

TOYOTA

Submission by
Toyota Australia to
Cleaner, Cheaper to Run Cars:
The Australian New Vehicle Efficiency
Standard
Consultation Impact Analysis
March 2024

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Executive Summary

Toyota Motor Corporation Australia (Toyota) welcomes the introduction of an ambitious mandatory fuel efficiency standard that is calibrated to Australian market needs which targets emissions reduction, while ensuring customer choice.

Toyota is committed to our multi-pathway approach, which focuses on developing a range of solutions and technologies that meet the diverse needs of our customers. This approach will ensure our current and future customers can choose which low-carbon solutions are right for them, from an array of options that include Hybrid Electric (HEV), Plug-in-Hybrid Electric (PHEV), Battery Electric (BEV), Fuel Cell Electric (FCEV) and future technologies under development such as hydrogen internal combustion and other e-fuels/carbon neutral fuels.

We acknowledge the three proposed options presented in the consultation impact analysis (CIA) and the government's preference for Option B. Toyota notes the government's intent to benchmark against the USA, however it is important to ensure such standards are benchmarked against broader aspects of the USA approach, while accounting for Australia's conditions and market requirements.

In pursuing Option B, Toyota recommends the consideration of a more holistic approach to the development of such standards, as is consistent with international practice e.g. an approach that includes flexibilities such as technology credits, customer support mechanisms, banking, trading and pooling. Toyota also urges consideration of the limited nature of the USA's system, which is only legislated to 2026, with discussions around potential softening of the 2027 CO2 emissions targets.

In addition to supply side issues discussed in the CIA, the complexity of implementing an emissions reduction scheme requires that the demand side also be addressed. This is particularly important in segments such as larger Sports Utility Vehicles (SUVs) and Light Commercial Vehicles (LCVs). Toyota notes the global limited availability of zero or low-emission vehicles (ZLEV) in these segments, especially in the MC, NA, and NB1 categories, where suitable, affordable, and market-acceptable ZLEVs are currently not available anywhere in the world.

Through this submission, Toyota seeks to provide information that advances the specific views of Toyota. In addition, we endorse the submission of the Federal Chamber of Automotive Industries (FCAI), Australia's peak association representing vehicle importers/distributors.

Toyota's Recommendations

1. Revisit stringency of Option B headline targets in light of, among other things, the expected changes in the USA.
2. Revert to existing light vehicle reporting categories i.e. PV = MA; LCV = MC+NA.
3. Ensure any implemented scheme encompasses a holistic approach, including:
 - a. Technology credits (super credits, off-cycle credits and air conditioning credits).
 - b. Consumer support mechanisms.
 - c. Pooling.
4. Phase in of penalties over time.

About Toyota Australia

<p>Facts and Statistics</p>	<ul style="list-style-type: none"> ▪ Presence in Australia since 1959 ▪ 21 consecutive years as Australia’s best-selling automotive brand with 215,240 vehicles delivered in 2023 ▪ Toyota Australia directly employs 1,500+ staff ▪ Dealer network of approximately 280 Dealers with their own workforce of approximately 15,000 employees ▪ 200+ BEV rechargers across Toyota Dealers, including 16 that are publicly available ▪ While no longer a local manufacturer, Toyota Australia continues to deliver diverse operations above and beyond import/distribution as is evident through our Altona Centre of Excellence (COE). COE functions include: <ul style="list-style-type: none"> – Product Planning & Development, Conversions and Accessories – Design, develop or customise vehicles to meet the needs of the Australian market – Product knowledge centre – Carry out vehicle evaluation on a 1.2km test track purpose built to replicate Australian road conditions – Hydrogen Centre – Victoria’s first integrated hydrogen site including generation of hydrogen and refuelling station – Local assembly of Hydrogen Power Generators intended for both Australian and export markets. – Corporate Social Responsibility (CSR) initiatives – Sharing Toyota Production System knowledge with local industry through our Toyota Production System Support Centre (TSSC) and broader community support through Toyota Community Trust contributions (1% of pre-tax profit to community with a value between \$2.5-\$3.5 million per year).
<p>Product Information</p>	<ul style="list-style-type: none"> ▪ Market leader in hybrid technology <ul style="list-style-type: none"> – Introduced the first mass produced hybrid vehicle to the Australian market (Toyota Prius) ▪ Pioneer in hydrogen fuel cell vehicle (FCEV) technology ▪ Toyota Australia hybrid and other zero and low emissions vehicle product range: <ul style="list-style-type: none"> ○ Hybrids <ul style="list-style-type: none"> ● Yaris ● Corolla Sedan and Hatch ● Camry ● RAV4 ● C-HR ● Yaris Cross

