

## AAA RESPONSE TO BETTER FUEL FOR CLEANER AIR

## **DRAFT REGULATION IMPACT STATEMENT**



Australian Automobile Association

Submission - March 2018

















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## Introduction

The AAA welcomes the opportunity to respond to the Government's *Better fuel for cleaner air* draft regulation impact statement (Draft RIS), which has proposed three options to change Australia's fuel standards.

The AAA supports changing Australia's fuel quality standards. In particular, the AAA supports moving to 10ppm sulfur petrol in the Australian market by no later than 2027. There are several reasons that support aligning our standards more closely with international practice. It would reduce air pollution, enable the supply of new vehicles with the latest engine technologies and allow the Government to introduce Euro 6 emissions regulations and a CO2 standard for new light vehicles.

The AAA is pleased the Draft RIS has been released ahead of the Government's final decision on new vehicle emissions regulations. The AAA continues to urge the Government to provide stakeholders with an opportunity to assess its preferred approach to fuel quality, Euro 6 and CO2 standards as one consolidated package, with one cost benefit analysis, before making a final decision. This opportunity will ensure the original intent of the Ministerial Forum on Vehicle Emissions is achieved.

The AAA has considered the three options presented in the Draft RIS against their impact on fuel prices. Option C and F do not significantly alter fuel prices under the modelling presented in the Draft RIS, therefore the AAA is not opposed to either of these options based on the fuel price impact. However, the AAA does not support Option B, given the impact on fuel prices and the negative net present value presented.

The key difference between Options C and F is the aromatics content permissible in petrol. As outlined in the Draft RIS, aromatics contribute to a petrol's octane rating but lead to an increase in noxious emissions and can affect engine operability. As reducing aromatics also reduces octane, most countries use octane enhancers like MTBE to maintain octane levels in petrol with low aromatics. However, as MTBE is prohibited in Australia due to its potential to contaminate groundwater, Australia has fewer cost effective options to reduce aromatics. It is critical that full consideration is given to what cost-effective solutions are available to maintain octane levels without the use of MTBE before a decision is reached on limits to aromatics.

While reducing aromatics will deliver health benefits, the case for limiting aromatics to 35 per cent has not been supported with a clear proposal on how to maintain octane. The Draft RIS outlines several alternatives to MTBE, however they all require further detailed analysis. The AAA is not able to provide additional information to what is already presented in the Draft RIS or any technical solution to resolve the aromatics issue.



The AAA believes the Government must undertake independent analysis of the issues pertaining to aromatics before a final decision is made. An independent analysis must consider the real barriers to lowering aromatics in petrol without octane enhancers like MTBE, the cost-effective solutions available for Australian and overseas refineries to maintain octane ratings, and the effect on local refinery viability and international supply sources.

The AAA proposes that the findings and recommendations of the independent analysis feed into the Government's final decision on a preferred approach to all three regulatory proposals being considered by the Ministerial Forum on Vehicle Emissions. This will ensure the process continues to move forward and there are no unnecessary delays.

In addition to aromatics issues, the AAA believes the Government must undertake further analysis of the impacts of each of the different timelines presented. For instance, the cost-benefit analysis in the Draft RIS does not account for the economic and other flow-on impacts of possible refinery closures under a 2022 timeline. Similarly, it does not consider opportunity costs of accepting a 2027 timeline (such as delayed introduction of Euro 6). The Government needs to present all the costs and benefits and implications of a 2022 timeline versus a 2025 and 2027 timeline before a considered decision can be made.

Furthermore, the AAA is mindful that a pre-2027 timeline could result in calls for financial incentives to Australian refineries to ensure viability. The AAA has previously opposed financial incentives that are passed on to consumers as costs and continues to oppose any such measure.

The AAA also asks the Government to clarify the estimated capital cost of refinery upgrades in the Draft RIS. In March 2017, the Australian Institute of Petroleum (AIP) stated in its submission to the *Better fuel for cleaner air* discussion paper that it would cost refineries \$979 million in 2017 dollars to upgrade their facilities to produce 10ppm sulfur petrol. However, the Draft RIS assumes actual capital costs will stay constant between 2017 and 2026. The AAA would expect actual capital costs for a refinery upgrade in future years to change.

The AAA would welcome the opportunity for further consultation, once the above matters are addressed, noting that this could be expedited if done as part of a consolidated package of measures to address fuel quality, noxious emissions and CO2 standards for new light vehicles.



