RAC response to the Department of Climate Change, Energy, the Environment and Water *National Electric Vehicle Strategy: Consultation Paper*

October 2022

RAC

For the better

31 October 2022

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We thank the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for the opportunity to provide feedback on its *National Electric Vehicle Strategy: Consultation Paper* (the Paper). Establishing a national strategy will be instrumental in setting a strategic, coordinated direction and approach to both increasing and accelerating the uptake of electric vehicles (EVs), and by doing so reducing harmful vehicle emissions.

About RAC

RAC is a purpose-led member organisation. Since our foundation more than 115 years ago, RAC has existed to be a driving force for a Better WA – this is our purpose. We act as a voice for more than 1.2 million members in more than 60 per cent of Western Australian households. We work collaboratively with government, industry, our members and all Western Australians to champion change that will deliver safer, sustainable and connected communities – this is our 2030 vision.

RAC's social and community impact activities seek to:

- reduce the number of people being killed or seriously injured on our roads;
- lower vehicle emissions for cleaner, healthier air; and
- ensure well-planned communities and transport that better connect people and places.

Reducing vehicle emissions, including through the transition to low and zero emission vehicles will greatly benefit Australians by improving air quality and reducing adverse impacts on health and the environment. As part of our own commitment to the reduction of vehicle emissions, in 2012 RAC launched the Less Emissions Mission to reward owners of qualifying lower CO_2 emissions vehicles with access to discounted finance, lower insurance premiums, free membership upgrades and discounted vehicle servicing. In 2015, we funded, designed, and constructed the RAC Electric Highway®, the first of its kind in Australia. The RAC Electric Highway® now features 16 locations in Western Australia which includes 12 ultra-rapid or fast charging options, located between Perth and Augusta. And next month, we will launch the RAC Air Health Monitor, the most comprehensive air quality monitoring network in Australia.

Introduction

We welcome the Australian Government's step towards a national electric vehicle strategy (the Strategy), which has the potential to both guide and shape the future of transport and significantly reduce harmful vehicle emissions for cleaner, healthier air.

Currently only one of the top 20 vehicles sold in Australia falls within the National Transport Commission's Green Vehicle definition (emitting a max 120g CO_2/km[1]). In 2021, EV sales represented only 2.8 per cent of new vehicle sales in Australia, and while this is a sizeable increase of over 150 per cent from the previous year, it still lags far behind global leaders such as Norway (86.2 per cent); Iceland (71.7 per cent); and Sweden (43.4 per cent). When compared to other right-hand drive (RHD) markets, Australia still falls behind the United Kingdom (UK) (19.0 per cent) and New Zealand (NZ) (4.4 per cent). The global sales share of EVs as a proportion of new vehicle sales was 8.6 per cent, with markets such as Europe and China seeing sales shares of 16.6 per cent and 16.0 per cent respectively[2]. Coordinated and sustained policy and investment is needed here in Australia and will help the EV market transition through its emergent stages into a well-established marketplace[3].

Overall, it is pleasing to see the Paper take a holistic approach to increasing EV uptake, with a focus on various aspects of the supply chain. While increasing supply and demand is critical, realising the full potential for EVs to reduce emissions will also require integration of EVs in power systems, decarbonisation of electricity generation, deployment of recharging infrastructure and manufacturing of sustainable batteries and recycling facilities.

The community recognises the negative impact vehicle emissions have on our society, with a 2021 RAC survey on sustainability[4] finding that 97 per cent of members[5] believe vehicle emissions negatively impact climate change and human health. There is strong support for government action, with 78 per cent believing the government should be doing more to reduce vehicle emissions, but only 27 per cent have confidence in government to do so. According to members, the top three actions government should take to reduce vehicle emissions, are providing incentives for purchasing low emissions vehicles; regulating emissions through national standards for new vehicles; and increasing the number of low emissions vehicles in the government vehicle fleet.

It is pleasing to see the Paper recognises the impact that implementing a vehicle fuel efficiency (CO_2) standard closely aligned with best practice would have on EV supply and foreshadows upcoming consultation. However, this will not be the first time the Australian public has been consulted on fuel efficiency standards. In 2016, the Department of Infrastructure and Regional Development released the *Improving the efficiency of new light vehicles – draft regulation impact statement*[6], seeking views on government action to reduce greenhouse gas emissions by improving the efficiency of new light passenger and commercial road vehicles supplied to the Australian market, and yet, no action was taken. It will be important that following the upcoming consultation immediate and impactful action is taken to reduce vehicle emissions and restore community confidence.

[1] Australian Government - Department of Infrastructure, Transport, Regional Development, Communications and the Arts, 2022, Green Vehicle Guide. Accessed at: https://www.greenvehicleguide.gov.au/

[2] International Energy Agency, 2022, Global EV Data Explorer. Accessed at: https://www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer

[3] Climateworks Centre, 2022, Accelerating EV uptake: Policies to realise Australia's electric vehicle potential. Accessed at: https://www.climateworkscentre.org/resource/accelerating-ev-uptake-policies-to-realise-australias-electric-vehicle-potential/

[4] RAC, 2021, RAC Member Priorities Tracker – Sustainability. Accessed at: https://rac.com.au/about-rac/advocating-change/reports/-/media/478dcb9aa452486ba756374b20ac18f3.ashx

[5] 307 from the Perth and Peel region, 99 from regional WA. Age, gender and location sampling quotas were applied, and data has been post-weighted to be representative of RAC's membership (which is broadly consistent with the WA population profile) – the margin of error at total sample level is +/-5% at the 95% confidence level.

