

22 March 2024

Committee Secretary
Standing Committee on Climate Change, Energy, Environment and Water
PO Box 6021
Canberra ACT 2600

To the Standing Committee on Climate Change, Energy, Environment and Water

RE: INQUIRY INTO THE TRANSITION TO ELECTRIC VEHICLES

Thank you for the opportunity to make this submission to the House Standing Committee on Climate Change, Energy, Environment and Water's inquiry into the transition to electric vehicles.

As Australia's peak national automotive association, the MTAA is well placed to provide its advice into this important inquiry taking place while the shift towards zero and low emission vehicles (ZLEVs) accelerates.

With over 15,000 members, the organisations we represent comprise the retail sub sector of the automotive value chain. These members are experiencing the challenges and opportunities arising from the electrification of transport firsthand every day.

Specifically our members include new and used vehicle dealers (passenger, truck, commercial, motorcycles, recreational and farm machinery), repairers (mechanical, electrical, body and repair specialists, i.e. radiators and engines), vehicle servicing (service stations, vehicle washing, rental, windscreens), parts and component wholesale/retail and distribution and aftermarket manufacture (i.e. specialist vehicle, parts or component modification and/or manufacture), tyre dealers and automotive dismantlers and recyclers.

We represent these members through the various state-based motor trade organisations, including the Motor Traders' Association of New South Wales, the Victorian and Tasmanian Automotive Chamber of Commerce, the Motor Trade Association of South Australia and Northern Territory, the Motor Trade Association of Western Australia, and the Motor Trades Association of Queensland.

One of the most pertinent issues facing our members and the automotive sector more widely in the transition to ZLEVs is the introduction of the Australian Government's New Vehicle Efficiency Standard (NVES).

MTAA supports the NVES as an essential tool to reduce Australia's transport emissions. However, as a representative of predominately small to medium businesses, it is imperative that this new regulatory instrument is fair and balanced.

The NVES will have wide-ranging structural impacts on our industry. Our analysis shows that half of Australia's 20 top-selling automotive brands will have to make significant and immediate adjustments to meet the Government's preferred option. This will flow onto the dealer network and likely result in cost imposts on dealers, job losses and potential closure of dealerships across Australia. These impacts will be overly amplified in regional Australia.

Given the difficulty most brands will face meeting Government's preferred Option B targets, we anticipate the following flow on impacts to the Australian new car market and the success of the overall NVES scheme over the next five years:

- Vehicle prices will rise due to added costs due to OEMs paying penalties and/or purchasing credits
- Strong likelihood OEMs will pass on added costs to their franchise dealer network
- Unrealistic vehicle improvement expectations will also result in escalated prices which will price out some Australian car buyers
- Dealership job losses or closure and reduced consumer access to appropriate vehicle models

Given the above, MTAA has been advocating for the Government's preferred option B with some key amendments to minimise these risks. At a high-level these adjustments can be summarised as follows:

- The NVES target should have a similar rate of improvement in CO2 efficiency to the US using the current Australian emissions reduction performance as a starting point
- The design of the NVES should incorporate the full suite of tools made available in the US scheme (e.g., similar categorisation, credit generators, pooling and specific carve outs) as well as supporting measures (e.g., national purchase subsidies, exemptions for regional / rural communities and dealerships)
- In the absence of an equivalent suite of supporting measures, more generous inbuilt mechanisms must be included in the NVES

Our submission to the NVES Consultation Impact Analysis is attached to this letter and outlines our position in full to the Australia Government's preferred option. It also includes several requests to alleviate adverse impacts to the automotive retail sector under a NVES regime including:

- **Address skills shortages** – Provide assistance to relieve the acute skills shortages facing the automotive sector, particularly skilled EV technicians, which threaten the success of the NVES
- **Expand EV training** – Support co-ordinated skilling pathways for existing and emerging workers to develop EV skill sets and fund EV physical training resources and workshops.
- **Invest in charging infrastructure** – Increase funding for EV charging networks with specific financial assistance allocated for automotive retail businesses, fuel outlets and workshops to invest in infrastructure on-site
- **Reduce the upfront price of EVs** – Introduce price subsidies, tax credits, rebates and/or other incentives consistent with international markets
- **Accept international vehicle standards** – Remove unique ADRs not harmonised with international UN regulations which add cost, complexity and lead time to new model introductions
- **Strengthen or develop a standalone franchising code** – Adequately address the new car dealer franchisee / franchisor relationship and the power imbalance that exists through a new or strengthened franchising code
- **Amend Australian Consumer Law protections** – Address the potential disproportionate detriment to business if increased penalty provisions are introduced without providing additional clarity on the concepts of acceptable quality, major failure and rejection periods
- **Mandate a motor vehicle insurance and repair code of conduct** – Address the contentious and at times prohibited and unrealistic requests from insurers through a mandatory national body repair code of conduct
- **Focus on end-of-life vehicles** – Invest in and research an industry-led and federally funded national program aimed at the proper disposal of end-of-life vehicles
- **Revisit road user charging** – Develop a plan to consider a nationally consistent and coherent approach to national road-user charging
- **Remove the LCT and extend the FBT exemption** – Increase the attractiveness of ZLEV purchase by lessening the tax impost on these vehicles

Our list of requests in full can be found attached to our NVES submission.

We would however like to bring to the Committee's attention two areas we believe require close consideration in the context of an impending fuel efficiency standard.

Total cost of ownership – Consideration of EV disposal costs

Comparing the lifetime costs of an electric versus internal combustion engine vehicle is highly important from a consumer perspective given it represents the complete financial cost during the time a consumer owns the asset and is therefore integral in the decision to purchase an EV.

Recent analysis released by Commonwealth Bank provides some interesting insights into the TCO of battery electric versus petrol cars.¹ The analysis, which can be found [here](#) and attached, finds that the resale value has a significant negative impact on the TCO of an EV.

Under the best-case depreciation scenario, it is estimated an EV charged with solar can have a 5% higher TCO than a petrol car. While in the middle-case and worst-case depreciation scenarios, an EV charged with solar can have a 31% or 58% higher TCO respectively than a petrol car.

It should be noted however, that if EV upfront costs are lowered due to NVES credits being passed on by the manufacturer the TCO should improve marginally. The best-case depreciation scenario being 2% lower TCO than the petrol car; the middle-case depreciation scenario being 21% higher TCO than the petrol car; and the worst-case at 44% higher TCO than the petrol car.

This analysis demonstrates that assumptions of EV operating costs being lower than petrol due to reduced running costs need to be thoroughly tested. Disposal costs are a critical component of the TCO, which in many instances, is not being factored into calculations creating a more favourable picture of EV ownership than reality. The expected outcome of this is a lower EV uptake rate than forecast with flow on impacts to the success of the NVES.

US fuel efficiency targets – Recent adjustment

As reported in March 2024, the US EPA finalised its relaxed GHG requirements for 2027-2032. Specifically, the EPA recognised that its proposed aggressive standards in the 2027, 2028, 2029 timeframe needed to be lessened. It also recognised the benefits of mobile air conditioning alternative refrigerant, mobile air conditioning efficiency, and off cycle technologies and retained credits for these CO2 reducing technologies in the final rule.

This recalibration has significant implications for the development of the Australian NVES. The Australian Government's preferred option represents a 61% and 62% decrease in passenger vehicle and light commercial vehicle CO2 emissions respectively over five years, whereas the US will decline by 50% and 44% for similar categories of vehicles over six years.

Further, the Australian proposal includes no air conditioning nor off-cycle technology credits. This is obviously of significant concern to automotive brands, many of which have a substantial challenge ahead in meeting their corporate targets under the Australian scheme.

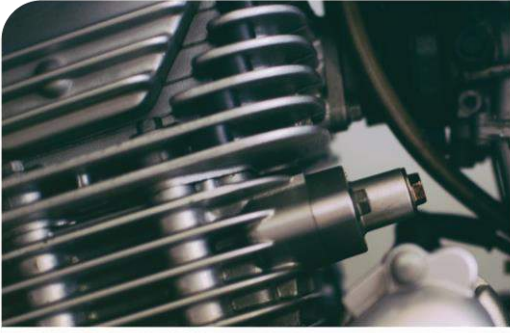
If the Australian Government wishes to be the US, which it has stated several times, it needs to follow the US and adopt the same tools.

Thank you for the opportunity to provide this submission to the Committee. To discuss any of our recommendations further, please contact Matt Hobbs, CEO at matt.hobbs@mtaa.com.au or 0419 608 845.

Regards

Matt Hobbs
CEO
MTAA

¹ Commonwealth Bank. (2024) New Vehicle Efficiency Standard (NVES): Race to the bottom? Available at: <https://www.commbankresearch.com.au/apex/researcharticleviewv2?id=aOND000000vzTb>. (Accessed: 19 March 2024).



IF WE ASPIRE TO MATCH THE US,
WE NEED THE US APPROACH

A FAIR TRANSITION: DEVELOPING A PRAGMATIC NEW VEHICLE EFFICIENCY STANDARD MTAA SUBMISSION

MARCH 2024



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1. EXECUTIVE SUMMARY

MTAA supports a national fuel efficiency standard to reduce Australia's transport emissions and enable the sector to make a larger contribution to combatting climate change. For such a standard to succeed however, we need a just transition.

MTAA welcomes the opportunity to make this submission to this critical piece of regulation. The New Vehicle Efficiency Standard (NVES) will have wide-ranging structural impacts on our industry, and it is imperative the Government work closely with all stakeholders across the automotive ecosystem.

We also maintain the need to be cognisant of international trends and developments occurring in comparable markets. These markets, of which Australia has ambitions to align, are iterating their fuel efficiency programs quickly and continuously, and are experiencing a heightened sense of the real-world challenges of accelerated CO2 reductions.

From the outset, it must be recognised that car manufacturers are not the only industry participants impacted. Drivers need their cars serviced and repaired, fixed after a crash and ultimately sustainably recycled. Mechanics must be trained and ready to work on EVs and a nationwide network of fast and reliable chargers must be in place for EV drivers. We therefore urge the Government to consider the entire automotive supply chain.

From an MTAA perspective, our priorities in the development of the NVES legislative framework are as follows:

- To collaborate with all stakeholders to decarbonise Australia's light vehicle sector in the most efficient and effective way possible, in the Australian context
- To ensure consumers and new car dealers continue to have the highest level of access to vehicles they want or need at an affordable price
- To secure a voice for the retail automotive industry in the legislative process to ensure sensible and fit-for-purpose policy implementation that meets the intended purposes of improving the environment, consumer benefit and industry stability

To achieve these objectives, MTAA has been working closely with its members and the wider sector while undertaking our own analysis and modelling of the future powertrain mix under a range of NVES scenarios.

Notably, while the Government has stated that an Australian standard is critical to ensuring Australians can access the cleaner and cheaper vehicles we need, the data indicates otherwise. The price of higher emitting vehicles will rise under a NVES regime. This is consistent with the international experience.

Through our industry vehicle intelligence, MTAA is reviewing each automotive manufacturer's position under the proposed regulation. MTAA members are also consulting extensively with their franchise dealer network. In our assessment, there are several very popular brands with a significant challenge ahead to meet the Government's preferred option.

We therefore urge the Government to focus on the details of this new regulation as this is where the NVES will ultimately succeed or fail.

We recommend the Government proceed with Option B with some key amendments to reflect the US scheme, namely US vehicle categorisation, credit generators, pooling, biannual reviews and alignment with the US emissions trajectory. We expand on these further below. We also call for a fair transition for the entire automotive sector. Our industry requests to achieve this are outlined in Appendix 1.

MTAA wishes to work constructively with the Government and sees itself as the ‘sensible middle’ in this debate. Our desire is to work side by side to achieve the preferred option by presenting the adjustments that can be made to achieve overall goals while minimising unintended consequences for consumers and industry.

To discuss this submission, please contact Matt Hobbs, CEO at matt.hobbs@mtaa.com.au or 0419 608 845.

2. INTRODUCTION TO THE MTAA

The MTAA is Australia’s peak national automotive association. Our membership includes the Motor Traders’ Association of New South Wales, the Victorian and Tasmanian Automotive Chamber of Commerce, the Motor Trade Association of South Australia and Northern Territory, the Motor Trade Association of Western Australia, and the Motor Trades Association of Queensland.

We represent new and used vehicle dealers (passenger, truck, commercial, motorcycles, recreational and farm machinery), repairers (mechanical, electrical, body and repair specialists, i.e. radiators and engines), vehicle servicing (service stations, vehicle washing, rental, windscreens), parts and component wholesale/retail and distribution and aftermarket manufacture (i.e. specialist vehicle, parts or component modification and/or manufacture), tyre dealers and automotive dismantlers and recyclers.

The automotive industry is a vital contributor to Australia’s economy, employing approximately 385,000 people across 13 sectors and 52 trades, and contributing 2.1% per cent of Australia’s GDP. The sector is also one of the largest employers of apprentices and trainees nationally, and most automotive businesses (96%) are small and family-owned enterprises.

We are the national body representing the automotive chambers of commerce in each state and their members

WHO WE REPRESENT



OUR MEMBERS

3,253 Auto dealers	219 Auto dismantlers & recyclers
7,893 Auto repairers & accessories	726 Farm & Industrial machinery dealers
1,762 Body repairers & towing operators	279 Service stations & convenience stores
405 Motorcycle dealers	1,196 Tyre dealers

WHAT WE DO

 <p>The largest and most diverse membership of any auto industry association</p>	 <p>The voice of the automotive retail industries throughout Australia</p>	 <p>A potent force if used wisely to shape the future direction of the auto sector</p>
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3. GENERAL COMMENTS

The NVES is a highly complex piece of proposed legislative reform with potential for significant impacts on the future size and scope of Australia's automotive retail landscape, including vehicle accessibility for consumers. It is therefore a priority policy issue for MTAA and our members.

To formulate our position on the NVES we have consulted extensively across industry, including through the following activities:

- > Undertaking research (acquiring and analysing applicable datasets) to establish the impact of the NVES on dealerships and wider industry
- > Extensive consultation with new vehicle franchise dealers in regional Australia to measure the projected impact on consumers and industry (communities in regional Australia rely heavily on vehicles captured by the proposed NVES as part of their business and day-to-day transport)
- > Convening dealer and industry forums, and surveying new car dealer members on the manner and attitude of consumers regarding their appetite to purchase a low emissions vehicle
- > Engaging with members of the National Farmers Federation to gauge the impact of the NVES on Australian farmers
- > Developing a 10-year model and volume forecast by brand to understand potential changes in the market's powertrain composition over time and its impact on new car dealers
- > Preparing a vehicle launch calendar to determine the challenges facing individual brands and classifying them into categories based on level of risk
- > Conducting focus groups and polling of community attitudes
- > Initiating a new OEM fuel efficiency reference committee to understand automotive manufacturer views and potential impacts

Through this extensive consultation process, we have arrived at the following high-level position on the NVES:

- > We fully support the introduction of an ambitious, but achievable NVES designed and implemented with a focus on Australian consumers' needs
- > While we support the introduction of the NVES in principle, a fair transition is essential including the very real issue of regional Australia and the impacts of a fuel efficiency standard
- > The current and mid-term new vehicle fleet mix and dealer inventory also needs to be factored into the implementation of any NVES
- > Complementary policies that drive consumer awareness and demand for zero and low emission vehicles (ZLEVs), and ensure the necessary infrastructure is in place must be implemented in parallel
- > Supporting policies must best assist and consider the needs of all consumers across metro, regional and remote Australia as well as small and medium businesses

The primary aim of the NVES should be to decarbonise the light vehicle sector. However, if we are to achieve US results in Australia, we need US tools. In this regard:

- > The NVES target should have a similar rate of improvement in CO2 efficiency to the US using the current Australian emissions reduction performance as a starting point
- > The design of the NVES should incorporate the full suite of tools made available in the US scheme (e.g. credit generators and specific carve outs) as well as supporting measures (e.g. national incentives)
- > In the absence of an equivalent suite of supporting measures, more generous inbuilt mechanisms must be included in the NVES

If Australia's goal is to catch up to the US average vehicle emissions intensity by 2028, the Government must stay up to date on developments taking place in the US. EPA rules and proposals and shifts in attitudes need to be built into any regulatory setting process consistently and continuously.

As of February 2024, the Biden Administration has stated it will relax tailpipe emissions targets and instead allow more time for manufacturers to bring vehicles to market and for dealers to increase sales of EVs¹. This move clearly indicates the US has recognised they are moving too quickly and providing industry with insufficient time to adjust. We urge the Australian Government to take heed.

To form the basis of our position we have also considered the avenues by which OEMs could achieve their headline target to predict their behaviour under the NVES regulation. We outline the options available to them below:

1. Purchase CO2 credits from low-emitters like battery-electric OEMs. The cost of the credits will effectively increase the price of the vehicles for which the credits are applied but would be more cost-effective than incurring the penalty.
2. Increase the range of EVs, hybrids or small ICE cars in their model line-up. Consumers would have to buy these vehicles in sufficient volume for this strategy to be effective.
3. Limit the availability of large vehicles lowering their average CO2 number. This would mean either limiting stock or increasing price – neither being a positive outcome for consumers.
4. Explore every potential fuel-saving technology on existing high-emitting models to reduce their CO2 numbers.
5. Jointly develop low-emission models with other OEMs, thereby sharing R&D costs and potentially avoiding costly penalties.

A high-level summary of these options is presented below.

¹ Davenport, C. (2024) Biden administration is said to slow early stage of shift to electric cars, The New York Times. Available at: <https://www.nytimes.com/2024/02/17/climate/biden-epa-auto-emissions.html> (Accessed: 21 February 2024).

FIGURE 1: OPTIONS AVAILABLE TO OEMS TO ACHIEVE NVES COMPLIANCE



Which option an OEM will take depends on their global plans, their investment in low- and zero-emission technology, and how important Australia is to their operations. What is certain, however, is that if an OEM is paying a penalty or buying credits, this will have to be factored into costs and the price of the vehicle will rise.

Under the Government’s preferred option, we anticipate such price rises will be inevitable. We outline our rationale for this conclusion in Section 4 – Industry & Consumer Impacts.

4. INDUSTRY & CONSUMER IMPACTS

A summary of the anticipated industry and consumer impacts under Option B are presented below. These findings have been developed through MTAA activities outlined above and supported by international evidence including direct input from experts in US fuel efficiency standards with extensive experience in the EPA greenhouse gas (GHG) emissions standards regulatory setting and review process.

Firstly, we present an assessment of the performance of Australia’s major brands by sales volume against Option B (Table 1). Our data clearly demonstrates that several brands will face significant challenges in meeting their CO2 targets in 2029. These challenges will flow onto the dealer network and likely results in cost imposts on dealers, job losses and potential closure of dealerships across Australia. This will be overly amplified in regional Australia.

Almost half the nation’s 20 top-selling vehicle manufacturers will have to make significant and immediate adjustments to meet Option B according to our analysis.

Under the preferred option, nine of the top 20 manufacturers have at least one “code red” challenge in trying to ensure their passenger and light commercial fleet mix can reduce emissions by more than 60% in five years.

The table shows both current and historical estimated CO2 levels calculated using a sales weighted average using FCAI / VFACTS sales data combined with research from Blue Flag into each variant's CO2 emissions using the combined CO2 figure.

To develop the forecast, Blue Flag has overlayed its proprietary datasets focusing on confirmed and likely products entering the Australian market over the next five years by drivetrain.

Importantly, it reveals that the top three brands (Toyota, Mazda and Ford) are unlikely to meet their 2029 CO2 targets based on their product pipeline. As these brands collectively comprise 33% of sales, this has significant implications for the Australian new car market with each brand likely needing to pursue all options presented in Section 3.