	<ul style="list-style-type: none">• Corolla Cross• Kluger○ Hydrogen Fuel Cell Electric Vehicle<ul style="list-style-type: none">• Mirai¹○ Battery Electric Vehicle<ul style="list-style-type: none">• bZ4x²
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¹ Available in limited numbers to select fleet customers only.

² Launched on 27 February 2024 with low sales volumes anticipated for CY2024.

Introduction

Toyota is supportive of the introduction of a New Vehicle Efficiency Standard and would welcome the government's consideration of the below when finalising targets, support mechanisms and timelines.

Any approach to deliver emissions reduction is complex and needs to take into account the demand side, particularly in the larger Sports Utility Vehicles (SUVs) and Light Commercial Vehicle (LCV) segments of the market, where zero or low emission (ZLEV) product availability is limited.

The MA category within the Passenger Vehicle (PV) segment is seeing technology advancements with a growing number of ZLEVs being available in market. In contrast, there are currently no ZLEVs in the MC, NA and NB1 categories that are suitable, affordable and capable of meeting market requirements and customer needs.

Toyota's submission focuses on Option B within the Cleaner, Cheaper to Run Cars: The Australian New Vehicle Efficiency Standard Consultation Impact Analysis (CIA), on the basis that this is the government's preferred option.

Detailed Commentary

In this section Toyota addresses the following:

1. Commentary on Alignment with the USA.
2. Demand Side Considerations.
3. Australian Market Requirements.

1. Commentary on Alignment with the USA

Under Option B within the CIA, the government has advised that Australia's proposed targets are loosely based on the USA's current scheme, which is legislated to 2026, as well as the USA's Environmental Protection Agency's (EPA) preliminary proposed figures from 2027-2029. These proposed figures are not yet confirmed, and recent commentary from the USA government and media suggests re-evaluation due to concerns about their stringency³. Reports indicate that the USA intends to decelerate the implementation of its annual emissions requirements and review the applicable timeframes for reduction targets. Evidence from the USA market shows that there has been a 'slower than anticipated demand for electric vehicles⁴. Official direction from the USA Government is expected over coming months. Toyota encourages the government to remain updated on the USA situation and be open to how changes to the approach in the USA may require amendment to the proposed Australian scheme.

It is important to note that in the USA and other markets such as Europe, in addition to setting targets, governments have taken a holistic approach that seeks to address both supply and demand issues. This holistic approach includes:

- Flexibilities & transitional arrangements
- Consumer support mechanisms
- Provision for the growth and widespread availability of public recharging and refuelling infrastructure

The USA's holistic approach has included various flexibilities and support mechanisms since it was first regulated, these flexibilities include:

- Super credits
- Off-cycle credits
- Air conditioning credits
- Banking, trading and pooling
- Numerous taxation incentives including the Inflation Reduction Act
- Transitional arrangements (e.g. early credits)

³ <https://www.reuters.com/business/autos-transportation/biden-administration-relax-ev-rule-tailpipe-emissions-ny-times-2024-02-18/>

⁴ <https://www.reuters.com/business/autos-transportation/biden-administration-relax-ev-rule-tailpipe-emissions-ny-times-2024-02-18/>