[6] Australian Government - Department of Infrastructure and Regional Development, 2016, Improving the efficiency of new light vehicles Draft Regulation Impact Statement. Accessed at: https://www.infrastructure.gov.au/sites/default/files/migrated/vehicles/environment/forum/files/Vehicle_Fuel_Efficiency_RIS.pdf

The remainder of RAC's response to the Paper aligns with our social and community impact priorities and focuses on reducing vehicle emissions and accelerating wider uptake of EVs. We have responded to:

- the Strategy's proposed framework;
- reducing barriers to encourage a rapid increase in the demand for EVs;
- increasing the supply of EVs across all vehicle segments;
- the national coordination of enabling systems and infrastructure; and
- other important complementary actions.

RAC's recommendations for the Strategy are outlined at the end of this submission.

Strategy framework

To reach Australia's emissions reduction targets (43 per cent on 2005 levels by 2030 and net zero by 2050), there must be a clear strategic direction for transport energy policy which should be developed alongside broader energy sectors and backed by significant investment. It is important the Strategy outlines how it will compliment other relevant strategies, such as Australia's Hydrogen Strategy and the proposed battery strategy. RAC broadly supports the intended goals and objectives outlined in the Paper however notes that, while the goal to increase local manufacturing and help ease supply constraints is supported in principle, a whole of government approach to reducing emissions is needed so that the achievement of other sector's emissions targets is not adversely impacted.

The Strategy should have a clear and ambitious vision for the future state, which will help guide decision making and action. To drive action towards achieving the Strategy's goals and objectives and enable more meaningful monitoring and evaluation, **ambitious targets should be set, and Key Performance Indicators (KPIs) established for responsible agencies**. As recognised in the Paper, EV targets are being established around the world and also in Australia. The International Energy Agency's (IEA) *Electric Vehicle Tracking – September 2022* report[7] states that around the world "Governments announced more ambitious zero-emission vehicle targets and policies in 2021 than ever before. New zero-emission vehicle (ZEV) sales targets were announced in several markets and existing targets were intensified as governments demonstrated a strong commitment to incorporating the electrification of cars as a key component of strategies to meet net zero targets and nationally determined contributions."

Targets should be ambitious and report on a range of metrics including:

- National CO_2 emissions from vehicles
- EV sales by vehicle category
- EV sales share as a proportion of new vehicle sales
- EV share of overall vehicle fleet
- EV share of government fleet
- Number of publicly available EV charging stations – specifically Level 3 and Level 4
- Distance between public fast charging stations
- Number of households with chargers
- Number of publicly available hydrogen refuelling stations
- Average emissions intensity of overall fleet
- Average emissions intensity of government fleet
- Consumer sentiment and awareness

[7] International Energy Agency, 2022, Electric Vehicles. Accessed at: https://www.iea.org/reports/electric-vehicles#tracking-progress

The Paper claims the Strategy will, amongst other things, enhance existing actions to ensure greater alignment to the Strategy; raise the pace and scale of change; and make sure we are on track to meet our emissions transport electrification goals and proposed objectives. Establishing the above metrics will greatly assist with this.

Accompanying action plans and an evaluation framework should be developed and publicly released, outlining specific actions, timeframes, and responsible agency(s), which link back to the Strategy's goals and objectives. This will enable effective implementation and monitoring of progress while strengthening accountability and transparency. Progress against the Strategy should be reviewed annually, with progress reports to Parliament.

Bringing down barriers to encourage a rapid increase in the demand for EVs

According to Commonwealth Scientific and Industrial Research Organisation forecasts, based on the existing trajectory, EVs could account for around 65 per cent of new passenger vehicle sales and almost 50 per cent of the total vehicle fleet in Australia by 2050[8], still lagging world leading countries today. **Action is required to reduce the key barriers to the uptake of EVs and instead accelerate it to ensure we meet and exceed our critical emissions reduction targets.**

RAC's annual sustainability survey[9] has shown consistently that while one in two members would consider buying an electric or hybrid for their next vehicle purchase, there are still **key barriers** preventing greater uptake. Of the one in two who said they wouldn't consider an EV or hybrid, the cost being too high was overwhelmingly cited as the barrier (68 per cent), followed by access to charging infrastructure (10 per cent); being worried about range anxiety (6 per cent); not knowing enough about them (5 per cent); and uncertainty about running costs/maintenance (3 per cent)[10].

