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Submission by the Climate Change Authority

**The Fuel Efficiency Standard – Cleaner, Cheaper to
Run Cars for Australia**

MAY 2023

Overview

1. In its [2022 Annual Progress Report](#) the Authority welcomed the Government's announcement that it is considering implementing a Fuel Efficiency Standard and supported such a standard commencing as soon as possible. The Authority noted that achieving Australia's emissions reduction targets requires more action across all sectors of the Australian economy. Accelerating the deployment of proven clean energy technologies, such as zero emissions vehicles, is vital for getting on track.
2. The Authority has also supported policy action to reduce emissions from Australia's light vehicle fleet and deliver benefits to consumers in its reports, '[Light Vehicle Emissions Standards For Australia](#)' (2014) and '[Prospering in a low-emissions world: An updated climate policy toolkit for Australia](#)' (2020).
 - a. The Authority's 2014 report found that the benefits of an emissions standard substantially outweigh the costs at both private and national levels, including through fuel savings for motorists.
3. For the purpose of this submission, the Authority will refer to battery electric vehicles (BEVs), plug in hybrid electric vehicles (PHEVs) and fuel cell electric vehicles (FCEV) as electric vehicles (EVs). These vehicles have low to zero tailpipe emissions.
4. The Authority observes that for emissions from light vehicles to be largely eliminated by 2050, consistent with Australia's target of net zero emissions by 2050 and given the time it takes for the vehicle fleet to turnover, EVs will need to reach 100 per cent of new car sales by around 2040. The Fuel Efficiency Standard should decline to 0 g CO₂ per km as rapidly as the market can adapt, with due consideration to and monitoring of supply chain issues.
5. Australians are purchasing EVs in increasing numbers. Based on current trends, 6 to 7 per cent of new vehicles sold in Australia in 2023 will be EVs. EV sales have doubled year on year since 2018 and policy should support this trend to continue.
6. In the near-term there are benefits for Australian consumers from moving quickly to adopt low emissions vehicles including saving money on fuel and maintenance costs.
7. Having a larger share of low emissions vehicles in Australia will be constrained by current supply chain issues. The supply chain challenges for EV manufacturers include shortages of semi-conductor chips and rising prices for lithium, nickel and cobalt. Overcoming these supply chain issues and increasing the scale of electric vehicle production, and ultimately reaching price parity between electric and fuel combustion vehicles, will be part of ensuring consumers are able to make low emissions choices in the vehicles they purchase.
8. The Authority is of the view that there needs to be greater deployment of recharging infrastructure for EVs in Australia. There is a risk that a lack of recharging options for motorists will hold back demand for EVs. More generally, the increase in electrified transport will have implications for the electricity grid. These implications should be considered in related energy transition policy development processes, such as the post-2025 electricity market design project and the development of the National Energy Performance Strategy.

General questions

Are these the right guiding principles? Are there other principles that you think we should keep in mind?

Response:

The Authority recommends the Fuel Efficiency Standard be designed with regard to the following principles:

- be effective in reducing the emissions of the light vehicle fleet, as well as being economically efficient,
- be equitable,
- be transparent, credible and robust, and
- enable vehicles with the latest technology

Implementation of the Fuel Efficiency Standard and complementary policies to support the take-up of EVs, such as measures to support the roll-out of charging infrastructure, should take account of the circumstances of communities in rural and regional Australia.

Are there any design assumptions that you think will put at risk the implementation of a good FES for Australia?

Response:

The Fuel Efficiency Standard should be designed and implemented to incentivise the supply of low and zero emissions vehicles as fast as the market can supply them, while maintaining choice and affordability for consumers and avoiding unintended consequences such as incentivising the importation of older more polluting vehicles.

Are the exclusions for heavy vehicles, military, law enforcement, emergency services, agricultural equipment and motorcycles the right ones?

Response:

These are appropriate exclusions to have for designing and implementing a passenger vehicle Fuel Efficiency Standard. However, these excluded vehicle types and sectors will require their own decarbonisation policy approaches. These excluded vehicles benefit from a global supply chain of parts and oil products that are produced at scale for mass use by internal combustion vehicles. They will be exposed to price and supply shocks as supply for internal combustion engines reduce and transform. Heavy vehicles on Australia's roads contributed 5 per cent of Australia's 2021 emissions.¹

The Authority proposes that the Government consider the policies, regulations and market mechanisms that would drive decarbonisation for these excluded vehicles and produce an

¹ <https://ageis.climatechange.gov.au/>

appropriate strategy to implement them.