TABLE 1: CO2 EMISSIONS OUTLOOK BY BRAND BASED ON NVES OPTION B²

MAKE	2023 SALES	NO. DEALERS (DEC 2022)	PASSENGER AVERAGE PRICE	COMMERCIAL AVERAGE PRICE	Past 3 Months (Nov 23 - Jan 24)		2025 Target		2029 Target	
					Sales Weighted Co2	Sales Weighted Co2	141g Co2	199g Co2	58g Co2	81g Co2
					PASSENGER	COMMERCIAL	PASSENGER	LCV	PASSENGER	LCV
Toyota	215,240	278	\$57,725	\$57,661	146.8	223.7				
Mazda	100,008	141	\$41,612	\$54,908	156.6	205.7				
Ford	87,483	196	\$63,657	\$66,925	196.6	215.2				
Kia	76,120	144	\$42,804		151.9					
Hyundai	75,172	171	\$43,260	\$47,174	161.9	183				
Mitsubishi	63,511	194	\$43,456	\$46,593	165.8	223.1				
MG	58,346	83	\$26,152		132.1					
Tesla	46,116	0	\$66,460		0					
Subaru	46,114	118	\$44,862		172.7					
Isuzu	45,341	149	\$61,571	\$55,573	219.3	206.1				
Volkswagen	42,675	107	\$49,782	\$67,777	161.7	207.3				
Nissan	39,376	187	\$58,671	\$55,648	207.3	207.5				
GWM	36,397	142	\$36,682	\$41,254	168.8	245.1				
BMW	26,184	50	\$108,574		146.7					
Mercedes-Benz	25,740	64	\$116,079	\$73,330	156.9	165.4				
Audi	19,039	41	\$87,218		156.6					
LDV	17,433	85	\$43,713	\$41,320	241.4	236.3				
Suzuki	17,078	124	\$27,908		131					
Lexus	15,192	24	\$84,698		133.6					
Honda	13,734	78	\$46,466		144					
BYD	12,438	11	\$50,540		0					
Volvo	11,128	30	\$79,838		106.4					
Land Rover	8,425	43	\$141,851		201.6					
Skoda	7,999	37	\$45,762		138.7					
RAM	6,833			\$132,984		304.5				
Renault	6,673	56	\$41,716	\$53,160	159.3	171.9				
Porsche	6,052	14	\$172,380		208.1					
Ssangyong	5,966	44	\$48,163	\$41,607	211.4	231.1				
Chery	5,890		\$33,816		163.8					
Jeep	4,634	65	\$73,062	\$83,921	221.5	288				
MINI	4,289	21	\$54,549		111.4					
Cupra	3,765	9	\$61,920		98.2					
Chevrolet	3,703		\$188,754	\$124,432	311.5					
Polestar	2,463		\$66,396		0					
Peugeot	2,448	28	\$56,969	\$44,212	118.1	132.9				
Genesis	1,916	4	\$88,899		212.7					
Fiat	755	9	\$37,621		53.2					
Alfa Romeo	716	9	\$73,689		120.9					
Maserati	638	6	\$151,891		255.9					
Jaguar	581	42	\$111,256		194.7					
Lamborghini	241	5	\$492,078		325.2					
Bentley	229	6	\$469,342		275.3					
Citroen	228	16	\$45,091		126.4					
Ferrari	215	7	\$613,767		201.2					
Lotus	183	5	\$189,072		250.2					
Aston Martin	157	5	\$428,684		277.2					
Ineos										
McLaren	85	4	\$519,106		220.3					
Rolls-Royce	49	4	\$749,758		185.1					

MAJOR CHANGES; HIGH DIFFICULTY

SOME CHANGES; MODERATE DIFFICULTY

NO CHANGES NEEDED

² Blue Flag proprietary data; VFACTS

Further to the above, the anticipated shortfall for Australia’s mainstream brands in 2025 and 2029 are presented in Table 2. It reveals the significant challenge most OEMs will face in meeting their corporate average target under Option B, particularly in 2029.

TABLE 2: COMMERCIAL BRAND FORECAST 2025 & 2029 SHORTFALL³

BRAND	2023	2025	SHORTFALL	2029	SHORTFALL
Chevrolet	308	308	109	227	142
Jeep	288	288	89	226	141
RAM	298	292	93	215	130
Isuzu	206	199	0	172	87
Mazda	206	204	5	165	80
Nissan	208	194	-5	158	73
Toyota	225	212	13	152	67
Mitsubishi	223	209	10	141	56
Ford	214	204	5	137	52
Ssangyong	229	212	13	133	48
Kia		196	-3	131	46
Volkswagen	212	198	-1	124	39
GWM	245	245	46	108	23
Mercedes-Benz	153	132	-67	104	19
Hyundai	183	176	-23	98	13
LDV	235	194	-5	94	9
Renault	170	143	-56	93	8
Peugeot	139	118	-81	78	-7

Given the difficulty most brands will face meeting their Option B target, we anticipate the following flow on impacts to the Australian new car market and the success of the overall NVES scheme over the next five years:

- Vehicle prices will rise due to added costs due to OEMs paying penalties / purchasing credits
- Strong likelihood OEMs will pass on added costs to their franchise dealer network
- Unrealistic vehicle improvement expectations will also result in escalated prices which will price out some Australian car buyers
- Dealership job losses or closure and reduced consumer access to appropriate vehicle models

We expand on these further below.

VEHICLE PRICES WILL INCREASE DUE TO ADDED COSTS

The data below presents the US experience from the commencement of the EPA GHG Emission Standards for light duty vehicles to current. Concerningly, it reveals a significant rise in the average price of a new car at a rate that greatly exceeds inflation (refer Figure 2).

³ Blue Flag proprietary data

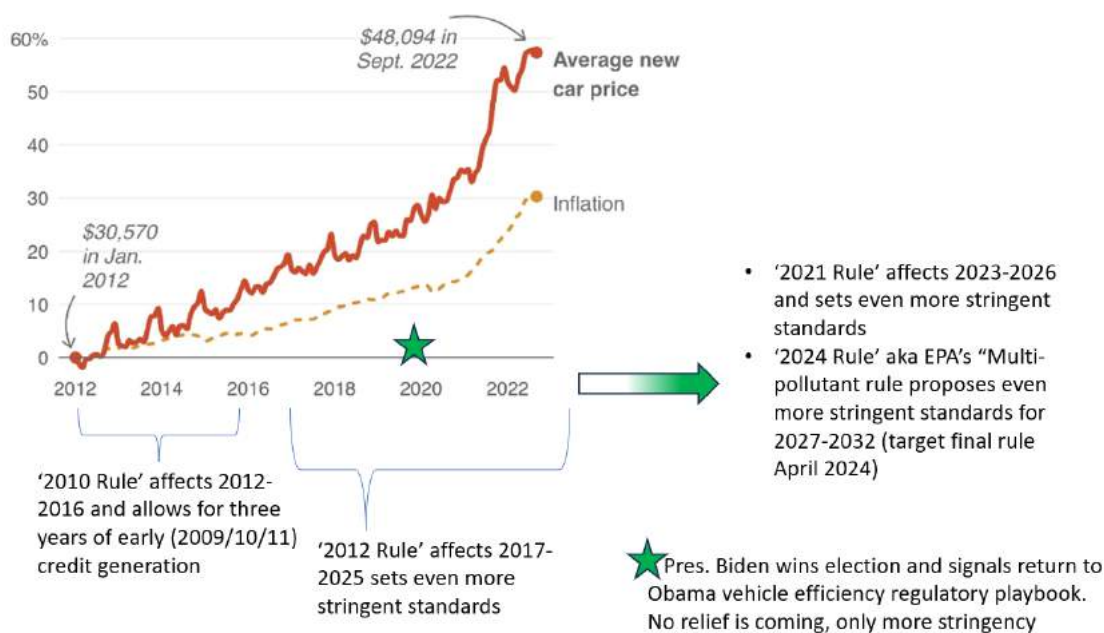
Figure 2 shows significant increases in US average new vehicle prices over the timeframe of multiple efficiency-based regulations. The sequencing of EPA rule changes over this time period is shown in Table 3.

In the first years of the EPA GHG program, prices rose in line with inflation. During the 2012-2016 timeframe, OEMs were able to rely on significant banked early credits to moderate compliance costs.

As the second phase of the EPA GHG standards became effective, most inexpensive conventional technologies applicable to ICE have been deployed. Taking data directly from the US EPA’s ALPHA model⁴ (a forward-looking full vehicle simulation model which estimates GHG emissions from light-duty vehicles), EPA has already applied, and auto manufacturers have already incorporated significant penetrations of cost-effective technologies to ICE vehicles, including:

- > Engine technologies including turbocharged engines, gasoline direct injection (GDI), GDI with port fuel injection (GDPI) and cylinder deactivation
- > Improved transmissions, both continuously variable transmissions (CVTs), and higher than 7 gear ration transmissions
- > Mass reduction, aerodynamic improvements and low rolling resistance tires

FIGURE 2: AVERAGE NEW CAR PRICE AGAINST INFLATION 2012-22 (US) – US BUREAU OF LABOR STATISTICS & KELLY BLUE BOOK⁵



⁴ EPA. (2024) Advanced Light-Duty Powertrain and Hybrid Analysis (ALPHA) Tool. Available at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/advanced-light-duty-powertrain-and-hybrid-analysis-alpha> (Accessed: 29 February 2024).

⁵ Financial Samurai. (2023) The Average New Car Price Is Unbelievably High, Financial Samurai. Available at: <https://www.financialsamurai.com/average-new-car-price/> (Accessed: 28 February 2024).

TABLE 3: PREVIOUS GHG US LIGHT-DUTY VEHICLES STANDARDS RULES⁶

Rule	MYs covered	Title	Federal Register citation
2010 Rule	Initial 2010 rule established standards for MYs 2012–2016 and later.	Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards.	75 FR 25324, May 7, 2010.
2012 Rule	Set more stringent standards for MYs 2017–2025 and later.	2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards.	77 FR 62624, October 15, 2012.
2020 Rule	Revised the standards for MYs 2022–2025 to make them less stringent and established a new standard for MYs 2026 and later.	The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks.	85 FR 24174, April 30, 2020.
2021 Rule	Revised the standards for MYs 2023–2026 to make them more stringent, with the MY 2026 standards being the most stringent GHG standards established by EPA to date.	Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards.	86 FR 74434, December 30, 2021.

THE CREDIT REGIME WILL RESULT IN UNINTENDED CONSEQUENCES

Based on EPA’s most recent Trends report, it has been factually reported that the primary credit generator in the US market, Tesla, has created roughly the amount of credits that large debit creators need to remain compliant.

Note, to date, no OEM in the US has fallen into noncompliance with the US EPA GHG requirements. Table 4 and Figure 3 also shows that while Tesla created over 19Tg of credits in the most recently reported model year data, Tesla no longer owns those credits. They have been sold to debit-creating OEMs.

The credit market in the US is fluid, but it does not appear that the rate at which the US standards continue to increase annually, that credit creators can continue to meet the demands of the debit creators. In other words, in the US, a reckoning is coming.

TABLE 4: US CREDITS EARNED BY MANUFACTURERS IN MODEL YEAR 2022, ALL⁷

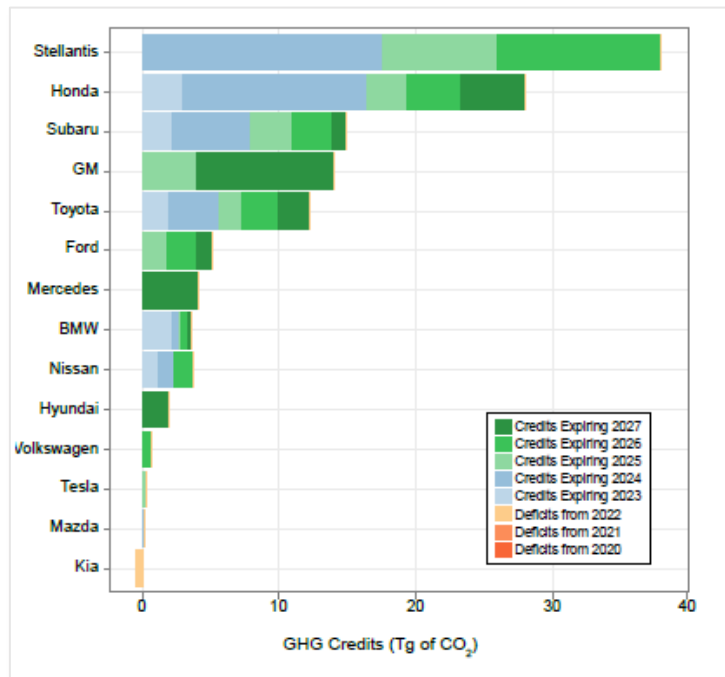
Manufacturer	Performance Value (g/mi)	Standard (g/mi)	Standard Exceedance (g/mi)	Production	Credits Generated (Mg)
Aston Martin	366	376	-10	977	2,012
BMW	236	223	12	360,669	-942,443
Ferrari	383	373	10	3,831	-7,133
Ford	260	263	-3	1,490,162	1,118,271
GM	282	259	22	1,805,182	-8,834,265
Honda	207	213	-6	1,226,934	1,599,960
Hyundai	207	210	-3	817,732	574,619
Jaguar Land Rover	293	251	42	53,649	-502,615
Kia	216	215	0	663,813	-40,931
Lucid	-18	206	-224	3,616	158,161
Mazda	226	221	5	215,483	-250,937
McLaren	393	329	64	828	-10,280
Mercedes	275	234	41	298,363	-2,592,657
Mitsubishi	210	198	11	132,753	-315,552
Nissan	223	213	11	654,870	-1,481,227
Rivian	-25	301	-326	18,828	1,385,539
Stellantis	295	266	29	1,332,863	-8,555,367
Subaru	218	219	-1	522,834	81,813
Tesla	-23	201	-224	432,971	19,164,605
Toyota	218	223	-5	2,153,277	2,380,010
Volkswagen	229	221	9	558,032	-1,058,827
Volvo	186	233	-47	109,292	1,119,171
All Manufacturers	233	234	-1	12,856,959	2,991,927

FIGURE 3: GHG CREDIT BALANCE FOR LARGE MANUFACTURER, AFTER MODEL YEAR 2022⁸

⁶ EPA. (2023). Federal Register / Vol. 88, No. 87 / Friday, May 5, 2023 / Proposed Rules. Available at: <https://www.govinfo.gov/content/pkg/FR-2023-05-05/pdf/2023-07974.pdf>. (Accessed: 28 February 2024).

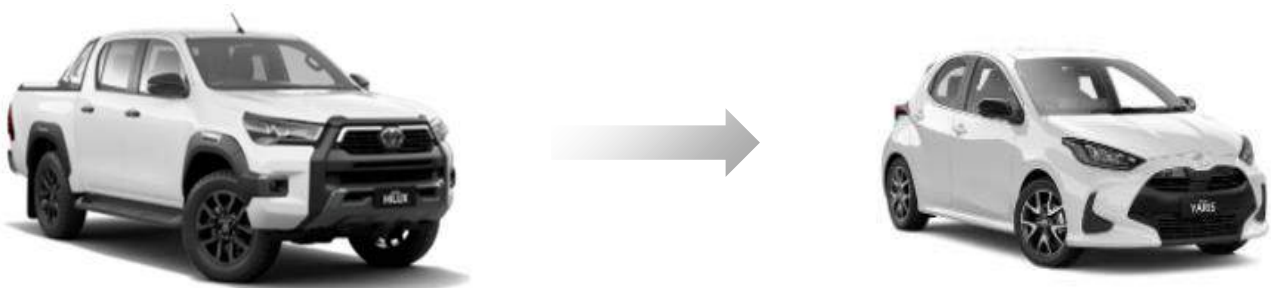
⁷ 2023 EPA Automotive Trends Report

⁸ Ibid.



RECLASSIFICATION OF MC VEHICLES FROM THE LCV FLEET TO THE PV FLEET PLACES SIGNIFICANT ADDITIONAL BURDEN ON THE BEST-SELLING VEHICLES IN AUSTRALIA

All models need to improve efficiency. The reclassification of many of Australia’s best-selling vehicles from the LCV standards to the more challenging PV standards is requiring these vehicles that Australians use to tow, to haul, do work, to go on holiday, to do more than their fair share. This structural element of the NVES alone could likely lead to many of these model offerings being no longer available.



To minimise the risks of the above potential impacts, we call for adjustments to Option B by integrating aspects of Option A. We call this proposal “AB+”.

5. PROPOSED NVES ADJUSTMENTS

MTAA proposes the following adjustments to Option B. With these amendments in place, we believe adverse industry and consumer impacts can be minimised while increasing the likelihood of delivering a fair scheme that achieves the cleaner and cheaper vehicle objective.

We reiterate that to match the US, we need US tools. The table below presents a comparison of Option B and the US GHG scheme across key parameters and our preferred option “AB+”.

TABLE 5: NVES OPTION B, U.S. GHG SCHEME AND MTAA OPTION “AB+” COMPARISON

	NVES OPTION B	US GHG	AB+
PV 2025 (g/km)	141	93	Option B
LCV 2025 (g/km)	199	129	Option B
PV 2026 (g/km)	117	83	Option B
LCV 2026 (g/km)	164	117	Option B
PV 2027-2029 (g/km)	92, 68, 58	TBD*	Option B
LCV 2027-2029 (g/km)	129, 94, 81	TBD*	Option B
Off Cycle (g/km) 2025/2026	None	9	Match US
AC Refrigerant (g/km) 2025/2026	None	9	Match US
AC Efficiency (g/km) 2025/2026	None	3	Match US
EV/PHEV Multipliers 2025/2026/2027	None	None	MA+MC=1.25 cap 20% NA+NB1 = 1.75 no cap
Early Credit Generation 2022/23/24	None	Included	Model<std gets banked
OC/AC/EVmult 2027+	None	TBD*	Match US
Model Classification	Move MC to PV	4WD are LDT	Leave MC in LCV
Pooling	None	Yes	Yes
Trading	Yes	Yes	Yes
Credit Market 2025/2026	Insufficient	Line to line	Create early credits for good performers
Credit Market 2027+	Insufficient	Insufficient	Review progress at check-ins
Fines	\$100/g/km	\$45,268/vehicle	Review data at 6-month intervals and course correct
Carry Forward/Carry Back	3yrs/2yrs	5yrs/3yrs	Match US
Low Volume Exemption	None	<5,000	<2,000
NEDC to WLTP Conversion Equation	None	None	Match New Zealand
ADR	Existing	NA	Add

TBD* is noted that the US 2027-2032 proposal (to reach 67% US EV in 2032) is planned to be finalised in April. Match the 2027+ U.S. changes.

We outline our proposed amendments to Option B below.

ADJUSTMENT 1: CATEGORISATION

MTAA position: Categories MA as PV and MC+NA as LCV (as per Option A)

- > This keeps it similar to US practice where MC cars are covered in the LCV fleet

ADJUSTMENT 2: CREDIT GENERATORS

MTAA position: Credit generators (multipliers) are required for the years 2025, 2026 and 2027

- > The government's preferred option (Option B) includes nil supercredits, off-cycle credits or air conditioning credits while also offering no purchase incentives – there is no international precedent for this position
- > The US scheme has been identified as the 'gold standard' and the regime the Australian Government wishes to mimic, however even this scheme features in built multipliers as well as credits for off cycle technologies and air conditioning efficiency improvements.
- > Should the government proceed with Option B as it currently stands, there is a very real risk that not enough credits will be generated in the initial phase of the scheme leaving OEMs with no choice but to withdraw product or raise prices
- > Instead, the regulated review in 2026 must be expressly extended based on market thresholds not being met and aligned with the current US approach at that time.
 - MA + MC – 1.25x capped at 20% of brand volume below fuel efficient LCT Threshold
 - NA + NB1 – 1.75x no cap no price threshold

ADJUSTMENT 3: PV AND LCV TARGET ADJUSTMENT

MTAA position: PV and LCV targets must match the current US targets

- > The NVES should align with the current US targets for first three years of the scheme – not the draft ruling which has been circulated for consultation but not yet finalised
- > Binding Australia to theoretical targets is illogical as these targets have a high probability of being adjusted

ADJUSTMENT 4: CARVE OUTS

MTAA position: Provide a carve out for light commercial and tool of trade vehicles

- > Exclude light commercial and tool of trade vehicles from the first phase introduction of the NVES to allow industry to realign within a realistic timeframe

ADJUSTMENT 5: REVIEW FREQUENCY

MTAA position: Introduce biannual reviews and ensure mechanisms are in place for target adjustment

- > A single review in 2026 is insufficient given the rapid rate of industry change and shifting government agendas being seen internationally; instead at least biannual reviews are required

- > For the first phase, reviews must adjust targets as necessary with reviewable flexible targets for all target years to 2030 allowing for integration of international updates

ADJUSTMENT 6: INTRODUCE POOLING

MTAA position: Pooling is required to provide greater flexibility to OEMs that overachieve their target

- > Allow Credit/Debit-Account/Trading consistent with the US legislation (up to 5 years) and lead-time of at least two years or a grace period
- > Pooling allows brands to effectively manage their product development cycles, vehicle model life and certification and homologation complexity and cost

ADJUSTMENT 7: PROVIDE EXEMPTIONS FOR RURAL & REGIONAL STAKEHOLDERS

MTAA position: Provide exemptions for rural and regional communities and dealerships

- > Provide exemptions for rural and regional communities and dealerships for a period of time to allow for reduced disruption to key industries such as agriculture, tourism, manufacturing and mining

ADJUSTMENT 8: EXEMPT MILITARY AND EMERGENCY SERVICES VEHICLES

MTAA position: Vehicles supplied into essential service sectors should be excluded

- > Specific exemptions including military, law enforcement, agricultural equipment, motorcycles and potentially non-RAV entry imports under the Road Vehicle Standards Act (test and evaluation vehicles) should be provided

ADJUSTMENT 9: INTRODUCE A LOW VOLUME EXEMPTION

MTAA position: Low volume exemptions <2,000 units

- > Incorporate a low volume supplier threshold to ensure these importers are not penalised

ADJUSTMENT 10: OFFER COMPENSATION FOR AFFECTED ENTITIES

MTAA position: Introduce compensation for organisation adversely impacted by the NVES

- > Compensation be provided to affected entities as a direct result of mandated government policy. This includes additional assistance to new car dealers for infrastructure development and transitional relief for those who have been adversely affected.

FURTHER POLICIES REQUIRED

> Acceptance of international vehicle standards

Unique ADRs such as ADR 34/03, 42/05, 61/03 are not harmonised with international UN regulations and add to cost and model complexity. Additionally, the RVSA requires all models to be certified by the

Commonwealth with the certification approval process being slow and cumbersome therefore adding cost, complexity and lead time to new model introductions.

A concession should be provided for direct acceptance of type approved vehicles from global major markets in full volume supply under the RVSA. This may remove many ADR related development barriers that result in increased development time and cost for Australian market vehicles for OEMs bringing ZLEVs from major markets.

> **NEDC to WLTP conversion**

While the NVES should be based on WLTP test results, this does add complexity as until the ADRs introducing WLTP are fully implemented, there will always be the potential for product certified under NEDC.

