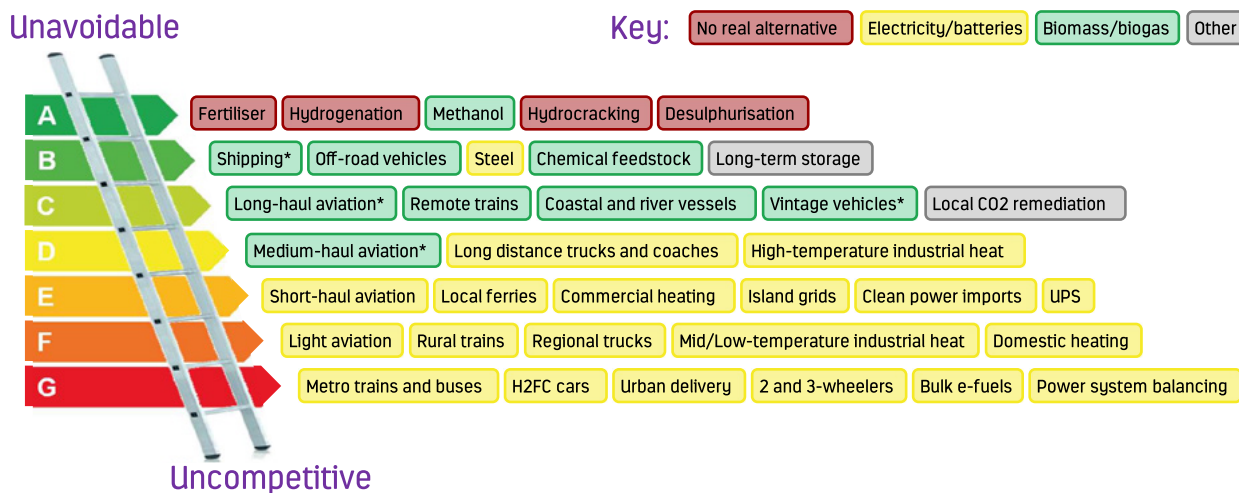
¹⁶ Automakers to double spending on EVs, batteries to \$1.2 trillion by 2030 | Reuters, <https://www.reuters.com/technology/exclusive-automakers-double-spending-evs-batteries-12-trillion-by-2030-2022-10-21/>

The largely accepted consensus, as articulated by prominent energy thought leader Liebreich Associates below, is that hydrogen as a light vehicle fuel is

uncompetitive compared to electric battery vehicles (see Figure 7).

Clean Hydrogen Ladder: Competing technologies

Liebreich Associates



* Via ammonia or e-fuel rather than H2 gas or liquid

Source: Liebreich Associates (concept credits: Adrian Hiel/Energy Cities & Paul Martin)

Figure 7: Hydrogen and competing technologies (Liebreich Associates, https://drive.google.com/file/d/1IK0dOHxq-sjELrJ5hWIGX66dCy_vWCW/view)

According to the IPCC, low emissions hydrogen, sustainable biofuels, and synthetic fuels can support mitigation of CO₂ emissions from shipping, aviation, and heavy-duty land transport but require production process improvements and cost reductions (medium confidence)¹⁷. The current relatively high costs for hydrogen fuel cells, lack of supply globally and lack of scaled investment into Fuel Cell Hybrid Vehicle (FCHV) manufacturing capacity from global vehicle manufacturers all indicate a lack of a foreseeable downward price pathway for light passenger hydrogen vehicles. Hydrogen as a fuel is also unlikely, with the high export demand predicted by the Australian and Queensland Governments, to be affordable to Australian consumers, particularly given the pricing history of the abundant natural gas in Queensland. Further there are additional logistical refuelling challenges given the likely market share dominance of EVs and existing ICE vehicles that will dominate refuelling and charging infrastructure, making hydrogen distribution, and refuelling economically unviable. Hydrogen FCHV are most likely to be used in freight applications (point-to-point heavy-duty land transport). Hydrogen-powered light vehicles are therefore highly unlikely to be, in the timeframe required to decarbonise the Australian transport sector (mid 2030s), economically or logistically feasible.

Therefore, electrification is the only light vehicle technology that can deliver within the timeframes required to meet our national emission targets. Electrification also provides substantial benefits to Australia's fuel security, self-sufficiency and climate resilience. An electrified transport network could dramatically reduce Australia's dependency on imported oil, and petrol and diesel imported from refineries overseas.

“Engagement with EVs drops the further you move from town centre/CBD; potentially due to range concerns and infrastructure access. People living 0-10km from city or town centre were 44% very or somewhat likely to buy an EV whereas people who lived more than 50km were only 4%.”

RACQ member and consumer insights survey 2022

Extra care must be taken so all Australians enjoy the benefits of an electrified transport network. A successful transition does not leave those on lower incomes behind, with the risk that a poorly managed transition would further exacerbate economic and social disadvantage, leaving lower-income Australians

with old, inefficient and increasingly expensive petrol and diesel vehicles.

Any new strategy also needs to fulfill the distinct and different transport and climate change resilience needs for remote and regional centres. While this will require further investigation, advanced biofuels and synthetic fuels, coupled with zero/low emission fuel-specific drive trains and electric range extenders, are strong candidates to feature in the fuel mix and policy response. Advanced biofuels could complement electrification and provide climate resilience and adaptation benefits.

A mass transition to EVs provides substantial potential economic, environment and social opportunity for Queensland and for remote and regional Australia. Australia, and to a large degree Queensland, produces every known critical mineral required to support electrification of the global economy including copper for wiring and motors, rare metals and nickel for batteries, and aluminium for batteries and light weight components¹⁸ (see Figure 8).