Affordability

There are a variety of ways to make EVs more affordable and financial EV incentives are provided in almost all vehicle markets around the world[11]. **RAC welcomed the decisions by both the State and Australian governments to provide financial EV incentives, however, feel this could be further built upon if greater acceleration is to take place.**

The type and application of incentives needs to be carefully considered. To maximise the emissions reduction potential of an EV transition, incentives should be informed by a thorough understanding of consumers, their behaviour and their preferences. Research by KPMG[12] which focused on our larger cities (Melbourne, Brisbane and Sydney), has shown that people living further out of the Central Business District have lower average incomes and are more likely to own larger, older vehicles which drive longer distances and emit more emissions. Incentives targeted at such groups, informed by willingness-to-pay and choice modelling, could increase equitable access while making the most impact in reducing emissions. In Austria for example, commuters are granted a fixed (income) tax

[8] Commonwealth Scientific and Industrial Research Organisation, 2021, Electric vehicle projections 2021. Accessed at: https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2021/csiro-ev-forecast-report.pdf
[9] RAC, 2021, RAC Member Priorities Tracker – Sustainability. Accessed at: https://rac.com.au/about-rac/advocating-change/reports/-/media/478dcb9aa452486ba756374b20ac18f3.ashx
[10] 5 per cent individually cited 'Other' barriers such as towing capacity; rural/regional distances and the need for four-wheel drive capacity.
[11] International energy agency, 2020, Electric Vehicles. Accessed at https://www.iea.org/reports/electric-vehicles#tracking-progress.
[12] KPMG, 2022, Accelerating local electric vehicle uptake report. Accessed at: https://assets.kpmg/content/dam/kpmg/au/pdf/2022/accelerating-local-electric-vehicle-uptake-report.pdf

exemption which increases based on the distance to the workplace. To maximise uptake, we would need to ensure that EV models which suit these consumers' needs and preferences, are available.

The Paper seeks input on a suitable timeframe for the incentivisation of EVs, however instead, **the Australian Government should continue to encourage uptake until critical mass is achieved.** The current Norwegian Government has for example, decided to keep incentives for zero-emission cars until the end of 2022 (having done so since the 1990s), and afterwards, will revise and adjust them in context of the market's development. One recent change to the Norwegian incentives is that, since 2022, EVs have paid full annual road tax[13].

Accessibility – charging infrastructure

As uptake grows, so will demand for publicly available charging infrastructure, and due to Australia's vast land mass and sprawling urban areas, will likely be for level 3 and 4 (fast) charging stations. An Energeia[14] study commissioned by the Australian Renewable Energy Agency and the Clean Energy Finance Corporation determined scaling of charging infrastructure around the world followed a common approach, with the following determining the location and number of chargers:

- Workplace charging for commuters.
- Range extension impacted by the length and distance of the road network (e.g. how far a vehicle may travel in a given country).
- Access to chargers for plug-in EV (PEV) drivers without a dedicated charger at home.
- Scaling up charging networks to match demand as PEV uptake rises.

The Australian Government should continue to scale up funding of EV charging infrastructure, working with states and territories to assess the network as a whole, with areas for installation determined by considering factors relevant to the Australian context, including but not limited to: the range and location of currently available EVs and charging stations; the length of the total road network; access to private parking; and EV charging time.

Cost remains a prohibitor to the installation of charging infrastructure, with actual installation costs and network access charges providing a significant challenge and cost multiplier. There are instances where the location of the charger installation can increase the overall costs, because of the required enabling and installation works and electricity network upgrades. Providing greater information for applicants on cost inputs, the connection process for fast-charging infrastructure, and the application process will help private industry planning for investment. In addition, to facilitate increased installation of charging infrastructure, particularly in the near-term, concessions or other mechanisms which would see cost-prohibitive charges under relevant schemes, reduced or removed, should be explored.

Determining an appropriate place to access a sufficient and cost-effective power supply for charging stations, coupled with convenience for the user, is complex but of the highest importance. To encourage investment and therefore supply (e.g. large-scale roll out of level 3 and 4 charging infrastructure) by private enterprise, a standardised mechanism or platform (such as a website or interactive map) which contains information regarding feasible locations should be considered. California utility provider Pacific Gas and Electric, for example, has created an interactive map which

[13] Norsk elbilforening, 2022, Norwegian EV policy. Accessed at: https://elbil.no/english/norwegian-ev-policy/

[14] Energeia, 2018, Australian electric vehicle market study, May 2018. Accessed at https://arena.gov.au/assets/2018/06/australian-evmarket-study-report.pdf

identifies specific locations across California suitable for fast charging infrastructure, as well identifying priority need areas[15]. Industry partnerships and grants could also be considered and include the development of surrounding amenities to support local tourism.

Requirements and standards applying to EV chargers are limited in respect of their interoperability, controllability, and performance, including their ability to provide network support. National policies and regulation to complement the roll-out of fast-charging infrastructure would further support investment and reduce the risk of competing standards and redundant investments, maximising inter-operability[16].