A conversion factor to allow NEDC test results to be used in lieu of WLTP test results should be applied for these vehicles from NVES commencement similar to the New Zealand approach.

> **Strengthened or standalone franchising code**

The NVES will forever change the new car dealer franchisee/franchisor relationship. New technologies and infrastructure requirements will be forced upon the new car dealer with no guarantee of a return on investment.

Added to this is the likelihood of the OEM passing on target emissions penalties to dealers and new car dealers must be protected. A very real opportunity presents itself to this government to affect positive change in this regard. New car dealers are key to this government in arriving at its stated emissions targets.

All automotive manufacturer operations are controlled by overseas parent companies with sophisticated business models, capital outlays, tooling requirements and more. The power imbalance between franchisors and franchisees is substantial and growing and is not being adequately addressed by the Franchising Code.

Commercial vehicle, motorcycle, farm, and industrial machinery franchise dealers are also not afforded the same legislative protections as new car dealers.

The MTAA believes the standards of conduct in the automotive franchising sector need to be raised. We are actively participating in the review of the Franchising Code to secure an outcome for our members that drives competitiveness, sustainability and productivity and requesting the following:

- Extend the code - Cover motorcycle, farm machinery, industrial machinery and truck dealers
- Extend protections – Protections offered to dealers should be applied to franchise automotive aftermarket repairers
- Mandate protections for service & parts agreements – Service and parts agreements should sit within the protective umbrella of the Code
- Compensate goodwill – Recognise the right of dealers to compensation for established goodwill

- Introduce minimum agreement terms – Dealers should receive a minimum five-year term for their dealer agreements to provide greater certainty

> **Australian Consumer Law protections – Consumer guarantees and supplier indemnification**

The ACL should provide vital protections and balance for consumers and business and important guidance on accepted standards of commercial behaviour.

It should be developed based on underlying principles of certainty and clarity, and simple and streamlined provisions, the avoidance of unreasonable compliance burdens and proportionate penalties. As such, our view is that:

- The ACL should not impose unreasonable compliance burdens on businesses, and any penalties imposed should be proportionate to the extent and identified customer harm
- The ACL is clear and certain

The Treasury's Regulatory Impact Statement proposals will result in disproportionate detriment to business if increased penalty provisions are introduced without providing additional clarity on the concepts of acceptable quality, major failure and rejection periods.

Further, the concepts of "durability" and "rejection period" are too uncertain and require clarification. In particular, both consumers and business require guidance on the time periods for which products should reasonably be expected to last before a defect amounts to a breach of the consumer guarantees.

The current regime requires automotive manufacturers to grant full refunds to consumers for product defects, notwithstanding that consumers may have used and enjoyed their vehicle for an extended period prior to the defect appearing. We request that these issues are addressed.

> **Skills and training**

In 2022-23 there was an estimated skilled labour deficit of 38,700 positions across the automotive sector, which is forecast to rise even higher in 2024-25.

The MTAA recently partnered with Deloitte Access Economics to prepare their response to Job and Skills Australia's (JSA) 2024 Skills Priority List stakeholder survey. The attached report finds that there are acute skills shortages across the industry.

A survey completed by 500 automotive businesses revealed that over 2,000 vacancies were advertised in 2023 of which less than 800 were filled, with an average industry fill rate of just 39% - well below JSA's threshold for determining if an occupation is in shortage (67%). Shortages were prevalent across all states and territories, and in general were worse in regional locations compared to metropolitan regions.

The fill rate for the important emerging occupation of electric vehicle technician was 41%.

With more than one million zero and low-emission vehicles projected to be on Australia's roads by 2030, the pressure on automotive businesses to secure skilled labour to meet the changing mix of vehicles on-road, will only intensify.

Support packages are needed to assist the development of a much-needed skilled worker pipeline for the automotive industry with a particular focus on EVs.

> **Charging grants**

With a significant infrastructure barrier existing to the successful adoption of ZLEVs in Australia, financial grants to install EV charging infrastructure at dealerships and repairers are essential.

> **Motor vehicle insurance and repair code of conduct**

Mandate a national body repair code of conduct (the existing code is only mandatory in NSW and South Australia) with an independent chair to swiftly resolve disputes that addresses body repairer's rights, given the contentious and at times prohibited and unrealistic requests from insurers.

There are an estimated 4,500 repairers providing these services, with almost all of this work ultimately funded (in whole or part) by insurance firms.

> **End-of-life vehicles**

The NVES consultation paper refers to scrappage rates and other issues relating to the almost 20 million vehicles anticipated to come off Australian roads and be replaced by low emission vehicles. There is an environmental catastrophe looming that will negate any benefits achieved via the NVES.

To this end, MTAA implores the Government to urgently development and implement a co-regulated end of life vehicle scheme to Australia that could be under-written utilising the legislative reform measures of the Product Stewardship Act 2011 (Cth).

> **FBT exemption**

Extend the FBT exemption applied to EVs beyond the expiry date of 2025. This is an existing (and successful) policy that would be straightforward to roll over.

> **Road user charging**

Provide clarity on the Government's road user charge plans as this will contribute additional costs to EV ownership and could act as a disincentive to uptake. It is also important that any future road user charge be driven nationally to ensure consistency and harmonisation.

> **Tyre stewardship scheme**

From March 2024, New Zealand will be rolling out a mandatory product stewardship scheme for end of life tyres. This is a culmination of 10 years of work and engagement.

The model maintains market competition within the recycling/collector market and supports advanced manufacturing (value adding) of tyre derived material. We believe Australia should aspire for a similar approach towards to dealing with the problems associated with end of life tyres.

A simpler approach in the short term however would be to impose an importer levy for every tyre that enters the country and paid to the Tyre Product Stewardship Scheme. This Scheme has been running for 12 years to support new markets for tyre derived material.

To remain fair this could be a 5 cent per kilogram levy on all tyres imported into the country (easily calculated within container weights). A similar calculation can be made for all OEM's for tyre weight. For example, on a passenger tyre it works out to be \$0.45c – noting currently the levy is \$0.25 per equivalent passenger tyre.

This is the first step towards supporting greater outcomes for tyres once they reach end of life. If more needs to be done to achieve a circular economy for tyres, then a government strategy to enable this is required. This opens the possibility pursuing a model similar to New Zealand.

6. CONSULTATION QUESTIONS

Please rank the proposed options in order of preference

- > Option B is the MTAA's preferred option however this is contingent on the acceptance of all amendments outlined in Section 5.

Briefly, what are your reasons for your choice?

- > The MTAA wishes to work with the Government to achieve its desired option and catch up with other major markets but is cognisant that a fair and workable scheme must be the primary objective.

Do you support the Government's preferred option?

- > Yes, with our recommended adjustments.

Do you have any feedback on the analysis approach and key assumptions used?

- > We require more detail on the department's analysis approach to make a judgement on its value as an input into this regulatory setting process.
- > We would however welcome the opportunity to share our own analysis with the department and 'compare notes' to ensure collectively we are producing the very best forecasts possible.

Briefly, describe how the NVES might impact your organisation

- > Please refer to Section 3 of our submission for OEM impacts.

Who should the regulated entity be?

- > The importer should be the regulated entity. Vehicles should be counted at the point of registration, not the upon inclusion in the Register of Approved Vehicles (RAV).

ATTACHMENT 1: INDUSTRY REQUESTS TO ACHIEVE A FAIR TRANSITION

Transforming the automotive sector to a low emissions future requires a multi-faceted approach beyond simply increasing the number of ZLEVs imported into Australia.

Transforming the sector requires a whole-of-industry approach that brings the hundreds of thousands of automotive businesses along the journey and provides support to assist their transition to new technologies.

Incentivising businesses will provide avenues for creating jobs, increasing infrastructure, and providing consumers with greater knowledge and information on ZLEVs to assist in helping motorists make the best-informed choice.

One of the greatest challenges facing the sector however is skills shortage. A recent MTAA commissioned report by Deloitte (attached) for Job and Skills Australia's (JSA) 2024 Skills Priority List stakeholder survey found that most automotive occupations were found to be in shortage, with fill rates particularly low for technician and trade workers.

Two emerging occupations relevant to the industry were found to be in shortage: The fill rate for the important emerging occupation of electric vehicle technician was only 41% while the fill rate for apprentice mechanics was 63%. JSA's threshold for determining if an occupation is in shortage is 67%.

The key reason highlighted for not filling vacancies was low numbers of applicants per vacancy. On average, automotive businesses received 8.2 applicants per vacancy, well below the national average of 17.7.

While low numbers of applicants were the diagnosis, many symptoms were identified by employers to be driving these issues. These included a lack of skilled / qualified workers, issues with the industry training pipeline, challenges around visas, remuneration concerns and competition from other industries, with many businesses calling for a greater focus from government on tackling the chronic lack of support for technician and trade professions in Australia.

With over one million ZLEVs projected to be on Australia's roads by 2030, pressure to secure skilled labour to meet the changing mix of vehicles on-road will intensify. A plan is needed to address this.

Under a NVES, not only will the EV workforce need to be sourced, reskilled and/or upskilled, businesses will need to make long-term investment decisions regarding tools, infrastructure (e.g., charging stations) and workshop space to service and repair EVs.

Support packages are required to develop a much-needed skilled worker pipeline with a focus on EVs as well as business support to ensure an orderly transition and deliver a successful NVES.

This paper provides a list of requests for the Government's consideration with the aim to:

- > Build business planning capability of automotive businesses to service and repair EVs
- > Develop the skilled workforce needed to service and repair EVs

- > Establish the physical training resources and infrastructure to deliver the training industry needs to build its capacity to service and repair EVs
- > Minimise adverse impacts on automotive retail businesses which are typically SMEs (~97% small and family owner enterprises)

Our requests to support the implementation of an effective NVES are outlined below.

PART 1: AUTOMOTIVE BUSINESS SUPPORT

BUSINESS INCENTIVES

REQUEST 1: Provide automotive retail businesses with direct subsidies, tax offsets or carbon credits to invest in new tools and safety equipment for electric vehicles, including new hoists, safety equipment for workers.

REQUEST 2: Provide financial assistance to automotive retail businesses, independent retail fuel outlets and workshops who invest in charging station infrastructure, with a focus on regional Australia.

REQUEST 3: Allow accelerated depreciation on charging infrastructure for automotive retail businesses, independent retail fuel outlets and workshops who install EV charging stations.

REQUEST 4: Mandate a national body repair code of conduct with a government appointed ombudsman to swiftly resolve disputes.

REQUEST 5: Establish a fund to develop additional programs that support automotive businesses to build business planning capability to address the impacts EVs will have on their business.

REQUEST 6: Provide funding to the Jobs and Skills Council (JSC) for the automotive industry (AUSMASA) to work with automotive industry associations and relevant unions to ensure clear skills development pathways are available to adequately support existing workers and new entrants into the industry develop the skills needed to service and repair EVs.

FRANCHISING PROTECTIONS

REQUEST 7: Strengthen or develop a standalone automotive franchising code to address the power imbalance between franchisors and franchisees, including:

- > Protecting dealers from OEM exit – If an OEM leaves the market as they cannot be profitable under the NVES, dealer investments to be protected / compensated
- > Compensating goodwill – Recognise the right of dealers to compensation for established goodwill
- > Extending the code - Cover motorcycle, farm machinery, industrial machinery and truck dealers
- > Introducing minimum agreement terms – Dealers to receive a minimum five-year term for their dealer agreements to provide greater certainty
- > Extending protections - Protections offered to dealers to be applied to franchise automotive aftermarket repairers

- > Mandating protections for service & parts agreements -Service and parts agreements to sit within the protective umbrella of the Code

APPROPRIATE VEHICLE DISPOSAL

REQUEST 8: Mandate an Australia wide vehicle certificate of destruction and tyre recycling scheme with DCCEEW provided resources to develop a formal and nationally mandated certificate of destruction process.

PART 2: AUTOMOTIVE SKILLS AND TRAINING

REQUEST 9: Establish a fund to support co-ordinated skilling pathways for existing and emerging workers including, Recognition of Prior Learning (RPL), automotive EV skill sets and any other industry identified and recommended skilling pathways.

REQUEST 10: Provide a \$3,000 tool allowance to each eligible automotive technician to support them to assemble the necessary tools needed to service and repair EVs.

REQUEST 11: Provide funding for EV physical training resources, including:

- Development of EV training centres throughout Australia
- Mobile training units that can be deployed across Australia
- EV models, and workshop base training simulators
- Human resources for EV training that includes:
 - Upskilling technical trainers
 - Training and assessment resource development specifically for EVs

REQUEST 12: Funding be made available to support an industry-led mentoring program to increase automotive repair, service and retail apprentice completion rates.

REQUEST 13: Maintain automotive apprentice incentives and employer wage subsidies at the current level at a minimum.

(Note that current wage subsidies of up to \$15,000 will be replaced by a \$4,000 hiring incentive and priority apprentice support payments will decline from \$5,000 to \$3,000 from 1 July 2024 adding an additional challenge to automotive businesses in attracting and retaining apprentices.)

REQUEST 14: Commit to funding national industry school pathway programs led by automotive industry groups to encourage young people to undertake a career in automotive.

REQUEST 15: The Skilling Australians Fund Levy be reduced to half of the current rate for businesses who demonstrate a strong investment in training by employing apprentices and sponsoring migrants.

REQUEST 16: The VET Workforce Blueprint currently in development prioritise addressing recruitment challenges for automotive trainers.



 **MATT HOBBS, CEO**

M 0419 608 845 E matt.hobbs@mtaa.com.au





Skills shortages in the Australian automotive industry

MTAA member survey findings 2024

1 March 2024

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Executive summary

The Motor Trades Association of Australia (MTAA) has partnered with Deloitte Access Economics to prepare their response to Job and Skills Australia's (JSA) 2024 Skills Priority List stakeholder survey. This report has been produced by Deloitte Access Economics for MTAA for the purpose of supporting this response. The report provides a summary of the findings from a cross industry survey of MTAA members conducted by Deloitte Access Economics, ensuring that the insights provided to JSA are data-driven and evidence-based.

Australia is experiencing a tight labour market with evidence of extensive skills shortages across many occupations. The latest JSA Skills Priority List showed that 36% of occupations across Australia were in shortage in 2023, five percentage points higher than the equivalent figure in 2022.

Skills shortages are a particular issue for the automotive industry. Of the 26 six-digit ANZSCO occupations that are most prominent in the automotive industry, 35% were assessed to be in shortage by JSA in 2023. A range of recent studies indicate that skills shortages are amongst the biggest challenges facing automotive businesses.

The automotive industry in Australia covers a wide range of business activities with diverse skills needs. To reflect this, and meet the JSA's requirements, Deloitte Access Economics conducted a survey of MTAA members to provide on-the-ground insights into how skills shortages are impacting the automotive industry. The survey was completed by over 500 automotive businesses from across Australia, representing over 2% of industry employment.

We find that there are acute skills shortages across the industry. Amongst the businesses responding to the survey, over 2,000 vacancies were advertised in 2023 of which less than 800 were filled, with an average industry fill rate of just 39% - well below JSA's threshold for determining if an occupation is in shortage. Shortages were prevalent across all states and territories, and in general were worse in regional locations compared to metropolitan regions.

Most automotive occupations were found to be in shortage, with fill rates particularly low for technician and trade workers. When comparing the survey findings to the 2023 JSA Skills Priority List (SPL) ratings it is found that:

- **Four occupations currently assessed as not in shortage by JSA were found to have fill rates below 67%:** tow truck drivers, tyre fitters, sales representatives (motor vehicle parts and accessories), and motor vehicle parts interpreters / automotive parts salespersons.
- **Two occupations currently not rated in the SPL owing to their skill level were found to be hard to recruit:** Materials recyclers (automotive dismantlers) and car detailers had low fill rates of 27% and 57% respectively.
- **Three emerging or other occupations relevant to the industry were also found to be in shortage:** The fill rate for the important emerging occupation of electric vehicle technician was 41%. Meanwhile the fill rates for apprentice mechanics and office support workers were 63% and 38% respectively.

The key reason highlighted for not filling vacancies was low numbers of applicants per vacancy. On average, automotive businesses received 8.2 applicants per vacancy, well below the national average of 17.7.

While low numbers of applicants were the diagnosis, many symptoms were identified by employers to be driving these issues. These included a lack of skilled / qualified workers, issues with the industry training pipeline, challenges around visas, remuneration concerns and competition from other industries, with many businesses calling for a greater focus from government on tackling the chronic lack of support for technician and trade professions in Australia.

1 Background

1.1 Purpose

The Motor Trades Association of Australia (MTAA) has partnered with Deloitte Access Economics to prepare their response to Job and Skills Australia's (JSA) 2024 Skills Priority List stakeholder survey. This report will support the MTAA to provide a data-driven and evidence-based response to JSA's stakeholder survey, informing the Current Labour Market Rating component of the Skills Priority List. The report provides a comprehensive analysis of a Deloitte Access Economics survey of MTAA members, focusing on key insights about current labour shortages across the industry nationally and, where data has permitted, by state.

The Skills Priority List is released annually and is used as a point-in-time assessment to understand current skills shortages¹ and future labour demand in industries across Australia. It is based on data from a range of sources including economic data, employer surveys and stakeholder engagement. It is a key resource used to shape domestic education and training policy and informs Australia's Migration Program planning.

1.2 Defining the automotive industry

The automotive industry in Australia covers a wide range of business activities and has diverse skill needs. The industry's activities span across a range of codes under the Australian and New Zealand Standard Industrial Classification (ANZSIC) and the Australian and New Zealand Standard Classification of Occupations (ANZSCO).

Relevant sub-industries

For this report the automotive industry is defined as the seven ANZSIC sub-industries listed in Table 1. This definition was informed by consultation with MTAA, analysis of the ANZSIC industry classifications and a broader review of available literature. The seven sub-industries included in the definition comprise 93% of the industry's business population, as per data from the previous MTAA study.²

¹ JSA defines an occupation as in shortage when employers find it challenging to fill or are unable to fill vacancies or are unable to meet significant specialist skill needs within that occupation. This may be influenced by current remuneration, working conditions and accessibility of job locations (JSA, 2023).

² Motor Trades Association of Australia, 2021.

Table 1 Australian automotive industry: report definition

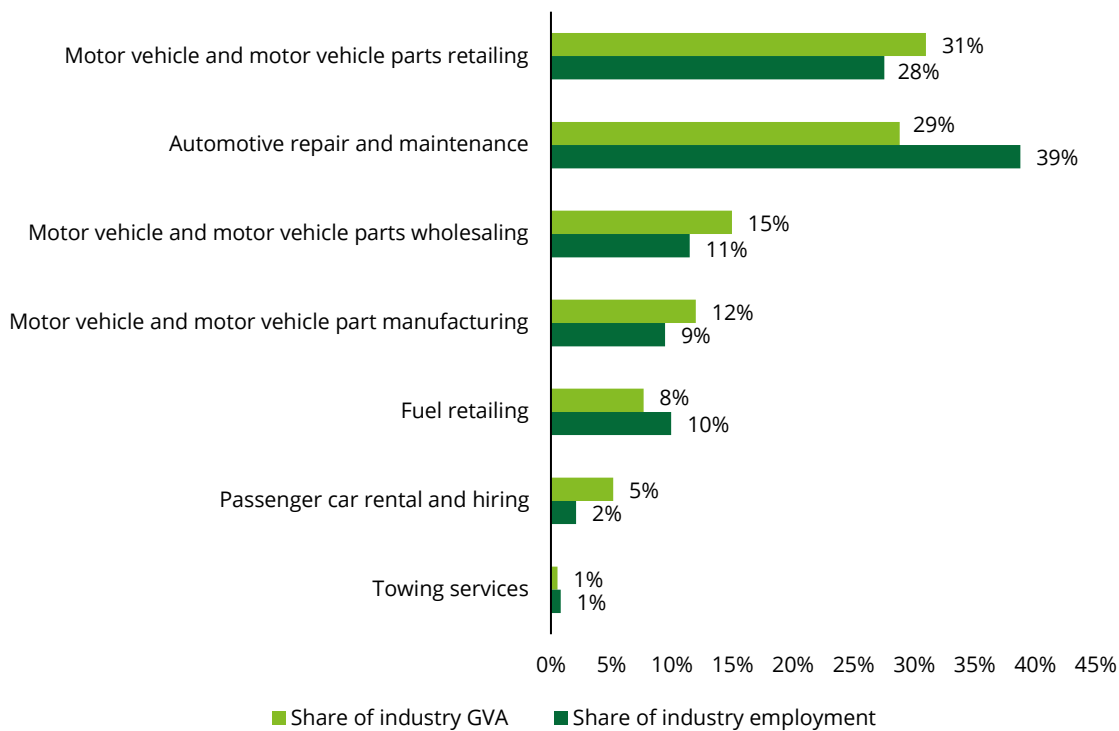
ANZSIC	Sub-industry	Main activities	Key relevant ANZSCO codes (occupation)
391, 392	Motor vehicle and motor vehicle parts retailing	New and used car, motorcycle, truck, trailer and other motor vehicle retail sales. Original equipment and aftermarket retail sales of motor vehicle parts and tyres.	149212 Customer Service Manager* 621311 Motor Vehicle or Caravan Salesperson* 621312 Motor Vehicle Parts Interpreter / Automotive Parts Salesperson* 611313 Sales Representative (Motor Vehicle Parts and Accessories) 811111 Car Detailer
941	Automotive repair and maintenance	Light and heavy vehicle mechanical service and repair; vehicle body, paint and interior repair; engine reconditioning; automotive electrical services; mining machinery service and repair; mobile plant and equipment service and repair.	149212 Customer Service Manager* 321111 Automotive Electrician 321211 Motor Mechanic (General) 321212 Diesel Motor Mechanic 321213 Motorcycle Mechanic 321214 Small Engine Mechanic 324111 Panelbeater 324211 Vehicle Body Builder* 324212 Vehicle Trimmer 324311 Vehicle Painter 899411 Motor Vehicle Parts and Accessories Fitter (General) 899412 Autoglazier 899413 Exhaust and Muffler Repairer 899414 Radiator Repairer 899415 Tyre Fitter
350	Motor vehicle and parts wholesaling	Car, commercial vehicle, trailer and other motor vehicle wholesale sales; motor vehicle dismantling, recycling and parts wholesaling.	621311 Motor Vehicle or Caravan Salesperson* 621312 Motor Vehicle Parts Interpreter / Automotive Parts Salesperson* 621911 Materials Recycler (automotive dismantler)
400	Fuel retailing	Retailing of petrol, diesel, liquefied petroleum gas (LPG), compressed natural gas (CNG), oils and service station operation.	621611 Service Station Attendant 631111 Checkout Operator
231	Motor vehicle and motor vehicle parts manufacturing	Specialist vehicle manufacturing; bus and truck manufacturing; vehicle body and trailer manufacturing; automotive electrical components and other vehicle parts manufacturing.	324211 Vehicle Body Builder*
461	Towing services	Accident, trade, heavy vehicle and other towing services.	733115 Tow Truck Driver
661	Passenger car rental and hiring	Hiring, leasing or renting of passenger cars without drivers.	149111 Fleet Manager 149413 Transport Company Manager 621912 Rental Salesperson

Source: Deloitte Access Economics *These ANZSCOs are duplicates because these occupations fall into multiple sub-industries.

