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Department of Industry, Science, Energy and Resources
futurefuels@industry.gov.au

RAC response to the Department of Industry, Science, Energy and Resources *Future Fuels Strategy: Discussion Paper*

Thank you for the opportunity to provide a submission to the Department of Industry, Science, Energy and Resources *Future Fuels Strategy: Discussion Paper* (Discussion Paper).

Reducing vehicle emissions through low and zero emission private, public and shared road transport is an important priority for RAC, and we welcome the opportunity to provide this submission on behalf of our more than 1.1 million members.

About RAC

RAC is a purpose-led member organisation and since our foundation more than 115 years ago, RAC has existed to be a driving force for a Better WA. We work collaboratively with government, industry, our members and all Western Australians to champion change that will deliver safer, sustainable and connected communities.

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.

As part of our own commitment to the reduction of vehicle emissions, RAC launched the Less Emissions Mission in 2012 to encourage members to reduce their carbon footprint by rewarding 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, RAC funded, designed, and constructed the RAC Electric Highway®, the first of its kind in Australia. The RAC Electric Highway® now features 12 locations with publicly accessible electric vehicle (EV) fast and ultra-rapid[1] chargers located between Perth and Augusta, a distance of over 520 kilometres.

Background

In 2015, the Australian Government began considering low emissions road transport technologies through the establishment of the Ministerial Forum on Vehicle Emissions (Ministerial Forum). The Ministerial Forum has overseen reviews of fuel quality – *Better fuel for cleaner air*; noxious vehicle

[1] Ultra-rapid EV chargers installed through a partnership between RAC and Chargefox and are powered by 100% renewable energy.

emissions – *Light vehicle emissions standards for cleaner air*; and CO_2 emissions standards – *Improving the efficiency of new light vehicles*. Since the establishment of the Ministerial Forum six years ago, little tangible action has been made in progressing and increasing low and zero emission road transport technologies in Australia.

In February 2021, the Department of Industry, Science, Energy and Resources released the Discussion Paper to inform the Future Fuels Strategy (Strategy) which is expected to be released in the first half of 2021.

The guiding principles of the Strategy are:

1. *Addressing barriers to the roll out of new vehicle technologies will increase consumer choice.*
2. *Government investment in early stage technologies can stimulate the market and private sector investment.*
3. *Access to information can help people make informed choices.*

With five priority areas:

1. *Electric vehicle charging and hydrogen refuelling infrastructure where it is needed.*
2. *Early focus on commercial fleets.*
3. *Improving information for motorists and fleets.*
4. *Integrating battery electric vehicles into the electricity grid.*
5. *Supporting Australian innovation and manufacturing.*

RAC's response to the Discussion Paper aligns with our social and community impact priorities and focuses on reducing vehicle emissions and accelerating wider uptake of low emission vehicle technologies though incentives, as well as priority areas **1, 2** and **3** above. Reducing vehicle emissions 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.

Vehicle emissions in Australia

As part of a global response to climate change; the Australian Government has committed to reduce the nation's greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030[2].

The transport sector in Australia is responsible for more than one quarter (26.3 per cent) of all carbon dioxide (CO_2) produced in Australia and 19 per cent of all greenhouse gas emissions. Cars and light commercial vehicles alone contribute 17 per cent of total CO_2 emissions and 12 per cent of total greenhouse gases produced in Australia each year[3].

Vehicles also produce several harmful emissions while driving, including oxides of nitrogen (NOx), which directly impact human health and contribute to the formation of other harmful pollutants. The Australian Government estimates that, nationally, motor vehicles could contribute as much as 60-70 per cent of total NOx emissions[4].