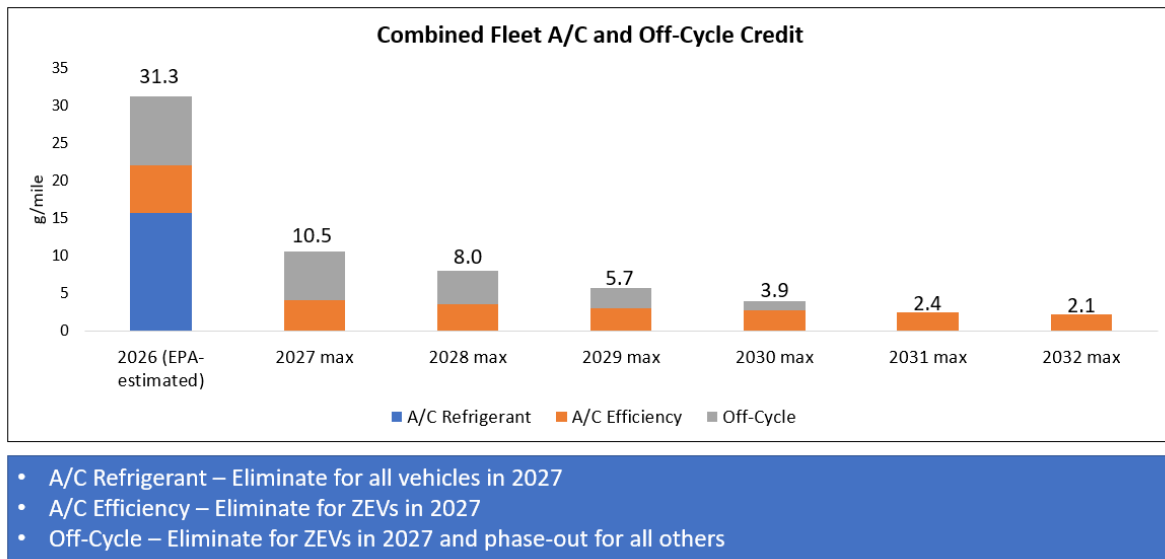


Figure 1: Demonstrates the USA EPA’s currently proposed ongoing flexibilities that will continue within the USA scheme out to 2032 (Source: Alliance for Automotive Innovation (AAI))

Toyota notes the USA scheme also provided an introductory mechanism to help manufacturers commence and transition to increasingly stringent standards. This mechanism allowed manufacturers to generate early credits from emissions reducing technologies that went beyond what was required.

Early credits could be earned through:

- Fleet average carbon dioxide (CO₂) reductions
- AC leakage and efficiency improvements
- Off-cycle technologies
- Deployment of advanced technology vehicles (BEV, FCEV, PHEV)

The consequence of the proposed standard is that commercial vehicles will fail to comply from commencement, forcing OEMs to choose between accepting penalties, removing product from market or buying credits. A more holistic approach would provide for a transition process that allows time for the development of suitable alternative ZLEV solutions. Important flexibilities, for example super credits, across HEV, PHEV, BEV, FCEV and other ZLEVs to bridge the gap between the 2025 implementation date and when product will be readily available.

2. Demand Side Considerations

In addition to growing supply, demand side initiatives such as customer incentives and infrastructure investment are necessary to help foster the uptake and utilisation of low and zero emission technologies.

In 2001 Toyota introduced the Prius, our first HEV in the Australian market. While HEVs currently account for over 30% of Toyota's annual vehicle sales (with more than 400,000 now sold into the Australian market), the success and take up of HEV technology did not happen overnight, in fact it took many years to achieve volume penetration.

Key factors explaining this gradual take up included:

1. Consumer acceptance – Early adopters largely comprised of technology and environmental enthusiasts. However broader market take up did not occur until the technology was adopted in mainstream models such as Camry, Corolla and RAV4. Evidence over time of the suitability of the technology and durability of the battery were important to building consumer confidence.
2. Price premium of new technology – Initial HEV Pricing was a significant barrier as mainstream consumers are very price sensitive. As the price premium reduced from over \$6,000 at the introduction of the technology to the approximate premium today of \$2,500, market demand has accelerated and broadened. In the BEV space, this is still a challenge with a price premium currently generally in the vicinity of \$10,000 to \$30,000 and potentially even higher for commercial vehicles as they come to market.