The European Federation for Transport and Environment cites numerous studies[17] from countries where EVs are more prevalent, that access to at-home charging is the single most important factor in considering purchase of an EV. Further, it is estimated that between 80[18] and 95[19] per cent of all EV charging happens at home and work (not at public chargers). Globally, several jurisdictions, such as London, the European Union (EU), Guangzhou and San Francisco, have considered the implications of access to charging facilities in new residential and non-residential developments and implemented requirements in planning codes. These jurisdictions have begun stipulating a minimum number of charging points[20] dependant on the size and nature of the developments. The importance of access to at home charging for EVs means **it is imperative that the Australian Government work with states and territories to future proof new developments through introducing appropriate minimum requirements for EV charging provision and/or other incentivisation through the planning system, while streamlining building approvals for EV recharging infrastructure.**

Consumer information

A collaborative effort by industry and government is required to create an environment where the community has a strong level of understanding and confidence in EVs. In fact, consumer engagement and education has been recognised as a critical element for the long-term integration of EVs[21]. Not knowing enough about EVs has been highlighted by members as a barrier to uptake and the information and educational support offered by vehicle manufacturers is varied and often lacking[22]. **Governments should undertake campaigns and education covering information from a variety of sources which help motorists understand EVs, how to manage the energy consumption of their vehicle and the impact of vehicle emissions on health and the environment.**

As the upfront cost of an EV is a commonly identified factor influencing purchasing decisions, education could also provide guidance on the ongoing costs of EV ownership. That is, when considering the financial impact of vehicle ownership, it is important to also evaluate all costs of owning and running the vehicle, including (but not limited to) purchase price, fuel costs, and

[15] Pacific gas and Electric, 2022, Interactive DC Fast Charger Siting Map. Accessed at: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/electric-program-investment-charge/direct-current-electric-vehicle-fast-chargers.page
[16] Australian Government - Infrastructure Australia, 2022, National highway electric vehicle fast charging. Accessed at: https://www.infrastructureaustralia.gov.au/map/national-highway-electric-vehicle-fast-charging
[17] Transport and Environment, 2018, Roll-out of public EV charging infrastructure in the EU Is the chicken and egg dilemma resolved? citing Bailey et al., 2015; Dunckley and Tal, 2016; Nicholas and Tal, 2017; Plotz and Funke, 2017; Skippon and Garwood, 2011. Accessed at: https://www.transportenvironment.org/sites/te/files/Charging%20Infrastructure%20Report_September%202018_FINAL.pdf
[18] Department of Transport (UK), Office for Low Emission Vehicles, 2019, Charging electric vehicles. Accessed at: https://energysavingtrust.org.uk/wp-content/uploads/2020/09/Charging-Electric-Vehicles-Best-Practice-Guide.pdf
[19] Transport and Environment, 2018, Roll-out of public EV charging infrastructure in the EU Is the chicken and egg dilemma resolved? Accessed at https://www.transportenvironment.org/sites/te/files/Charging%20Infrastructure%20Report_September%202018_FINAL.pdf
[20] A charging point is capable of charging one vehicle at a time. A charging station consists of multiple charging points.
[21] Government of Western Australia - Energy Policy WA, 2021, Electric Vehicle Action Plan – preparing Western Australia's electricity system for EVs. Accessed at: https://www.wa.gov.au/system/files/2021-08/EPWA-EVActionPlan_18Aug2021e.pdf
[22] Automotive Management Online, 2020, Lack of education affecting EV adoption, Accessed at: https://www.am-online.com/news/manufacturer/2020/05/19/lack-of-education-affecting-ev-adoption-research-finds

maintenance. For example, while EVs currently have a higher upfront cost than internal combustion engine (ICE) vehicles, they can be significantly cheaper to run, and EV motors and drivetrains need less maintenance throughout the life of the vehicle[23].

A common misconception about EVs is that the electricity used to produce and charge them outweighs the environmental benefits. Recent European research indicates that EVs outperform (produce less CO_2 emissions than) diesel and petrol passenger vehicles across all electricity generation makeups; and even on heavily carbon intensive grids such as Poland (80 per cent coal in 2016[24]), EVs produce 30 per cent less CO_2 emissions than traditional passenger vehicles[25]. EVs charged by the average European electricity profile 'repay their "carbon debt"' after a year and can save over 30 tonnes of CO_2 across their lifetime when compared to an equivalent non-electric vehicle[26]. Dispelling the notion that EVs are not as environmentally friendly as they are promoted to be, will assist with improving consumer sentiment towards them.

RAC welcomes the Australian Government's $14 million investment into the real-world vehicle fuel testing program[27]. In early August, the Australian Automobile Association (AAA) released its latest Transport Affordability Index (Q2 2022)[28], which has shown that transport costs now represent an average of 15.2 per cent of household income. Of the $379.90 Australians pay in transport costs each week, $153.30 (40.4 per cent), goes to car loan payments, and $100.39 to fuel alone. Accurate information about fuel use and emissions will help Australians accurately budget household costs and understand the impact on health and the environment when selecting and investing in a vehicle.

RAC supports the recent revision of the Australian Government's Green Vehicle Guide (GVG)[29] and emphasises the need for it to be continuously updated, integrating the results from the real-world vehicle fuel testing program, and promoted by government and industry. The GVG could be expanded to include functionality like the UK's 'Go Ultra Low'[30] platform, which includes information such as applicable subsides and information on public fast charging.

Despite vast improvements in the distances a modern EV can travel between charges, access to public chargers remains a barrier to EV purchase. Public EV fast-charging stations are continuing to evolve, including improvements in their charge rate capacity, durability and ability to integrate with charging communication network. To alleviate range anxiety, especially in regional and remote areas, chargers should, wherever possible be both present and visible. Promoting apps and web-based tools, such as Plugshare[31], detailing charging points throughout Australia will help the community plan their journey and alleviate range anxiety.