How many years ahead should the Government set emissions targets, and with what review mechanism to set limits for the following period?

How should the Government address the risks of the standard being found to be too weak or too strong while it is operating?

Response:

For vehicle manufacturers to be able to adjust their fleet offerings to meet emissions targets, the Fuel Efficiency Standard could include national average targets up to five years, and a minimum of two years in advance as the standard tightens. The administrative arrangements for the Fuel Efficiency Standard should include a regular review process to identify any adjustments needed to ensure that emissions goals are being met and that consumers are being supplied with a range of vehicle options at acceptable price points.

Technical questions

What should Australia's CO₂ FES targets be?

How quickly should emissions reduce over what timeframe?

Should the Australian FES start slow with a strong finish, start strong, or be a straight line or take a different approach?

Response:

The Australian Fuel Efficiency Standard should commence as soon as possible and decline to 0 g CO₂ per km as rapidly as the market can adapt, with due consideration and monitoring of supply chain issues.

The starting point for the Fuel Efficiency Standard in early 2024 should be equal to or lower than the 2023 known or modelled baseline to encourage more electric vehicles and less polluting combustion vehicles. The Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) should consider the current supply outlook—including with regard to the overall availability of low emissions models, the range of low emissions models and pricing—and set the lowest possible starting point of g CO₂ per km that the market can supply under a footprint model Fuel Efficiency Standard.

While the DITRDCA has given the known baseline of the new car fleet as 173.6 g CO₂ per km in 2021, there has been an increase in electric vehicle sales over the last three years. The 2023 baseline would likely be lower than the 2021 baseline provided.

The DITRDCA has shown that the emissions intensity of Australia's passenger and light commercial

fleet has reduced at a slower rate and remains higher than international comparisons, indicating there have been insufficient drivers to bring lower emissions intensity vehicles to the market. Australia's light vehicle fleet (excluding motorcycles) emitted 57 Mt CO₂-e in 2021 which represents 12.3 per cent of Australia's 2021 emissions.² With currently available EV technology Australia can make significant reductions in this source of emissions. Taking as a starting point Australia's target of net zero emissions by 2050, if emissions from new light vehicles are to be largely eliminated by 2050, the share of EVs in total light vehicles sales will need to reach 100 per cent by around 2040 given that it takes time to turn over the light vehicle fleet. This is based on CSIRO modelling for the Australian Energy Market Operator (AEMO) (see Table 1 below).

Table 1. Percentage of EVs in the new car market and Australian car fleet in scenarios modelled by CSIRO³

<u>Scenario</u>	<u>Projected year that 99% of new sales are zero emissions</u>	<u>Projected year that zero emissions vehicles are 99% of the fleet</u>
Hydrogen Export	2038	2045
Step Change	2042	2050
Exploring Alternatives	2048	2055
Progressive change	Well after 2050	Well after 2055

The auto industry has faced a number of supply chain issues in the last two years including shortages and price increases of key minerals for battery cell production (cobalt, nickel, lithium and manganese)⁴, and increased demand and shortages of semi-conductors and specialty cathodes and anodes.⁵ Australia has reportedly seen limited supply of vehicles⁶ like the Hyundai Ioniq, Kia EV6 and Volvo XC40, while demand is high in other markets.⁷ It is important that the trajectory of the Australian Fuel Efficiency Standard allows industry to match the speed of the emissions reductions, due to significant time and investment required for the design and production of major parts and building reliable supply chains of components.

The Fuel Efficiency Standard could be tightened over time in stages, with each stage providing an opportunity to monitor the response of the new vehicle market and make any necessary adjustments. The setting of each set of standards should strike a balance of providing certainty to manufacturers and achieving zero emissions in Australia's light vehicle fleet by 2050.

² <https://ageis.climatechange.gov.au/>

³ Australian Energy Market Operator (2022) [Electric vehicle projections 2022](#)

⁴ International Energy Agency (2022) [Global Supply Chains of EV Batteries](#)

⁵ International Energy Agency (2022) [Global EV Outlook 2022](#)

⁶ SBS (2022) [Want to be driving an electric car by Christmas?](#)

⁷ The Australian (2023) [Aussies are joining sometimes years long lists for electric vehicles](#)

Should an Australian FES adopt a mass-based or footprint-based limit curve?