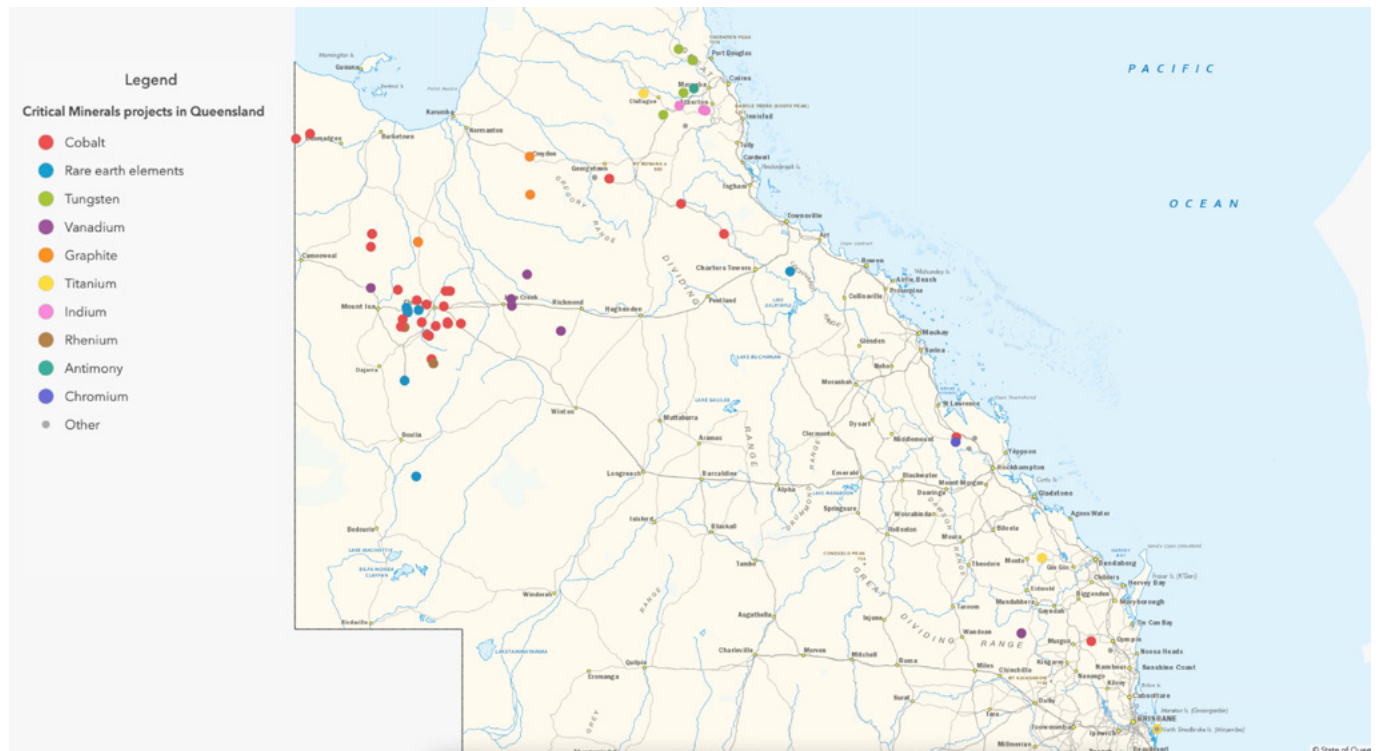


Figure 8: Critical mineral projects in Queensland (Queensland Department of Resources, <https://www.resources.qld.gov.au/mining-exploration/initiatives/critical-minerals/location-of-critical-minerals>)

Queensland must play a key role in establishing new industries or else electrification will be a hopelessly wasted economic opportunity. This will be more critical given the regional job losses expected in the decline of coal and natural gas industries. Industry opportunities abound to support electrification including technology research and development, vehicle manufacturing and material/mineral extraction and refining. Similarly, the need to generate and store energy (in batteries and pumped hydro-electric schemes) will also provide substantial opportunities for regional development and jobs growth.

The shift to decarbonise is not only critical in efforts to mitigate the worst impacts of climate change. The shift

to electrification of the transport sector, particularly with diesel freight, buses and heavier SUVs, will also eliminate noxious tail pipe emission from our towns and cities, and should substantially improve urban air quality, as well as reducing the noise pollution made by ICEs. The electrification transition is a public health and urban amenity initiative also.

To fully realise the decarbonisation benefits of an electrified transport system, the stationary energy system also needs to shift away from burning fossil fuels.

¹⁷ C8, p36, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf

¹⁸ <https://www.resources.qld.gov.au/mining-exploration/initiatives/critical-minerals/location-of-critical-minerals>

TIMEFRAMES FOR TRANSITION – NEEDS OF RACQ MEMBERS

Affordability and cost of living are a dominant pain point for RACQ members and for many in the Australian community. RACQ members must be able to see and then experience an affordable pathway to zero emission vehicles. According to Bloomberg New Energy Finance 2022 EV Outlook Report unsubsidised price parity between EVs and ICE will be achieved in most segments and countries by late 2020s¹⁹.

“35% of Queensland consumers have indicated they will consider an EV in the future, with 28% saying they are considering an EV for their next car.”

RACQ member and consumer insights survey 2022

Australia has a history of rapid adoption of new consumer technologies. Embracing new consumer technologies tends to proceed in an ‘S’ curve with slow initial uptake of overly expensive products, followed by rapid adoption, with a small remnant group of consumers not adopting the change. Given the market price competitiveness of global vehicle manufacturing being driven by scale²⁰ it is likely, given the pace and scale of the global transition underway, that EVs will be at both lower purchase AND (substantially) lower operational costs than ICE vehicle before the end of this decade. That will, therefore, see EVs being the dominant technology for road transport in Australia, supporting a likely ‘S’ curve consumer adoption.

“55% of Queenslanders expect RACQ to provide information and advice on EV s. More than half of Queenslanders, especially the younger cohorts, mention a lack of knowledge when it comes to how to reduce their emissions”.

RACQ member and consumer insights survey 2022

The major limitation on the strength of the ‘S’ curve adoption in Australia will be global supply capacity and Australia’s policy setting to facilitate priority import supply. While Australia’s EV uptake has been slow compared to other countries, RACQ believes uptake is likely to accelerate as global production of EVs upscale, national policy leadership emerges and vehicle availability increases: ultimately all combining

to drive down prices. The electrification will trigger other changes to global vehicle manufacturing. It is likely that EVs will become the focus of new vehicle safety technologies and systems. As a result, ICE vehicle manufacturing capacity that will be increasingly allocated to emerging nations will increasingly lack the incorporation of advanced safety features. This will further accelerate the transition to electrification in Australia.

RACQ considers the CSIRO²¹ modelling for EV uptake to be the most robust currently available. In these models the Rapid Decarbonisation and Sustainable Growth pathways are the most likely scenario. These would see close to 100% of new vehicle sales being EVs occurring between 2030 and 2040 respectively.

¹⁹ EVO Report 2022, BloombergNEF, <https://about.bnef.com/electric-vehicle-outlook/>

²⁰ Given the lower number of manufacturing parts required

²¹ CSIRO EV projections 2021 available from https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2021/csiro-ev-forecast-report.pdf?la=en.

ELECTRIC VEHICLE SUPPLY AND INCENTIVES



Upfront incentives to encourage increased supply of new EVs into Australia are required. RACQ supports the fringe benefit tax (FBT) exemptions introduced in Commonwealth Parliament for eligible zero emission vehicles made available to employees. Additionally, RACQ supports that, to be eligible for the exemption, the value of the car at the first retail sale must be below the luxury car tax threshold for the fuel-efficient cars FBT. RACQ recommends that the FBT exemption should be maintained until such time as low emission and EV prices (without incentives) will be at parity with ICE vehicles. The FBT exemption should be reviewed and adjusted over time including its application to different vehicle segments.

“Purchase cost is the most likely reason why Queenslanders would not consider buying an EV.”

RACQ member and consumer insights survey 2022

Without Federal Government incentives EVs will continue to be unaffordable. Based on vehicles RACQ has tested, the total cost of EV ownership over the first five years is still higher than a comparable ICE.

The only EV tested that came close over 5 years was

the MG ZS EV – one of the most affordable EVs on the market and eligible for the Queensland Government’s EV rebate. This analysis reinforces the importance of purchase price affordability for the EV transition in Australia.

The key elements of the strategy should be to bolster EV supplies in the second-hand market. It is from the second-hand market that many Australians buy their vehicles, especially those on lower incomes (approximately one million new sales compared to three million used sales annually). Therefore, for mass EV adoption and decarbonisation, most EVs that will be purchased in Australia will need to be used vehicles. As such, this policy should have a strong focus on supporting the availability of EVs and other low emission vehicles in the second-hand market.

Outer suburban and regional vehicle owners have less mobility choice with more reliance on private vehicle use and are more likely to own second hand purchased vehicles²². This results in higher transport costs as part of the overall household budget. Policy support, incentives and strategies should be specifically targeted at low income, outer suburban and regional vehicle owners.

RACQ recommends increasing EV uptake in the Government and corporate fleets with the objective of bolstering a ready supply into the second-hand market. Any tax benefits on new EVs (for fleets and private owners) should only apply for the first few years (maximum of three) of ownership to encourage on-sale and bolster supplies in the second-hand market²³.