[23] RAC, 2022, Common myths and misconceptions about electric cars. Accessed at: https://rac.com.au/car-motoring/info/electric-car-questions
[24] IEA, 2022, Poland, May 20 2022. Accessed at https://www.iea.org/countries/poland
[25] Transport and the Environment, 2020, Analysis of Electric Car Lifecycle CO2 Emissions. Accessed at: https://www.transportenvironment.org/sites/te/files/T%26E%E2%80%99s%20EV%20life%20cycle%20analysis%20LCA.pdf
[26] Transport and the Environment, 2020, Analysis of Electric Car Lifecycle CO2 Emissions. Accessed at: https://www.transportenvironment.org/sites/te/files/T%26E%E2%80%99s%20EV%20life%20cycle%20analysis%20LCA.pdf
[27] Australian Government - Minister for Infrastructure, Transport, Regional Development and Local Government, 2022, Real-world vehicle fuel testing program launches (media release, 13 October 2022). Accessed at: https://minister.infrastructure.gov.au/c-king/media-release/real-world-vehicle-fuel-testing-program-launches
[28] Australian Automobile Association, 2022, Transport Affordability Index – Q2 2022. Accessed at: https://data.aaa.asn.au/wp-content/uploads/2022/08/AAA_Affordability-Index-Q2-2022.pdf
[29] Australian Government - Department of Infrastructure, Transport, Regional Development, Communications and the Arts, 2022, New Green Vehicle Guide website launched (media release, 7 July 2022). Accessed at: https://www.infrastructure.gov.au/department/media/news/new-green-vehicle-guide-website-launched
[30] Go Ultra Low, 2022, Tools for your Electric Vehicle journey. Accessed at: https://www.goultralow.com/
[31] https://www.plugshare.com/map/australia

Finally, it is suggested that there is limited community understanding of the potential impacts of mass EV uptake on power systems, and therefore limited awareness of the need for actions to integrate EVs. For example, EV charging could exacerbate the rapid increase in power demand in the evening, resulting in potential overload and service disruptions. Spreading EV charging times throughout the day for example, will mitigate this. Increased industry and community engagement will be important to shape customer norms and charging behaviour.

Increasing supply across all vehicle segments

The restricted choice and availability of EVs in Australia is a key barrier to accelerating uptake. There are currently hundreds of EV models available overseas, however model availability in Australia continues to be restricted. With worldwide demand for most electrified vehicles exceeding supply, there is more financial incentive for manufacturers to sell their vehicles in overseas markets where they are rewarded for importing cars below a certain emissions limit; additionally, manufacturers are not penalised for selling higher emissions cars in Australia.

Increasing the supply of new EVs through vehicle fuel efficiency (CO_2) standards

The introduction of a mandatory fuel efficiency standard for new light vehicles is critical to improve the range of EV types and models available in Australia. According to the IEA, "Gradual tightening of fuel economy and tailpipe CO_2 standards has augmented the role of EVs to meet the standards."[32] And "The key driver underpinning EV growth in Europe is the tightening CO_2 emissions standards that occurred in 2020 and 2021"[33].

Australia is one of only a few developed countries which do not have a mandatory CO_2 standard in place for new light vehicles. In addition, our noxious emission standards for these vehicles are less stringent than other countries. The Australian Government's recent announcement to accelerate the introduction of better fuel quality standards[34] will help remove a technical barrier to the introduction of the latest ICE technologies, however without corresponding changes to emissions standards, manufacturers will likely continue to supply less efficient vehicles.

The Paper acknowledges that "standards that lack ambition will still leave Australians at the back of the global queue for cheaper, cleaner vehicles. We need to aim for as close to best practice as is achievable". **Introduction of an impactful mandatory fuel efficiency standard has been a long-standing priority for RAC and the Strategy and supporting action plan must prioritise the development of an options paper to implement a CO_2 standard (if not done earlier). The introduction of a national fuel efficiency standard should align Australia with the rest of the developed world.** While directly reducing vehicle emissions, internationally aligned emissions standards would also allow Australia access to the emissions reduction and safety technologies available in those markets (such as improved turbocharger design, intelligent transmission shifting and optimised gearing), and increase choice for consumers.

RAC recognises the challenge faced by Australia in that many larger markets (for example the EU and United States), which have already mandated CO_2 targets and/or plans to ban ICE vehicle sales, are

[32] International Energy Agency, 2021, Policies to promote electric vehicle deployment. Accessed at: https://www.iea.org/reports/global-ev-outlook-2021/policies-to-promote-electric-vehicle-deployment
[33] International Energy Agency, 2022, Trends in electric light duty vehicles. Accessed at: https://www.iea.org/reports/global-ev-outlook-2022/trends-in-electric-light-duty-vehicles
[34] Australian Government - Department of Climate Change, Energy, and the Environment and Water, 2022, Australia's fuel security. Accessed at: https://www.energy.gov.au/government-priorities/energy-security/australias-fuel-security

left-hand drive (LHD). As Australian regulations require right-hand drive RHD vehicles, the additional costs to meet this specification (to service a smaller market) may further impact their supply. Not only does this impact availability, but affordability where the costs are passed on to consumers. It is worth noting though that notwithstanding these potential constraints, NZ, an even smaller market for RHD vehicles, has set fuel efficiency standards in line with the US and we have seen numerous vehicle manufacturers pledge to electrify all or most of their fleets by 2035. A paper[35] prepared by Resource Economics for the NZ Government found mixed opinions from vehicle manufacturers related to the costs associated with producing RHD vehicles:

> "the limitations of RHD markets are not regarded as a significant constraint by all Original Equipment Manufacturers, with one suggesting that RHD and LHD vehicles can be produced on the same production line, while others suggest that even if this is so, there are still considerable additional costs associated with producing both. The additional costs mean that RHD vehicles may not be prioritised, or if they are produced for the larger markets (such as the UK), New Zealand will expect to be limited to vehicles supplied to those markets (UK, Japan, Australia particularly)".

The UK, also a RHD market, has set fuel efficiency standards to align with the EU. As the demand for EVs grows in the larger RHD markets, including Japan, the costs of producing them should decline and supply should therefore generally increase. The policy context in these RHD jurisdictions will be important in influencing supply and choice.

While fuel efficiency standards are needed to encourage importers to bring cleaner cars into the country, any cap on vehicle emissions must consider the impacts on the economy, environment, and consumers. For example, unrealistically stringent targets may result in emissions targets being missed and fines being passed on to consumers, or alternatively, fewer new vehicle sales and prolonged use of older vehicles. The Paper states that further consideration to design features will be undertaken and **RAC submits consultation should include proposed standards and scenario modelling; transparent methodology; what the likely benefits and costs are; and how each standard will impact vehicle emissions and consumers.**

Increasing the second-hand EV market

As there have not been many EV models released and sold in Australia over the past decade, the choice and supply for second-hand EVs is limited; as the market matures, more affordable options will become available to the public. **Governments can accelerate the introduction of more fuel-efficient vehicles by setting ambitious targets (including timeframes) for the purchase of EVs and encourage industry to do the same.** Specifying a maximum age for these fleets will increase turnover and subsequently increase the number and variety of EVs available in the second-hand market.

Another way to increase the supply of second hand EVs is to independently import them. RAC agrees however, that any changes to importation regulations to support importation would need to be considered against potential safety, business and consumer risks. Unlike ICE vehicles, EVs do not need as much mechanical upkeep, however of critical importance is the condition of the battery, as the battery pack is by far the most expensive item in the vehicle[36]. Most EVs sold in Australia have a separate battery warranty covering at least seven years and 150,000km of driving (many are eight years). However, the remaining useful life of the battery could differ greatly, depending on age,

[35] Resource Economics, 2021, Review and analysis of electric vehicle supply and demand constraints. Accessed at: https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/REL-EECA-EV-Supply-constraints-report.pdf
[36] RAC, 2022, Buying a used electric car. Accessed at: https://rac.com.au/car-motoring/info/second-hand-electric-cars

previous use, and operating conditions. Currently replacement batteries could add up to $10,000 onto the cost of the vehicle. Depending on the age of the vehicle when it is purchased, and the warranty that came with the EV, it is possible the replacement cost of a battery could make purchasing it unviable. **Importation regulation would need to protect consumers by considering amongst other things, the remaining useful life of the vehicle, testing on arrival, as well as consumer access to the latest safety technologies.**

National coordination of enabling systems and infrastructure

Transport system funding

Currently, motorists pay a number of fees and charges (including stamp duty, fuel excise, vehicle registration fees, licensing fees, heavy vehicle permits, luxury car taxes and customs on imported cars). These are mainly designed to raise revenue for building, maintaining and operating roads. With vehicles becoming increasingly more fuel efficient, national road-related fuel excise is declining, reducing the overall 'pot' of money available for spending on roads. This is not unique to Australia and many jurisdictions are exploring more sustainable models for funding road and transport infrastructure. If designed appropriately, road pricing/user charging initiatives can also be an effective means to manage congestion and reduce greenhouse gases and air pollutants[37].

RAC agrees that the Australian Government should consult on and develop a new road user charging model to replace the existing public fees and charges used to generate revenue. However, a road user charge should only be implemented as a part of genuine national reform of taxation on road users and before changes to the current system are considered, a rigorous cost-benefit analysis of the social, economic, and environmental impacts must be undertaken. Public consultation should propose alternate funding models and include scenario modelling, in addition to detailed analysis outlining the impact on road users and transport system. Outside of broader reform, RAC does not support the introduction of a new and additional tax targeting specific road users such as drivers of low and zero emissions vehicles, as this is likely to be a deterrent to uptake at a time when we need to accelerate it.