Based on this definition **the automotive industry contributed \$45.9 billion³, or 2.1% of total industry output, to the Australian economy in 2021-22**. The industry employed **392,000 workers in 2021-22** – approximately 2.9% of total employment in Australia.

The largest two sub-industries are motor vehicle and motor vehicle parts retailing, and automotive repair and maintenance, which together accounted 60% of industry output in 2021-22 and 66% of employment. Other smaller services such as manufacturing, wholesaling, fuel retailing, towing and passenger car rental and hiring, also form part of the industry.

Figure 1: Sub-industry shares of automotive GVA and employment, 2021-22



Source: Deloitte Access Economics

Adjusting for inflation, the automotive industry grew at an average annual rate of 2.6% between 2018-19 and 2021-22, exceeding the economy average of 1.5%. The fastest growing sub-industries over this period have been motor vehicle and motor vehicle parts retailing, and motor vehicle and motor vehicle parts manufacturing. In contrast, fuel retailing and motor vehicle and parts wholesaling have declined in real terms over the same period.

Relevant occupations

Our literature review identified 26 ANZSCO occupations directly relevant to the automotive industry, as outlined in Table 1. Some of these occupations operate across more than one sub-industry.

The five occupations with the greatest number of workers in the automotive industry in Australia in 2023 were:

- Motor mechanic (general), with 79,300 workers.
- Motor vehicle parts interpreter / automotive parts salesperson, with 17,600 workers
- Motor vehicle or caravan salesperson, with 14,500 workers
- Service station attendant, with 13,200 workers, and
- Automotive electrician, with 10,800 workers.⁴

³ Measured in Gross Value Added (GVA) terms

⁴ ABS, Labour Force Survey, Detailed, November 2023, Jobs and Skills Australia (JSA) trend data.

In addition to these 26 core occupations, our survey of MTAA members highlighted two additional occupations that are relevant to automotive businesses, but which have been treated separately for different reasons.

- a) **Apprentice mechanics:** many businesses reported that they employed apprentice mechanics, often due to an inability to find and attract suitably qualified staff in this area. Apprentice mechanics have been treated as a separate occupation to general mechanics in this report to account for the substantively different skill level of this group.
- b) **Office support workers:** several automotive businesses reported on recruitment activities associated with filling office support positions (e.g., receptionists, administration staff). These roles would fall across occupations in the Clerical and Administrative Workers ANZSCO major group and have been grouped together in the results section of this report.

Emerging occupations

Activities related to electric vehicles (EVs) currently fall under ANZSCO codes such as automotive electrician (ANZSCO code 321111) rather than having a distinct occupation group. EV technician is an occupation that is separate from a traditional motor mechanic or technician though. EV technicians require different skills and training, as shown by the occupation's unique national training qualification.

EV activities make up an increasing part of the automotive industry, with the Electrical Vehicle Council estimating that there are currently about 180,000 EVs in Australia, a significant increase from the 83,000 in 2022.^{5,6} Related occupations such as EV technicians are anticipated to become more important over time, with the 2023 Federal Treasury Intergenerational Report forecasting that EVs would increase from less than 1% of Australia's motor vehicle fleet in 2022-23 to 85% in 2062-63.⁷

As cars become more technologically advanced, other occupations will likely emerge that require greater digital literacy skills and technology-based training, such as programming and diagnostics, and advanced driver assistance systems technology.^{8,9}

1.3 Skills shortages in the Australian economy

Australia is experiencing a tight labour market with evidence of extensive skills shortages across many occupations. Despite a slow down in economic activity in late 2023 and early 2024, the Australian labour market remains tight by historic standards. The unemployment rate remains around 4%, and while softening in recent months, the number of vacancies per unemployed person remains more than double the pre-pandemic average.

There are various factors driving the current tightness in the labour market:

- **One-off shocks:** the COVID-19 pandemic presented a significant shock to migration in Australia, with net overseas migration turning negative between December 2020 and September 2021. While inward migration has since rebounded to record highs, by September 2023 Australia's population remained below the level expected from forecasts prior to the pandemic.
- **Cyclical variations:** the strong economic recovery from the pandemic added to labour market tightness with demand for labour increasing rapidly as economic activity returned. These pressures have cooled in recent months as economic conditions have turned, with job vacancies down 14% in the year-to November 2023.
- **Long-term structural issues:** many industries in Australia are dealing with persistent imbalances between skills supply and demand. There are many possible causes for this including; a lack of qualified applicants due to issues attracting people into certain careers, issues around training quality impacting the suitability of applicants for work, or issues with retention due to pay and working conditions in an industry.

⁵ Electric Vehicle Council 2023, *State of Electric Vehicles*.

⁶ Electric Vehicle Council 2023, *Australian Electric Vehicle Industry Recap 2022*.

⁷ Commonwealth of Australia 2023, *Intergenerational Report 2023: Australia's future to 2063*

⁸ NSW Department of Education 2023, *Automotive: Automotive Technology*.

⁹ The Australian Automotive Aftermarket Association (AAAA) 2022, *Protecting the Future of The Automotive Industry – Apprentice Insights*

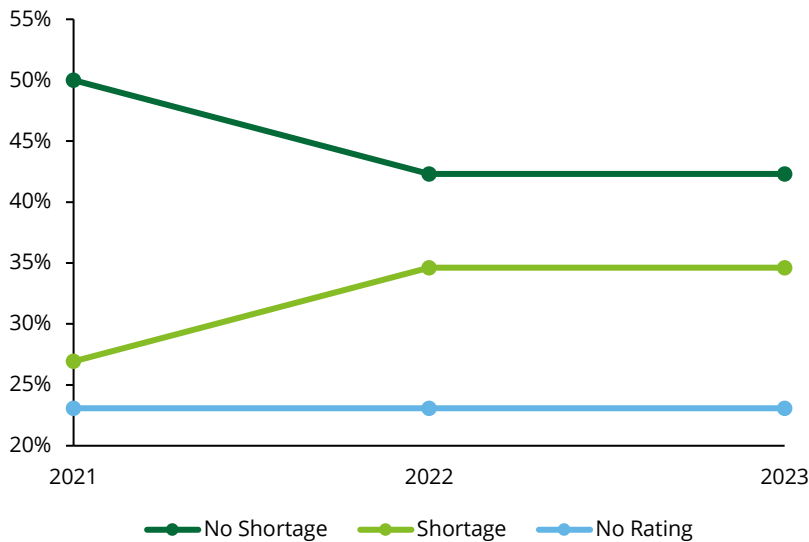
As a result of these factors, skills shortages are widespread in Australia. The latest JSA Skills Priority List showed that 36% of occupations across Australia were in shortage in 2023, five percentage points higher than the equivalent figure in 2022. Shortages were most common for Technicians and Trades Workers, with 50% of occupations in this category in shortage. Shortages have proven persistent in many occupations, which suggests that the labour market has not been able to adjust quickly or effectively enough to clear skills shortages.

Shortages in the automotive industry

Skills shortages are an issue for the automotive industry. Of the 26 six-digit ANZSCO occupations that are most prominent in the automotive industry, 35% were assessed to be in shortage by the JSA in 2023, while 42% were assessed as not in shortage. Meanwhile the remaining 23% were not rated by JSA as they are of skill level 5 and so judged to have limited barriers to entry.

The number of automotive occupations assessed to be in shortage has increased since the Skills Priority List was first published in 2021. Shortages in the automotive industry have also tended to be persistent. Of the nine automotive occupations assessed to be in shortage, seven have been in shortage since the JSA Skills Priority List began being published in 2021.

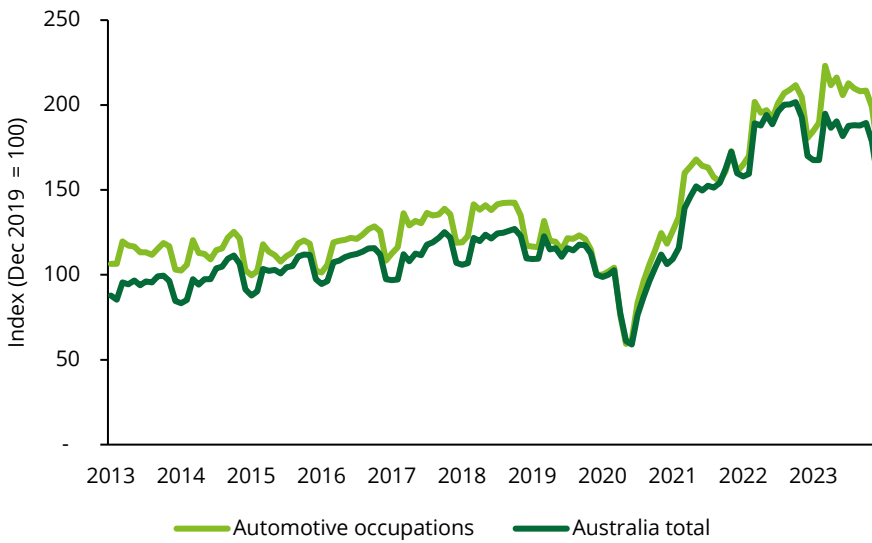
Figure 2: Share of automotive occupations assessed to be in shortage over time



Source: JSA Skills Priority List

Timely economic indicators suggest that labour demand remains elevated in the automotive industry, although it has softened in recent months. ABS data shows that online vacancies in ANZSCO unit groups relevant to the automotive industry remain above historical norms. Furthermore, vacancy levels in automotive occupations have increased by more than the national average since the beginning of the pandemic.

Figure 3: Online vacancies in occupations relevant to the automotive industry, Australia



Source: ABS Internet Vacancies Index

Previous studies into skills shortages in the automotive industry highlight that skills shortages are a key issue for business owners. Research by Capricorn in 2023 found that finding good staff was the single biggest challenge in running an automotive business in Australia and New Zealand.¹⁰ A total of 51% of its members reported this as an issue, up 12% from 2022. Previous research from the MTAA finds that the main issue is a lack of people entering the trade (indicative of a training gap) due to perception issues in the industry, although concerns around the quality of candidates and retention of staff were also raised.¹¹

In response businesses have been employing more apprentices, suggesting that firms are having to accept lower quality workers. Apprentice attrition is very high in the industry though, meaning even this has not solved the problem. An alternative way to tackle skills shortages is through migration, but Capricorn found that only around a third of businesses considered this approach due to the complexity and cost involved.

¹⁰ Capricorn 2023, *State of the Nation, Special Report: The Skills Shortage*

¹¹ MTAA 2021, *MTAA: Directions in Australia's Automotive Industry: An Industry Report 2021*.

2 Survey methodology

Survey design and dissemination

The survey developed by Deloitte Access Economics was designed to align closely with JSA's requirements to inform the Skills Priority List (SPL). This involved reviewing JSA's stakeholder survey template and noting key information being sought. This included information about the organisation (for example, a classification of the primary location of the organisation); a description of skill supply by occupations; the number of vacancies filled by state and occupation; and the use of visas in selected occupations.

Desktop research was then conducted to define the industry, focusing largely on ABS datasets, as outlined in Defining the automotive industry.

Following this research, the survey was designed containing two sections, the first to extract information about the business and the second focussing on occupational skills shortages, with a total of 17 questions (see Appendix A for survey questions and structure).

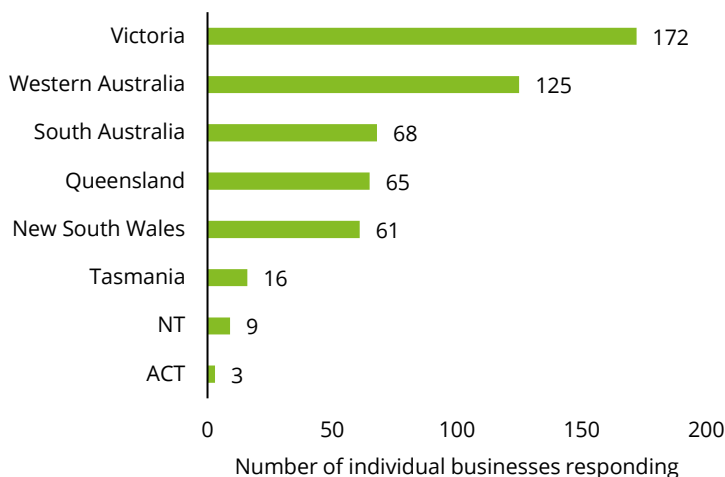
The survey was then coded in the Qualtrics platform and, following internal and external testing, was distributed through MTAA to be completed by individual member businesses from across the automotive industry.

The survey was open for approximately three weeks, from 23 January to 12 February 2024.

Survey responses

We received unique survey responses from 519 businesses which have informed the subsequent analysis in this report. These businesses employ 8,400 people, which accounts for approximately 2.2% of industry employment. The average business surveyed employed 16 people, which is slightly above the industry average. The results included a reasonable spread of businesses from across Australia, although the samples for Tasmania, Northern Territories and Australian Capital Territory were low and therefore the results for these jurisdictions should be treated with caution.

Figure 4: Survey response counts by state / territory



Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= 519 responses)

Most respondents (64%) reported that their answers were informed by personal observations of their own business. In addition to this, 19% based their responses on internal HR records, while 8% used broader industry or economy wide data. A small number of respondents used other sources such as the online platform they use for recruitment (e.g., Seek) or previous business owners.

3 Survey results

3.1 Key findings

Based on the survey findings, there were acute skills shortages in the automotive industry in 2023. Amongst the 519 businesses responding to the survey, 2,026 vacancies were advertised of which just 784 were filled, meaning the average industry fill rate was just 39%.

Most automotive occupations were in shortage, with fill rates particularly low for technician and trade workers. Four occupations currently assessed as not in shortage by Jobs and Skills Australia were found to have fill rates below 67%: tow truck drivers, tyre fitters, sales representatives (motor vehicle parts and accessories), and motor vehicle parts interpreters / automotive parts salespersons. Shortages were prevalent across all states and territories and in general were worse in regional locations compared to metropolitan regions.

The key reason highlighted for not filling vacancies was low numbers of applicants per vacancy. On average, automotive businesses received 8.2 applicants per vacancy, which compares to a national average of 17.7 in Q3 2023.¹² While low numbers of applicants were the diagnosis, many symptoms were identified by employers to be driving these issues. These included a lack of skilled / qualified workers, issues with the industry training pipeline, challenges around visas, remuneration concerns and competition from other industries, with many businesses calling for a greater focus from government on tackling the chronic lack of support for technician and trade professions in Australia.

3.2 Occupational findings

Occupational fill rates

Based on the survey findings, most automotive occupations were in shortage in 2023. According to JSA, an occupation is likely to be in shortage when the fill rate is below 67%.¹³ Fill rates below 67% generally reflect that employers are facing substantial challenges filling job vacancies. Based on our findings the average fill rate in the automotive industry was just 39% in 2023. In addition, only two occupations surveyed had a fill rate above 67% - Customer Service Managers and Motor Vehicle and Caravan Salespersons.

In general, the lowest fill rates were seen in technician and trade worker occupations. For example, amongst the occupations with the lowest fill rates were motorcycle mechanic, panelbeater and vehicle body builder. Meanwhile, sales worker occupations generally had slightly higher fill rates. This trend matches findings in the JSA's most recent SPL ratings.

However, these findings do suggest that more automotive occupations are in shortage than in the most recent JSA SPL ratings. Four occupations assessed to have no shortage in the 2023 JSA SPL are found to have fill rates below 67%. These are:

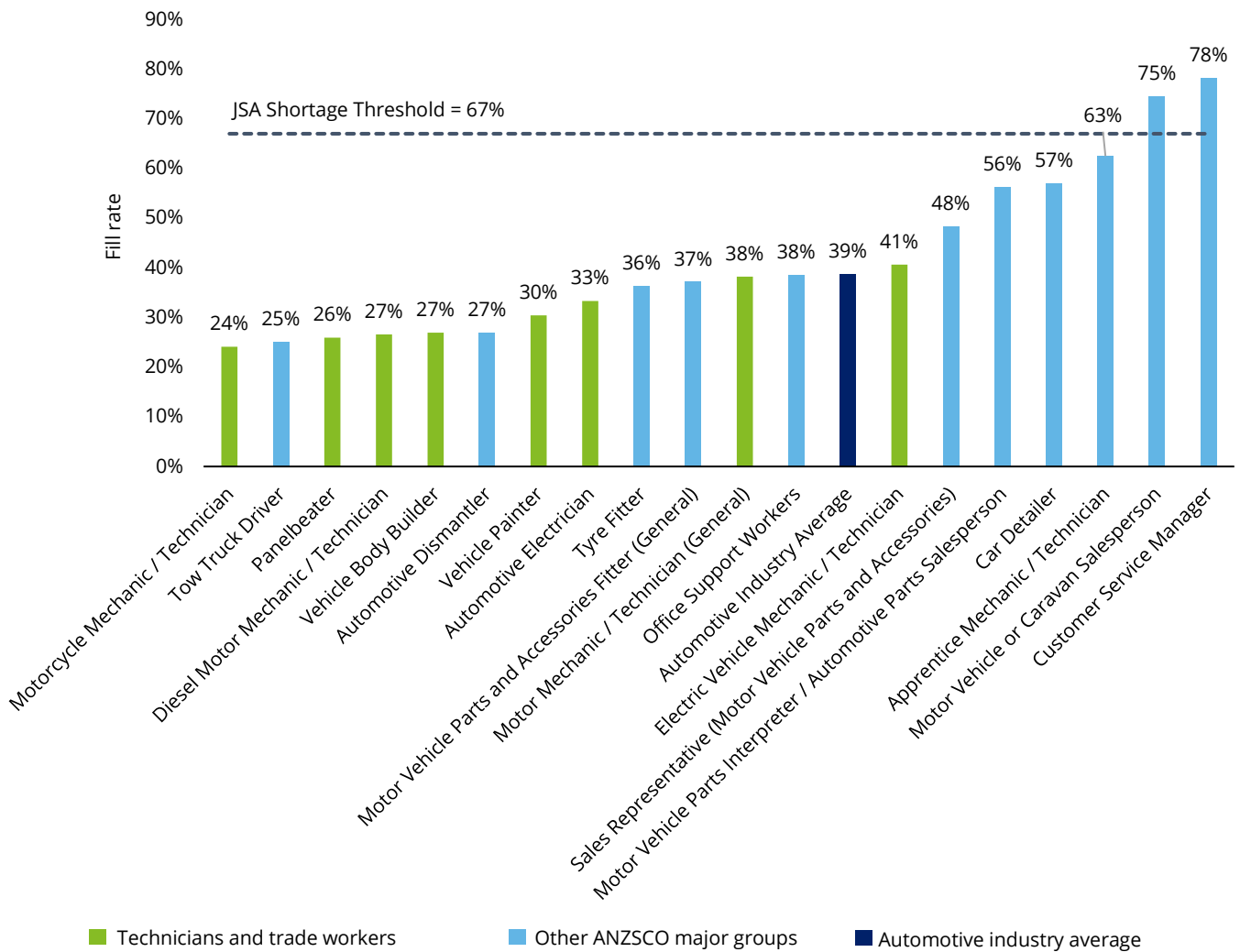
- Tow truck drivers
- Tyre fitters
- Sales representatives (motor vehicle parts and accessories)
- Motor vehicle parts interpreters / automotive parts salespersons

In addition to this, while not rated in the SPL list owing to the skill level of the occupations, the survey found that automotive businesses are having difficulties filling vacancies for materials recyclers (automotive dismantlers) and car detailers and which had fill rates of 27% and 57% respectively. Furthermore, the fill rates for apprentice mechanics (63%), office support workers (38%), and the important emerging occupation of electric vehicle technician (41%) suggest automotive businesses are also having difficulties finding employees in these occupation groups.