[2] Department of Environment and Energy, 2015, Australia's 2030 climate change target. Accessed at http://www.environment.gov.au/system/files/resources/c42c11a8-4df7-4d4f-bf92-4f14735c9baa/files/factsheet-australias-2030-climate-change-target.pdf.
[3] Australian Greenhouse Gas Emissions Information System, 2020, National Greenhouse Gas Inventory – UNFCCC classifications. Accessed at https://ageis.climatechange.gov.au/.
[4] Australian Government, 2016. Vehicle emissions standards for cleaner air, Draft Regulation Impact Statement December 2016. Accessed at https://www.infrastructure.gov.au/vehicles/environment/forum/files/Vehicle_NOxious_Emissions_RIS.pdf

In 2015, 2,566 deaths were attributable to air pollution in Australia[5]. The OECD confirms that while deaths from air pollution across Europe largely declined from 2005 to 2010, such deaths in Australia rose over the same period[6]. Further, air pollution in Australia is estimated to contribute to approximately 4.6 per cent of all cardiovascular disease, 1.6 per cent of all respiratory disease and 0.2 per cent of cancers[7] and has a significant negative impact on our environment.

Electric Vehicles

Electric Vehicles (EVs), which includes battery electric vehicles (BEVs) and Plug-in hybrid electric vehicles (PHEVs) use one or more electric motors for propulsion and are recharged by plugging in to an external power source, while hydrogen fuel cell EVs (FCEVs)[8] convert hydrogen to electricity to power the electric motor. EVs that are charged by renewable energy sources can be almost entirely emissions free.

Globally, over 2.1 million new EVs were sold in 2019, increasing by approximately 90 per cent on 2017 sales figures[9]. In Australia, our 2019 EV sales were the highest on record increasing by 149 per cent from the previous year (5,875 vehicles) and leading to a total of 14,500 EVs on the road in Australia[10]. However, EVs are still well under one per cent of total light vehicles in Australia[11], lagging far behind global uptake.

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[12]), where EVs produce 30 per cent less CO_2 emissions than traditional passenger vehicles[13]. 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. Taxis, on-demand ride share and shared vehicles – vehicles that travel significantly greater distances – can save up to 85 tonnes over their lifetime[14]. This has been most recently also confirmed by Bloomberg in February 2021, using the US grid profile, which found that 27,000km is the 'breakeven' driving distance between EVs and ICEs, with an estimated 1.5 year 'pay back'[15] period in the US or 6.2 years in China[16]. Furthermore, the Alternative Fuels Data Centre, through the US Department of Energy, finds while non-plug in hybrids (hybrids) and

[5] Australian Government - Australian Institute of Health and Welfare, 2019, Australian Burden of Disease Study Impact and causes of illness and death in Australia 2015. Accessed at https://www.aihw.gov.au/getmedia/c076f42f-61ea-4348-9c0a-d996353e838f/aihw-bod-22.pdf.aspx?inline=true

[6] OECD, 2014, The Cost of Air pollution: Health Impacts of road Transport, OECD Publishing. Accessed at http://www.keepeek.com/Digital-Asset-Management/oecd/environment/the-cost-of-air-pollution_9789264210448-en#page54.

[7] Australian Government - Australian Institute of Health and Welfare, 2019, Australian Burden of Disease Study Impact and causes of illness and death in Australia 2015. Accessed at https://www.aihw.gov.au/reports/burden-of-disease/burden-disease-study-illness-death-2015/summary

[8] BEVs are wholly powered by electricity stored in the vehicle's batteries and produce zero tail pipe emissions; PHEVs use a combination of electricity and an on-board petrol or diesel fuelled internal combustion engine and produce tailpipe emissions only when the latter is engaged; and hydrogen fuel cell electric vehicles convert hydrogen to electricity to power the vehicles engine, emitting only heat and water as by-products.

[9] Bloomberg NEF, 2020, Electric Vehicle Outlook 2020. Accessed at https://about.bnef.com/electric-vehicle-outlook/.