Broader energy considerations

The 2021 *Australian Infrastructure Plan* notes that the increase in EVs will have implications for the structure and operation of the energy market, with increased demand and pressure on local distribution infrastructure[38]. **The Australian Government should work with states and territories to establish systems and enable greater access to EV data to assist with the management of our power networks and ensure that future impacts can be adequately modelled and planned for.**

As the number of EVs on our roads increase, so too will the demand on our electricity grids. Tariffs that incentivise efficient behaviour have proven effective in other jurisdictions at influencing charging behaviour. Tariffs for energy consumption should ensure they adequately price-signal the consumer to charge, and use electricity, during times of peak electricity supply in the network. Energy Policy WA notes that a common theme in various EV tariff trials in Australia is that current participants are not representative of the wider community and that early learnings may not reflect the preferences and

[37] RAC, 2018, Road user charging survey. Accessed at: https://www-cdn.rac.com.au/-/media/files/rac-website/about-rac/public-policy/road-user-charging-survey-2018.pdf?la=en&modified=20190321011510&hash=7C0499E00B39D6F2A5259B7014480444F6610B58

[38] Australian Government - Infrastructure Australia, 2021, Reforms to meet Australia's future infrastructure needs – 2021 Australian Infrastructure Plan. Accessed at: https://www.infrastructureaustralia.gov.au/sites/default/files/2021-09/2021%20Master%20Plan_1.pdf

behaviours seen once uptake becomes more common. This is because many current EV owners are relatively early adopters of technology or enthusiasts and as such may be more engaged and willing to actively manage their charging behaviour than the average customer[39].

EVs will play a role in reducing vehicle emissions, particularly when charged by renewable energy. There are a number of different 'levels' of charging currently available for EVs and it may be assumed as the technology is further refined and improved, different or greater electricity may be required by EV chargers. Vehicle to grid (V2G) technology allows bi-directional charging, where in addition to charging an EV, a V2G capable charging point can also draw electricity from an EV's battery to supply a user's home, or even export energy back to the grid. We agree it is important that preparation for integration with the grid happens now, to ensure that as large-scale uptake eventuates, Australia has measures in place to mitigate any risks to the operation and/or management of the network, while capitalising on the potential benefits of EVs as a clean power source.

Other important complementary actions

The Paper seeks input on the need for different measures to ensure all segments of the road transport sector can reduce emissions, and what actions can be taken to support the uptake of electric bikes, micro-mobility devices and motorbikes. Activities that both increase the use of public transport and encourage active travel while reducing reliance on private car trips, will help achieve this.

Public transport

While much of the public transport system also generates emissions, higher occupancy levels imply that the associated CO_2 emissions per passenger kilometre are lower compared to cars. According to our members[40] the key barriers to using public transport more often (apart from needing their car e.g. for work/to transport goods etc.) are: that it doesn't go where they need it to or not frequently enough; the time it takes to get to their destination is too long; and/or they don't live close enough to it. **The public transport system should be convenient, efficient, reliable and affordable - sustained and widespread investment in improving the quality and coverage of the public transport system in WA will increase patronage**. **Furthermore, ongoing investigation, trialling and implementation of refuelling infrastructure to support a public transport fleet that uses the most environmentally sustainable energy sources is essential.** The feasibility of these sources (including an assessment of the air quality, health and environmental benefits) should be communicated to the community and private industry to encourage uptake and investment. RAC welcomes the Australian Government's budget commitment of $125 million toward electric bus charging infrastructure in WA, which will be matched by the WA Government through the local manufacture of 130 new buses[41].

Active transport

The personal, community, health and economic benefits of walking and cycling are widely recognised and a shift towards these modes away from ICEs presents perhaps the most significant opportunity in transitioning to a cleaner transport sector. Micro-mobility is also growing at a rapid pace and making active travel more accessible. Car is by far the dominant method of travel in WA, with two in three

[39] Government of Western Australia - Energy Policy WA, 2021, Electric Vehicle Action Plan – preparing Western Australia's electricity system for EVs. Accessed at: https://www.wa.gov.au/system/files/2021-08/EPWA-EVActionPlan_18Aug2021e.pdf
[40] RAC, 2021, RAC Member Priorities Tracker – Public Transport. Accessed at: https://rac.com.au/about-rac/advocating-change/reports/-/media/46da5e4270b3494096aac9e9748f3a0f.ashx
[41] Australian Government - Minister for Infrastructure, Transport, Regional Development and Local Government, 2022, $670 million infrastructure boost for Western Australia (media release, 16 October 2022). Accessed at: https://minister.infrastructure.gov.au/c-king/media-release/670-million-infrastructure-boost-western-australia

private car trips in Perth being less than 5 kilometres - most people can ride that distance in around 15-20 minutes or walk a kilometre in around 10 minutes [42].

The creation of safe, active streets and expansion of active transport infrastructure are being seen by many authorities globally as a key opportunity to support economic growth and enhance livability. For active modes such as micro-mobility to increase further in prominence, accelerated and increased investment in infrastructure and supporting programs (e.g. behaviour change and journey planning) that facilitate safer, connected journeys is vital. For example, an RAC survey found that, in WA dissatisfaction with existing cycling infrastructure is high (only 34 per cent and 22 per cent were satisfied with off-road bike/shared path network and the on-road bike network, respectively) and fear of sharing the roads with motorists is a main reason for not cycling more often (47 per cent)[43]. Furthermore, only one in two were satisfied with the quality and availability of footpaths[44] and when asked what three actions government should prioritise to encourage people to walk more, better planning of communities to provide more destinations/amenities/transport services within walking distance (47 per cent); build on/improve the network of footpaths (47 per cent); and invest in improved public transport services (29 per cent), came out on top.