As Australia has a very small volume of used car imports (because they are subject to restrictive regulations), the principal route to the used car market is through the new car market. In designing support measures for the new market, the needs, preferences and impacts on the used car market must be considered. RACQ analysis²⁴ suggests that more fuel-efficient vehicles currently attract a price premium in the used market. Therefore, the support measures for the new market supply (espoused in this submission) would preference the most fuel-efficient vehicles and reduce the second-hand price premium.

RACQ recommends that Commonwealth EV policy should include a specific focus on addressing diesel urban freight and bus fleets due to additional negative impact (beyond greenhouse gas emissions) on public health. Health benefits from cleaning up the urban truck fleet alone would be about \$1.7 billion a year by 2040²⁵. As per the Grattan Institute report 'The Grattan truck plan: practical policies for cleaner freight':

- Old trucks are much more polluting than new, with trucks as a whole being responsible for about four per cent of carbon emissions
- More than a quarter of trucks are old and highly-polluting
- Low-emission zones would reduce damage from poor air quality in densely populated cities

RACQ recommends policy actions to support the uptake of electric trucks and buses and reduce pollution including:

- Best-practice pollution standards in 2024, including upgraded engine and tyre-specific standards, to reduce emissions from new diesel trucks (i.e., Euro-VI Stage C standards) and upgrades to standards as per European intervals
- Removal of Australian Design Standard regulatory barriers to cleaner trucks (i.e. to allow truck widths up to 2.6 metres from 2023, provided trucks satisfy safety requirements consistent with the Performance Based Standards)

- Examine the feasibility of sales targets to accelerate the transition to zero-emission trucks and buses
- Commit additional funding to fleet depot electric charging over a timeframe of at least the next four years to reflect the long lead times to acquire bus and commercial EVs in Australia and the challenge of fleets reaching sufficient scale to underpin economically scaled electric charging depots.

Incorporation of trucks and freight vehicles in the CO₂ emission standards effectively requiring sales targets to accelerate the transition to for zero-emission trucks and buses.

Specific provisions and support should also be made for taxi and ride-share vehicles to transition to EVs. Given their high mileage, RACQ recommends specific program support for the taxi and ridesharing industry including vehicle leasing or purchase incentives and taxi rank charging facilities. These measures could be supported with specific education and awareness campaigns for passengers providing a 'lived experience' kind of consumer education.

A nationally consistent policy is required to avoid any perverse outcomes due to differing policies between states.

RACQ recommends specific EV support should be limited to plug-in battery EVs (BEV). While we understand that plug-in hybrid EVs and conventional hybrids are likely to be part of the vehicle mix and will benefit from a fuel efficiency standard, these vehicles currently still use petrol and diesel, and the policy strategy should be focused on speeding up the transition to zero emission vehicles (given Australia's slow progress to date). Plug-in range extender vehicles using zero emission or low emission fuels should also be included.

²² <https://home.kpmg/au/en/home/insights/2022/10/accelerate-australia-electric-vehicle-uptake.html>

²³ For example, this could include working with the states and territories on removal or reduction of stamp duty on second hand EV sales.

²⁴ Regression analysis was used to quantify the factors influencing the price of second-hand vehicles. Increases in fuel efficiency led to a statistically significant increase in second hand price - an effect that was distinct and independent of other factors.

²⁵ The Grattan truck plan: practical policies for cleaner freight, <https://grattan.edu.au/wp-content/uploads/2022/08/Grattan-Truck-Plan-Report.pdf>

FUEL EFFICIENCY STANDARD



The adoption of a technology agnostic CO₂ standard for new vehicles, with a gradual but significant decline in the target level for CO₂ emissions per kilometre, has widespread support in the automotive sector, with differing views of how quickly emissions should decline. RACQ suggests a substantial reduction in average CO₂ emissions between 2022 and 2030. This needs to strike a balance which provides an incentive to purchase EVs (and the most fuel-efficient ICE vehicles) and makes the transition to EVs manageable and fair.

RACQ recommends the quick development and adoption of fuel efficiency and CO₂ emissions standards for new vehicles. Robust fuel efficiency and CO₂ standards should be the cornerstone of any EV framework. While this will encourage EV uptake, it will also encourage uptake of lower emission ICE vehicles and reduce the cost of new and used fuel efficient vehicles. RACQ analysis suggests that more fuel-efficient vehicles attract a price premium in the used car market. A fuel efficiency standard would address this shortfall and help to improve affordability of the more fuel-efficient second-hand vehicles.

The exact CO₂ limit/standard and the design of the mechanism for measuring and enforcing the standard needs to be defined. Getting the right settings for the fuel efficiency standards is critical in balancing the need for electrification of the transport task, and the need for a just transition from the current fleet to a future zero emissions fleet.

In providing for a just transition the CO₂ standard should vary between vehicle segments. In this way the standard will account for consumer needs and choices, and acknowledge that in the short-term some segments are likely to have limited electric alternatives.

Setting the CO₂ target too high could adversely impact the cost of mobility, especially in the outer suburbs, regional centres and remote locations. Conversely setting the target too low will fail to deliver the CO₂ reduction contributions required to address the worst effects of climate change.

The design of the standard is a substantial task and will require its own separate and targeted policy development process. RACQ suggests that the Commonwealth Government engage a broad range of stakeholders to design the fuel efficiency standard methodology and CO₂ limit/standard. We would suggest that the Commonwealth Government engages a Technical Reference Panel with members drawn from broad and diverse stakeholder groups, to set the design specifications for the fuel efficiency standards. The alternative designs and impact of these designs on vehicle choice and cost should be modelled by the government before a wider consultation process, and final decision on the design.

CHARGING INFRASTRUCTURE AND PRICE TRANSPARENCY

To support a sustainable transition to EVs, charging ecosystems need to be developed across communities of Australia. Australia must consciously create charging ecosystems that support public benefit outcomes and ensure there are no unintended consequences (i.e., negative impacts on the electricity grid, higher than necessary charging costs, lack of convenience and gaps in the charging network and potential higher prices in regional and remote areas).

“3% of people surveyed owned an EV. Owners mostly charged at home – with 60% charging only at home, 34% at home or at public chargers and only 6% relying solely on public chargers.”

RACQ member and consumer insights survey 2022

A properly functioning EV charging ecosystem should reflect both a ‘top up’ and ‘fill up’ charging model. ‘Top up’ charging (as we do with mobile phone charging) will be predominantly based on AC charging at home, workplace, or at destinations such as retail or tourism locations. Vehicles are generally parked for greater than 90% of the time at these types of locations, and for a considerable amount of time during the middle of the day or night when there is access to low-cost renewable energy and spare electricity grid capacity. ‘Top up’ charging should be the mainstay of EV charging. ‘Fill up’ charging (similar to how we refuel ICE vehicles) will require fast and ultra-fast DC charging infrastructure essential for longer and repetitive trips. Both top up and fill up provide for different forms of convenience and both are essential to EV charging ecosystems.

“After the purchase cost, concerns about charging are the biggest factors discouraging people from buying an EV.”

RACQ member and consumer insights survey 2022

The system management of home and workplace AC charging will be critical to avoid peak demand issues and to support the sustainable development of electricity distribution networks. The system Australia develops for managing home and workplace AC charging to avoid peak demand issues should prioritise those approaches that allow retailers and aggregators (on behalf of the building occupant) to manage the charger during times of high demand, rather than approaches that give the distributor direct management and control of the charger. This would mean facilitating and supporting an internet protocol demand management-based system of AC charging and avoiding an over reliance on inflexible ripple control load management. RACQ recommends an EV charging system management model that relies on the retailers/aggregators to address the network challenges (as communicated by the distributor) and optimise the benefits to the consumer by managing the EV chargers for other economic drivers such as prioritising least cost pricing and participation in demand management markets.