[10] National Transport Commission, 2020, Carbon Dioxide Emissions Intensity for New Australian Light Vehicles 2019, June 2020. Accessed at https://www.ntc.gov.au/sites/default/files/assets/files/Carbon-dioxide-emissions-intensity-for-new-Australian-light-vehicles-2019.pdf.

[11] National Transport Commission, 2020, Carbon Dioxide Emissions Intensity for New Australian Light Vehicles 2019, June 2020. Accessed at https://www.ntc.gov.au/sites/default/files/assets/files/Carbon-dioxide-emissions-intensity-for-new-Australian-light-vehicles-2019.pdf.

[12] IEA, 2021, Poland, 1 February 2021. Accessed at https://www.iea.org/countries/poland

[13] 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

[14] 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

[15] Estimated time taken to repay back EV manufacturing emissions from driving an EV.

[16] BNEF, 2021 The lifecycle emissions of electric vehicles, 16 February 2021. Accessed at https://about.bnef.com/blog/the-lifecycle-emissions-of-electric-vehicles/

PHEVs still produce significantly less CO_2 emissions than gasoline (petrol) vehicles, BEVs produce even less, which is why it is imperative to ensure a transition to pure BEVs to eliminate as much avoidable emissions as possible[17]. It is also important to continue lessening of Australia's reliance on non-renewables electricity generation to further reduce life-cycle emissions.

General comment on the Discussion Paper

The Discussion Paper states it: "sets out the Australian Government's direction and practical actions that will enable the private sector to commercially deploy low emissions road transport technologies at scale". However, while touching on a number of important areas related to low and zero emission transport, it is considered to be narrow in focus and includes no impactful plan to decrease road transport emissions. While the priority actions identified are a step in the right direction, **there is much more to do and plan for to ensure Australia makes meaningful progress towards achieving critical emissions reductions and meet its greenhouse gas emissions targets.**

The Discussion Paper considers and models benefits of low and zero emission vehicles in the context of 'carbon offsetting' but not reducing and thus avoiding vehicle emissions altogether and the significant health and other benefits this could deliver. For example, the Bureau of Infrastructure, Transport and Regional Economics (BITRE) estimates that by introducing Euro 6 or equivalent noxious light vehicle emissions standards (and avoiding some future emissions), there would be a direct health and wellbeing benefit to Australians of $6.385 billion by 2050[18]. In Western Australia alone, accelerating the uptake of electric vehicles will provide public health benefits of over $20 million each year by reducing air pollution[19]. **RAC calls on the Australian Government to ensure the Strategy: focuses on efforts to eliminate vehicle emissions rather than offsetting CO_2 emissions; recognises and seeks to address the impacts on our air quality and health; and promotes a whole of government and not a piecemeal approach to reducing transport emissions**.

The Discussion Paper, which allocates a total of $74.5 million dollars for the Future fuels package, is the main and long-anticipated government response to reduce vehicle emissions in Australia. In contrast, the Australian Government is providing domestic refineries operating subsidies of $2.3 billion as part of the package for fuel security[20]. By mid-late 2021, Australia will be down to two operating fuel refineries, with the announced closures of Kwinana and Altona refineries, and with further speculation that one of the remaining two operating refineries will also see an announced closure later this year[21]. The examination of whether these subsidies could be redirected (such as to include refinery upgrades that support better quality fuel and sooner, and/or for other purposes to accelerate uptake of low and zero emission vehicles such as incentives for consumers and investment in charging infrastructure, etc.) is an important conversation in this context. These somewhat contradictory actions taken by government further support the need for the **Australian Government to take a whole of government approach to reducing vehicle emissions and transitioning to cleaner**

