Engineers Australia

Fuel Efficiency Standard submission

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Contents

Engineers Australia Fuel Efficiency Standard submission

The report can be downloaded at engineersaustralia.org.au

Engineers Australia

11 National Circuit, Barton ACT 2600

Tel: +61 2 6270 6555

Email: policy@engineersaustralia.org.au

1. About Engineers Australia

Engineers Australia is the peak body of the engineering profession representing the collective voice of over 115,000 individual members. Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community.

Engineers and the engineering profession are indispensable contributors to Australian prosperity and lifestyles. Engineering services are embodied in almost every good or service consumed, used or traded by Australians, now and in the future. Engineers enable productivity growth by converting "brilliant ideas" into new commercial products, processes and services. Engineers also ensure society gets the most out of existing facilities by optimising their operations and maintenance.

Engineers are enthusiastic participants in public discourse, contributing to meaningful community and policy discussions that impact the economy and society. Engineers Australia formulates its policy positions through engagement with members and non-member engineers, industry, educators, government officials, and other experts across Australia and internationally. By synthesising these diverse perspectives, we develop evidence-based policy aligned with the highest professional standards.

2. Contact us

Engineers Australia welcomes the opportunity to discuss the ideas outlined in this paper. If you would like to discuss this further, please contact policy@engineersaustralia.org.au.

3. Principles and design assumptions

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

The most important guiding principle should be developing a FES which is effective. The objective of a FES is to reduce pollutants and total energy consumption, as well as CO2 emissions from light vehicles. The standard must align with national emissions reduction targets and the proportional contribution of light vehicle emission reductions to achieve these overall targets.

The implementation should provide a mechanism for regular review of Australia's FES so that it keeps pace with international best practice. We know we can get the vehicles to meet the target by aligning to a standard such as the EU. The standard must align with all of the dominant standards in the EU, UK and US to make it easy to import all models, otherwise we will create trade barriers.

There is the potential for the average life of vehicle fleets, such as existing ICEs, to increase as a result of them becoming less available beyond 2030, and this needs to be considered in modelling the trajectory of emissions reduction targets.

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

Engineers Australia cannot see any reason to provide a blanket exclusion for vehicles used in the military, law enforcement, emergency services or agriculture if the vehicles fit the definition of a light vehicle. These sectors vary in the complexity with which they can be transitioned to BEV or other zero emission technology. Law enforcement and emergency services should be subject to the regulations from the outset, as BEV options for each already exist. Military, agricultural equipment and motorcycles are all the subject of zero emission / BEV vehicles being developed in other markets.

None should be excluded since all are possible. However, there could be a process to provide exemptions or temporary delays for a particular category. If we allow exclusions, we need transparent criteria and a robust process for granting them.

4. FES design features

What principles should we consider when setting the targets?

Australia does not manufacture light vehicles and accounts for one per cent of the global car market. Because Australia is not a big market, we need to make it easy for manufacturers to bring low emission vehicles here. Since Australia is entirely an importer of light vehicles, we should set targets consistent with jurisdictions that are supplied by the same range of manufacturers in their market. For markets with Left Hand Drive (LHD) vehicles, the obvious choice would be the United Kingdom. European, US, Chinese, Japanese and Korean manufacturers all supply to both Australia and the United Kingdom. This would create a larger common low emission light vehicle market between the two, reducing costs for manufacturers and consumers. The idea that manufacturers must develop an "Australian version" of each model is a costly anachronism that should cease.

We are starting well behind other comparable countries and need to be ambitious in line with our carbon abatement goals. We should start strong and move quickly to catch up with other markets. A slow transition will perpetuate the relatively higher prices that BEV purchasers pay in Australia and protects ICE vehicle purchasers from any price signal regarding carbon pollution impacts. The targets should aim for close to zero emissions for new light vehicles by 2035. This gives 15 years to renew the remaining light vehicles to reach close to zero emissions from the whole fleet of light vehicles by 2050.

5. Starting emissions level limit and approach

What should Australia's CO2 FES target be?

The target must align with the EU FES of 95 g CO2/km for cars from the outset and aim for zero emissions by 2035 at the latest. This provides a clear and unambiguous message on what

Australia's targets are. This approach reflects that Australia does not manufacture vehicles and is a small fraction of the global market.