# Benefits of new fuel quality standards

The AAA supports changing Australia's fuel quality standards, as it will reduce the environmental impact of motoring, support greater supply of new vehicles with advanced engine technologies and enable the introduction of new vehicle emissions standards.

### a. Reduced health impacts

Aligning Australia's fuel quality standards more closely with international practice will reduce air pollution and deliver health benefits, particularly in Australian capital cities. Australia does not have the same severity of air quality problems as some other countries. However, for some noxious emissions, such as particulate matter, there is no considered safe level of exposure. Therefore, any reduction in emissions will deliver health benefits and should be pursued where possible.

## b. Better vehicle technology

Improving our standards will enable the supply of vehicles with the latest engine and emissions technology. The AAA recognises that vehicles are designed and calibrated to operate using a particular fuel specification. Without appropriate fuel, manufacturers may be unable to supply new vehicle models into the Australian market in the future or may need to recalibrate engines to avoid operability issues.

The AAA recognises that Australian fuels are of a better quality than the current minimum standards require. However, as engine technology improves, and emissions regulations tighten, the more critical it is that appropriate fuel is consistently available.

### c. Delivers other policy objectives

Critically, new fuel quality standards are necessary to implement Euro 6 and a CO2 standard on new light vehicles. This has been the view of the AAA since the Australian Government announced the Ministerial Forum on Vehicle Emissions in October 2015.

It is generally acknowledged that sulfur limits in Australian petrol must be reduced to 10ppm before the introduction of Euro 6, and the AAA supports moving to 10ppm sulfur petrol by no later than 2027. Euro 6 emissions regulations tighten on-board diagnostic thresholds and increase durability requirements of the emissions control equipment. If Euro 6 is introduced before low sulfur petrol is available, there is a real risk that on-board warning lights will appear more regularly, meaning consumers will need to take their car to repair workshops more often. It could also result in more regeneration processes to clear particulate filter blockages, an automatic process which uses more fuel.

In Europe, changes to fuel quality were inherently linked to the introduction of tighter emissions regulations. The EU reduced sulfur limits in petrol to 150ppm in 2000 to enable the introduction of Euro 3. In 2005, the sulfur limit was reduced to 50ppm to enable the introduction of Euro 4, and the limits were further reduced to 10ppm in 2009 to enable the introduction of Euro 5 and 6. Reducing sulfur limits in European petrol from 150ppm to 10ppm occurred over nine years, and in every case, the new fuel standards preceded the new emissions standards.

While the link between sulfur limits and Euro emissions regulations is generally acknowledged, changes to fuel standards are also required to implement CO2 standards. A CO2 standard necessitates the introduction of Euro 6 to manage the potential increase in diesel engine vehicles and direct injection technology (which delivers CO2 reductions but increases noxious emissions). In fact, Euro 6 implements particulate number limits specifically for direct injection vehicles. Pursing a CO2 standard without Euro 6 could lead to an increase in noxious emissions with associated health consequences.

Further, it is expected that fuel-efficient vehicles will increasingly be designed to comply with Euro 6 regulations. In other words, fuel efficient, low emission vehicle technology will come as a pair. Therefore, if car manufacturers are unable to supply vehicles that comply with Euro 6, Australians may not be offered the latest fuelefficient vehicles as a result.

Implementing a CO2 standard, Euro 6, and new fuel quality standards in a coordinated timeframe will ensure that manufacturers can supply the latest low emissions vehicle technology to Australia.

## Fuel quality and vehicle emissions standards

As stated above, the AAA holds a strong position that fuel quality standards are a prerequisite to the introduction of CO2 standards and Euro 6 for new light vehicles. The AAA has consistently called for the Government to present a package of measures that details the preferred approach for a CO2 standard, Euro 6 and new fuel quality standards. However, since the establishment of the Ministerial Forum on Vehicle Emissions in October 2015, consideration of CO2 standards and Euro 6 has progressed ahead of new fuel quality standards.

The AAA is pleased the Draft RIS has been released ahead of a final decision from Government on Euro 6 and a CO2 standard. The Draft RIS provides an opportunity to re-align all three issues and the AAA is seeking assurances from Government that all three pieces of work can now move forward together as a single package.