Planning and designing cities and communities which provide opportunities for people to integrate physical activity as part of their daily routines will provide environmental and health benefits. **RAC would like to see both the State and Australian governments commit funding towards an ongoing program of safe and connected active transport infrastructure and enhanced streets and places for cycling, micro-mobility, and walking.**

Concluding remarks and recommendations

Historically, government progress to reduce vehicle emissions has been unforgivably slow and the impact on our health and the environment is clear. Tighter emissions standards, lower battery costs, more widely available charging infrastructure, and increasing consumer acceptance will all accelerate the adoption of EVs. However, the speed at which these things will occur will be significantly influenced by the decisions of government, industry, and the broader community.

Now, more than ever, is an opportune time to act and increase the uptake of low and zero emission vehicles, particularly when consumer awareness and interest in environmental issues is growing and choice within the global new vehicle sales market is increasing. **We need ambitious leadership, credible policy decisions, and significant investment** if we are to meet our emissions targets and ensure the sustainability of our livelihoods, health, and environment, into the future.

RAC recommends that the National Electric Vehicle Strategy:

- Sets out a clear vision and ambitious targets, accompanied by KPIs for the responsible agencies, to drive meaningful action towards reducing harmful vehicle emissions.

[42] Australian Government - Infrastructure Australia, 2022, Perth active transport improvements. Accessed at: https://www.infrastructureaustralia.gov.au/map/perth-active-transport-improvements
[43] RAC, 2021, RAC Member Priorities Tracker - Cycling. Accessed at: https://rac.com.au/about-rac/advocating-change/reports/-/media/1ad20f9627c849c6a2a61c0f8d5b89ff.ashx
[44] RAC, 2021, RAC Member Priorities Tracker - Walking. Accessed at: https://rac.com.au/about-rac/advocating-change/reports/-/media/07c3fb2ff3164c65bcf8bdb97bd6e9e2.ashx

- Sets out and publicly releases a framework for accountable outcome monitoring and evaluation of the Strategy and accompanying action plans, outlining specific actions, timeframes, and responsible agency(s).
- Commits to introducing an impactful mandatory fuel efficiency standard, aligning Australia with the rest of the developed world, as a top priority.
- Commits to exploring and implementing a greater range and level of incentives that encourage the uptake of EVs informed by willingness to pay and choice modelling, until critical mass is achieved.
- Commits to engaging the community through broad campaigns and education related to EV and covering for example, how to manage the energy consumption of EVs and the impact of vehicle emissions on health and the environment.
- Commits to scaling up funding of EV charging infrastructure, working with states and territories to assess the network as a whole, with areas for installation determined by considering factors relevant to the Australian context, including but not limited to: the range and location of currently available EVs and charging stations; the length of the total road network; access to private parking; and EV charging time.
- Commits to working with states and territories to future proof new developments through introducing appropriate minimum requirements for EV charging provision and/or other incentivisation through the planning system, while streamlining building approvals for EV recharging infrastructure.
- Commits to working with states and territories to accelerate the introduction low and zero emissions vehicles in their fleets by setting ambitious targets (including timeframes and maximum age limits) for the purchase of EVs and encouraging industry to do the same.
- Commits to exploring options to increase the second-hand EV market, noting that any changes to importation regulation should protect consumers by considering amongst other things, the remaining useful life of the vehicle and battery, testing on arrival, as well as consumer access to the latest safety technologies.
- Commits to ongoing investment into improving the quality and coverage of the public transport system to increase patronage and the investigation, trialling and implementation of refuelling infrastructure to support a public transport fleet that uses the most environmentally sustainable energy sources.
- Commits to a holistic reform of the current road user charging model to respond to the issues associated with declining fuel excise revenue and the need for a more equitable, efficient, and effective alternative.
- Commits to working with states and territories to establish systems and enable greater access to EV data to assist with the management of our power networks and ensure that future impacts can be adequately modelled and planned for.

RAC has welcomed the opportunity to provide a response to the Paper. We trust RAC's submission, which is based on providing Australians with higher levels of protection from harmful vehicle emissions, is useful in forming a much-needed Strategy to progress low and zero emission road transport in Australia.

In support of our submission we enclose RAC's previous responses to the:

- Department of Industry, Science, Energy and Resources' *Future Fuels Strategy – discussion paper;*

- Department of Infrastructure, Transport, Regional Development and Communications' *Light vehicle emissions standards for cleaner air—draft regulation impact statement*; and
- Senate Standing Committee on Economics' COAG *Reform Fund Amendment (No Electric Vehicle Taxes) Bill 2020 Inquiry; and*
- Department of Environment and Energy *Better fuel for cleaner air—draft regulation impact statement*.

We also enclose our Federal Budget Submission 2022-23, which outlines RAC's key priorities for safe, sustainable and connected communities. A complete list of RAC's previous submissions and publications are available for viewing and download via https://rac.com.au/about-rac/advocating-change/reports/public-policy.