How many years ahead should the Government set emission targets?

The Government should set a trajectory from the outset to 0 g CO2/km. A review every five years provides a reasonable balance between certainty for vehicle manufacturers and the ability of the government to ensure the targets are being met. The FES targets for each year should be set for the first five years, 2024 to 2028 and foreshadowed for the remaining years, but not set in legislation. The legislation should set a review by the Department of Transport in 2028 to recommend yearly targets from 2029 to 2035. The relevant Minister then sets the targets for the next period through regulations or gazettal.

Longer timeframes for evaluation make more sense when the emissions reduction trajectory is ambitious. Firstly, the longer notice gives suppliers more certainty to respond to the challenge. Secondly, when initial targets are ambitious, it is less likely they will need to be re-visited, such as may be the case where low ambition targets are later recognised as failing to deliver the required rate of emissions reduction.

6. Attribute based emission limits

Engineers Australia does not support a limit curve. This approach encourages the purchase of smaller and lighter vehicles which would have a greater effect at:

- reducing emissions
- saving energy – both petrol and electricity
- reducing damage to road surfaces
- reducing the trauma from road crashes.

A sloped limit curve gives distorted incentives. A supplier is helped to meet their emissions target more if they sell larger or heavier zero-emissions vehicles. However, larger or heavier EVs will use more electricity per kilometre travelled, where some of the electricity used will be generated from fossil fuel sources for the next two decades or more. The scheme must treat each gram of CO2 emission equally valuable, regardless of the size of the vehicle emitting CO2.

Suppliers of larger vehicles will have avenues to avoid penalties by pooling credits or buying surplus credits. They may pass on price increases to customers, but this is the expected outcome from an effective standard.

Most of Australia's population is urbanised, so any concerns about the continued availability of ICE cars immediately following the adoption of a FES appears to be misplaced. In addition, Toyota Hilux and other larger vehicles are still available in Europe where a strong FES is in place.

If Australia adopts a mass-based limit curve, should it be based on mass in running order, kerb mass, or another measure?

Kerb mass. This is simpler and easier to identify in manufacturer specifications.

Should Australia consider a variant of the New Zealand approach to address incentives for very light and very heavy vehicles? If so, noting that new vehicles that weigh under 1,200 kg are rare, where should the weight thresholds be set?

Engineers Australia does not support having a limit curve as part of the scheme.

The current average mass of Australian light vehicles should be seen as the unintended consequence of taxation incentives on vehicle purchase rather than an actual market preference. Maintaining it should not be regarded as a policy objective or constraint. The proportion of heavy 4WD utility vehicles sold has trebled over the past two decades, despite the declining proportion of trades and construction workers in the workforce. The overwhelming predominance of four door "crew cab" models among 4WD utilities demonstrates the majority of these vehicles are used for passenger carrying purposes rather than trade use.

Should an Australian FES adopt two emissions targets for different classes of vehicles?

In principle, we prefer to see a single set of emissions targets for all light vehicles. However, we recognise that the supply of low-emission commercial goods vehicles is a long way behind passenger cars.

Engineers Australia advocates for combining MA and MC classes, as both are predominantly used for transporting people rather than goods. The NA class can be treated separately. The scheme should provide incentives for smaller, safer, more energy-efficient vehicles.

Is there a way to manage the risk that adopting two targets erodes the effectiveness of an Australian FES by creating an incentive to shift vehicle sales to the higher emission LCV category?

Preserving an unusually large Light Commercial Vehicle (LCV) share in the Australian car sales market is not inherently desirable. Such a dual target approach is not a policy feature in best practice jurisdictions. The growth of this category of vehicles is the primary cause of why average Australian car GHG emissions per kilometre are increasing despite the average emissions of cars reducing. (See "Utes and SUVs are obliterating EV emissions reduction gains," The Driven (2022).1

Combining MA and MC classes mitigates the risk of suppliers trying to sell more vehicles in the MC class rather than the MA class. There is a continuous spectrum of SUVs, some of which fall close to the border between these two classifications. There is still a risk of this happening with the NA class, but the risk is smaller. Goods vehicles are predominantly used for transporting goods and are less likely to be attractive as the family car.