The AAA continues to call on the Government to provide stakeholders with an opportunity to assess the three regulatory proposals as one consolidated package, before a Cabinet decision is made. A final cost benefit analysis covering all three issues is necessary to ensure a cost benefit ratio is calculated from an appropriate baseline. The Draft RIS baseline assumes no change to Euro standards and no CO2 standard, despite both being under active consideration and likelihood of impending changes. The introduction of new emissions standards changes the baseline, which changes the costs and benefits of all options. The Draft RIS acknowledges this fact:

This study assesses the costs and benefits of changes to fuel quality standards in isolation from changes to noxious emissions standards and fuel efficiency standards. If the three studies are read together, adjustments will need to be made, particularly relating to the assessed health impacts and fuel consumption benefits of the various reforms. The baseline used to model emission and fuel consumption reductions, linked to the introduction of revised fuel quality parameters, will need to be realigned. The realignment will have to account for emission reduction and fuel consumption reductions achieved through the introduction of revised fuel quality parameters in combination with introducing revised noxious emissions standards and fuel efficiency standards<sup>1</sup> There are similar issues with the cost benefit analysis of Euro 6 and a CO2 standard, which were released for consultation in December 2016. The Euro 6 Draft RIS baseline assumes no change to fuel quality and no CO2 standard. The CO2 Draft RIS baseline assumes no change to noxious emissions and no change to fuel quality.

The AAA appreciates the reasons for developing the cost benefit analysis for the Draft RIS process against a baseline assuming no changes to other regulatory barriers. However, once a decision is made on each of three proposals under consideration by the Ministerial Forum on Vehicle Emissions, they can, and must, be brought together and analysed as one package with one consolidated cost benefit analysis.



## **Consideration of options**

In considering each of the three options presented in the Draft RIS, the AAA has reviewed their impact on fuel prices, the unique challenges for Australia to limit aromatics in petrol to 35 per cent, and the costs and benefits of the three different timelines.

#### a. Fuel prices

The key priority for the AAA in assessing the three options presented in the Draft RIS is to determine the impacts on fuel prices. The AAA Transport Affordability Index shows that over 14 per cent of the average household city income is absorbed by transport costs. Fuel accounts for 21 per cent of transport costs in capital cities and 27 per cent in regional centres.<sup>2</sup> Transport costs are a significant and unavoidable burden on household budgets and even small changes in fuel prices hit Australian families hard.

The AAA believes Option B would have a material impact on household budgets, as it increases fuel prices above 4 cpl. Given Option B does not deliver a positive cost benefit ratio in the modelling presented in the Draft RIS, the AAA does not currently support this option.

Option C and Option F do not appear to significantly alter fuel prices. The different timelines for each option do not significantly change the fuel price either. Given the benefits Option C and F deliver in terms of health and vehicle choice, the small increase in fuel prices modelled in the Draft RIS is acceptable to the AAA.

The AAA would be most interested in understanding the assumptions used to assess the price impact of 95 and 98 RON under Option C. The Draft RIS states that there would be a 0.3 cpl increase in the price of 95 and 98 RON that limits aromatics to 35 per cent, yet it is unclear whether this is the cost of further refining processes or specific octane enhancers were used, or both.

#### b. Aromatics

The key difference between Option C and Option F is the aromatic content permissible in Australian fuels. Aromatics contribute to a petrol's octane rating but can lead to an increase in noxious emissions and affect engine operability. Vehicle manufacturers strongly argue that aromatics must be limited to 35 per cent to optimise engine and emissions performance, especially for vehicles that comply with Euro 6c and 6d.

There is evidence to suggest that a reduction in aromatics would optimise engine and emissions performance. For instance, the Worldwide Fuel Charter (fifth edition) cites research showing that a reduction of aromatics from 45 per cent to 20 per cent caused a reduction in total exhaust air toxics of 28 per cent; that a reduction from 45 per cent to 20 per cent caused a reduction of CO2 emissions by 5 per cent; and that a reduction from 30 to 10 per cent reduced NOx by 5 per cent.<sup>3</sup>

However, as reducing aromatics affects octane levels, it is critical that full consideration is given to cost-effective solutions to reduce aromatics and maintain octane. European standards limit aromatics to 35 per cent, however, they also allow certain octane enhancers (notably MTBE), which are prohibited in Australia due to their potential to contaminate groundwater. This leaves Australia with fewer costeffective solutions to reduce aromatics.

Option C reduces aromatics to 35 per cent, however there is no clear cost-effective proposal to maintain octane. The Draft RIS outlines several alternatives to MTBE, however they all require further detailed analysis. There is also little analysis on the effect Option C would have on local refinery viability and whether a boutique Australian standard will reduce international supply sources.