The government's CIA has a strong focus on fuel savings; however, Toyota's experience is that whole of life vehicle costs are also important considerations. Key costs include:

- Up front purchase price
- Fuel/energy price
- Servicing
- Insurance costs
- Trade-in values
- Battery replacement cost

Toyota expects ZLEVs technology to continue to grow in popularity and demand, however our previous experience from the introduction of hybrid shows the transition will take considerable time in the mass market and can only occur with the right focus on education, affordability and infrastructure.

3. Australian Market Requirements

Currently, the delivery of new ZLEVs technology predominantly centres around passenger vehicles and smaller SUVs, demonstrated by the increasing number of HEV, PHEV and BEVs available in market. There is significant research, development and evaluation under way across industry to develop suitable ZLEVs in the larger SUV and LCV segments; however, it remains challenging and requires significant time and investment.

Key customer requirements for larger SUVs and LCVs include:

- Range
- Payload
- Towing
- Off-road capabilities

Since the cessation of local manufacturing, Australia has become a receiver of product, not a maker, which makes us reliant on the availability and supply from overseas markets. This creates additional challenges in the large SUV or LCV space, where mass-produced ZLEVs meeting key customer requirements are not yet available.

In the absence of overseas mass-produced options, Toyota Australia embarked upon a local trial to convert a diesel LC70 into a BEV for use in the mining sector. Our experience demonstrated some of the challenges and key learnings from this trial include:

- LC70 BEVs would likely be significantly more expensive than the base diesel-powered vehicle (in the vicinity of \$80,000 higher).
- Harsh environments are extremely challenging on batteries, electric motors and other BEV specific components.
- The technology currently available is not yet suitable for market use and further development is required.



Figure 2: Locally converted LC70 under testing

In addition to Toyota’s own experience, we note other manufacturers are also experiencing challenges in this space⁵. Toyota is of the view that the development of fit-for-purpose ZLEVs will continue to be an expensive and time-consuming process.

In order to deliver product that meets consumers' needs while achieving emissions reductions, Toyota is committed to a multi pathway approach. While there is an increasing number of solutions for passenger vehicles, options in the commercial space (with required payload, towing and range capabilities) are extremely limited. These options are not yet practical, capable or affordable. This creates a challenge for the Australian market, as commercial vehicles are an essential part of life for many Australians', including those working in primary industries such as agriculture, mining, construction and trades. Where commercial ZLEVs are available, required attributes such as driving range are greatly diminished when towing or carrying loads.

Consideration needs to be given to the targets attributed to this segment, or other policy levers introduced, to support an orderly transition. Without these considerations, there is potential for unintended consequences which could ultimately be to the detriment of consumers and the government’s policy objectives, such as:

1. Vehicle price rises,
2. Companies rationalising their product offerings, or exiting the Australian market resulting in reduced competition and consumer choice,
3. Increased aging of the Australian fleet due to consumer vehicle retention and increased parallel/used car imports (likely with some having poorer CO2 performance than the proposed targets).

Market segmentation is important to consider as there are various customer types and vehicle preferences (e.g. SUV vs LCV, Private vs Business). Commercial vehicles in particular are heavily relied upon in regional Australia for their ability to tow, off road capability and long-range driving. Over 40% of Toyota’s commercial vehicles are sold in regional Australia (see Figures 3 and 4 below). Of the remainder of Toyota’s commercial sales, many are used in metropolitan environments for construction, trade and other applications.

Large SUV (Body on Frame) Customers are Retail & Small Business in Rural Areas

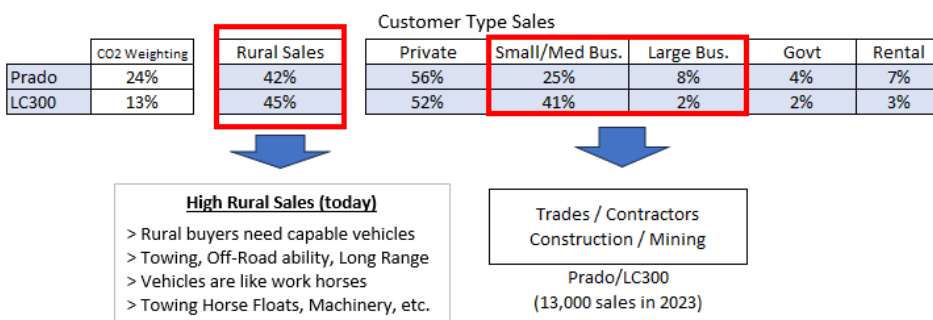


Figure 3.