RACQ recommends that Commonwealth Government policy and funding support the development of a diverse EV charging ecosystem across Australia.



Government funding and policy measures must also support public and private charging infrastructure. This should include investment in:

- Fast/rapid DC EV chargers, especially on national, freight and tourism corridors, and
- Regional tourism AC destination charging networks.

Regional AC charging networks complement the regional DC fast and ultra-fast charging networks and help bust the myths that EVs are not suited to regional Australia. RACQ and Queensland Government sponsored Tropical North Queensland EV Drive, providing free EV charging over 500 kms, is a best practice example of a regional tourism AC destination charging network.





RACQ recommends a national system of DC charging price transparency to ensure consumers are empowered to seek out the cheapest options for charging EVs. This system should be developed similar to the price transparency schemes for liquid automotive fuels enforced by all states and territories except the ACT and Victoria.

RACQ recommends on-going specific funding support for the capital outlay for regional DC charging networks where higher network infrastructure access and

construction costs will mean that capital costs will not likely be recoverable from user charges. Further funding support for DC charging network should be specifically linked to EV networks offering 'whole of charging network' pricing to avoid price gouging on regional and remote stations where there is likely to be a lack of charging competition.

EV readiness at a minimum should include a sufficient circuit capacity and dedicated circuits for subsequently installed EV supply equipment (EVSE) devices or chargers in garage or parking areas in every new home and a reasonable number of other parking bays in other building classes. New apartments should be required to be EV charger ready, providing charging space and infrastructure.

RACQ recommends specific incentives and policies and removing roadblocks for EV charging for existing building stock, particularly for apartments body corporates. Focus should also be on incentivising landlords to install EV charging in rental properties.

Charger Type	Basic Home Charger	Destination Charger	Fast DC Charger	Ultra-Fast Charger
				
kW Range	<7kW	11kW - 25kW	>50kW	<350kW
Purpose of Charger Type	Long term parking Top up charging at home, work or at retail and other destinations.	Medium term parking Top up charging at destination at 11kW AC and up to 25kW DC.	Short term parking Fill up convenience charging	Charge and go Fill up fast convenience charging
Required Action	Funding programs for regional tourism destination routes.	Funding programs for regional tourism routes.	Lack of charging sites and lack of redundancy- on-going funding programs required for national, freight and tourism corridors.	Lack of charging sites and lack of redundancy- on-going funding programs required for national, freight and tourism corridors.



The Commonwealth Government needs to reform the transport taxation system. The new system should be designed to favour EV uptake. Reform is not required as part of the EV policy development, however it requires a national leadership approach.

Australia's road funding and transport taxation system is no longer fit for purpose and needs to be reformed. The current system is complex with no clear policy objectives and administered differently by different levels of Government, State and Commonwealth. In its current form, the system will fail to deliver sustainable revenue to pay for land transport projects.

The current system is inherently regressive, with those least able to pay often charged the most. Motorists on lower incomes tend to drive older and larger engine cars and live in outer metropolitan areas with reduced access to active and public transport and high car dependency. Therefore, those on the lowest incomes pay more to register their larger engine vehicles, consume more fuel and pay more in excise.

A system-wide redesign of transport tax, starting at first principles, is required. This new transport taxation regime should be designed to be simple and national (all State transport related taxes should be abolished or minimised). It should tax or price in externalities – e.g., put a price signal on driving in congested traffic, on emissions, on negative public health, damage to roads and other negative impacts. It should also be technology agnostic, applying base-level principles to all vehicle options.

As an interim measure, we support the proposed changes to fringe benefit tax and would urge consideration of changes to Luxury Car Tax to reduce the number of EVs subject to luxury car tax.

Rapid depreciation and immediate expensing of EVs should be considered. Since 2015, businesses have been able to expense immediately small capital purchases up to \$30,000. In 2020 the asset value limit was increased to \$150,000 as an incentive to update business motor vehicle fleets, although it is not an incentive to purchase EVs specifically. While the higher asset limit expires in June 2023, to encourage business purchases of EVs RACQ suggests that a short depreciation period apply beyond 2023 for full battery EVs.

The Fringe Benefit Tax changes to support EVs novated leasing are welcomed and are supported. To encourage increased supply of EVs into Australia, and the transition of new EVs into the second-hand market, any individual vehicle should only receive the FBT discount for a period of three years.

However, RACQ recommends changes to the rules governing EV workplace charging, specifically to the removal of FBT on workplace charging. However, some restrictions are required to avoid unintended and perverse consequences, such as encouraging or incentivising workplace EV charging within congested city centres, areas where public and active transport should be encouraged. This could be addressed through aligning the EV workplace charging with FBT rules on the provision of workplace parking.



Consumer and community education is another key consideration. Much of the hesitancy with new technologies is due to limited exposure to owning and operating EVs.

“There is demand from consumers for information and advice on current and future mobility solutions, with 55% of Queenslanders expecting RACQ to provide education on EVs and 34% wanting to reduce their emissions but not knowing how.”

RACQ Member and consumer insights survey 2022

RACQ recommends the Commonwealth Government fund the development and implementation of education campaigns to raise awareness and understanding about EVs. Motoring bodies such as RACQ are ideally placed

to lead this work. We are a trusted organisation where members, and motorists more broadly, go to for their information.

Options for improving consumer awareness of EVs would include mass media content, content provided by auto clubs and similar, and consumer focused EV test driving events and test drive centres, possibly as joint activities or ventures with vehicle OEMs and vehicle dealers. RACQ recommends support for EV education targeted at second hand car dealers, given their ultimate role in selling the majority of EVs to consumers.

REGIONAL AND REMOTE QUEENSLAND – BIOFUELS SUPPORT FOR ELECTRIC TRANSITION

RACQ seeks to ensure that a fair and just transition to electrification is provided for all Queenslanders at a reasonable price. RACQ believes land-based transport will overwhelmingly be electrified between 2030 and 2040. To support the transition, especially for applications that are difficult to (fully) electrify, and to build climate resilience in the face of increasing climate disasters, a zero-low emission liquid fuel strategy is required. Such policy responses would complement and support the electrification of land transport in Queensland.

While EVs will satisfy the transport needs of most Australians, especially those residing in metropolitan areas and adjacent hinterlands, it is important that the National EV Strategy has a wider geographic focus. This is especially important in Queensland as one of Australia's most decentralised states.

Advanced biofuels and synthetic liquid fuels should be considered for use in remote locations. In areas with very low density and highly dispersed populations and work sites, purely EVs are unlikely to fulfil all transport needs. In these locations it is reasonable that some liquid fuel powered vehicles will still be required especially in vehicles specific to mining, farming and agricultural services industries.

RACQ urges the Government to support research and development focused on incorporation of advanced biofuels and synthetic fuel range extender technologies (combustion and fuel cell) for use in electric truck and

larger vehicle drivetrains. Similar commercial aviation and marine applications are likely to require advanced biofuels and synthetic liquid fuels. This would require a step change in both research and development and existing truck and bus manufacturing in Australia.

RACQ has previously supported the Queensland BioFuels Mandate, and the promotion and use of biofuels as a way of reducing reliance of fossil/mineral fuels, reducing greenhouse gas emissions and improving urban air quality. RACQ calls for a step change in support for biofuels as an important ingredient in the transition to electrification of land transport.