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

A parallel shift towards vehicle standards harmonisation with jurisdictions that manufacture EVs and low emission vehicles would assist. For example, if Australia adopted EU (UK) vehicle

[1] https://thedriven.io/2022/09/15/utes-and-suvs-are-obliterating-ev-emissions-reduction-gains/

emission standards, it might also adopt EU (UK) vehicle safety regulations. This would also improve vehicle safety, as the current approach does not mandate vehicle safety features present in best practice jurisdictions.

7. Credits – flexibility mechanisms

A system of credits needs to be administered, which adds complexity to monitoring and compliance. However, an informal system as outlined below would be beneficial.

There is the potential for there to be many suppliers in a relatively small market, which may mean that the transaction cost (relative to the number of vehicles sold by a supplier) is relatively high. In other words, a credit trading scheme may not be efficient, especially for those suppliers with a smaller share of the vehicle market in Australia.

The credit trading system will need to be monitored and enforced. Given the issues with carbon credits and applying that dynamic to a highly competitive commercial vehicle market, trading credits seems more complex and does not contribute to the objective of reducing emissions.

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

The aim of the scheme is to achieve lower emissions across the whole sector. Flexibility should allow target emission levels to be more ambitious, particularly in the early years.

We have no objection to the following:

- a system of pooling
- a system of accruing credits and banking them for future years
- allowing suppliers to sell or transfer excess credits to another supplier.

Carrying forward debits should be restricted to the scheme's first two years.

Should credits expire? In what timeframe?

Credits should not be banked in the long term. Difficulties in coordinating import shipments to Australia mean that credits should only be permitted to apply to an adjacent financial year to smooth out imbalances that variations in shipping dates may cause.

8. Bonus credits for new/innovative technologies

Should an Australian FES include multiplier credits for LZEVs?

Engineers Australia does not support the use of multipliers.

LZEV vehicles are no longer innovative; they are becoming mainstream. Australia's FES will only have a minuscule effect on the development of low-emission technologies worldwide. Multipliers may have an effect on the mix of vehicles that suppliers bring into the country, but this is likely to be constrained by the conversion of overseas manufacturing processes. An ambitious emission target should have the same effect.

Multiplier credits or "super credits" will distort the targets. For example, suppose half the vehicles a supplier sells in a future year are EVs with zero emissions and the other half are ICE vehicles with 150 g CO2/km emissions. In that case, its average emissions are 75 g CO2/km. But with a multiplier of 1.5 for the EVs, the average gets recalculated as 60 g CO2/km. Reporting this against the target level would be misleading.

The US is phasing out super credits in 2024, and the EU reduced their multiplier to 1.33 in 2022, and it may be phased out altogether. There is no point in Australia adding the complexity of super credits to its FES scheme when we have no vehicle manufacturing.

As with the concept of a limit curve, multiplier credits are complex and difficult for the community to understand. It goes against the principle of transparency.

If so, what level should the multipliers be, should they apply equally to both classes of vehicle (if adopted) and for how long should they apply?

There should be no multipliers. Keeping the FES as simple as possible will avoid any perverse outcomes.

If not, should the Government consider another approach to incentivising the supply and uptake of LZEVs?

As a general principle, the regulations should be as similar as possible to those already in use in other jurisdictions, preferably those that are best practice in vehicle GHG reductions. Since we are dealing with an international industry that supplies to the same markets, adding any new and unique features in Australia creates a risk these will be circumvented by manufacturers to avoid achieving the objectives.

It is recommended the Government implement ambitious FES targets, trending down to zero emissions in new vehicles by 2035. The National EV Strategy should be left to cover all other incentives.

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

Australia is too small a market to influence what suppliers manufacture, and the impact of adopting common off-cycle standards from the EU and UK is so minor as to not justify the costs and effort of administering the scheme. If the Government decides to allow off-cycle credits for specific technologies, it must not delay the introduction of the scheme.

When do you think a FES should start?

The FES scheme should start on 1 January 2024. The longer the delay for the start date, the more difficult and costly the industry will find the transition. The industry must be immediately forewarned that this change is coming. Delays are unacceptable.

There should be no grace period. However, the supplier should be allowed to carry forward debits for the first two years. Partially meeting the targets over the first two years is better than not meeting the targets at all due to a grace period.