⁵ [Mistakes were made on LDV eT60: Ateco | GoAuto](#)

LCV Customers are Small/Medium and Large Businesses in Rural Areas

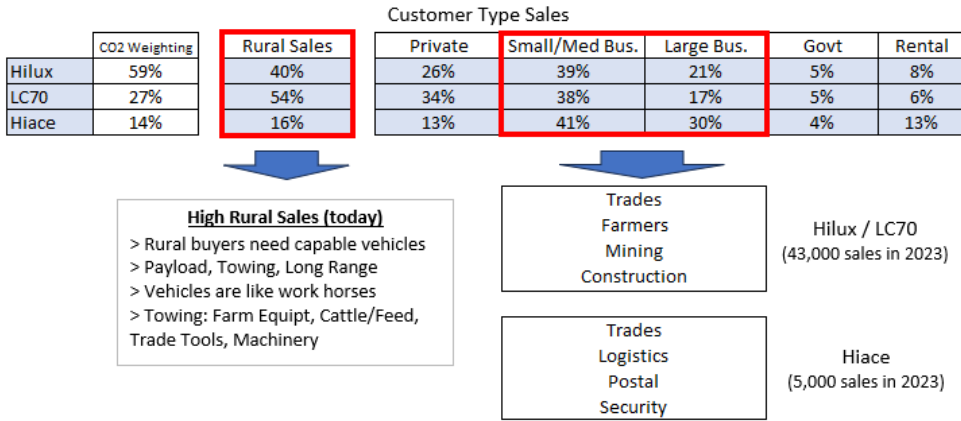


Figure 4.

Technical Elements of the Scheme

In this section, following some introductory comments, Toyota addresses the following:

1. Limit curve
2. Break points
3. Vehicle categorisation
4. Expansion of scope from 3.5t to 4.5t (incl NB1)
5. Vehicle homologation
6. Test cycles
7. Vehicle recognition / compliance point
8. Credits / flexibilities
9. Penalties
10. Exemptions
11. Banking, trading, and pooling
12. Regulated entity
13. Financial support mechanisms
14. Specialist and Enthusiast Vehicle Scheme
15. Fuel quality
16. Bi-annual reviews

Introductory Comments

Given the Australia's unique conditions, vehicles need to be developed to a higher severity rating which require ladder frame chassis to navigate Australian roads which inherently increases vehicle mass (adding up to 300kg). For example, the monocoque type chassis has been considered for use in Australian rural areas as part of our standard product development planning process, however these chassis' have been deemed unsuitable due to the harsh nature of Australia's outback and rural environments which include unsealed roads.

The target setting of Option B unfairly penalises the vehicles that everyday regional and rural Australian conditions require. Across industry, Option B as presented will negatively impact the consumers who need rather than want these products. This also applies to SUVs, now classified as PVs under the government's proposed Option B in the CIA, including LC300 and Prado. These vehicles are designed for fit-for-purpose applications; however, we acknowledge a portion of customers do not need these requirements.

Toyota's comments on some technical elements of the proposed scheme.