There are two types of biofuels commonly available in Queensland – ethanol-blended petrol and biodiesel. The environmental and operability standards for these (and all other) fuels are defined in the Australian Fuel Quality Standards.

Biodiesel or Renewable Diesel

Biodiesel²⁶ is a fuel designed for use as a 'drop-in' fuel for diesel engines made from vegetable or animal fats and oils, often used as cooking oil or tallow. Biodiesel is chemically similar to mineral diesel fuel and blends of up to 5% can be sold in Australia without additional labelling.

Renewable biodiesel^{27,28} use provides environmental benefits. Renewable diesel's biggest advantage is that it can be used as a drop-in fuel into existing diesel engines



without any modification. Renewable diesel is expected to become available from 2024 in Western Australia and from 2025 in Queensland. Its biggest limitation could be high demand across a range of transport sectors (construction, aviation, shipping etc) and its likely high demand as an export.

Ethanol

Ethanol-blended petrol (EBP), a blend of mineral petrol and ethanol, has been available in Australia for more than 15 years. The ethanol used in this fuel is alcohol produced through the fermentation of vegetable matter. In Queensland, ethanol is produced using sugarcane molasses (historically sorghum grain was also used). Ethanol produced from sugarcane has a positive energy balance and will reduce greenhouse gas emissions. The emission reduction benefit is less for ethanol produced using grains as the energy balance is less favourable²⁹.

The most common EBP blend has been E10, a blend of up to 10% ethanol and 90% mineral petrol. E10 is currently widely available in Queensland and there is an established and stable market. Less widely available is E85, a blend of up to 85% ethanol and 15% mineral petrol or E100, both which can be used as a range extender in fit for purpose electric generators³⁰. RACQ's historic support for ethanol in the Queensland Government Biofuels strategy was in the context of mixing with existing fossil fuel requirements. However, in this submission, RACQ is proposing a step change use in ethanol as a zero/low emission fuel for electric range extenders, as distinct from current applications.

E10-Compatible Vehicles to E85 Range Extender Generators

Most petrol vehicles sold in the Australian fleet after 1986 can use E10 fuel. E85 fuel on the other hand is not suited as a drop-in fuel for the overwhelming majority of vehicles in Australia. However, RACQ believes that E85 as a 'range extender' and 'stationary energy generator' fuel is worthy of consideration for a number of reasons:

- It could act as a range extender for freight and other larger vehicles for long distance regional trips or where electricity infrastructure is challenged or may be challenged due to regularity of climate events,
- Resilience and redundancy in climate disasters – a dual flexible interchangeable vehicle ecosystem using electricity and liquid fuel with vehicle-to-grid functionality could provide electricity for stationary or transport needs. This would provide redundancy

and resilience for regional and remote communities, and

- Technological innovations in vehicle and stationary energy systems can support decarbonisation of emerging nations in south-east Asia and the Pacific Island nations while climate resilience is an untapped economic opportunity for Australia.

E85 use provides environmental benefits such as improving urban air quality. Studies show an E85 blend emits less carbon monoxide and unburnt hydrocarbons compared to 100% mineral petroleum. The CO₂ produced in burning ethanol is offset by the CO₂ sequestered in the feedstock as it grows. The amount of sequestered CO₂ depends on the feedstock and production process.

While use of range extenders in EVs is a relatively straightforward technology there are few applications of range extenders in freight vehicles. As Queensland has a considerable truck manufacturing industry this highlights a niche EV research & development and manufacturing opportunity. Further using ethanol supports regional development and regional jobs. Locally produced ethanol improves Australia's energy security by reducing dependency on imported oil and refined fuels.

RACQ recommends the Commonwealth Government support research and development into the use of ethanol as an electric range extender for regional/remote Australia, particularly for heavy vehicles.

RACQ recommends the Commonwealth Government develop a biofuel electrification strategy with the agricultural and biofuels industry, universities and other interested parties, such as RACQ.

²⁶ *Biodiesel - A sustainable liquid fuel derived from vegetable oils or animal fats. Has physical properties similar to petroleum diesel, but OEMs typically limit up to B20 blends, constraining carbon emission savings. It can be used in many concentrations, from B5, (95% petroleum diesel and 5% biodiesel), all the way up to B100, which is pure biodiesel*

²⁷ *Renewable diesel - An advanced biofuel made from renewable resources such as animal fats, vegetable oils and greases. It is chemically identical to conventional diesel which allows the fuel to be integrated into existing engine infrastructure without any modification*
²⁸ <https://espace.library.uq.edu.au/view/UQ:6973e0a>

²⁹ *The possible adverse environmental impacts of sugarcane production are addressed by the Queensland Ethanol Mandate in its sustainability criteria. The criteria cover soil health, plant nutrition, pest and weed management, and drainage and irrigation management. While there are similar management systems for grain production, these systems appear to be less robust and should be further considered.*

³⁰ *E85 is suited to colder areas/seasons due to generator starting requirements*

ELECTRIC VEHICLE MANUFACTURING AND ECONOMIC DEVELOPMENT OPPORTUNITIES



EV manufacturing policy development should take a broad perspective with opportunities across the whole transport industrial ecosystem. Queensland has already had some success stories in transport electrification manufacture and technology. Tritium, originating in 2001 as a University of Queensland start-up, is a world leader in EV charging, exporting to 38 countries. In electric aviation, Magnix was a Gold Coast headquartered company developing electric aviation motors before largely relocating to the United States. More successes stories will require a concerted effort. The rest of the world is not sitting back waiting.

There are several areas of transition where Queensland currently has manufacturing and other interests. These include ferry/watercraft, caravans, trucking, bus manufacturing, defence vehicles and aviation.

Trucks, electric caravans and trailers

Queensland has, relative to the rest of Australia, significant truck assembly and caravan/recreational vehicle manufacturing industries. Electric trucks and vans, for short (and into the future) medium haul logistics is taking off in the U.S. and in Europe as vehicle range and price requirements are being met. This is also

being driven by environmental regulatory requirements but also public health (air pollution from diesel in cities) and cost efficiencies.

In Australia, Sea Electrics are global leaders in developing electric drivetrain power systems that works with standard truck components (cab chassis). They have developed a strong presence in the U.S. They have also partnered with Bundaberg refuse truck assembly manufacturer, Superior Pak, for an electric refuse truck. However, there is little other electrification innovation occurring in the truck industry in Queensland. Biofuel range extender for electric long and or heavy haul trucks would however seem to be an ideal target innovation.

Annually, over 30,000 RVs are assembled in Australia, with two-thirds built entirely in Australia. There are 190 local manufacturers of recreational vehicles (caravans & motorhomes), mostly in Queensland and Victoria. The Caravan Industry Association had called for previous Commonwealth Government to invest in research and development and future-proof what they note is one of the final bastions of Australian automotive manufacturing.

Globally, product development work is occurring on electric caravans and electric axles (for caravans and truck trailers). Electric caravans are where the structural chassis incorporates a battery pack and small electric motors to provide assisted movement (effectively reducing the weight of the caravan when it is being towed). The weight of the battery is offset by structural and stability benefits. An electric caravan also provides for additional efficiency and stability from regenerative braking. The key benefits of an electric caravan are that it provides additional road safety, battery power for caravan operation, additional towing range for electric, hybrid and ICE vehicles, capacity for autonomous parking, and opportunity for vehicle-to-grid power supply when not in use.

