LOW CARBON LIQUID FUELS, A FUTURE MADE IN AUSTRALIA: UNLOCKING AUSTRALIA'S LOW CARBON LIQUID FUEL OPPORTUNITY, CONSULTATION PAPER

RACQ SUBMISSION

18 July 2024

Ethanol Storage Tanks at Mackay Harbour

CONTENTS

INTRODUCTION

The Royal Automobile Club of Queensland (RACQ) is Queensland's largest member-owned mutual, and we exist solely for the benefit of our over 1.7 million members. Throughout our 118-year history, we have actively engaged with Government in the interests of our members, sharing our expertise and recommendations on a wide range of policy areas including transport affordability and sustainability, road safety, transport and infrastructure, natural hazard resilience, and disaster response. Our membership makes up a significant portion of Queensland's population, and we have a presence in more than 60 percent of Queensland homes.

RACQ is well qualified to comment on all matters of road safety, mobility, as well as transport affordability and sustainability, and we bring a unique insight into how the laws, regulations and policies that are in place could be improved for the benefit of road users, industries, and the broader community. RACQ is seeking diverse options to decarbonise our corporate fleet (passenger cars) and direct owned/operated and contractor specialist fleet (roadside assistance vehicles, tow trucks, etc). Our technical review of our specialist fleet has helped informed this submission. Accordingly, we make this submission to the *Low Carbon Liquid Fuels, A Future Made in Australia: Unlocking Australia's low carbon liquid fuel opportunity, Consultation Paper*, providing comments and recommendations we believe will assist in developing the strategy. While RACQ's advocacy efforts focus on land transport, private motor vehicle transport and the light vehicle fleet, RACQ is providing comment on this paper due to the interconnected markets for diesel fuel for industrial and private users.

Queensland is the most decentralised mainland state with major populations residing in dispersed towns and cities and in many remote communities. Queensland is also Australia's favourite long-distance road and adventure tourism state. RACQ advocates for practical and affordable ways to address decarbonisation while maximising benefit to our members and their diverse needs. 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.

The big biofuel policy gap in Australia is that the failure to develop policy strategies around biofuel-electrification. In the coming years most of private land transport will be electric-powered, but we see an important role for biofuels to support and extend the range and utility of electric vehicles and electrified transport options, especially in the Light Commercial Vehicle (LCV), heavy 4WD and heavy vehicle segments. There is an opportunity using Australian R&D in the LCV segment to electrify existing vehicle designs and platforms including the Toyota Hilux, Ford Ranger etc with companies like Tembo developing platforms to electrify LCV and 4WDs. While driving range could not be classed as 'long' – modified electrified LCVs (Light Commercial Vehicles) are likely able to achieve a range of 300km to 400km – with the addition of ethanol or biofuel range extenders these vehicles could have practical ranges exceeding 600km. Additionally these vehicles could provide capacity for 'Vehicle to Load', providing electricity supply in climate and other disasters. This electrified resilient vehicle product would be ideally suited to Thailand's mid-size LCV segment export markets, which include ASEAN/Australia, Oceania, Africa and the Middle East.

We note and support the submission made by the Australian Automobile Association (AAA) on this consultation paper. The RACQ does not believe the present focus should be on regulation, rather it should be on local industry development and avoidance of government regulations "picking the winners" before any mature technology and economic pathways are established.

Light vehicle users should not be required to pay for any production subsidy for renewable diesel for heavy vehicles, and the government must explain how light vehicle users will be protected from any increase in diesel costs that are expected to arise from incentives for increased use of renewable diesel by heavy vehicles.

RACQ RESPONSE: OPTIONS TO SUPPORT AN AUSTRALIAN DOMESTIC LOW CARBON LIQUID FUEL PRODUCTION

In this section RACQ will provide a response to the individual questions raised in the Paper.

SECTION 1 – SUPPLY SIDE

RACQ supports a focus on supply-side measures to increase a diverse range of domestic production of low carbon liquid fuels. RACQ believes supply side support should be best focused on policy, industry development and innovation (such as a competitive grant-based production scheme) rather than fuel subsidies approach. In terms of supply side measures to support domestic production of low carbon fuels using Australian feedstock, the RACQ believes the policy guidance on the best mechanism should be *a least cost of abatement* framework. We also support the AAA requirement that the cost of these measures should not fall on private motorists and private consumers and that light vehicle users should not be required to contribute.

We would urge the Australian Government to consider supply side measures to support Australia's ethanol industry and support measures to encourage wider use of ethanol fuels, though the initial focus should be more on the demand side initiatives and policy strategies. While ethanol is not a strict drop-in fuel like renewable diesel, relatively simple engine modifications are available to allow petroleum internal combustion engines to operate on E85 (a blend of up to 85% ethanol and mineral petrol). Additionally the production and supply infrastructure for E85 is well established. The Australian ethanol industry is well placed to ramp up production if the suitable policy frameworks were implemented. Similarly existing petroleum wholesale and retail infrastructure is well suited for the supply of E85.