¹² Jobs and Skills Australia 2023, *Labour Market Update - December 2023*

¹³ Jobs and Skills Australia 2023. *Skills Priority List Methodology 2023*

Figure 5: Vacancy fill rate by occupation



Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= 519 responses). Questions: How many vacancies did your business advertise for in 2023?; of the vacancies your business advertised for in 2023, how many were filled? Note: occupations that advertised for less than 10 vacancies were excluded from this chart

Factors contributing to unfilled vacancies

In line with the reported vacancy fill rates, most businesses (93%) reported that there were not enough workers for the work available in the automotive industry. When asked about the reasons they were unable to fill vacancies, the most common reason identified was a lack of applicants (selected by 37% of respondents).

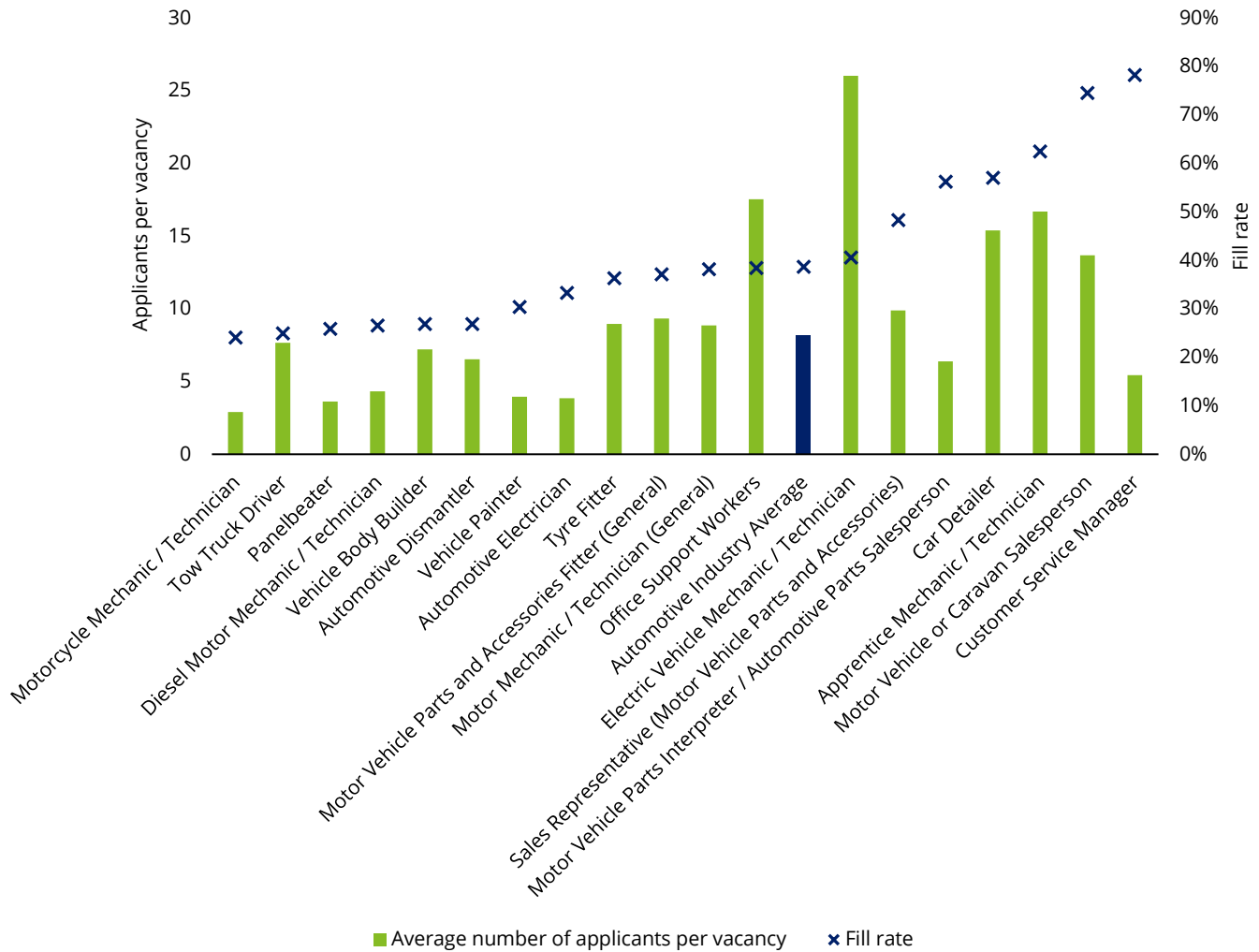
This trend of low numbers of applicants per vacancy can be seen in the data. On average, automotive businesses received 8.2 applicants per vacancy, which compares to a national average of 17.7 in Q3 2023¹⁴. Application numbers were particularly low for motorcycle mechanics, panelbeaters, vehicle painters, automotive electricians, and diesel motor mechanics, all of which saw fewer than 5 applications per vacancy on average.

While in general greater numbers of applicants per vacancy were associated with higher fill rates in an occupation this relationship was not linear. For example, occupations like office support workers and electric vehicle technicians had higher applicant numbers, but still struggled to fill vacancies. Equally, while applicant numbers for customer service managers were low, businesses did not appear to have issues filling these vacancies.

¹⁴ Jobs and Skills Australia 2023, *Labour Market Update - December 2023*

This demonstrates that while low applicant numbers are a critical issue for automotive firms it is not the only issue behind skills shortages in the industry. For example, applicants lacking experience (16%) and applicants lacking qualifications (15%) were also highlighted by businesses as reasons for not filling vacancies.

Figure 6: Applicants per vacancy vs fill rates by occupation



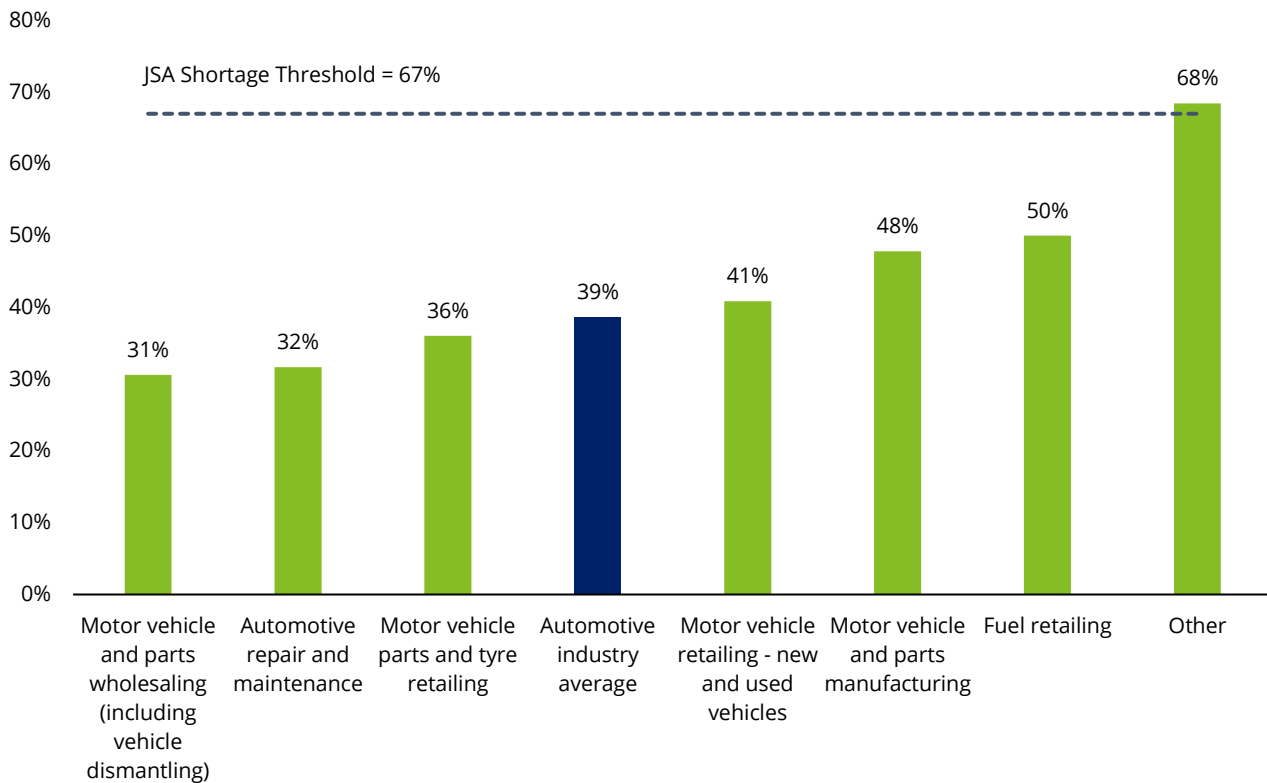
Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= 519 responses). Questions: How many vacancies did your business advertise for in 2023?; on average, how many applicants applied for each vacancy your business advertised for in 2023?; and of the vacancies your business advertised for in 2023, how many were filled? Note: occupations that advertised for less than 10 vacancies were excluded from this chart

3.3 Sub-industry findings

Looking at the data by sub-industry, vacancies were hardest to fill in motor vehicle and parts wholesaling (including vehicle dismantling) and automotive repair and maintenance, with fill rates of 31% and 32% respectively. Employers surveyed also experienced greater difficulty than the industry average in filling roles for motor vehicle parts and tyre retailing, with a fill rate of 36%. On the other hand, fuel retailing recorded the highest fill rate of all the sub-industries, at 50%, although this is still significantly below the JSA shortage threshold.

The fill rate seen in “other” sub-industries was higher at 68%. This category contains businesses around the fringes of the automotive industry that did not place themselves into any of the key sub-industries identified. These included: five businesses in agricultural and/or heavy goods vehicles (activities unspecified), one mining and transport business, one marine vehicles business, one towing business, one recreational vehicle business, one automotive membership body, and one training organisation.

Figure 7: Sub-industry fill rates



Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= x responses), Questions: How many vacancies did your business advertise for in 2023?; on average, how many applicants applied for each vacancy your business advertised for in 2023?; and of the vacancies your business advertised for in 2023, how many were filled?

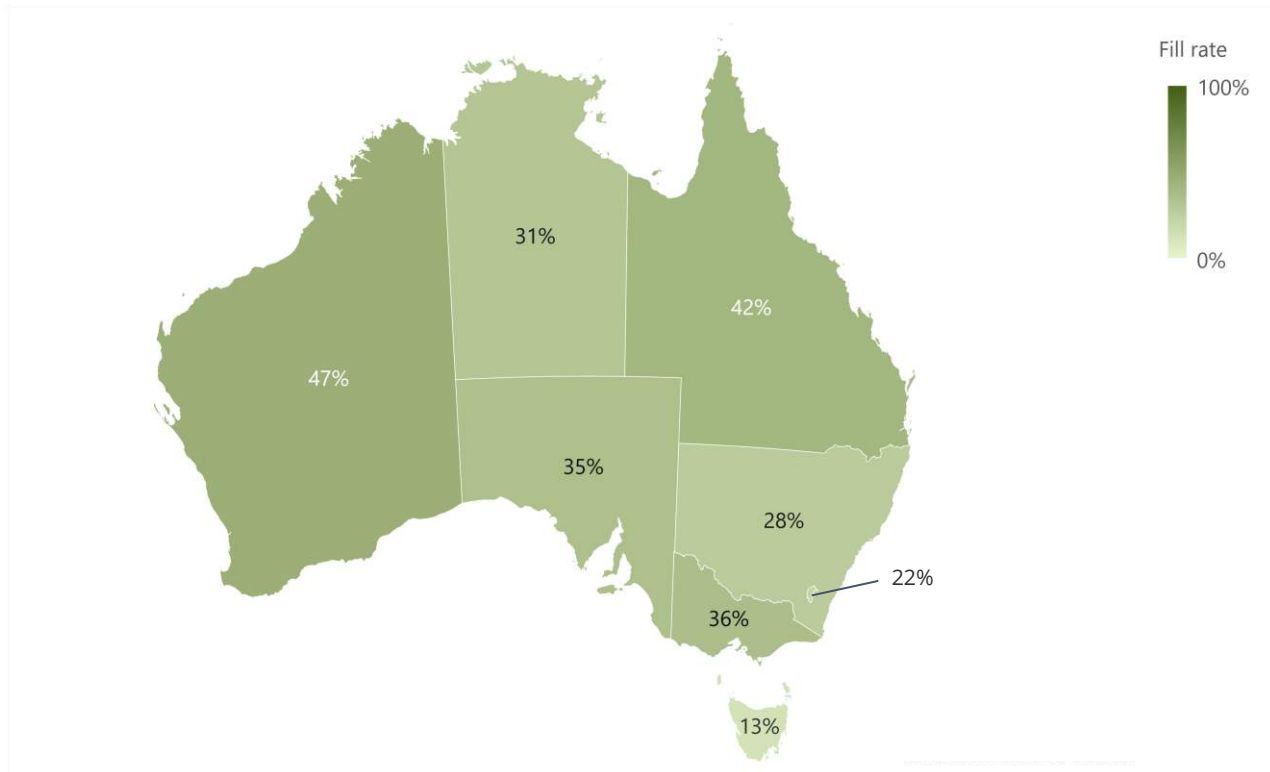
3.4 Geographical findings

Skills shortages by state

Skills shortages in the automotive industry were prevalent across all states and territories in Australia. Every state and territory had an average fill rate of less than 50% across the automotive industry, although the results for ACT, NT and Tasmania should be treated with caution due to low sample sizes in these locations.

While there was some variability between states, this was relatively minor. Compared to the national fill rate of 39%, the fill rates in Western Australia and Queensland were slightly higher, at 47% and 42% respectively. Meanwhile, New South Wales experienced a lower fill rate of 28%. New South Wales experienced particularly low fill rates for panel beaters and vehicle painters, at approximately 10% per occupation, compared to the average of 26% across all jurisdictions. New South Wales also recorded the lowest numbers of applicants per vacancy, at 3.9.

Figure 8: Fill rates by jurisdiction



Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= 519 responses), Questions: How many vacancies did your business advertise for in 2023?; of the vacancies your business advertised for in 2023, how many were filled?

Differences across regional and metropolitan areas

Skills shortages tended to be more acute in regional locations. Across the automotive industry the average fill rate was 33% in regional areas compared to 41% in metropolitan locations. This trend was consistent across most occupations with 16 out of the 20 occupations that recorded at least ten vacancies in the survey seeing lower fill rates in regional Australia. Interestingly, alongside apprentice mechanics, the three occupations that had higher fill rates in regional Australia were the only three occupations in the ANZSCO major group Labourers.¹⁵ This indicates that compared to other occupations, Labourers may be in greater supply in regional Australia.

¹⁵ The survey asked about other Labourer occupations, but less than 10 vacancies were reported for these occupations.

Table 2: Regional and metropolitan fill rates by occupation

ANZSCO major group	Occupation	Regional fill rate (%)	Metro fill rate (%)	Difference (regional – metro)
NA	Apprentice Mechanic / Technician	100%	46%	54%
8	Tyre Fitter	50%	34%	16%
8	Motor Vehicle Parts and Accessories Fitter (General)	46%	32%	14%
8	Car Detailer	57%	57%	1%
3	Vehicle Painter	29%	31%	-2%
6	Materials Recycler (Automotive Dismantler)	25%	28%	-3%
3	Motorcycle Mechanic / Technician	20%	25%	-5%
3	Motor Mechanic / Technician (General)	33%	40%	-6%
3	Diesel Motor Mechanic / Technician	22%	30%	-8%
NA	Automotive Industry Average	33%	41%	-8%
6	Motor Vehicle Parts Interpreter / Automotive Parts Salesperson	50%	59%	-9%
5	Office Support Workers	33%	43%	-10%
6	Sales Representative (Motor Vehicle Parts and Accessories)	41%	55%	-14%
3	Panelbeater	16%	30%	-14%
6	Motor Vehicle or Caravan Salesperson	57%	77%	-20%
3	Vehicle Body Builder	9%	32%	-23%
7	Tow Truck Driver	20%	50%	-30%
3	Automotive Electrician	14%	46%	-32%
3	Electric Vehicle Mechanic / Technician	0%	43%	-43%
1	Customer Service Manager	25%	89%	-64%

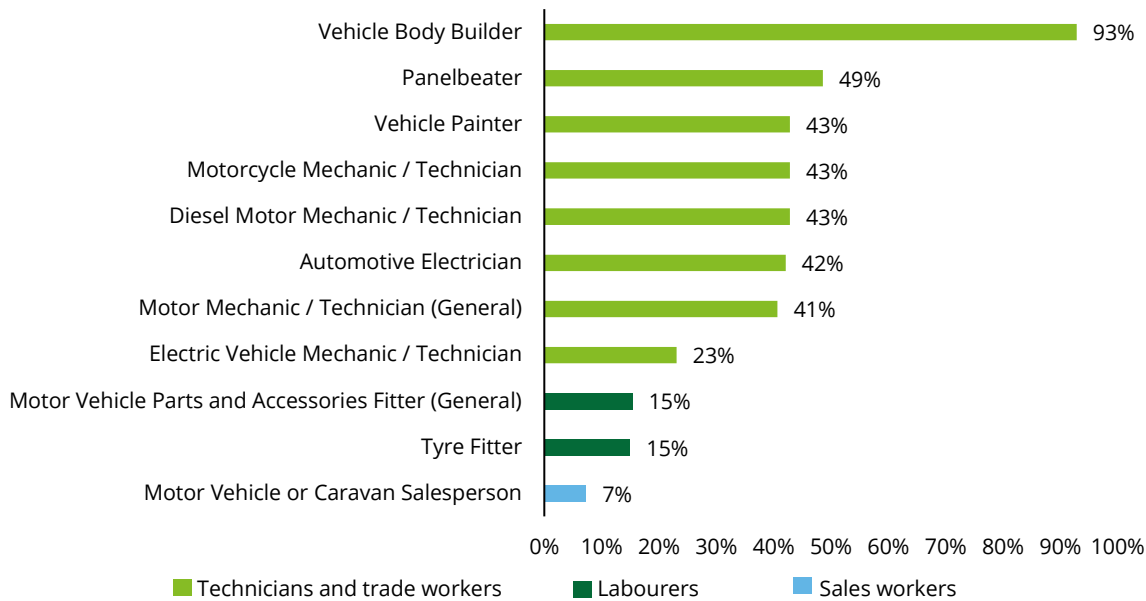
Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= 519 responses), Questions: How many vacancies did your business advertise for in 2023?; of the vacancies your business advertised for in 2023, how many were filled? Note: occupations that advertised for less than 10 vacancies were excluded from this table

3.5 Other trends

Automotive employers appear to be willing to accept workers with limited experience when advertising for job vacancies. On average, employers sought out workers with just over 2 years of experience. In particular, employers recruiting car detailers and tyre fitters sought less than 1 year of experience on average for these roles. Meanwhile, employers sought out the most experienced workers for vehicle body builder roles, averaging more than 4 years of experience for advertised vacancies.

The use of visa sponsorship to address workforce needs is common, particularly for occupations in the Technicians and Trade Workers ANZSCO major group, perhaps in response to the lower fill rates seen in these occupations. Across the industry, 29% of job vacancies were filled through visa sponsorship. Vehicle body builders recorded the highest share of vacancies filled through visa sponsorship, at 93%. However, the largest number of visa sponsorships were used for motor vehicle mechanics (general) – the largest occupation in the industry. Survey respondents reported that 109 vacancies (41%) in this occupation were filled through employer sponsored visas. This suggests that there are low numbers of skilled local applicants in the technician and trade worker occupations.

Figure 9: Share of vacancies filled through employer sponsored visas by occupation.



Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= 519 responses), Questions: Of the vacancies your business advertised for in 2023, how many were filled?; How many vacancies did your business use an Employer Sponsored Visa to fill the selected occupations in 2023?. Note: occupations that did not use employer sponsored visa have been excluded from this chart, alongside occupations that advertised for less than 10 vacancies.

Industry perspectives on the skills shortage

Five key themes emerged in the open responses about skills shortages in the industry which were all interconnected in some way:

- A lack of skilled and qualified workers
- Issues with the industry training pipeline
- Challenges with visas
- Remuneration concerns
- Competition from mining and other industries

The most common theme was the lack of skilled and qualified workers, an issue that many employers pointed out was a long-standing issue within the industry. This concern was often related to specific roles, particularly mechanics. Employers expressed concerns about a lack of suitable workers due to applicants having limited experience and many senior workers approaching retirement age. Employers in regional and remote areas pointed out that they particularly suffered from a lack of skilled workers or that it was hard to attract workers to their area. Some employers related the issue of a lack of skilled or qualified workers to issues with the training pipeline.

Concerns about the industry's training pipeline were the second most common theme. Concerns were raised about the quality and depth of training programs, with employers noting that graduates of these programs are not adequately skilled in the practical applications of the trade. Employers wanted greater promotion of careers in the industry to students and school leavers by the government. They also wanted more trade courses to be available to high school students given the heavy emphasis on school leavers pursuing tertiary education over trades. Employers also sought more government support for apprenticeships, for example through providing more subsidies for apprentices' wages, or better incentives to take on apprentices. It was noted that low pay can lead to challenges attracting and retaining apprentices, and for promoting the industry in schools.

Many employers expressed interest in using visas to bring in skilled workers from overseas. The key barriers to doing so were the costs being prohibitive, particularly for smaller businesses, and the length and complexity of the sponsorship process. Some employers raised concerns about visa sponsorship being 'risky' as there was no guarantee the employee would stay at the business, despite the investment by the employer.