1. **Limit Curve** - Elements (such as slope, reference mass) of the limit curve should be adjusted in order to recognise the challenges of the fit-for-purpose larger SUVs and LCVs. For reasons described above, the proposed slope in Option B adversely penalises LCVs and should be revisited to recognise that fit for purpose vehicles will inherently be heavier to meet local market conditions.
2. **Breakpoints** – Toyota acknowledges the principle of breakpoints but has concerns with the upper breakpoints within the Australian market.
 - a. Deletion of upper break points would ensure no adverse consequences to the fit for purpose vehicles that are directly suited to unique Australian environmental conditions (e.g. unsealed roads, extreme temperatures, dirt/dust).
 - b. If upper breakpoints are deemed necessary, consideration needs to be given to both categories' upper breakpoints. Toyota proposes that 2800kg for LCV and 2400kg for PV are appropriate upper breakpoints in line with the USA EPA's Greenhouse Gas Standards.
3. **Vehicle categorisation** – Current industry standard classification of vehicles should be retained e.g.
 - a. Passenger vehicles = MA
 - b. Light Commercial Vehicle = MC + NA
4. **Expansion of scope from 3.5t to 4.5t (incl NB1)** - The inclusion of the NB1 category in the government's proposed Option B in the CIA, includes rugged and durable performance vehicles, such as Toyota's workhorse vehicle, the LC70.
 - a. Existing fuel consumption labelling (ADR 81/02) does not include NB1 category vehicles. There is currently no ADR requiring brands to test, certify and/or report CO2 emissions for such vehicles. An ADR will be required to cover such vehicles, a new test cycle developed and each NB1 vehicle will need to be evaluated in order to report CO2 and fuel consumption values. If it is government's intention to include these vehicles in the standard, Toyota expects that these processes will take more than a year to appropriately implement.
 - b. As briefly mentioned, NB1 category vehicles will take more time to develop suitable ZLEV solutions. Therefore, this category has limited to no ability to reduce tailpipe emissions in the short term. This will be particularly challenging in market given such vehicles are a primary tool of trade for many important industry sectors including but not limited to mining and agriculture.
5. **Vehicle homologation** - In global terms, Australia is a small right-hand drive (RHD) market representing approximately 1.5% of global sales. With the cessation of local

manufacturing, we rely on global supply. Delivering vehicles to Australia's small-scale market requires dedicated engineering and other resources, resulting in an expensive and time-consuming process.

In addition, globally, Toyota builds vehicles to different specifications and standards based on each market's needs and conditions. Therefore, what is available in an overseas market may not be suitable to meet Australian requirements.

For example, as previously mentioned, road conditions heavily influence vehicle platforms and their suitability for market. For example, ladder frames are widely used in utility and commercial vehicles in Australia such as the LC300 and Hilux due to the harsh Australian applications (over 60% of Australian roads are unsealed).

In addition to the vehicle platform, there are a host of other technical differences that are adjusted according to each market's requirements. For example, UK vehicle models do not have the same air-conditioning and vehicle cooling system because, unlike in Australia, they do not have the same level of extreme heat.

In the case of Hilux, locally sold vehicles require a higher ground clearance, specific suspension tuning, additional dust seals, increased payload and towing capacity. These modifications are required so that the vehicles are fit for purpose for the applications our customers intended use. As noted above, some of the required adjustments add to vehicle weight which has a negative impact on CO2 tailpipe emissions.

6. **Test cycle** – The targets proposed in the CIA are currently stated in New European Driving Cycle (NEDC) but in time will require conversion to Worldwide Harmonised Light Vehicles Test Procedure (WLTP) aligned with the legislation that is earmarked to come into effect from December 2025 for new models, and July 2028 for all models.
 - a. The conversion factor utilised in the consultation paper oversimplifies the position and requires further industry consultation to determine appropriate calculation methodology.
 - b. If NB1 vehicles are to be included in a light vehicle standard, the development of a procedure to measure and report CO2 emissions will be required as explained in greater detail at point 3 above.

7. **Vehicle recognition / compliance point** - Toyota notes government's proposal is to recognise vehicles at time of their entry onto the RAV, which would create a range of additional complexities for government, the industry (OEMs and dealers) and the market.
 - a. Toyota encourages alignment with the USA scheme which has a sales-based approach. This is because using a sales-based approach would enable the existing VFACTS system to be utilised (with appropriate auditing and oversight) to report under the scheme.