[17] US Department of Energy, Alternative Fuels Data Centre, 2021, Emissions from Hybrid and Plug-In Electric Vehicles. Accessed at https://afdc.energy.gov/vehicles/electric_emissions.html
[18] Australian Government, 2020, Light vehicle emission standards for cleaner air, Draft regulation impact statement, October 2020. Accessed at https://www.infrastructure.gov.au/vehicles/environment/forum/files/light-vehicle-emission-standards-for-cleaner-air.pdf
[19] Government of Western Australia. Department of Water and Environmental Regulation. (2020). State Electric Vehicle Strategy for Western Australia. Accessed at: https://www.wa.gov.au/sites/default/files/2020-11/State_Electric_Vehicle_Strategy_for_Western_Australia_0.pdf.
[20] AFR, 2020, Taxpayers pay to stockpile oil, keep refineries going. Accessed at https://www.afr.com/politics/federal/taxpayers-pay-to-stockpile-oil-keep-refineries-going-20200913-p55v3z
[21] The Age, 2021, 'Nowhere to go': Devastated workers vent over closure of Altona fuel refinery, 10 February 2021. Accessed at https://www.theage.com.au/national/victoria/exxon-set-to-close-altona-refinery-350-jobs-at-risk-20210210-p5711w.html.

transport, rather than have clearly intertwined issues (such as emissions standards and future fuels), being considered almost in isolation.

The Discussion Paper includes a priority action to support EV charging and hydrogen refuelling infrastructure where it is needed, and we agree it will be important to undertake demonstration trials of hydrogen fuel cell electric vehicle (FCEV) refuelling in more locations. The potential of alternative clean energy sources, such as renewable hydrogen, needs to be further investigated and communicated. While hydrogen is still in an earlier uptake phase than traditional EVs, FCEVs and hydrogen powered vehicles may have a more prominent role in the future and it is important this is adequately considered and planned for by government (particularly through the National Hydrogen Strategy). Hydrogen may well have an initial uptake in heavy and public transport before private vehicles[22] and this should be supported to allow opportunities to be leveraged for private vehicles. **RAC supports the Australian Government further investigating refuelling infrastructure to support for example, the operation of a public transport fleet that uses the most environmentally sustainable energy sources, such as hydrogen fuel cell buses. The feasibility (which includes an assessment of the air quality, health and environmental benefits) of these sources should be communicated to the community and private industry to encourage uptake and investment.**

Consideration of incentives to accelerate uptake

As recognised in the Discussion Paper, EVs still have a price differential with a comparable ICE vehicle and the Department claims: "Currently, closing the total cost of ownership gap with battery electric vehicle subsidies would not represent value-for-money". In considering the cost of ownership gap, the Discussion Paper points to a comparison between total vehicle costs and the corresponding cost of carbon abatement. However, the total cost of ownership is not directly comparable with carbon offsets. Unfortunately, there is little detail supporting the value-for-money assessment or the factors included in the modelling, and it appears there has been no consideration of the reduced financial burden on the healthcare sector for instance attached to the substantial health benefits of avoiding harmful emissions, nor the impact of incentives which *partially* offset the cost differential of an ICE vs an EV.

Internationally, government policy decisions are making an impact, and the countries that provide fiscal incentives for EVs are realising the greatest levels of uptake. There are several different subsidy applications globally, which intend to create price parity and, in some countries, a price advantage between EVs and ICE and diesel engine vehicles. These subsidies or incentives vary by jurisdiction however are mainly characterised by:

- tax and / or fee exemptions;
- rebates and / or subsidies; and
- tax breaks.

Countries such as Norway have provided significant EV incentives for the longest period, as a result, EVs are consistently more than 50 per cent of all new light vehicles sold (since 2018)[23,24]. More than 90 per cent of car markets around the globe (in terms of vehicle sales) and over 50 countries provide

[22] Deloitte and Ballard, 2020, Fueling the Future of Mobility Hydrogen and fuel cell solutions for transportation. Accessed at https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/finance/deloitte-cn-fueling-the-future-of-mobility-en-200101.pdf
[23] Norsk elbilforening, Norweigan EV policy. Accessed at https://elbil.no/english/norwegian-ev-policy/.
[24] Norsk elbilforening, Norweigan EV market. Accessed at https://elbil.no/english/norwegian-ev-market/.

incentives to increase EV uptake[25].