When used in combination with series hybrid electric drivetrains, RACQ sees significant potential for ethanol (E85 or E98) to decarbonise the light freight trucking fleet and the light commercial fleet (4WD dual cab ute commonly used by tradespersons across Australia). Both these fleets could use a vehicle with a series-hybrid electric drivetrain with electric motors exclusively to drive the vehicle, with a small ICE that acts as generator to provide additional electricity. The ICE generator in this approach does not directly drive or connect to the wheels (in contrast are the parallel and mild hybrids[1]). Such vehicles are the most promising emission reduction technology in terms of industry capacity to scale up production to meet demand. This is because the approach uses the combination of existing technologies.

RACQ is seeking diverse options to decarbonise our direct owned/operated and contractor specialist fleet (roadside assistance vehicles, tow trucks, etc). RACQ sees battery electric vehicles as the most likely technology to decarbonise our corporate fleet (passenger cars). Our technical review of our specialist fleet indicates that for many vehicles particularly for regional and remote operations we will need a zero-low carbon liquid fuel to complement electrification.

We would also caution against over emphasis of fuel security as a goal of this industry policy. While a substantial proportion of Australia's liquid fuel needs are currently and have for many years been sourced overseas, Australia has not suffered any significant fuel shortages and the fuel industry has successfully delivered robust supply chains for many decades. For example the Mandatory Stockholder Obligations applied to diesel fuel adds little meaningful security or local industry development or employment but adds unduly to the cost of diesel fuels in Australia, which will flow on to consumers. The goals of reinvigorating Australian production are supported, and the fuel security policy should be focused on local industry development and self-reliance across fuel and electrification without restrictions or unnecessary costs on fuel imports.

SECTION 2 – THE DESIGN OF PRODUCTION INCENTIVES TO APPROPRIATELY INCENTIVISE THE PRODUCTION OF SAF AND RENEWABLE DIESEL

RACQ supports the AAA's suggestion that support measures should technology agnostic and are targeted on the using *a least cost of abatement* methodology. We acknowledge that both SAF and renewable diesel have potential to play a role as drop-in fuels for use in the existing heavy vehicle fleet. However, given the Australian' economies heavy reliance on diesel the greatest limitation is not technology, but the renewable

[1] The mild hybrids commonly available in the Australia fleet like the Toyota Prius and its successors are parallel hybrids where both the electric motor and the ICE directly drive the wheels.

diesel industry's lack of capacity in the medium term to make a material difference (and the resulting expected high prices driven by low production and high demand).

To this end RACQ suggests that further investigation and support for Low Carbon Fuel development using a technology agnostic framework for the aviation, heavy vehicle operators and other large industrial vehicles is the appropriate approach. This enables regulation of fuel greenhouse gas emissions and the imposition of downward trends, while allowing industry and consumers to determine the most efficient means to achieve the desired outcomes. It also avoids perverse outcomes and inefficiencies associated with government "picking the winners" before any mature technology pathways are established. RACQ would urge the Australian Government to consider focusing on bolstering support for a number of low cost low carbon liquid fuels (particularly existing biofuels such as ethanol) and to develop and deploy low cost low carbon liquid fuel use in hybridised/range extender electric drivetrains.

As is evident in the passenger vehicle fleet, lower carbon liquid fuels may not be cost competitive compared to full electrification when considering total cost of operation. Work completed by RACQ suggests that many battery-electric passenger vehicles are now or are close to cost competitiveness with new ICEs and hybrids, considering the purchase price, and cheaper than ICE when operating costs are added. This suggests that higher cost lower carbon liquid fuels are unlikely to be cost competitive to battery electric vehicles in most passenger vehicle applications, and in the coming years this may also apply to heavy vehicles. The exception is in hard to electrify edge-case applications, where biofuel electrification may prove the most cost effective to meet and exceed current needs while remaining low carbon. Biofuel electric vehicles operating in mainly low-cost electric mode provide an opportunity for greater affordability across several vehicle classes.

SECTION 3 – EMISSIONS AND SUSTAINABILITY CRITERIA

To achieve the decarbonisation goals, Australia needs policies to reduce carbon emissions from the existing fleet. To achieve the decarbonisation goals solely by fleet transition and renewal allow will take too long. The Australian light vehicle fleet transition demonstrates this. Assuming the current accelerating uptake of EVs in the light vehicle fleet, while EVs may be 50% of new sales by 2030, EVs will only account for less than 10% of the total light vehicle fleet, 90% of the fleet will still be ICEs. This forecast suggest EVs may account for 50% of the light vehicle fleet by 2044 and 66% by 2050. Furthermore electrification of the light commercial and heavy commercial vehicle fleet significantly lags the passenger vehicle fleet. To these ends RACQ would support a framework that provides measurable emission reductions compared to the use conventional mineral fuels, achieved using a technology agnostic, least cost framework.