The AAA believes the Government must undertake a detailed analysis of the issues pertaining to aromatics before a final decision is made. An independent analysis must consider the real barriers to lowering aromatics in petrol without octane enhances like MTBE, as well as the cost-effective solutions available for Australian and overseas refineries, and what it means for local refinery viability and international supply sources.

The AAA proposes that the findings and recommendations of the independent analysis be released when the Government releases its preferred approach to all three regulatory proposals for consultation, as requested by the AAA. This will ensure the process continues to move forward and there are no unnecessary delays.

#### c. Timelines

The AAA believes the Government must undertake further analysis of the impacts of each of the different timelines presented before a considered judgement can be made.

The Draft RIS does not consider the implications of possible local refinery closures. The AIP has stated, clearly, that if new standards are introduced before 2027, one or more Australian refineries are likely to close. Due to the Australian fuel price structures being closely linked to international price settings, the AAA does not expect a refinery closure to have a significant impact on fuel prices. However, such an outcome would have a broad economic impact that would affect the cost benefit ratio. A comprehensive understanding of the impacts of refinery closure must be clearly understood before a decision is made on fuel standards.

In addition, pursing a 2027 timeline means delayed introduction of Euro 6 (which delivers further health benefits) and limited ability to make significant reductions in CO2 emissions from light vehicles until post 2027.

To make a considered judgement on the timelines, the Government must first consider the economic impact of Australian refinery closures and what flow on affects this outcome might have on fuel supply and the broader economy. Secondly, the Government must fully account for opportunity costs associated with a 2027 timeline, for example delayed implementation of Euro 6.

In addition, the AAA is mindful that a pre-2027 timeline could result in calls for financial incentives to Australian refineries to ensure viability. The AAA has previously opposed financial incentives that are passed on to consumers as costs and continues to oppose any such measure.



## **Other considerations**

## a. Cost of refinery upgrade

The AAA seeks clarification on the costs of refinery upgrades as presented in the Draft RIS.

In March 2017, the AIP submission to the *Better fuel for cleaner air* discussion paper stated that the cost of refinery upgrades would be \$979 million in 2017 dollars. The AIP stated that "No attempt was made to estimate the construction market in 2027 and thereby forecast costs in the actual construction period."<sup>4</sup>

However, it appears the Draft RIS assumes that a refinery upgrade in 2021 (to meet a 2022 timeline) would cost \$979 million in 2021 dollars and a refinery upgrade in 2026 (to meet a 2027 timeline) would cost \$979 million in 2026 dollars. This is broken down in Table D, Appendix B in the Draft RIS.

The assumed construction costs in each of these years are important as they affect the Net Present Value (NPV) calculation which impacts on the cost benefit analysis. The NPV value of refinery upgrade under Option F to meet a 2027 timeline is \$532.5 million and \$746.9 million to meet a 2022 timeline. However, if the actual construction cost in 2026 is higher than in 2021, then the NPV will change. The AAA believes the Government needs to clarify this calculation.

### b. Bio-standards

The AAA is not opposed to the development of an E85 standard, but questions whether one is needed, considering the very low volume of vehicles that can operate on E85.

The AAA is not opposed to a new standard for a B20 diesel-biodiesel blend and extending the scope of automotive diesel to diesel for nonroad purposes.



## Conclusion

The AAA supports changing Australia's fuel quality standards to better align with international best practice. It would reduce the environmental impact of motoring, enable the supply of vehicles with the latest emissions technology, and allow the introduction of new vehicle emissions standards.

The AAA has consistently argued that Australia must update its fuel quality standards to introduce a CO2 standard and Euro 6, and that the Government must present a preferred position on all three regulatory proposals with one cost benefit analysis for consultation before a final decision is made. The AAA believes the Draft RIS reinforces the need for such consultation. The request for further analysis on aromatics and the implications of different timelines can be presented in the final consultation the AAA has asked for. This will ensure there are no further delays and a final decision on fuel quality, CO2 standards and Euro 6 can be made as soon as possible.

#### Endnotes

- 1 Department of Environment and Energy, "Better fuels for cleaner air: draft regulation impact statement", January 2018, p. 44
- 2 Australian Automobile Association, "Transport Affordability Index", December 2017 quarter
- 3 Worldwide Fuel Charter, Fifth Edition. See page 29
- 4 Australian Institute of Petroleum, submission to the "Better fuels for cleaner air: discussion paper", March 2017, p. 57



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