Now, more than ever, is an opportune time to support moves to increase uptake of low and zero emission vehicles, particularly when consumer awareness and interest in environmental issues is growing and choice within the new vehicle sales market is increasing. It has been forecast that EVs could account for 70 per cent of new vehicle sales and 30 per cent of the total vehicle fleet in Australia by 2040[26]. However, action will be required to accelerate uptake and so reduce the impact of vehicle emissions on our health and the environment. A RAC member survey[27] in 2020 has shown that while 56 per cent of new car owners considered vehicle exhaust emissions very or extremely important when considering purchasing a new vehicle, even more prioritised purchase price (79 per cent) and ongoing costs (72 per cent). And when it comes to low and zero emission vehicles specifically, another recent RAC member survey[28] found 25 per cent thought they would be likely to consider a hybrid next time they were in the market for a new vehicle and an additional 19 per cent an EV. The high cost of purchase (57 per cent) was the top cited barrier to considering purchase of an EV or hybrid. **RAC calls on the Australian Government to reconsider the importance of incentives to motivate uptake of cleaner technologies, factoring in consumer willingness-to-pay and choice modelling into the assessment. This could also consider how much extra consumers may be willing to pay for low and zero emission vehicles if they were supported by a broad fast-charging network.**

Charging and refuelling infrastructure

The Australian Government's commitment to invest in supporting the installation of electric vehicle charging stations across Australia is welcomed, however much more needs to be done. We agree with the Discussion Paper that there are complexities in planning and grid connection and also that installation costs are a barrier to the roll out of more chargers – we believe it is critical for government to play a significant role in overcoming these.

There are four 'levels' of charging[29,30,31] currently[32] available for electric vehicles, according to Chargefox:

- Level 1 or 'trickle' charging is slow AC charging at up to 2.3kW and is usually through a standard household 10-amp (120 volt) outlet. Level 1 charging provides approximately up to 3 kilometres of battery range in 15 minutes of charging.
- Level 2, AC charging requires installation of charging equipment and provides a faster charge than Level 1 at up to 22kW. This will fully recharge most vehicles overnight and can provide up to 30 kilometres of charge in 15 minutes.

[25] International energy agency, 2020, Electric Vehicles. Accessed at https://www.iea.org/reports/electric-vehicles#tracking-progress.
[26] Bloomberg NEF, 2020, Electric Vehicle Outlook 2020. Accessed at https://about.bnef.com/electric-vehicle-outlook/.
[27] RAC member tracker survey, October 2020.
[28] RAC survey on environmental sustainability, with 358 from the Perth and Peel region, 123 from regional WA and 6 outside of Western Australia. 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.
[29] Electric Vehicle Council, 2017, Types of EV chargers. Accessed at https://electricvehiclecouncil.com.au/about-ev/charger-map/
[30] Plug in America, 2011, Understanding Electric Vehicle Charging. Accessed at https://pluginamerica.org/understanding-electric-vehicle-charging/
[31] Chargefox, 2021, Our Network. Accessed at https://www.chargefox.com/network/
[32] These levels of charge are current-day charging options; although it may be assumed as the technology is further refined and improved, different or greater electricity may be required by electric vehicle chargers. When in use, fast chargers require more power than that consumed by an average house for short periods of time and are usually only for public fast charging.

- Level 3, Fast, DC or Superfast chargers are commercially installed and include the Tesla Supercharger, CHAdeMO and CCS/SAE. Level 3 requires a 55-amp (660 volt) power outlet and delivers approximately 60 kilometres of battery range with 15 minutes of charging.
- Level 4, Ultra-rapid chargers are currently the fastest available in Australia. Ultra-rapid chargers are up to 350kW and can add up to 400kms of battery range in 15 minutes of charging.