Remuneration was another key issue raised. Due to a low supply of skilled workers, jobs applicants were demanding wages above what small businesses could feasibly pay and there was a need to offer much higher than award wages to retain quality staff. Small businesses reported that wage pressures presented a challenge between gaining and retaining staff and offering customers reasonable prices for services. Interestingly, while some respondents pointed out that higher wages were unviable, others noted that the pay in the industry was too low and did not match the technical knowledge requirements of workers. A key factor driving remuneration concerns was the wage competition from large mining companies, with employers noting they cannot remain viable if they offered similar wages.

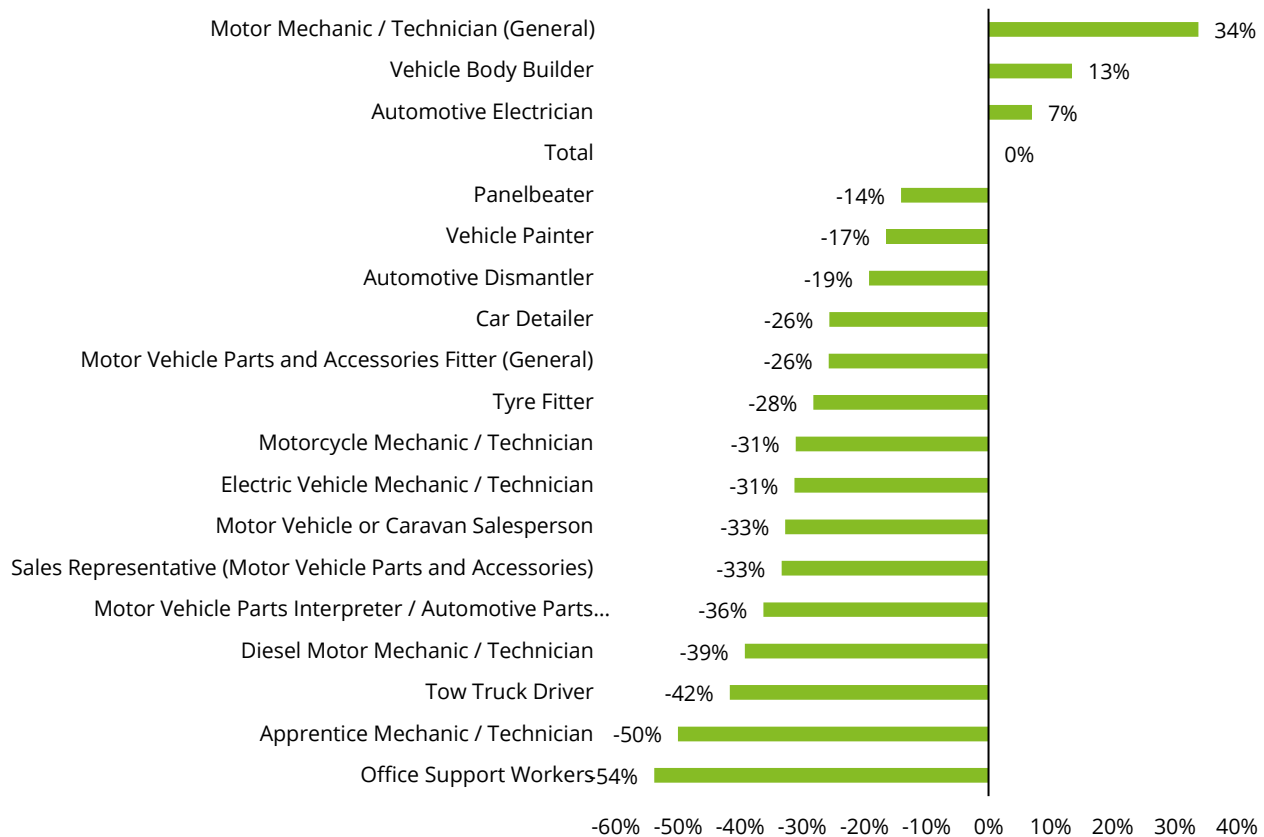
The impact of competition from the mining industry was a broad concern raised. This was in relation to the pay and conditions offered by mining companies. Employers mentioned they were losing prospective workers who moved to work in the mining industry after completing training for higher pay. Other industries posing competition for workers through offering higher remuneration were agriculture and government infrastructure projects.

3.6 Expectations for 2024

On aggregate, automotive employers expect to recruit around the same number of people in 2024 as in 2023 (0% change). This is likely driven by various factors with automotive employers likely needing to recruit to fill existing shortages, but equally some businesses may be expecting demand to weaken in 2024 due to the challenging external economic environment.

While across most occupations employers expect to recruit for fewer vacancies in 2024, a notable exception is Motor Mechanics / Technicians (General) where recruitment is expected to increase by 34%. As the largest occupation in the industry this counteracts the negative growth expected across many other occupations.

Figure 10: Vacancy recruitment change by occupation, from 2023 to 2024



Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= 519 responses), Question: Considering the occupations you recruited for in 2023, how many vacancies is your business likely to recruit for over the next 12 months? Note: occupations that advertised for less than 10 vacancies were excluded from this chart.

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Appendix A: Survey questions

Skills shortages in the automotive industry survey

Introduction:

The Motor Trades Association of Australia (MTAA) has engaged Deloitte Access Economics to support their response to Job and Skills Australia's (JSA) 2024 Skills Priority List stakeholder survey.

The Skills Priority List is used to assess current skills shortages and future labour demand in industries across Australia. It is a key resource used to shape domestic education and training policy and informs Australia's Migration Program planning.

Through completing this survey, you will contribute to the evidence base supporting JSA's 2024 Skills Priority List, which will inform government decision making about skill needs in the automotive industry.

This survey is being sent to current MTAA members and should be filled out by individual businesses. Please only provide one response per business. The findings from this survey will be used by Deloitte Access Economics and MTAA for the purpose of completing the JSA Skills Priority List Stakeholder survey for the automotive industry.

Only aggregated responses will be reported, meaning your business will not be identified in any information provided to JSA.

If you have any questions about Deloitte's privacy policy or about the survey, please contact autoskillssurvey@deloitte.com.au.

Section 1: About your business

These questions relate to the business you are reporting on behalf of.

1. What is the name of your business?

OPEN RESPONSE (TEXT)

2. Which state or territory is the primary location of your business? Please select one.

[Field]	[Response]
1	New South Wales
2	Victoria
3	Queensland
4	South Australia
5	Western Australia
6	Tasmania
7	ACT
8	NT

3. What is the postcode of the primary location your business?

OPEN RESPONSE (NUMERIC)

4. How many employees does your business currently employ? Please enter the number value.

OPEN RESPONSE (NUMERIC)

5. Which category best describes your business? Please select one.

[Field]	[Response]
1	Automotive repair and maintenance
2	Motor vehicle and parts wholesaling (including vehicle dismantling)
3	Motor vehicle retailing - new and used vehicles
4	Motor vehicle parts and tyre retailing
5	Fuel retailing
6	Motor vehicle and parts manufacturing
7	Other, please specify
99	Do not know [END OF SURVEY]

6. Did your business advertise any vacancies in 2023 and if not, why?

[Field]	[Response]
1	Yes, my business advertised vacancies in 2023
2	No, my business did not advertise any vacancies in 2023 [END OF SURVEY]

7. What occupations did your business recruit for in 2023? Please select all that apply.

[Field]	[Response]
1	Autoglazier
2	Automotive Dismantler
3	Automotive Electrician
4	Car Detailer
5	Checkout Operator
6	Diesel Motor Mechanic / Technician
7	Electric Vehicle Mechanic / Technician
8	Exhaust and Muffler Repairer
9	Fleet Manager
10	Motor Mechanic / Technician (General)

11	Motor Vehicle or Caravan Salesperson
12	Motor Vehicle Parts and Accessories Fitter (General)
13	Motor Vehicle Parts Interpreter / Automotive Parts Salesperson
14	Motorcycle Mechanic / Technician
15	Panelbeater
16	Radiator Repairer
17	Rental Salesperson
18	Sales Representative (Motor Vehicle Parts and Accessories)
19	Service Station Attendant
20	Small Engine Mechanic / Technician
21	Tow Truck Driver
22	Transport Company Manager
23	Tyre Fitter
24	Vehicle Body Builder
25	Vehicle Painter
26	Vehicle Trimmer
27	Other (please specify)

Section 2: Occupational skills shortages

These questions relate to your business's experience recruiting for the selected occupations in 2023.

8. Please complete the below table with information on the occupations your business recruited for in 2023. Please enter the number value for each occupation.

Occupation	How many vacancies did your business advertise for in 2023?	On average, how many applicants applied for each vacancy your business advertised for in 2023?	Of the vacancies your business advertised for in 2023, how many were filled?
Autoglazier			
Automotive Dismantler			
Automotive Electrician			
Car Detailer			
Checkout Operator			
Diesel Motor Mechanic / Technician			

Electric Vehicle Mechanic / Technician			
Exhaust and Muffler Repairer			
Fleet Manager			
Motor Mechanic / Technician (General)			
Motor Vehicle or Caravan Salesperson			
Motor Vehicle Parts and Accessories Fitter (General)			
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson			
Motorcycle Mechanic / Technician			
Panelbeater			
Radiator Repairer			
Rental Salesperson			
Sales Representative (Motor Vehicle Parts and Accessories)			
Service Station Attendant			
Small Engine Mechanic / Technician			
Tow Truck Driver			
Transport Company Manager			
Tyre Fitter			
Vehicle Body Builder			
Vehicle Painter			
Vehicle Trimmer			
Other (please specify)			

9. If your business did not fill all its vacancies in 2023, what was the primary reason for this? Please select one reason per occupation.

Occupation	Not enough applicants	Applicants lacked experience	Applicants lacked communication skills	Applicants lacked qualifications	Applicants lacked technical skills	Other	Not applicable
Autoglazier							
Automotive Dismantler							
Automotive Electrician							
Car Detailer							
Checkout Operator							
Diesel Motor Mechanic / Technician							
Electric Vehicle Mechanic / Technician							
Exhaust and Muffler Repairer							
Fleet Manager							
Motor Mechanic / Technician (General)							
Motor Vehicle or Caravan Salesperson							
Motor Vehicle Parts and Accessories Fitter (General)							
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson							
Motorcycle Mechanic / Technician							

Panelbeater							
Radiator Repairer							
Rental Salesperson							
Sales Representative (Motor Vehicle Parts and Accessories)							
Service Station Attendant							
Small Engine Mechanic / Technician							
Tow Truck Driver							
Transport Company Manager							
Tyre Fitter							
Vehicle Body Builder							
Vehicle Painter							
Vehicle Trimmer							
Other (please specify)							

10. If you selected 'other' as the primary reason your business did not fill all its vacancies in 2023, please describe the primary reason for each occupation selected.

Occupation	Primary reason your business did not fill all its vacancies for this occupation
Autoglazier	
Automotive Dismantler	
Automotive Electrician	
Car Detailer	
Checkout Operator	
Diesel Motor Mechanic / Technician	

Electric Vehicle Mechanic / Technician	
Exhaust and Muffler Repairer	
Fleet Manager	
Motor Mechanic / Technician (General)	
Motor Vehicle or Caravan Salesperson	
Motor Vehicle Parts and Accessories Fitter (General)	
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson	
Motorcycle Mechanic / Technician	
Panelbeater	
Radiator Repairer	
Rental Salesperson	
Sales Representative (Motor Vehicle Parts and Accessories)	
Service Station Attendant	
Small Engine Mechanic / Technician	
Tow Truck Driver	
Transport Company Manager	
Tyre Fitter	
Vehicle Body Builder	
Vehicle Painter	
Vehicle Trimmer	
Other (please specify)	

11. Based on your business's experience, which of the statements below best describes the available skills supply for the selected occupations in 2023? Please select one reason per occupation.

Occupation	There are not enough workers for the work available	There are enough workers for the work available	There are too many workers for the work available
Autoglazier			
Automotive Dismantler			

Automotive Electrician			
Car Detailer			
Checkout Operator			
Diesel Motor Mechanic / Technician			
Electric Vehicle Mechanic / Technician			
Exhaust and Muffler Repairer			
Fleet Manager			
Motor Mechanic / Technician (General)			
Motor Vehicle or Caravan Salesperson			
Motor Vehicle Parts and Accessories Fitter (General)			
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson			
Motorcycle Mechanic / Technician			
Panelbeater			
Radiator Repairer			
Rental Salesperson			
Sales Representative (Motor Vehicle Parts and Accessories)			
Service Station Attendant			
Small Engine Mechanic / Technician			
Tow Truck Driver			
Transport Company Manager			
Tyre Fitter			
Vehicle Body Builder			
Vehicle Painter			

Vehicle Trimmer			
Other (please specify)			

12. Where did your business advertise your vacancies in 2023? Please select one answer per occupation.

Occupation	Regional areas	Metropolitan areas	Both regional and metropolitan areas
Autoglazier			
Automotive Dismantler			
Automotive Electrician			
Car Detailer			
Checkout Operator			
Diesel Motor Mechanic / Technician			
Electric Vehicle Mechanic / Technician			
Exhaust and Muffler Repairer			
Fleet Manager			
Motor Mechanic / Technician (General)			
Motor Vehicle or Caravan Salesperson			
Motor Vehicle Parts and Accessories Fitter (General)			
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson			
Motorcycle Mechanic / Technician			
Panelbeater			
Radiator Repairer			
Rental Salesperson			
Sales Representative (Motor Vehicle Parts and Accessories)			

Service Station Attendant			
Small Engine Mechanic / Technician			
Tow Truck Driver			
Transport Company Manager			
Tyre Fitter			
Vehicle Body Builder			
Vehicle Painter			
Vehicle Trimmer			
Other (please specify)			

13. On average, how many years of experience does your business seek for applicants for the selected occupations? Please enter the number value.

Occupation	Years of experience
Autoglazier	
Automotive Dismantler	
Automotive Electrician	
Car Detailer	
Checkout Operator	
Diesel Motor Mechanic / Technician	
Electric Vehicle Mechanic / Technician	
Exhaust and Muffler Repairer	
Fleet Manager	
Motor Mechanic / Technician (General)	
Motor Vehicle or Caravan Salesperson	
Motor Vehicle Parts and Accessories Fitter (General)	
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson	
Motorcycle Mechanic / Technician	
Panelbeater	

Radiator Repairer	
Rental Salesperson	
Sales Representative (Motor Vehicle Parts and Accessories)	
Service Station Attendant	
Small Engine Mechanic / Technician	
Tow Truck Driver	
Transport Company Manager	
Tyre Fitter	
Vehicle Body Builder	
Vehicle Painter	
Vehicle Trimmer	
Other (please specify)	

14. How many vacancies did your business use an Employer Sponsored Visa to fill the selected occupations in 2023? Please enter the number value.

Occupation	Number of Employer Sponsored Visas used
Autoglazier	
Automotive Dismantler	
Automotive Electrician	
Car Detailer	
Checkout Operator	
Diesel Motor Mechanic / Technician	
Electric Vehicle Mechanic / Technician	
Exhaust and Muffler Repairer	
Fleet Manager	
Motor Mechanic / Technician (General)	
Motor Vehicle or Caravan Salesperson	
Motor Vehicle Parts and Accessories Fitter (General)	
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson	

Motorcycle Mechanic / Technician	
Panelbeater	
Radiator Repairer	
Rental Salesperson	
Sales Representative (Motor Vehicle Parts and Accessories)	
Service Station Attendant	
Small Engine Mechanic / Technician	
Tow Truck Driver	
Transport Company Manager	
Tyre Fitter	
Vehicle Body Builder	
Vehicle Painter	
Vehicle Trimmer	
Other (please specify)	

15. Considering the occupations you recruited for in 2023, how many vacancies is your business likely to recruit for over the next 12 months? Please enter a number value

Occupation	Number of vacancies your business is likely to recruit for over the next 12 months
Autoglazier	
Automotive Dismantler	
Automotive Electrician	
Car Detailer	
Checkout Operator	
Diesel Motor Mechanic / Technician	
Electric Vehicle Mechanic / Technician	
Exhaust and Muffler Repairer	
Fleet Manager	
Motor Mechanic / Technician (General)	
Motor Vehicle or Caravan Salesperson	

Motor Vehicle Parts and Accessories Fitter (General)	
Motor Vehicle Parts Interpreter / Automotive Parts Salesperson	
Motorcycle Mechanic / Technician	
Panelbeater	
Radiator Repairer	
Rental Salesperson	
Sales Representative (Motor Vehicle Parts and Accessories)	
Service Station Attendant	
Small Engine Mechanic / Technician	
Tow Truck Driver	
Transport Company Manager	
Tyre Fitter	
Vehicle Body Builder	
Vehicle Painter	
Vehicle Trimmer	
Other (please specify)	

16. What sources of information helped you complete the survey? Please select all answers that apply.

[Field]	[Response]
1	Internal HR records
2	Observations of my business
3	Broader industry or economy-wide data
4	Other (please specify)

17. Please enter any further comments or concerns you may have about skills shortages in the automotive industry.

OPEN RESPONSE (TEXT)



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true



New Vehicle Efficiency Standard (NVES): Race to the bottom?

- The NVES proposes to set a target on the tailpipe emissions of new vehicles. The NVES aims to reduce tailpipe emissions by ~60% between 2024 and 2029. In annual terms, tailpipe emissions will need to reduce on average by 17%.
- Car manufacturers that do not meet targets will need to purchase credits or pay a penalty of \$A100 per grams of CO₂ over the target. Car manufacturers that overachieve will earn credits which can be traded with other car manufacturers that do not meet targets.
- The NVES proposes three options for the target. Roughly three quarters of the top 20 brands will not meet the NVES' preferred 2025 target. Therefore, the NVES would encourage car manufacturers to significantly shift their sales strategy.
- The NVES is designed to change the composition of new vehicles to low-emission vehicles. However, major auto manufacturers such as Toyota have voiced that the target is too aggressive and they will likely pass on any penalties to consumers.
- The clear winners of the NVES are car manufacturers that only sell battery electric vehicles (BEVs). In Australia, this includes Tesla, Build Your Dream (BYD) and Polestar. EV buyers can benefit if these car manufacturers discount their EVs with the revenue gained by selling credits.
- In the long term, the NVES will attract supply of low-emission vehicles into Australia. In our view, the biggest short-term challenge for change will be in the commercial vehicle segment where (i) EV uptake is low, (ii) low emission vehicles have a large price premium, and (iii) consumer demand for EVs are untested.

Australia's emissions performance lags behind others

Vehicles sold in Australia have higher emissions intensity compared to the four major markets. Data collected by the International Council on Clean Transportation (ICCT) shows Australia lags behind in both the (i) passenger vehicle and (ii) light commercial vehicle segments (see chart 1 and chart 2). The government has aimed to improve Australia's emission performance by proposing a New Vehicle Efficiency Standard (NVES). The preferred option will align Australia's emissions target with the US by 2028.

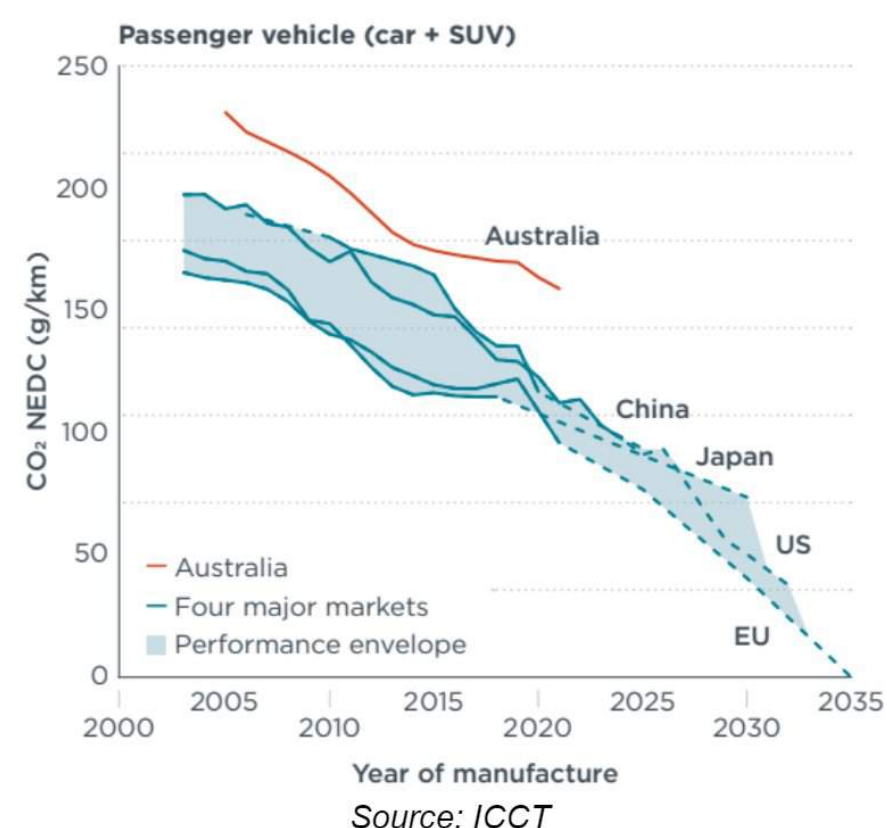
The New Vehicle Efficiency Standard (NVES)

The NVES sets tailpipe emission targets for manufacturers that import vehicles into Australia. Manufacturers that overachieve on the targets will receive credits. Earned credits can be sold to other manufacturers. Manufacturers who do not meet the targets will be allocated debits which can be paid off through (1) buying credits from other manufacturers, and/or (2) paying a penalty. Therefore, the NVES is designed to incentivise manufacturers to import a greater proportion of low-emission vehicles to Australia.