Response:

The Authority supports a footprint-based standard over a mass-based standard as described in the Authority’s 2014 research report, which describes a footprint-based approach as ‘an effective and least-cost model that would deliver net benefits with a low regulatory burden’.

A footprint approach uses a mathematical relationship between the size of vehicles, measured as track width times wheelbase (footprint), and their emissions intensity to set a limit on the average emissions intensity of the fleet. Larger cars would be permitted somewhat more emissions than smaller cars. The footprint approach recognises the different consumer utility of different vehicles.

Are there other policy interventions that might encourage more efficient vehicle choices?

Response:

The Authority is of the view that there needs to be greater deployment of recharging infrastructure for EVs in Australia. The roll-out of this infrastructure will take a number of years and the design of the Fuel Efficiency Standard needs to take account of the availability of this infrastructure.

The Authority supports the Government’s commitment under the National Electric Vehicle Strategy to develop a national mapping tool to support optimal investment in, and deployment of electric vehicle charging infrastructure.

The Authority’s 2020 report, [‘Prospering in a low-emissions world: An updated climate policy toolkit for Australia’](#) outlined several policy interventions that would support more efficient vehicle choices and recommended that the Government should:

- develop standards for vehicles and charging infrastructure to ensure interoperability of different plug types,
- ensure there is adequate charging coverage on highways and in regional areas, and
- ensure public electric vehicle infrastructure addresses barriers to uptake for those without access to private charging

The Government could also examine whether other measures are necessary to enhance the accessibility of EV charging for motorists, for example in relation to payment system options, interoperability of mobile applications and information on the location and availability of charging stations.

The Authority is of the view the Government should also consider facilitating imports of quality, suitable second-hand EVs to increase both the overall supply and the range of choices for Australian consumers.

To what extent should the Australian FES allow credit banking, transferring and/or pooling?

Should an Australian FES include off-cycle credits for specified technologies?

If so, should the per-vehicle benefit be capped and how should an Australian FES ensure that off-cycle credits deliver real emissions reduction?

Should the Government consider any other form of off-cycle credits for an Australian FES?

Should an Australian FES include credits for using low global warming potential air conditioning refrigerants, and if so, for how long should this credit be available?

Could the issue of high global warming potential refrigerants be better dealt with by another policy or legislative framework?

If such a credit is permitted, should the emissions target be lowered to ensure consumers realise the fuel cost savings and EV availability benefits of a FES?

Should credits expire? In what timeframe?

Response:

Fuel Efficiency Standards in overseas new vehicle markets allow suppliers to accrue credits if they do better than required by the standard (adopted in the US and NZ). Under this arrangement:

- individual suppliers who overachieve, can sell credits to manufacturers which have not met their targets (adopted in the US),
- suppliers that overachieve can bank the surplus credit for future years (subject to an expiry period),
- suppliers that do not meet their target can carry a debit forward with a shorter expiry period than for surplus credit, and
- suppliers can pool credits to meet targets collectively

The Authority notes that credit banking can encourage overachievement and give flexibility to manufacturers to meet their obligations under the standard. In its [2014 research report](#), the Authority concluded that credit trading between manufacturers is unlikely to be cost effective because of the relatively small size of the Australian market. Given the similarities between credit trading and pooling, pooling is unlikely to be cost effective.

The expiry timeframe of credits can be used to manage the risk of over-allocation of credits. A slow start might allow manufacturers to generate many credits and give them flexibility once the standard accelerates. However, exploitation of this flexibility could be limited by expiring credits in a reasonable timeframe. The Authority recommends the decision on timeframe consider supply constraints.

Super credits and other credits

The Authority notes that the use of super-credits, credits for refrigerants or hydrofluorocarbons

(HFC)⁸ phase out or off-cycle credits, are not necessary to the functioning of the Fuel Efficiency Standard. Keeping the standard focused on tail pipe emissions, without multipliers, would allow the scheme to remain simple in concept and free of integrity issues that could arise with other forms of crediting.