Overall, the international trend appears to be between 7 and 27 EVs per publicly available charging station. In some European cities, availability ranges from a ratio of approximately two registered EVs per public charging station, this is compared to over 30 EVs per public charging station in some US cities[33]. In Norway, which has the highest share of new EV sales compared to traditional combustion engine vehicles, the average is between 10 and 20 EVs to one public charge point[34]. Globally, publicly available charging infrastructure is usually either Level 2 or Level 3; with Level 3 making up approximately 10 to 20 per cent of all publicly available charging infrastructure. In the UK and Finland over 40 per cent of public charging infrastructure is Level 3[35].

An Energeia study[36] 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[37].
- Range extension impacted by the length and distance of the road network (e.g. how far a vehicle may travel in a given country)[38].
- Access to chargers for plug-in EV (PEV) drivers without a dedicated charger at home[39].
- Scaling up charging networks to match demand as PEV uptake rises.

The same Energeia study[40] determined similar considerations are required to determine the optimal ratio of chargers to EVs on the road in Australia, including: the range of currently available EVs; the length of the total road network; access to private parking; and EV charging time.

Currently, in Australia there are over 21,000 EVs on the road[41,42,43]. As EV demand and uptake grows, so will demand for publicly available charging infrastructure and due to Australia's vast land mass and

[33] ICCT, 2017, *Emerging best practices for electric vehicle charging infrastructure*. Accessed online at: http://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf
[34] ICCT, 2017, *Emerging best practices for electric vehicle charging infrastructure*. Accessed online at: http://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf
[35] ICCT, 2017, *Emerging best practices for electric vehicle charging infrastructure*. Accessed online at: http://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf
[36] Energeia, 2018, Australian electric vehicle market study, May 2018. Accessed at https://arena.gov.au/assets/2018/06/australian-ev-market-study-report.pdf
[37] Now considered redundant given second generation PEV [Plug in EV] ranges – i.e. vehicle chargers at work are not as critical if the battery has a longer range and is already fully charged, for example at home, as it will unlikely need charging before the driver returns home.
[38] DC Fast Charger-based.
[39] Level 2 based to date.
[40] Energeia, 2018, Australian electric vehicle market study, May 2018. Accessed at https://arena.gov.au/assets/2018/06/australian-ev-market-study-report.pdf
[41] Figure derived through cumulative sales figures from 2011 to 2019 (16,278 sales), and 2020 FCAI EV sales (1,769 sales) and 2020 speculated Tesla registrations (3,430 registrations).
[42] The Driven, 2020, How many electric cars are there in Australia, and where are they?, 23 December 2020. Accessed at https://thedriven.io/2020/12/23/how-many-electric-cars-are-there-in-australia-and-where-are-they/#:~:text=The%20number%20of%20electric%20vehicles,near%20the%20end%20of%202020.
[43] Drive, 2021, Exclusive: Tesla sales in Australia revealed, up 16 per cent in 2020, 12 January 2021. Accessed at https://m.drive.com.au/news/exclusive-tesla-sales-in-australia-revealed-up-16-per-cent-in-2020-124932.html?trackLink=SMH1

sprawling urban areas, the demand for publicly available charging infrastructure, particularly Level 3 will grow. **The Australian Government will need to work with States and Territories to assess the network as a whole, with priority areas for EV charging infrastructure installation determined by considering factors such as the above.**

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, particularly for Level 3 and 4 installations. 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 identifies specific locations across California suitable for fast charging infrastructure, as well identifying priority need areas[44]. The interactive map provides for ease of access to information about the suitability of charging infrastructure and potential demand – the map overlays information on the electricity grid capacity for installation of public charging stations (and whether higher kW EV chargers with higher electricity draw requirements are suitable for the location), coupled with population density or area use to determine demand for potential charging. **Funding for a similar interactive and easy to use map that shows demand and most importantly the capabilities of the local electricity grid infrastructure to support the charging infrastructure, could be incorporated into the Future Fuels funding package.**