While emission reduction is a key environmental goal, this must not come at the expensive of other environmental and health considerations of fuel use and production. These could include considerations such as water quality impacts such as nutrient runoff into at risk ecosystems like the Great Barrier Reef, or air quality and health impacts in our towns and cities. Considering the wider environmental impact of feedstock production for biofuels and renewable fuels, RACQ supports the consideration of the sustainability criteria framework developed by the Queensland Government for sustainable sugarcane agriculture for ethanol production and would suggest a similar framework be used for other biofuel and or renewable diesel production.

SECTION 4 – DEMAND SIDE OPTIONS

RACQ believes a demand-side regulative approaches like a Low Carbon Fuel Standard (LCFS) is a longer-term option, and to reach national goals of net-zero by 2050 we believe any regulation will need to be over time. Considering the application a LCFS in other jurisdictions, it would be best placed to be developed cautiously as a technology agnostic and least cost model of emissions reduction. However as per the AAA Submission we do not believe the present focus should be on regulation, rather it should be on local industry development and avoidance of government regulations "picking the winners" before any mature technology and economic pathways are established.

Longer-term and when considering heavy vehicle operators and the aviation industry a Low Carbon Fuel **and Energy** Standard (LCFES) approach might be a better option. This would include electricity as a transport energy source as well as combustible fuels. This could be applied to the end consumer of the fuel, rather than the retailer or wholesaler. We suggest that Australian Government defines the size of business that will be captured by the LCFES – e.g. a business that consumes a specific volume of liquid fuel p.a. or their total distance travelled for their fleet exceeds a set distance. These businesses would be required to ensure their CO2 emission intensity does not exceed a set amount. A business could then choose the best way to reduce their carbon intensity. This could the purchase of renewable diesel for their fleet of trucks, switching to electric trucks powered on green power, or another low carbon option.

When allocating the responsible entity for meeting low carbon fuel obligations we would urge careful consideration to avoid the mistakes made by state governments in implementing biofuel mandates. Both the New South Wales and Queensland biofuel mandates make the retailers or wholesalers responsible for meeting the target rather than the end user, and both mandates consistently fail to ensure the prescribed volume of biofuel is consumed. The current Queensland Mandate for the use of ethanol is 4% of total regular ULP sales[2]. However, the percentage ethanol in sales regular ULP has been stagnant at 2.9% since 2020[3].

CONCLUSIONS

The big low carbon fuel policy gap in Australia is that the failure to develop policy strategies around biofuel-electrification. In the future most of private land transport will be electric powered in part or in whole. We see an important role for low carbon fuels to support and extend the range and utility of a range of electric vehicles and electrified transport options (light freight trucks and light commercial vehicles).

We would suggest that the focus for decarbonising the light freight and light commercial vehicle fleet should focus on supporting electrification with a complementary electric-biofuel strategy. RACQ sees a specific and on-going role for the use of biofuel/ethanol range extender, in combination with battery electric drivetrains. Such a system will provide decarbonisation of difficult to electrify edge-case applications for light commercial vehicles and 4WDs. It could also and provide disaster resilience and community recovery support. There are also prospects for renewable diesel and bio-diesel as a drop in fuel, however producing sufficient supply to meet existing fossil fuel diesel needs we believe will be a challenge.

RACQ commends the Australian Government's focus on low carbon liquid fuels and suggest it is these fuels in combination with electrification and hybrid renewable liquid fuel//electric drive trains will provide the heavy lifting in decarbonising the transport section. Similar RACQ is concerned that the current focus on green hydrogen will prove to be an expensive white elephant, especially in light freight and light commercial vehicle sectors. We would suggest that the substantial funds currently allocated to hydrogen would be better spent on support for low carbon liquid fuels and supporting policies discussed in this consultation paper for heavy vehicles. For light freight and light commercial vehicles RACQ sees the most promising technology in terms of cost, utility, and carbon reduction to electrified drivetrains and with renewable fuel powered (most likely ethanol) range extender engines/generators.

In conclusion RACQ would suggests that further analysis be completed to match all fuel options for their most economically and carbon efficient application. The case for ensuring least cost abatement and insulating private motorists from further cost increases to diesel fuel has been strongly made by the Australian Automobile Association (AAA). RACQ supports the AAA's concerns, and we urge the Australian Government to continue to pursue policy frameworks that provide measurable and practical decarbonisation pathways, energy security and ultimate least cost for Australians.

[2] https://www.business.qld.gov.au/industries/manufacturing-retail/retail-wholesale/selling-fuel-qld/qld-biofuels-mandates
[3] https://www.business.qld.gov.au/industries/manufacturing-retail/retail-wholesale/selling-fuel-qld/qld-biofuels-mandates/fuel-seller-statistics