Defence

Queensland has significant capability in defence heavy vehicle manufacturing and supply chain delivery. Queensland is home to Australia's first Defence Cooperative Research Centre, the Trusted Autonomous Systems Defence CRC, delivering world-leading autonomous and robotic technologies. A large proportion of this activity takes place in Brisbane around the Wacol and Richlands areas where there is also concentration of companies manufacturing trucks and trailers. Defence land transport is a sector facing future electrification opportunities. If Queensland is to be at the forefront of defence industry developments, then targeted electrification strategies will be required. The U.S. military already has a number of research and development programs on electrifying its civilian and military fleet. The U.S. Department of Defence is the largest consumer of fossil fuels in the world and is already undertaking a range of electrification and energy efficiency initiatives. Initiatives include the U.S. Navy's Great Green Fleet, which claims to source 50% of its needs from non-fossil fuel sources.

Fossil fuel supply chains are a strategic vulnerability in forward military operations. Reduction and replacement of fossil fuel use in forward operation has military operational benefit. Electrification has energy density limitations but increasingly militaries and defence technology companies are already exploring 'electric battlefields'. Renewable energy, Mining Equipment Technology Services (METS) and biofuel range extender technologies all provide overlapping electrification industrial ecosystem scale for the defence industry.

RACQ recommends the Commonwealth Government establish manufacturing innovation hubs focused on

the electrification of transport in partnership with universities and industry within states and regions that have transport manufacturing capacity and potential.

Tourism

Beyond manufacturing, tourism is a key Queensland industry that will benefit from an electric transport transformation. Eco-tourism is not just the experience of natural wonders - it is also how the experience is accessed and enjoyed. With a few exceptions, Queensland's transport fleet (buses, ferries, watercraft and aircraft) are fossil fuel based.

EV racing is increasing across several vehicle types including Formula E, solar EVs – World Solar Challenge and off-road SUV racing – Extreme E³¹. In addition to tourism benefits, electric racing helps develop industrial ecosystems as with Tritium and World Solar Challenge race (between Darwin to Adelaide). The development of industrial ecosystems is vital for industry development and to attract inward investment.

RACQ seeks that the Commonwealth Government review its tourism strategies and initiatives to ensure they support the national EV strategy initiatives.

³¹ *Extreme E is off road racing in 'remote corners of the planet to highlight the climate change challenges faced by different ecosystems, whilst showcasing and testing the performance of all-electric SUVs in extreme conditions'.*

ELECTRIC VEHICLE SERVICING AND TECHNICAL SKILL REQUIREMENTS



If Australia is to oversee an increasingly large EV fleet and electric transport manufacturing industrial ecosystem, it needs to urgently address the technical skills gap as mechanical requirements decrease and electrical/software servicing increases. Service industries, including insurance repairs and Roadside Assistance as provided by RACQ and other groups, will require additional specialist skills, knowledge and specialist equipment (including high-voltage tools, computer diagnostics and safety gear).

RACQ Insurance is seeing an uptick in EV repairs in line with increased EV ownership. RACQ recognises the work already completed by the Queensland Government in the education sector in training EV-capable motor mechanics and auto electricians.

Already, the global EV industry is employing engineers who specialise in mechanical, electronics, electrical, software and instrumentation disciplines, applying their skills to research and development and other roles that build out foundational technical knowledge for EV products. Translation of these skills across various technologies is critical to develop new products to meet growing consumer demand.

RACQ currently works with only three repairers in the greater Brisbane area with the requisite capability to

undertake insurance claim repairs on EVs. A significant expansion of this capability across Queensland and Australia will be required to meet the anticipated demand of the insurance sector alone. Additionally, new maintenance and aftermarket service capabilities will be required. There are also opportunities to design and manufacture batteries, EVs (starting with trucks, buses and caravans) and other related technologies, such as EV chargers. Reuse and recycling of batteries post vehicle will also be an opportunity.

RACQ recommends that the Commonwealth Government undertake a full analysis of the skills shortages and workforce capability required to appropriately accommodate for the implementation of the EV Strategy.

RACQ also recommends the Commonwealth Government work with State Governments and the education sector – especially TAFEs and universities – to provide research, education and training qualification programs (including for the existing workforce) and apprenticeship opportunities to service, maintain and repair Australia's growing fleet of EVs. Government sponsored internships, build and research projects, and "hackathons" are just some examples of how practical skills may be developed.

OTHER POLICY CONSIDERATIONS



RACQ urges the Government to review the Minimum Stockholding Obligation for diesel fuel in light of the EV policy and likely EV uptake. In its current design, the Minimum Stockholding Obligation risks requiring industry to build storage for an excessively large amount of diesel fuel, higher than would have otherwise been required to meet current and future needs.

This adds unnecessary cost which is reflected in prices paid by consumers at the fuel pump. This is especially relevant when other policies are facilitating the transition away from petrol and diesel.

We understand the Minimum Stockholding Obligation were designed to improve Australia's fuel security but would argue that the rapid electrification of the transport task would provide far greater fuel security benefits.

CONCLUSION

RACQ supports the Commonwealth Government's goals of making EVs more affordable, expanding choice and uptake, reducing emissions, reducing costs, and supporting local industry development and manufacturing.

Collectively, we are on a long journey to decarbonise Australia's transport system. A National EV Strategy is a critical early step if we are to play 'catch-up' with most of the developed world. Australia will not achieve its targets without national policy leadership that helps put in place all the pieces of the EV puzzle.

RACQ looks forward to working with the Commonwealth Government in delivering this important social, economic and environmental reform to Australia's transport system.

APPENDIX

Response to specific questions

RACQ's response to the specific questions are detailed below:

OBJECTIVES

01. Do you agree with the objectives and do you think they will achieve our proposed goals? Are there other objectives we should consider?

RACQ agrees with the goals of affordability, expanded EV uptake, emissions reduction, fuel cost savings and increased local manufacturing.

RACQ would also urge the Commonwealth Government to consider transport inequity, disadvantage and affordability in the transition strategy. It is our concern that unless specific measures are introduced this policy risks further entrenching transport disadvantage

and may leave those on the lowest incomes in old, inefficient and increasingly expensive ICE vehicles.

While we agree that the objectives mainly focus on EVs, as this is set to be the dominant technology for light vehicles. We would also suggest short term policy focusing on other low emission vehicles and cleaner fuel options (e.g., cleaner ICE and hybrid vehicles) in the short to medium term during transition to achieve the goal of lowering emissions more broadly. Funding and taxation support however should be limited to purchase of BEVs (including range extended EVs with electric only drivetrain), over PHEVs and hybrids.

ACTIONS

02. What are the implications if other countries accelerate EV uptake faster than Australia?

Australia is currently many years behind in EV policy support and consumer uptake, and RACQ urges urgent implementation of other low emission vehicles and cleaner fuel options.

The result of earlier Commonwealth Government inaction is the constrained supplies of EV models to Australia, which has led to:

- Continued importation of old and inefficient vehicle technologies
- Limited and delayed realisation of the benefits from EVs, including on-going and increasing CO₂ emissions

- Limited investment and participation in the research and development of new technology
- Limited vehicle choice for Australian consumers and opportunities to enjoy the benefits of electrification of the transport task, and
- Less safe vehicles available in Australia, since best safety technology will first roll out in high focus vehicles (BEV). This will hamper the vision towards net zero.

While RACQ recognises Australia is a late starter, this should not be a reason to limit scope or ambition.

03. What are suitable indicators to measure if we are on track to achieve our goals and objectives?

RACQ welcomes this early focus on monitoring. Monitoring and evaluation are critical to the efficient and cost effective operation of any policy or program.