Administrative arrangements should be fast-tracked. Suppliers have been reporting to the FCAI voluntary scheme already.

How should the start date interact with the average annual emissions ceiling?

The target levels for each year should be tied to the actual year rather than the number of years after the scheme starts. Thus, if the scheme begins in 2024, the target for passenger vehicles in the first year would be 95 g CO2/km, but if it is delayed until 2025, the target in the first year would need to be reduced to be commensurate with the international target. This should counteract any delaying tactics from vested interests and keep the scheme on track to reach zero emissions from new vehicles by 2035.

The task of decarbonising is urgent. An Australian FES is overdue. There is currently inadequate supply and choice of EVs in Australia. The clearest and least ambiguous message is for the scheme to commence immediately when relevant legislation enters into force.

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

The evidence from other jurisdictions is that subsidies and incentives are more costly and no more effective than emission regulations. Some rationalisation of the various inconsistent State schemes may be desirable.

The Government should ramp up the transition to EVs for all governments and large corporates with directions/incentives to rotate vehicles after 20,000km or two years instead of the current 40,000km or four years. This increases EV sales and the number of used EVs in the market and improves the local private pricing due to the overall increase in volumes imported into Australia each year.

9. Penalties

Atmospheric GHG concentration has already reached a dangerously high level. Fines for non-compliance should be of sufficient magnitude to influence suppliers to quickly improve the fuel efficiency of the fleet they supply to comply with the FES.

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?

The policies that have worked better overseas have included penalties. Penalties need to be sufficient to impact the profitability of the supplier. Too small and manufacturers will ignore the fines; too high and they will cease to cooperate or leave the Australian market.

Engineers Australia suggests that the actual amount should be guided by research into the value required to achieve the required influence on suppliers. As of 2021, the EU penalty rate was already 95 euros (approximately A$155) per gram of CO2 above the target rate per vehicle. The target rate was 95 gCO2/km, having started at 130 gCO2/km in 2012. Given that per capita incomes between the EU and Australia are similar, there seems no reason to adopt a lower penalty rate in Australia than in the EU.

10. Concessional arrangements

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

Engineers Australia does not support concessions or arrangements for low volume manufacturers. Low volume manufacturers are typically sports and luxury vehicles selling with higher-than-average emissions. It would be highly desirable to include this group in any scheme.

The emissions from the vehicles imported by a low-volume supplier should count towards the overall target, regardless of whether the vehicles have high, low or zero emissions. Low-volume importers of high-emission vehicles can pool or purchase credits from another supplier.

11. Administration

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

The Department of Transport is the best department to administer the scheme. While testing of vehicles is something the states could conduct, the fuel efficiency standard and the application of penalties must be done at a national level to span the sales across all states. Thus, the Department of Transport is the most applicable department to administer the scheme.

In Australia, the regulatory effort has fallen below the minimum level to ensure the system works. Governance arrangements should be informed by lessons learned from best practice jurisdictions such as the EU.

The system's administration must be open and transparent to build consumer confidence. Records should be kept for at least as long as the vehicle is on sale.

People do not have the time or inclination to calculate the benefits of improved fuel efficiency. Information about emission reductions and the costs of fuel efficient vehicles needs to be made widely and freely available to the public.

12. Testing

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?

Engineers Australia supports adopting the World harmonised Light vehicle Testing Procedure (WLTP). Most world vehicles are manufactured to comply with it. WLTP reflects real-world emissions more accurately than the current NEDC procedure2. This suggests a conversion factor of 1.05.

[2] https://www.oeko.de/fileadmin/oekodoc/Changeover-NEDC-to-WLTP.pdf

Real-world testing is critical. Previous checking has revealed emissions were around 25% higher than claimed. Further, we are not aware that the Australian government, or any State or Territory, currently tests imported vehicles for emissions in laboratory or “real world” conditions (AAA, 20173). For the integrity of an emissions regulation with potential financial penalties attached, a credible testing facility will need to be contracted with a suitably equipped technical centre, such as ANCAP or a University engineering faculty.

[3] https://www.aaa.asn.au/wp-content/uploads/2018/03/Real-World-Driving-Emissions-Test-Summary-Report.pdf

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