Cost is currently the biggest prohibitor to installation of charging infrastructure, with actual installation costs and network access charges providing a significant barrier and cost multiplier. There are many 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. **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 such as the Distribution Low Voltage Connection Scheme, reduced or removed, should be explored.**

Fleet procurement

We agree with the Discussion Paper that fleet procurement offers a significant opportunity to increase the proportion of low and zero emission vehicles and it is important business and government have access to a wide range of cleaner and safer vehicles (including EVs) for sale. Federal, State and Local governments, as well as business, make up a significant proportion (more than half) of new vehicle sales[45]. Fleet vehicles not only have a much higher turnover rate than privately purchased vehicles but both government and business fleets have a higher average emissions intensity (grams of CO_2 per kilometre) than private new vehicle sales – this is due to a range of factors including vehicle size and type[46]. This means there is a significant opportunity to reduce vehicle emissions through shifting fleets to low emissions vehicles. And, given the high sales volumes and turnover, government and business fleet procurement can have a significant impact on uptake by creating a second-hand market for affordable EVs.

[44] Pacific gas and Electric, Interactive DC Fast Charger Siting Map, https://www.pge.com/pge_global/common/pdfs/about-pge/environment/what-we-are-doing/electric-program-investment-charge/EPIC-1.25.pdf
[45] National Transport Commission, 2020, Carbon Dioxide Emissions Intensity for New Australian Light Vehicles 2019. Accessed at https://www.ntc.gov.au/sites/default/files/assets/files/Carbon-dioxide-emissions-intensity-for-new-Australian-light-vehicles-2019.pdf
[46] National Transport Commission, 2020, Carbon Dioxide Emissions Intensity for New Australian Light Vehicles 2019. Accessed at https://www.ntc.gov.au/sites/default/files/assets/files/Carbon-dioxide-emissions-intensity-for-new-Australian-light-vehicles-2019.pdf

Ensuring there is a significant proportion of electric new vehicle purchases or a whole-of-department shift to EV fleet procurement is vital. As a starting point, **an impactful government fleet target should be set, in line with international best practice.** Federal fleet procurement policies should also apply to Government Business Enterprises (GBEs), particularly those with high public visibility and large operational vehicle fleets. This will bolster uptake, awareness and eventually, a second-hand market. **More broadly than for the government fleet, the Australian government should implement a meaningful target for the uptake of low and zero emission vehicles in Australia to accelerate the adoption of cleaner vehicle technologies**.

Improving information for motorists and fleets

It is pleasing to see the discussion paper has a focus on improving awareness of cleaner vehicle technologies through better information for motorists and fleets. Ensuring consumers have an easy to access and to understand information source on low and zero emission vehicles is important to increase uptake. A RAC member survey[47] in 2020 has shown that of those that were unlikely to consider an EV for their next purchase, 13 per cent claimed not knowing enough about them was a barrier.

In the UK, the government and car industry have created a joint program called 'Go Ultra Low'[48], which provides a central repository for all EV ownership information and material, with all relevant purchasing information being located in one place. 'Go Ultra Low' allows people to compare:

- technologies and costs – both upfront and ongoing;
- CO_2 emissions information;
- vehicle battery range;
- information about any applicable subsidies;
- information on both at-home and public fast charging;
- opportunities for business;
- testimonials from 'real' EV drivers, and in a simple easy-to-access-and-understand format; and
- connects the user to opportunities to test drive any EV of interest on the website.

The program brings together all major manufacturers of EVs and appropriate government departments creating a single platform for information. A similarly structured arrangement for Australian motorists has significant potential and **RAC asks the Australian Government to work with States and Territories to deliver a platform for comparison and information and also an effective rating system to ensure consumers have access to user-friendly emissions and fuel consumption information when purchasing a new vehicle**.