The key measure would be sales volumes, market sales mix – new EVs versus new ICE vehicles, and uptake of incentive programs. This needs to include the variety of models and segments entering market, and the rate of change in models and segments. These statistics were previously published in the (discontinued) ABS Motor Vehicle Census and final Survey of Motor Vehicle Use, with the next edition of the Motor Vehicle Census due to be published by BITRE.

The Motor Vehicle Census should be expanded to include vehicle pricing data and emission/fuel efficiency data. A measure of fleet-wide fuel use, such as that previously published in the ABS Survey of Motor Vehicle Use is required.

In 2020 the ABS published their final Survey of Motor Vehicle Use and Motor Vehicle Census. These were both key reports assessing the state of Australia's vehicle fleet, publishing key statistics on the number and type of vehicles in Australia, how far these vehicles travelled and how much fuel was used. The ABS ceased both these surveys in 2020. BITRE has taken responsibility for Motor Vehicle Census with the next instalment due soon. However, there are no plans to replace the Survey of Motor Vehicle Use.

The 2020 Survey of Motor Vehicle Use showed a critical statistic that while individual distance travel was falling, overall distance travelled was increasing (due to increased numbers of vehicles in use) and vehicles on average were getting less fuel efficient. In 2012 the average fuel efficiency for passenger vehicles was 11.1 litres/100km, this fell to low point of 10.6 litres/100km in 2016, before returning to 11.1 litres/100km in 2020. This equates to about 250 grams of CO₂ per km. This trend was repeated when all vehicles were considered, and in 2020 the average across all vehicles was 13.8 litre/100kms.

While it is welcomed that the Motor Vehicle Census is to be published by BITRE, the Survey of Motor Vehicle Use is also a critical report for assessing Australia's transport task and needs to be reinstated.

In their last publication EVs were reported in the "other" category. A class that includes gas powered vehicles (LPG, LNG and CNG). Any future publication would need to disaggregate the "other" category separating the EVs from the various gas-powered vehicles.

Where possible, the effect of EV charging on the electricity grid should be captured. This could be captured in the electricity market and grid monitoring and reporting undertaken by the Australian Energy Regulator.

Additional monitoring and reporting of charging infrastructure roll out, industry engagement and investment in EV and related infrastructure, related industries such as mineral extraction, vehicle recycling, and research and development should be initiated.

WHAT MORE CAN WE DO TO MEET OUR GOALS AND OBJECTIVES?

04. Are there other measures by governments and industry that could increase affordability and accessibility of EVs to help drive demand?

The Commonwealth Government should consider allowing the immediate expensing or rapid depreciation of EVs which businesses purchase.

Since 2015, businesses have been able to expense immediately small capital purchases up to \$30,000, rather than depreciate these purchases over several years. From 2020-21 to 2022-23, the maximum asset

value for immediate expensing increased to \$150,000 and is available to businesses with annual turnover up to \$5 billion. This scheme is due to expire in June 2023.

To encourage EV purchases by business, Government could consider extending immediate expensing for lower-priced EV purchases only (and have a short depreciation period for higher-priced EVs).

RACQ acknowledges that the Commonwealth Government has exempted the purchase and use of EVs (including plug-in hybrid and fuel cell vehicles) from

Fringe Benefits Tax, where an employer covers the costs of vehicle ownership for an employee. We note that this benefit is limited to vehicles below the Luxury Car Tax threshold.

RACQ recommends that this scheme could be extended to include EVs that attract Luxury Car Tax, or the Luxury Car Tax threshold could be increased or removed for EVs.

RACQ notes that other jurisdictions have introduced schemes such as: low emission vehicle only zones in city centres; lower tax rates on EVs; ICE vehicle retirement incentives; feebate/rebates schemes and other incentives including support for low-income families to transition to EVs. RACQ would urge to Commonwealth Government to consider these schemes on their costs, benefits and merits.

05. Over what timeframe should we be incentivising low emission vehicles as we transition to zero emission vehicles?

The timing and duration of EV incentives should be linked to sales volumes, pricing and market share. Incentives should be maintained until such time EVs are the preferred consumer choice and when low emissions and EV prices (without incentives) are at parity with ICE vehicles.

Incentives for Government and business/commercial passenger fleets should be focussed on purchase of BEVs and range extended EVs (electric only drivetrain), over PHEVs and hybrids which typically rely on liquid fuels and continue to produce relatively high levels of CO₂ emissions.

06. What information could help increase demand and is Government or industry best placed to inform Australians about EVs?

Government and industry both have significant roles in providing information about EVs.

Government and automobile associations are best placed as a consistent, reliable, unbiased and trusted source to inform consumers about incentives. Government initiatives such as Green Vehicle Guide highlight relative efficiencies, emissions of vehicles, and should be promoted further. RACQ welcomes the Government's support for the Australian Automobile Association's (AAA) Real World Emissions Testing program. The AAA's work provides motorists with a better understanding of the fuel efficiency they are likely to see in their day-to-day driving.

07. Are vehicle fuel efficiency standards an effective mechanism to reduce passenger and light commercial fleet emissions?

Fleet-wide fuel efficiency standards are a critical policy instrument for driving uptake of EVs and other low emission vehicles. Overseas experience shows that adopting standards would improve low emissions/ EV offerings into the Australian market.

Fleet-wide fuel efficiency standards will encourage makers to offer cleaner and zero emissions vehicles to help offset other models in their range.

While a fuel efficiency standard adoption is not strictly contingent on improved fuel quality standards, improved fuel quality will offer the potential for improved engine technologies to be adopted to reduce fuel consumption and emissions.

RACQ recommends that the Commonwealth Government to progress changes to the Australian Fuel Quality Standards as a matter of urgency, especially ensuring the fuel sold in Australia can support Euro 6d vehicles.

08. Would vehicle fuel efficiency standards incentivise global manufacturers to send EVs and lower emission vehicles to Australia?

Yes, RACQ strongly believes that fuel efficiency standards are a critical policy instrument for driving EV uptake. Several OEM manufacturers have stated that the reason why they are not offering their vehicles into the Australian market is because they can sell them in overseas markets to offset their less efficient vehicles which are at risk of hefty penalties.

09. In addition to vehicle fuel efficiency standards for passenger and light commercial vehicles, would vehicle fuel efficiency standards be an appropriate mechanism to increase the supply of heavy vehicle classes to Australia?

Yes, fuel efficiency standards for all vehicle classes should be considered.

Additionally, amendments to the Australian Design Rules need to be implemented, to allow imports of the most fuel-efficient heavy vehicles. Most notably the general heavy vehicle maximum width needs to be

increased by 10cm (from 2.5m to 2.6m). The current Australian standard is 5cm narrower than the European Union's and 10cm narrower than the United States'. This restricts or disincentivises the purchase and use of the lowest emission heavy vehicles in Australia.

10. What design features should the Government consider in more detail for vehicle fuel efficiency standards, including level of ambition, who they should apply to, commencement date, penalties and enforcement?

RACQ would suggest that vehicle fuel efficiency standards are in alignment with comparable countries' standards. Implementation should be as soon as practicable. However, implementation periods need to allow sufficient time for makers to adjust their vehicle supply plans. As noted earlier, a substantial reduction in average CO2 emissions per kilometre for new vehicles would provide an incentive to purchase EVs and low-emission PHEVs.

We would expect the standards to be Government mandated as industry voluntary targets have been lower than best practice and lack penalties for not meeting targets.

Fuel efficiency standards should adopt best world practice emission test cycles. For example, the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) or real-world test standards should be used to ensure emissions are more accurately represented. We note that the so-called New European Driving Cycle (NEDC) was designed in the 1980s and is no longer considered best practice.