The NVES applies only to new cars. The NVES does not apply to (1) existing vehicles or (2) second-hand vehicles imported to Australia.

A supplier is given a target, referred to as the headline target, based on the vehicles sold in a fleet. Each vehicle is allocated with a target based on (1) the type of vehicle and (2) the mass of the vehicle. The NVES has targets for two separate vehicle categories.

1. AUSTRALIA'S EMISSIONS PERFORMANCE IN PASSENGER VEHICLE SEGMENT





- Passenger vehicle (PV) target which includes passenger cars and all SUVs.
- Light commercial vehicle (LCV) target which includes utes and vans.

For context, in 2023, passenger cars and SUV sales formed 73% of total sales. SUVs formed 56% of sales and passenger cars formed 17% of sales (chart 3). Light commercial vehicle formed 23% of sales in 2023.

Most vehicles under 3.5 tonnes are captured in the NVES. The NVES excludes, military vehicles, law enforcement vehicles, emergency service vehicles, agricultural, construction or mining equipment, motorhomes, horse trucks and motorcycles.

The government’s target is measured in grams of CO₂/km. Table 4 compares emissions intensity with fuel consumption. The NVES is designed to lower the target each year. The Government’s preferred option is to lower annual targets by ~17% per year to achieve ~60% reduction in emissions between 2024 and 2029 (see table 5, chart 6 and 7). The penalty is set at \$A100/gram of CO₂ over the target.

Historically, emissions for the passenger car + SUV segment have decreased at an annual rate of 6%. Similarly, emissions for the light commercial vehicle (LCV) and large SUV segment have decreased by an annual rate of 1%.

For each vehicle category the targets are adjusted for vehicle mass. Larger vehicles consume greater fuel to move the vehicle. Therefore, lighter vehicles receive a lower target and heavier vehicles receive a higher target (chart 8).

For every vehicle below the target, a supplier receives a credit. For every vehicle above target, a supplier will receive a debit. At the end of each year, the government will calculate whether overall they have (1) credits or (2) debits. Manufacturers with credits can sell them. Manufacturers with debits can either (1) buy credits from manufacturers with credits or (2) pay the penalty which is proposed at \$A100 grams of CO₂/km.

There is a banking period for credits and debits. Credits have to be used within 3 years of being issued. Debits have to be paid within 2 years of issue. These banking periods are designed to provide some flexibility with meeting targets.

The progress of the NVES will be reviewed in 2026.

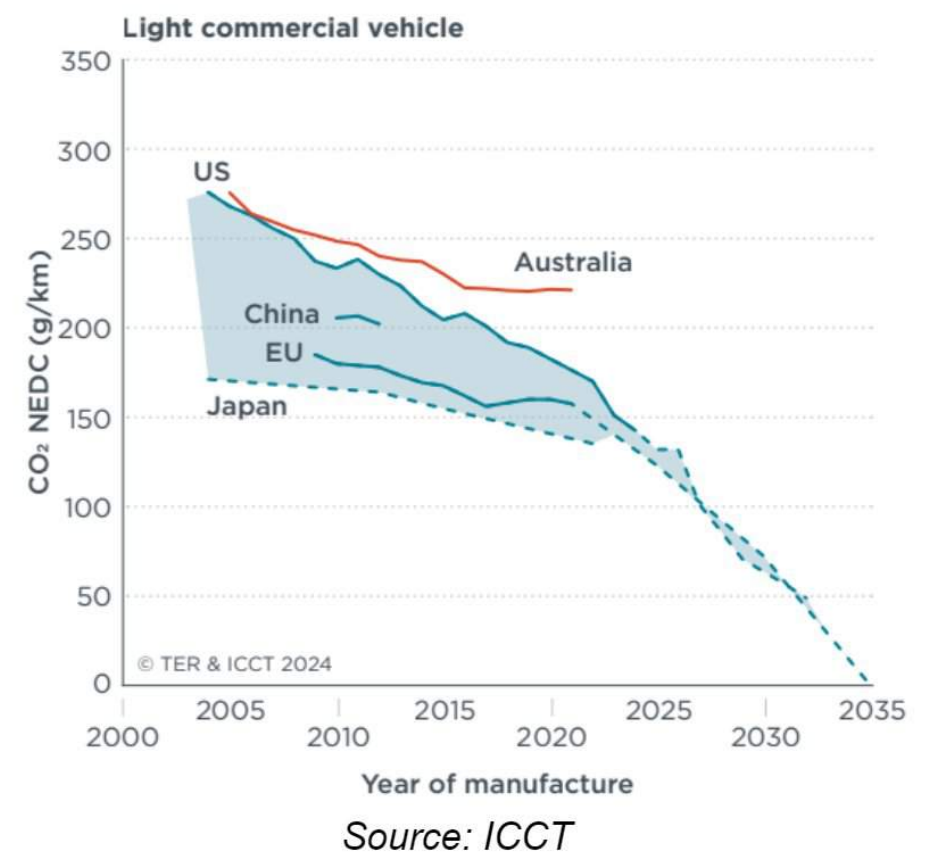
A very simple example of the NVES

We analyse the emissions intensity of the Ford Ranger, as an example of how the NVES would operate for the perspective of the supplier. The Ford Ranger was Australia’s most popular vehicle in 2023.

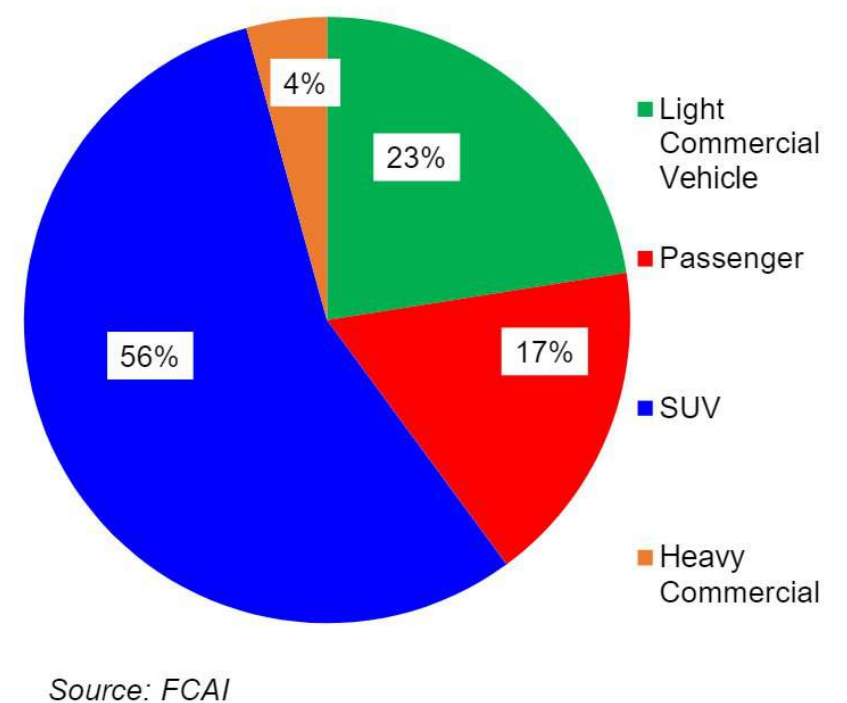
There are multiple variations of this model, each with different emissions intensities (chart 9). The variants above the red line do not meet the Government’s preferred emission standard for 2025. The variants below the red line meet the preferred emission standard. To meet the targets with the current model variants available, Ford would aim to sell more low-emission variants to offset the high-emission variants.

The NVES headline emissions targets decrease each year. If the emissions performance of models being offered did not change, the most fuel-efficient Ford Ranger vehicle would not meet the standard in 2026 (chart 10). Therefore, the target is designed to incentivise Ford to produce and sell more (i) fuel efficient models and/or (ii) low emission powertrains (such as PHEVs, BEVs). Indeed, Ford plans to introduce a PHEV Ford Ranger

2. AUSTRALIA’S EMISSIONS PERFORMANCE IN LIGHT COMMERCIAL VEHICLE SEGMENT



3. TYPE OF VEHICLES SOLD IN 2023





model in 2025. Ford, under the NVES will be incentivised to sell more PHEV vehicles to meet the target.

The sale price of the PHEV is expected to be \$A10,000 and \$A20,000 more than the internal combustion engine (ICE) Ford Ranger ([here](#) and chart 11). One of the key reasons why EVs have a higher upfront cost than ICE vehicles is the cost of battery. Battery costs have come down significantly over time (chart 12). BNEF estimates input costs of EVs will achieve price parity with input costs of ICE vehicles between 2025 and 2030.

In the short term, the task for some manufacturers would be to sell higher-upfront cost, low-emission vehicles to meet the NVES emissions target. Alternatively, manufacturer has the option to discount the price of the low-emission vehicle models. But this option would decrease profit margins made on the vehicle.

Ford also has other models that it supplies to the Australian market. If it is difficult to meet targets based on the Ford Ranger alone, it could offset the debits from the Ford Ranger by credits earned from sales of low-emission vehicles across the other Ford models. If Ford cannot meet emissions targets through sales of low-emission models alone, it will purchase credits or pay the penalty.

Pure BEV manufacturers – the clear winners

The clear winners from the NVES are manufacturers that only sell battery electric vehicles (BEVs). BEVs have zero tailpipe emissions and are guaranteed to receive credits. Tesla, BYD and MG have led the way in EV sales in 2023 in Australia (chart 13).

In Australia, BYD, Polestar and Tesla are three brands that only sell battery electric vehicles. Pure BEV manufacturers will likely sell their credits to other manufacturers. BEV manufacturers may pass on the proceeds of the credits to consumers, by providing discounts on existing BEV models. The lower upfront cost, if credits are passed to customers, would help tilt the dial towards EVs being more economical to own and drive than ICE vehicles. EVs offer operational cost savings through lower cost of electricity and lower maintenance costs. Great demand for BEV could spark a race to lower emissions by rival car manufacturers.

However, whether these pure-electric brands will discount EVs from credit trading is unclear. Nonetheless, the credits gained in 2025 would be significant. For Tesla Model Y (most popular EV in 2023), we estimate credits earned can be 6% to 18% of sale the car’s sale price (chart 14). For lower priced EV models, the discount rate can be even higher. For MG4, which was the cheaper EV model out of the top 10 EV models in 2023, we estimate credits earned can be 9% to 26% of car’s sale price (chart 15). However, we note that MG also sells ICE vehicles and may not pass through all the credits earned directly as discounts.

11 year total cost of ownership

The lower upfront cost, if credits are passed to customers, would help tilt the dial towards EVs being more economical to own and drive than ICE vehicles. EVs offer operational cost savings through lower cost of electricity and lower maintenance costs. However, total cost of ownership captures more than electricity and maintenance costs. Therefore, we have conducted a 11-year-old total cost of ownership (TCO) of an EV compared to a petrol car.

4. **FUEL CONSUMPTION AND CORRESPONDING AVERAGE EMISSIONS INTENSITY**

Fuel consumption (litres per 100 kilometres)	Average emissions intensity (g/km)	
	Petrol	Diesel
3	68	80
4	91	107
5	114	134
6	137	160
7	160	187
8	182	214
9	205	240
10	228	267
11	251	294
12	274	321
13	297	347
14	319	374
15	342	401
16	365	427
17	388	454
18	411	481
19	433	508
20	456	534

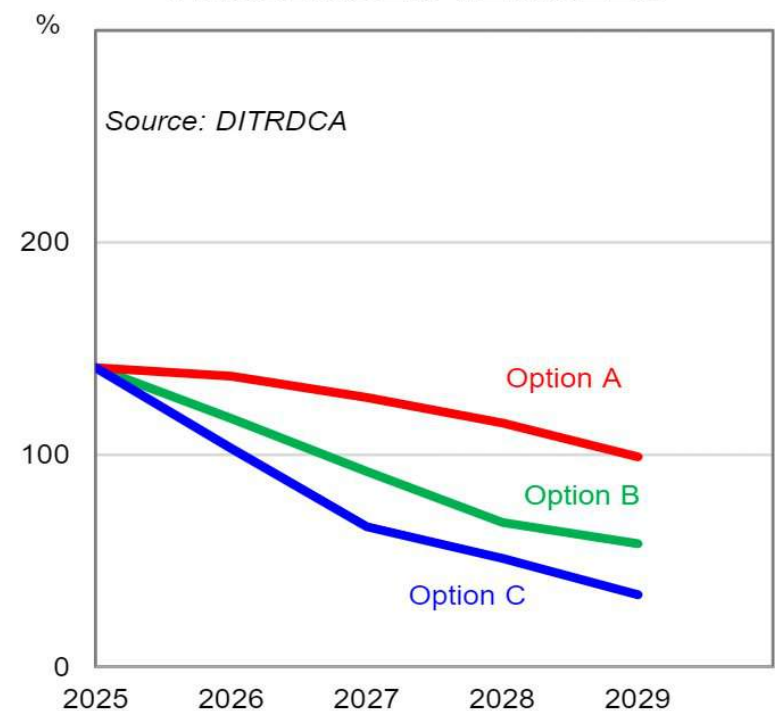
Source: NTC

5. **NVES - PREFERRED OPTION B**

Year	Headline limit	
	Passenger Vehicle	Light commercial vehicle
2025	141	199
2026	117	164
2027	92	129
2028	68	94
2029	58	81

Source: DITRDCA

6. **NVES HEADLINE TARGET FOR PASSENGER VEHICLES**



Source: DITRDCA



We estimate the 11-year total cost of ownership (TCO) of an EV compared to a petrol car. The average age of a vehicle on the road is 11 years. For our analysis, we assumed the vehicle is owned for 11 years and is not resold. We conduct an analysis considering the vehicle being resold further below in the note.

We find that an EV charged at home with solar has the lowest TCO compared to the other charging options. EV charged with solar can have 8% higher TCO than the petrol car (chart 16). However, if credits earned are passed on to customers via lower upfront purchase price, the EV charged with solar can have 1% lower TCO than the petrol car (chart 17). Please see Appendix A for assumptions and figures.

Net present value (NPV) and internal rate of return (IRR)

We also estimate the net present value (NPV) of purchasing an EV over a petrol car. NPV compares the difference between the initial higher upfront cost of an EV with the lower operating cost of an EV over time. Net present value adjusts future cash flows with an interest ('discount') rate to compare the future purchasing power of today's money.

The purchase of an EV has a higher upfront cost of \$A15,022. The higher upfront cost includes purchase price, charger cost, registration cost, and insurance cost. However, the EV has lower operating cost, mainly through lower cost of electricity and maintenance costs. We estimate operational savings to be \$A1,226 per year when the EV is charged with solar. Using a discount rate at 6.94% – the variable-rate for small business loans – we estimate an owner of the EV is \$A5,555 worse off over the 11-year period of ownership compared to purchasing a petrol car.

However, if credits earned are passed on to customer via lower upfront purchase price, the higher upfront cost narrows to \$A8,479. We estimate an owner of the EV is \$A988 better off overall compared to purchasing a petrol car.

We also estimate the internal rate of return (IRR) of purchasing a BEV over a petrol car. The IRR is the 'discount rate' at which NPV is zero. IRR is a useful metric for corporates in making investment decisions. Each company may have a 'hurdle rate' that a potential investment needs to be over in order for the investment to go ahead. The 'hurdle rate' is specific to each company but 12%-15% IRR is a common range.

For our analysis, the IRR is the 'discount rate' at which purchasing an EV is no better off than purchasing a petrol car. The IRR of an EV charged with solar is -1%. A negative IRR indicates projected loss on the initial investment. However, if credits earned are passed on to customers via lower upfront purchase price, we estimate the IRR of EV charged with solar to be 9%. Our example shows how the discounting from credits can tilt the dial favourably for EV ownership. Furthermore, our example shows the potential for future reduction in upfront cost of EVs to make EV ownership economically favourable. Please see Appendix A, charts 7 for detailed breakdown.

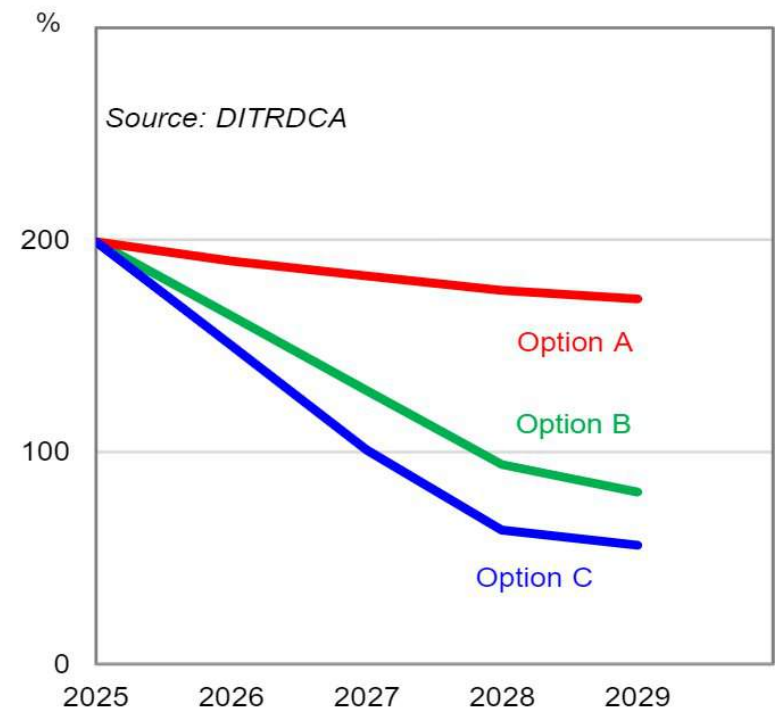
Importance of resale value

Upfront cost is one component that contributes to total cost of ownership. For vehicle owners selling the car after several years, resale value is another key component of TCO.

Private passenger vehicles are held on average for 7-8 years whilst fleet customers will hold on to the vehicle for 3-4 years ([here](#)). Our TCO analysis assumed vehicle is held on for 5 years before it is sold.

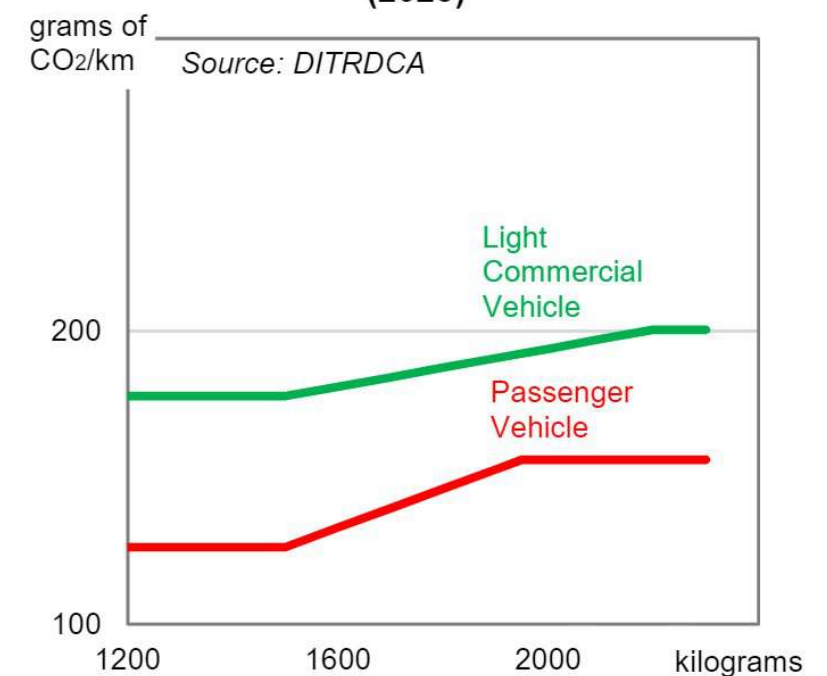
7.

NVES HEADLINE TARGET FOR LIGHT COMMERCIAL VEHICLES



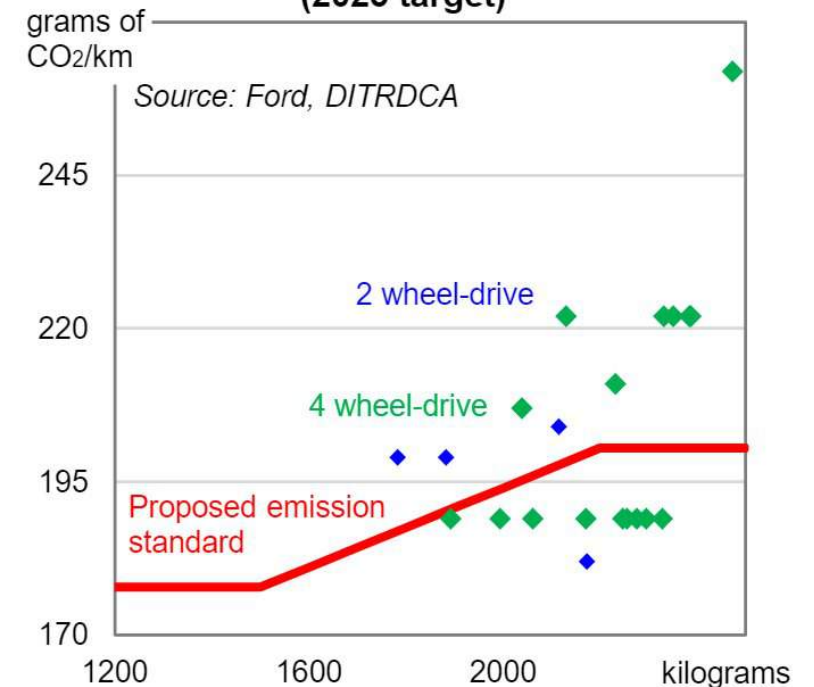
8.