- Super-credits are credits that apply a multiplier for providing vehicles that are below certain emissions levels. For example, in the EU, vehicles with tailpipe emissions lower than 50 g CO₂ per km are counted as 1.33 cars in 2022. Super-credits are unlikely to generate additional abatement, since demand for low emissions vehicles are already incentivised in federal, state and territory tax, rebate or interest free loan policies. These policy tools directly address demand, while not risking the integrity of Fuel Efficiency Standard.
- Refrigerants and the HFC phase out are regulated under the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989. Their use is discouraged through the Import/Manufacture Levy on Equipment license holders.⁹ Crediting low GWP refrigerants is unlikely to incentivise additional action and would increase complexity.
- Off-cycle credits are intended to encourage emissions reductions technologies in vehicles not captured in the fuel efficiency tests, such as engine stop start and high efficiency exterior lights. Credits would be unlikely to impact manufacturer decisions in researching alternative efficiency innovations.

⁸ a type of synthetic greenhouse gas, mostly used in refrigeration and air conditioning equipment.

⁹ DCCEEW (2021). [Equipment Licences \(EQPLs\)](#)

Should the Government provide incentives for the supply of EVs ahead of a FES commencing? If so, how?

Response:

The Authority intends to review the existing suite of incentives for the supply of EVs in its 2023 Annual Progress Report, within the context of the Government's intention to introduce the Fuel Efficiency Standard. Once the Fuel Efficiency Standard is implemented and has been operating for a period of time, it will be appropriate to assess the need for complementary measures to support the transition to EVs, including the role of varying support mechanisms across government jurisdictions and the potential benefits of more nationally consistent approaches.

Should the regulator be the department? What other options are there?

Response:

The regulator should be an appropriately resourced independent government agency. The Authority is of the view that there should be a clear separation and independence between the policy and rule setting function of the standard and the compliance and enforcement of the standard in the governance arrangements for the regulator. The regulation of the Fuel Efficiency Standard should not be undertaken by the industry.

The Authority notes that the Clean Energy Regulator has systems and processes that could be used in the implementation of the standard, including for the issuance, tracking and surrendering of credits. The Department could explore with the Clean Energy Regulator how it might leverage its regulatory infrastructure.

What should the penalties per gram be? Would penalties of A\$100 per gram provide a good balance between objectives? What is the case for higher penalties?

Response:

The Authority considers that penalties per gram will be effective if determined on the basis that penalties should be sufficient to influence behaviour, and not simply a 'cost of doing business'. The Government could consider more severe penalties per gram for suppliers with high fleet emissions compared to suppliers with fleet emissions slightly above the allowable grams under the standard.

Where possible the penalties should align with penalties in other markets to avoid creating an incentive for suppliers to pay the lowest penalties in Australia to take non-compliant vehicles.

Penalties should be kept under review as the allowable grams of carbon decreases, to ensure penalties remain sufficient.

What if any concessional arrangements should be offered to low volume and niche manufacturers and why? If so, how should a low volume manufacturer be defined?

Response:

The Authority considers that any concessions offered to low volume manufacturers should be carefully considered alongside the definition of a regulated entity and rule structures for credit pooling, to ensure suppliers cannot create corporate structures that allow them to avoid complying with the standard. Any exclusions could be time-limited (e.g., available only until 2030) to allow eligible suppliers time to adjust their business model to the standard.

How should the regulated entity be defined in an Australian FES?

Response:

The definition of an entity should be carefully considered along with rule structures for credit accumulation and pooling, as well as concessions for small volume manufacturers. The definition should not create loopholes by allowing suppliers to create corporate structures for the purpose of avoiding the need to comply with the standard. The risk of such behaviour will decline over time as the allowable grams of CO₂ per km declines, and the market is required to supply larger numbers of zero tailpipe emissions vehicles to comply.

Should an Australian FES use WLTP test results in anticipation of the adoption of Euro 6 and if so, what conversion should be applied to existing NEDC test results, or how might such a factor be determined

Response:

The Authority considers that emissions reductions should be measurable and verifiable, and so supports testing that provides more accurate real-world data on emissions from passenger vehicles. Australia should begin to use WLTP¹⁰ test results in anticipation of adopting the Euro 6d standard and consider the appropriateness of aligning its Fuel Efficiency Standard with Euro 6d as fast as the market and Australia's regulatory environment (including fuel standards) can adapt.

¹⁰WLTP Facts.EU (2022) [WLTP Facts](#)