RACQ also recognises and welcomes the Commonwealth Government's support and the funding for the AAA's real-world testing program.

11. What policies and/or industry actions could complement vehicle fuel efficiency standards to help increase supply of EVs to Australia and electrify the Australian fleet?

The Australian Design Rules (ADR) – the vehicle design rules – should be reviewed with the aim of removing barriers for low emission / EV heavy vehicles on Australian roads. The Government should consider increasing the maximum permissible width from 2.5m to 2.55m (or 2.6m) and consider permitting increased (steer) axle weight limits for electrified heavy vehicles.

In addition to EV and EV charging support, changes need to be made to housing building codes and planning laws covering all Australian households (including detached housing, town houses and apartment blocks). However, RACQ acknowledges that change in this area requires action from all levels of Government.

12. Do we need different measures to ensure all segments of the road transport sector are able to reduce emissions and, if so, what government and industry measures might well support the uptake of electric bikes, micro-mobility and motorbikes?

With new forms of personal transport set to play a part in the transport mix, ADRs, regulations, road rules and mandatory Australian Standards are likely to need rapid updating to adapt to adoption of these new and emerging personal mobility solutions.

Consideration needs to be given to regulating the use of the full range of micro-mobility vehicles. There are many types of micro-mobility vehicles that could be used (with limitations) to reduce emissions. Many of these vehicles currently do not satisfy the safety requirements in the ADRs. RACQ would urge consideration of permitting use of the full range of micro-mobility vehicles in lower speed road environments.

Additional investment in paths and infrastructure to safely and efficiently cater for increasing e-mobility and active transport users should be considered. Infrastructure like separated pathways would increase safety for all users/modes and increase usage of e-mobility and active transport.

13. How could we best increase the number of affordable second hand EVs?

In addition to measures discussed in question 4, measures that encourage increased turnover of fleet vehicle should be considered.

Support measures for EVs in Government and corporate fleets should be limited to two years, thus encouraging vehicle turn over and increased availability in the second-hand market. FBT limited incentives to 3 years.

14. Should the Government consider ways to increase the supply of second hand EVs independently imported to the Australian market? Could the safety and consumer risks of this approach be mitigated?

A limited number of specialist and enthusiast second hand vehicles are currently brought into the market under low volume regulated schemes that address vehicle standards and ADR compliance.

Expansion of importation would require substantial review to ensure safety standards and application of ADRs are maintained. Second-hand imported vehicles would also require support for service information, spare parts, and safety recalls.

RACQ considers it unreasonable for responsibility for these vehicles to fall on the OEM. OEMs should only be held responsible for vehicles imported under current high-volume arrangements.

If it is expanded to allow models also sold here under high volume rules, then the same rules need to apply otherwise we risk different standards producing market distortions. Importers would need to be responsible for the same level of ongoing service as the importers of new vehicles (service information, spare parts, and safety recalls). A two-tier approach, with lower safety standards for imported second-hand vehicles, would risk adverse consumer and safety outcomes that would likely outweigh the cost savings benefits. Second-hand imports require ongoing suitable after sale support and transparency (as to origin) in the used market for on-sale consumers' protection.

15. What actions can governments and industry take to strengthen our competitiveness and innovate across the full lifecycle of the EV value chain?

The Government should consider policy instruments that support research and development into new “greener” battery technologies and recycling technologies (an area in which Australia is lagging)³². Support should be given to the use of second life older vehicle batteries for stationary energy uses such as home energy storage, battery assisted EV rapid chargers in remote locations and microgrids/distributed energy resources.

The Government should also consider product stewardship arrangements that introduce vehicle end of life requirements. This could include a minimum amount of the vehicle that is required to be recycled and/or recyclable. For example, the EU regulations require 95% of the vehicle to be recyclable/reusable.

16. How can we expand our existing domestic heavy vehicle manufacturing and assembly capability?

RACQ suggests that support for heavy vehicle manufacturing should focus on research and development and/or niche manufacturing.

17. Is it viable to extend Australian domestic manufacturing and assembly capability to other vehicle classes?

RACQ would support measures for domestic vehicle manufacturing but would be cautious that any industry would need to be financially viable and self-sustaining. It would be logical to start with existing transport manufacturing industries including truck, RV/caravan, bus, ferry/watercraft and defence manufacturing.

There may be scope to expand this type of industry, innovate into battery manufacture given resource availability from the local mining sector and restrictions in global supply chains impacting vehicle construction and supply timeframes.

³² *Local recycling as this is an area Australia lags behind in with waste being sent overseas for reprocessing/recycling. An opportunity to be another part of the value chain and avoid transportation emissions of waste streams. Ideally this should also cover waste from scrapped ICE vehicles, not just EV batteries etc*

ESTABLISH THE SYSTEMS AND INFRASTRUCTURE TO ENABLE RAPID UPTAKE OF ELECTRIC VEHICLES

18. Are there other proposals that could help drive demand for EVs and provide a revenue source to help fund road infrastructure?

Transport taxation in Australia is no longer fit for purpose and needs to be reformed. An updated system needs to be simple and address clear policy objectives as well as revenue generation.

A new transport taxation system needs to be designed to drive demand for EVs, or at least to avoid disincentivising EVs, as well as maintain revenue to fund critical land transport infrastructure.

Transport taxation reform and a redesigned tax system that supports and promotes decarbonisation is a key element of EV support. The policy area of how we tax transport should be a priority for the Commonwealth and State Governments. Changes in taxation policy should both promote the uptake of EVs and other low emission vehicles and remove some of the perverse outcomes of the current system that incentivise high emission vehicles. For example, the tax benefits of using dual cab utes as passenger cars needs to be addressed.

A distance-based road user charge, applied nationally, which accommodates and prices for congestion and CO₂ emissions, may be an appropriate model for a new transport tax system. However, a wide-ranging review and analyses are required.

It will be important that a new tax system for transport provides for appropriate revenue-sharing between Commonwealth and State Governments. However, one of the objectives for a review would be to rationalise the range and level of taxes and charges that different States and Territories apply to vehicle ownership and use, including registration charges, stamp duties and selective road user charges.

19. What more needs to be done nationally to ensure we deliver a nationally comprehensive framework for EVs?

Commonwealth Government leadership is vital for a national comprehensive EV framework. RACQ welcomes

this discussion paper as the start of this process. In addition to EV and EV charging support, changes need to be made to housing building codes and planning laws covering all Australian households (including detached housing, town houses and apartment blocks). However, RACQ acknowledges that change in this area requires action from all levels of Government.

Similarly, all levels of Government need to work together to ensure there are no barriers for existing fuel retailers to offer EV charging at their sites.

20. How can we best make sure all Australians get access to the opportunities and benefits from the transition?

Transport disadvantage and transport poverty are key concerns for RACQ. These problems arise from combined results of planning and policy decisions from all levels of Government and will require responses from all levels to start to address these issues.

There is also the risk that a poorly developed EV policy will only further exacerbate transport disadvantage and transport poverty.

Measures that encourage availability of second-hand EVs and the rapid turn-over of EVs from Government and corporate fleets into the second-hand market will address these issues somewhat. However, among those on the lowest incomes, the vehicles they buy may have had several owners and be many years old. Support for Government initiatives and programs that make it easier for low-income families to transition to EVs should be explored.

As discussed earlier, imports of second-hand vehicles from overseas markets may address supply constraints of low emission second-hand vehicles. However, there must be a process to ensure these vehicles are suitably supported.