Summary

RAC supports the Australian Government's intention to implement a strategy which seeks to increase low emission road transport technologies. However, there is a clear and urgent need for the Australian Government to demonstrate stronger leadership and drive larger-scale action to reduce emissions

[47] RAC member tracker survey, October 2020.
[48] Accessible at: https://www.goultralow.com/.

reductions. In regard to health impacts in particular, the most serious, toxic and even deadly outcomes have long been known and documented across numerous studies in the 1980s, 1990s and 2000s.

We must act now, and it is critical that what we decide is impactful in tackling vehicle emissions and improving air quality to ensure Australians can breathe cleaner, healthier air now and into the future.

1. Approach to the Future Fuels Strategy

RAC calls on the Australian Government to:

- Ensure the Strategy focusses on efforts to eliminate vehicle emissions rather than offsetting CO_2 emissions and recognises and seeks to address the impacts of emissions on our air quality and health.
- Take a whole of government approach to reducing vehicle emissions, rather than have clearly intertwined issues (such as emissions standards and future fuels), being considered in a piecemeal fashion.

2. Increasing low and zero emission vehicles uptake by closing the price gap

The impact of vehicle emissions on our environment and health, makes it necessary to reduce our vehicle emissions, and broad uptake of EVs in Australia will play an important part in achieving this. The Australian Government should:

- Work with States and Territories to implement incentives and subsidies, which should include developing a nationally consistent approach to level the playing field and reduce (or applying short term exemptions to) existing national and State-based taxes and charges for EVs such as Luxury Car Tax, Goods and Services Tax, Fringe Benefits Tax treatments at the national level and vehicle registration fees, licence fees, and stamp duty at the State level. Consideration of these incentives and subsidies should factor in consumer willingness-to-pay and choice modelling, such as how much extra consumers may be willing to pay for low and zero emission vehicles if they were supported by a broad fast-charging network.

3. Charging and refuelling infrastructure

RAC welcomes government planning and support for the widespread and ongoing installation of publicly available EV charging infrastructure and investigation of hydrogen refuelling priorities to encourage uptake. The Australian Government should:

- Work with States and Territories to assess the network as a whole, with priority areas for EV charging infrastructure installation determined by considering factors relevant to the Australian context, including but not limited to: the range of currently available EVs; the length of the total road network; access to private parking; and EV charging time.
- Consider allocating funding (for example as part of the Future Fuels funding package) for an interactive and easy to use map that shows charging demand and most importantly the capabilities of the local electricity grid infrastructure to support charging infrastructure.
- Explore concessions or other mechanisms which would see cost-prohibitive charges under relevant schemes such as the Distribution Low Voltage Connection Scheme, reduced or removed, to facilitate increased installation of charging infrastructure, particularly in the near-term.

- Further investigate refuelling infrastructure to support for example, the operation of a public transport fleet that uses the most environmentally sustainable energy sources, such as hydrogen fuel cell buses. The feasibility, including health, environmental and air quality benefits of these sources should be communicated to the community and private industry to encourage uptake and investment.

4. Fleet procurement

RAC supports ensuring government and business play a significant role in increasing the number and availability of EVs in Australia. The Australian Government should implement:

- An impactful target for the government fleet (including GBEs), in line with international best practice.
- A meaningful target for the uptake of low and zero emission vehicles in Australia to accelerate the adoption of cleaner vehicle technologies.

5. Improved consumer information

RAC supports the Government ensuring a collaborative approach to implementing strategies to support the uptake of EVs.

- The Australian Government should work with States and Territories to deliver an effective rating system to ensure consumers have access to user-friendly emissions and fuel consumption information when purchasing a new vehicle. Platforms that provide easy access to information such as the UK's Go Ultra Low program should also be considered.

RAC has welcomed the opportunity to provide a response to the Discussion Paper. We trust RAC's submission, which is based on providing Western 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 Environment and Energy *Better fuel for cleaner air—draft regulation impact statement;*
- 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.