- b. Using the RAV system would require additional system set up and based on previous developments e.g. ROVER system, would be a lengthy and complex process.
 - c. It also needs to be considered that at point of entry to RAV, details on the end customer are generally not known and this information is currently not collected on the RAV, which could cause complications regarding exemptions and other elements of the scheme.
8. **Credits / flexibilities** – As previously stated, consideration should be given to include flexibilities regardless of the operational complexity as this is consistent with international practice.
- a. The USA system continues to offer off cycle and air conditioning credits as shown in Figure 1. Consideration should also be given to super credits which have been made available at the commencement of vehicle CO2 regulatory compliance schemes in other markets (e.g., apply specific benefits to HEV, PHEV, BEV and FCEV).
 - b. More detail is needed on the trading mechanism and how it is intended to work in practice. Toyota anticipates that a global trading scheme will be required should Option B be introduced.
 - c. The complexity of this topic means such a scheme requires significant systems and resourcing to support its implementation and ongoing operational functionality consistent with international practice. Therefore, there is no point in trying to simplify certain aspects (e.g. not having credits or flexibilities).
9. **Penalties** – Toyota believes that penalties are an important element of any mandated scheme. The proposed \$100 per g/km penalty in the CIA is too severe with risk of immediate impact to consumers.
- a. Toyota recommends a phased approach along the following lines:
 - 2025-2026: \$0 per g/km
 - 2027: \$50 per g/km
 - 2028: \$75 per g/km
 - 2029: \$100 per g/km
 - Thereafter, a penalty rate of \$100 per g/km would apply
 - b. It is important to note that in overseas markets, governments have also provided significant consumer incentives and support mechanisms which somewhat offset the potential compliance cost that would otherwise likely flow through to consumers.
 - c. Previous consultation documents (*Fuel Efficiency Standard: Cleaner and cheaper to run cars for Australia*) referred to potential phasing up of penalties over time, consistent with approaches adopted in USA, NZ and other markets. We note that in the case of the USA, it phased from an introductory penalty value that grew year on year with inflation whereas New Zealand have had a constant value at a lower rate than presented in Option B.
 - d. It is likely that the compliance cost of the proposed scheme will impact consumer end price. Other overseas markets have offset this price impact with

consumer incentives and other support mechanisms e.g. New Zealand Clean Car Discount (which has now been concluded).

- e. Segments where there are limited to no ZLEV options will not generate credits, and thus incur penalties that could potentially lead to price rises or rationalising product offerings.
- f. Toyota encourages the government to clarify its intended use of any penalty monies collected and encourage the government to re-invest back into refuelling/recharging infrastructure, consumer support or other ZLEV support mechanisms.

10. **Exemptions** – Toyota supports exemptions which allow emergency services, such as police, fire, ambulance and others to have continued access to fit for purpose vehicles.
We note in the CIA, heavy vehicles and equipment for such uses are listed as exempt. We welcome their exclusion but question why the NB1 vehicle category is included in the context of a standard for light vehicles.
11. **Credit banking, trading, and pooling** – Toyota notes that a robust scheme should include pooling alongside banking and trading.
12. **Regulated entity** – In principle, recognition of the type approval holder is a strong foundation for use as the regulated entity. This said there are a range of industry practices that create complexities that should be allowed under this new scheme. For example, there are a range of models in the market with shared platforms between brands and the way they are brought to market varies e.g. one brand is the type approval holder or both hold separate type approvals. Examples of Toyota models that have a shared platform include bZ4X, 86 and Supra.
13. **Financial support mechanisms** - All international schemes have a holistic approach including consumer financial support mechanisms. In addition to Australia's existing FBT concession, which is available to limited parts of the market, consideration should be given to other financial consumer support and taxation arrangements.
14. **Specialist and Enthusiast Vehicle Scheme (SEVS)** - All vehicles on first entry to Australia, including new and used vehicles, should be subject to the same provisions. If this is not adopted, SEVS provides a loophole for high-emitting vehicles to continue to be brought to the Australia market. This also risks increasing the number of vehicles which are not designed to meet Australian safety requirements.
15. **Fuel quality** - Changes to fuel quality have been flagged for introduction in December 2025. This is welcomed by industry as it brings fuel quality in closer alignment with key overseas markets. However, it needs to be recognised that potential flow on affects to new cars will not be materially realised until 2026 and beyond, which will be one year into this scheme.
16. **Bi-annual reviews** – Toyota notes in the CIA reference to a review in 2026, Toyota recommends ongoing periodical reviews i.e. every two years.

More details to support comments made in this report, can be provided to the department on a confidential basis.