NVES - PREFERRED TARGET FOR PV AND LCV (2025)



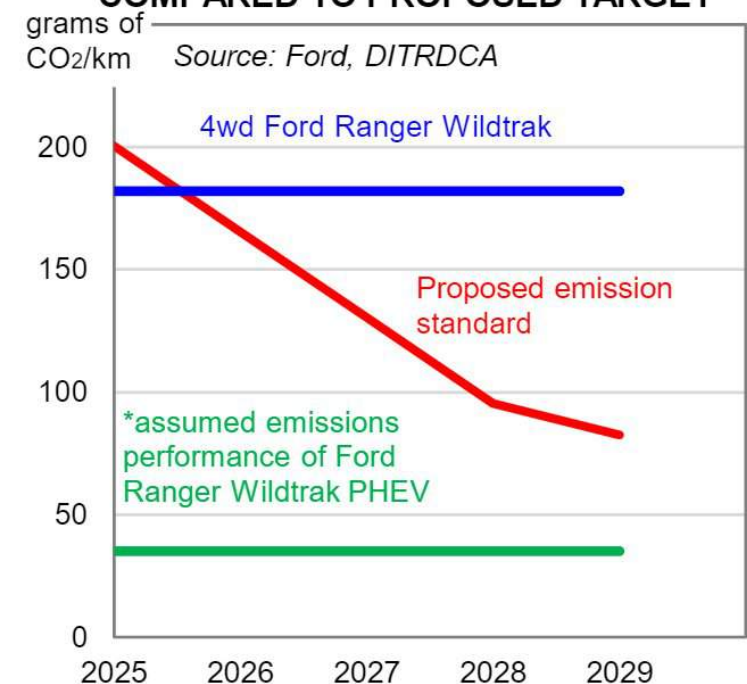
9.

FORD RANGER SERIES: EMISSIONS PERFORMANCE COMPARED ACROSS VARIANTS (2025 target)



10.

FORD RANGER SERIES: EMISSIONS PERFORMANCE OF FORD RANGER 4x4 COMPARED TO PROPOSED TARGET





Our main finding is that resale value of the car has a significant impact on TCO of EVs. For our analysis, we use three resale value scenarios based on data from the Australian Automotive Dealers Association (AADA).

- Best case scenario with EV depreciation is equal to depreciation rates of the entire market.
- Middle case scenario with EV depreciation mid-way between depreciation rate of EVs and entire market.
- Worst case scenario with EV depreciation at historical rates.

We estimate with our best-case depreciation scenario, the EV charged with solar can have 5% higher TCO than the petrol car (chart 18). We estimate with our middle-case depreciation scenario that the EV charged with solar can have 31% higher TCO than the petrol car. We estimate with our worst-case depreciation scenario that the EV charged with solar can have 58% higher TCO than the petrol car.

However, EV upfront costs could be lowered with the NVES credits. We estimate with our best-case depreciation scenario, the EV charged with solar can have 2% lower TCO than the petrol car (chart 19). We estimate with our middle-case depreciation scenario that the EV charged with solar can have 21% higher TCO than the petrol car. We estimate with our worst-case depreciation scenario that the EV charged with solar can have 44% higher TCO than the petrol car.

Please see Appendix A for assumptions and NPV and IRR figures under the different depreciation scenarios.

How are existing manufacturers placed overall?

The preferred NVES option will demand significant change in sales strategy of most vehicle manufacturers in Australia. Motor Trades Association of Australia (MTAA) analysis shows NVES preferred PV target for 2025 can be met by only four out of the top 20 brands (table 20). The NVES preferred LCV target for 2025 can be met by only five out of the top 20 brands (table 21).

To comply with the NVES, a car manufacturer has various options. A manufacturer may (1) adjust vehicle composition and volumes, (2) change the price of vehicles, (3) buy credits or penalties, (4) exit the market and/or (5) bring in new supply of low-emission vehicles. Ultimately, each car manufacturer will optimise a strategy to adapt.

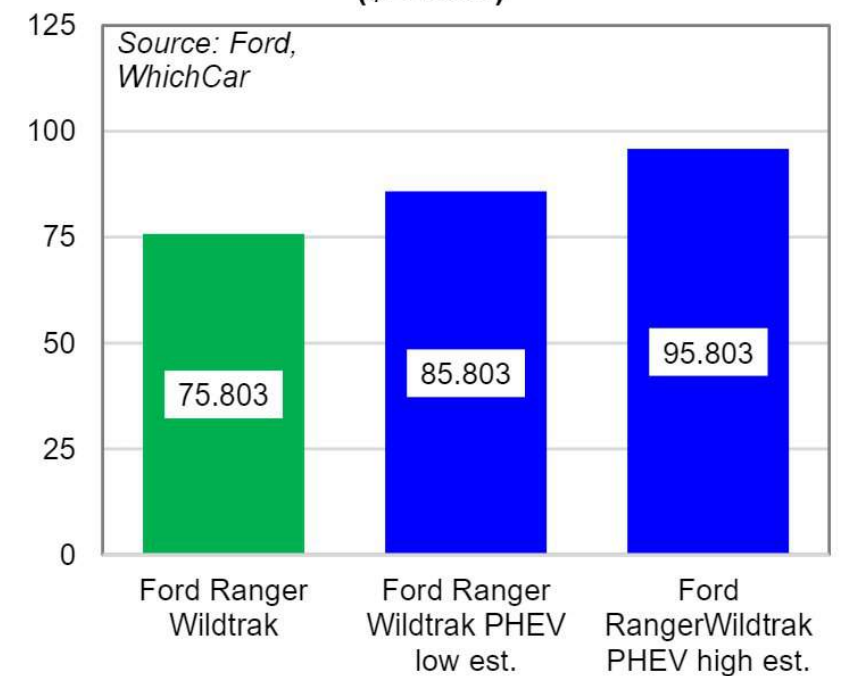
Manufacturers that (1) already sell and/or (2) are planning to bring low-emission vehicles such as hybrid vehicles (with a non-rechargeable battery and an ICE), plug-in hybrid electric vehicles (PHEVs) and BEVs will be better positioned under the NVES. Furthermore, in the short-term, manufacturers that outperform targets in one vehicle segment will be able to offset underperformance in another vehicle segment.

For example, Toyota met the target for passenger vehicles (chart 23) but did not meet the target for light commercial vehicles and large SUVs (chart 24). However, overall, Toyota would have gained credits in 2022 (chart 25).

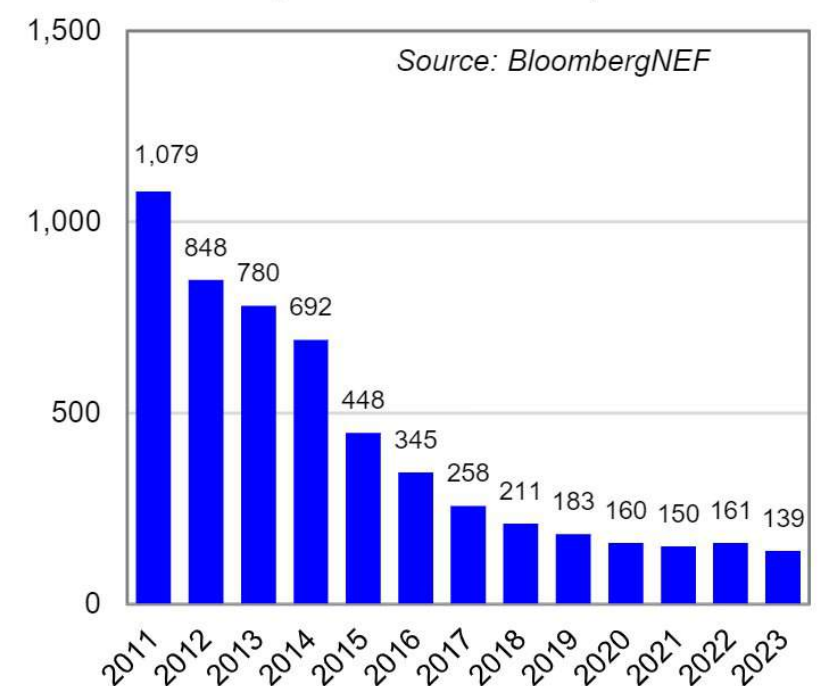
For manufacturers not able to meet NVES targets in the given time period, they will have to purchase credits or pay the penalty. In the short-term, the biggest question is whether the costs of the credits or penalty will be passed on to consumers or not.

Manufacturers most exposed to the NVES at risk are those that (i) supply high-emission vehicles and (ii) have no low-emission alternatives being offered or in the pipeline. For example, Isuzu Ute is a top 10 seller in 2023

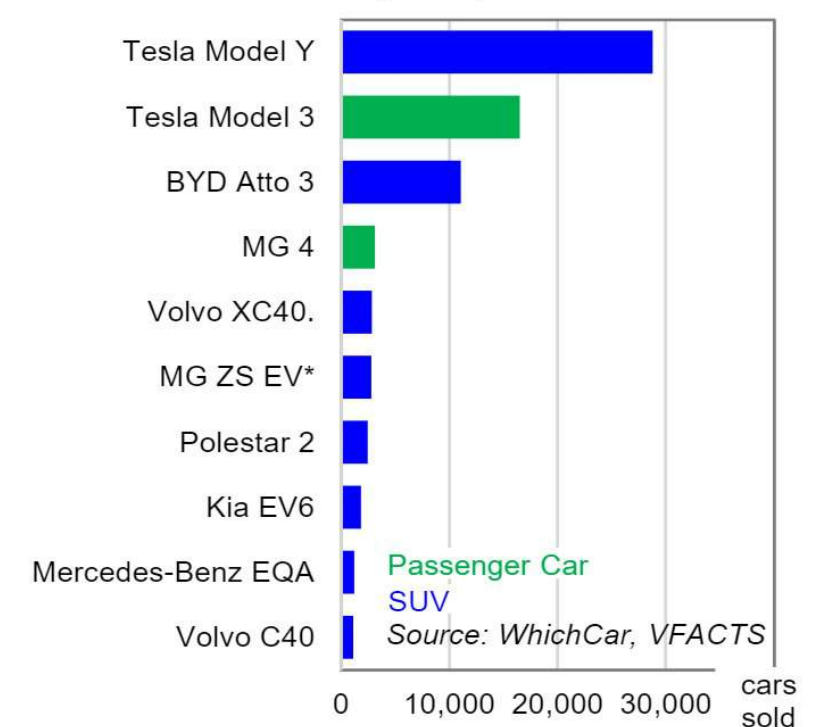
11. **PURCHASE PRICE COMPARISON: PHEV UTE VS FORD RANGER** (\$A'000s)



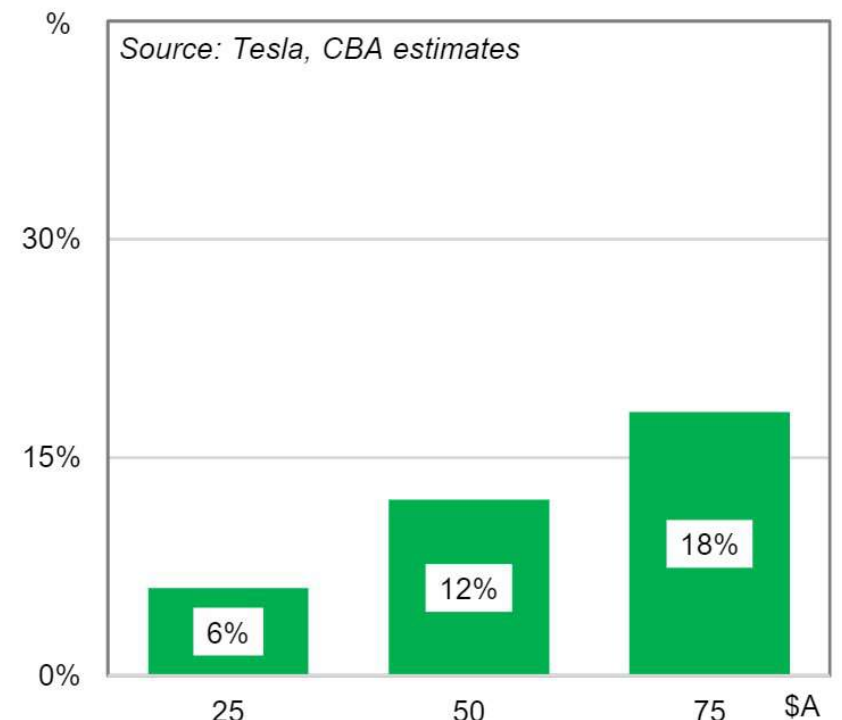
12. **LITHIUM-ION BATTERY PRICE PACK** (real 2023 \$US/kWh)



13. **TOP 10 EV MODELS IN 2023** (sales)



14. **\$A VALUE OF CREDITS AS A PERCENTAGE OF SALE PRICE: TESLA Y**





but does not have plans to bring any low-emission vehicles to Australia (table 22).

The NVES is not an ICE vehicle ban

The NVES is not a ban on ICE vehicles. However, the implied targets are designed to incentivise BEVs or PHEVs to be introduced into the sales mix in order to meet the targets.

As a simplified example, the Toyota Corolla hybrid would meet the target from 2025 but fail to meet it in 2026-27 (chart 26). Therefore, in order to avoid the targets, it would need to introduce PHEVs or BEVs in the sales mix of this vehicle in order to meet emission targets.

Light commercial vehicle target

Light commercial vehicles comprised 23% of total vehicle sales in 2023. The top 3-selling vehicle models in 2023 were utes. Utes are used for commercial purposes but have also gained popularity amongst the general public.

Uptake of EVs in Australia so far, have been within the light and medium SUV and sedan and hatchback segment. EV uptake in light commercial vehicle segments have struggled to follow the trend due to a combination of (i) supply, (ii) price and (iii) consumer appetite.

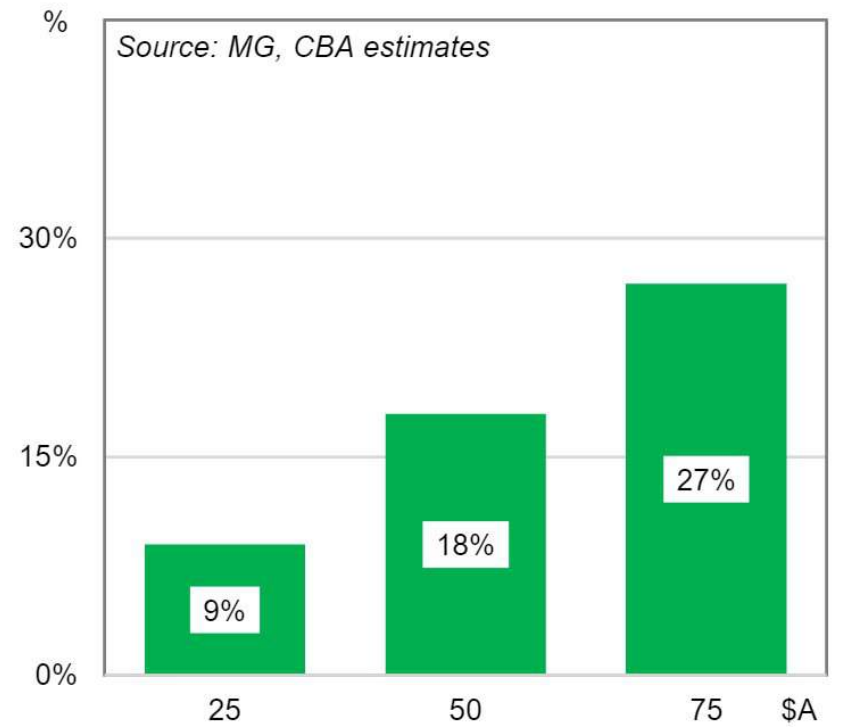
In terms of supply, in 2023, there was only one BEV ute available in the Australian market: the LDV eT60 ([here](#)). Uptake has been low, with less than 100 vehicles sold in 2023. Price was likely a factor behind low sales. The LDV eT60 has a starting price of ~\$A92,990, 90% higher than the Ford Ranger 4x2 Dual Cab that has a starting price of \$A48,910 (chart 27). In the 4x4 vehicle segment, there was no electric utes available. However, supply is expected to lift, with a number of new electric utes in the pipeline due to arrive in Australia in mid-2024 and 2025.

The proposed NVES emissions standard would incentivise greater supply of BEV commercial vehicles in the Australian market because manufacturers will receive credits for their sales of these vehicles. A larger choice of BEV commercial vehicles could help increase demand.

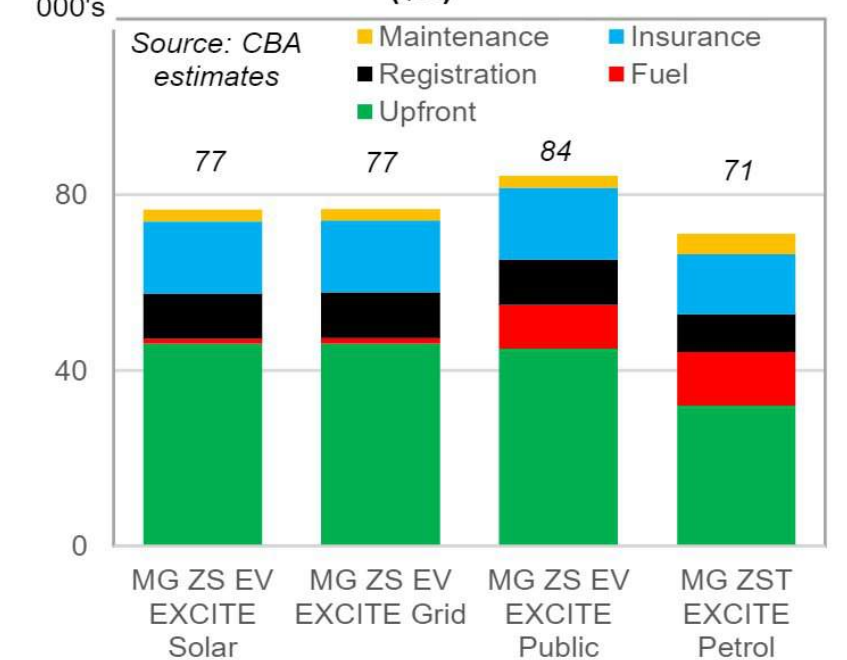
However, the appetite for BEV/PHEV utes to meet commercial purposes are yet to be tested in Australia. In the US electric ute up take is still low. The Ford electric ute (F-150 lightning) was the top 10 EV model in the US. However, the F-150 lightning comprised just 3.2% of Ford’s F-150 model truck sales in the US in 2023.

What is unclear is how much the NVES will impact the volume and price of models currently sold. For example, the Isuzu Ute’s D-Max was the 3rd most popular ute in 2023. Only 3 out of the 20 model variants meet the emissions targets in 2025 (chart 28). The most low-emission model would no longer meet targets in 2026 (chart 29). If Isuzu does not import more low emission models, we estimate this could result in penalties or costs to purchase emissions credits worth between 6% and 17% of current sale price in 2029 (chart 30). These additional costs could be passed on to consumers via higher sales prices.

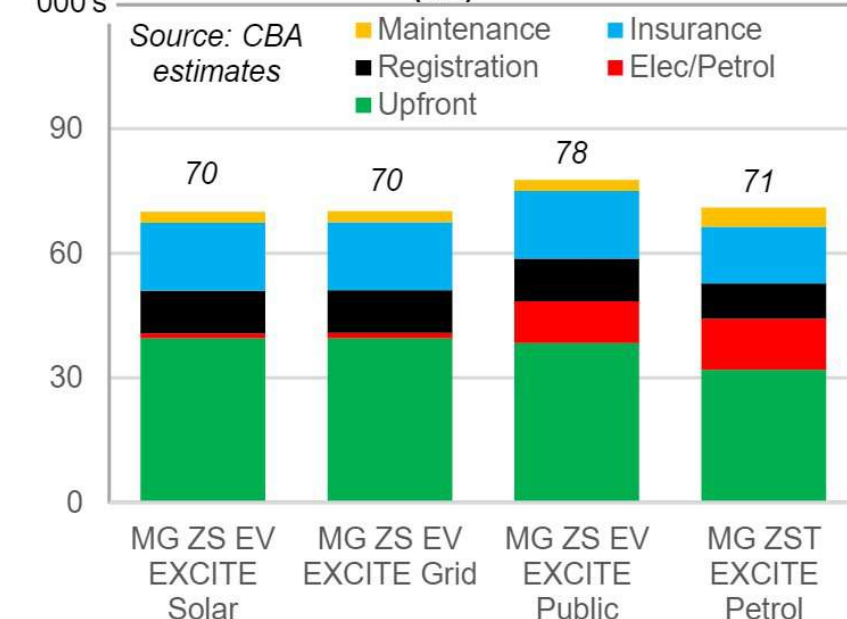
15. **\$A VALUE OF CREDITS AS A PERCENTAGE OF SALE PRICE: MG 4**



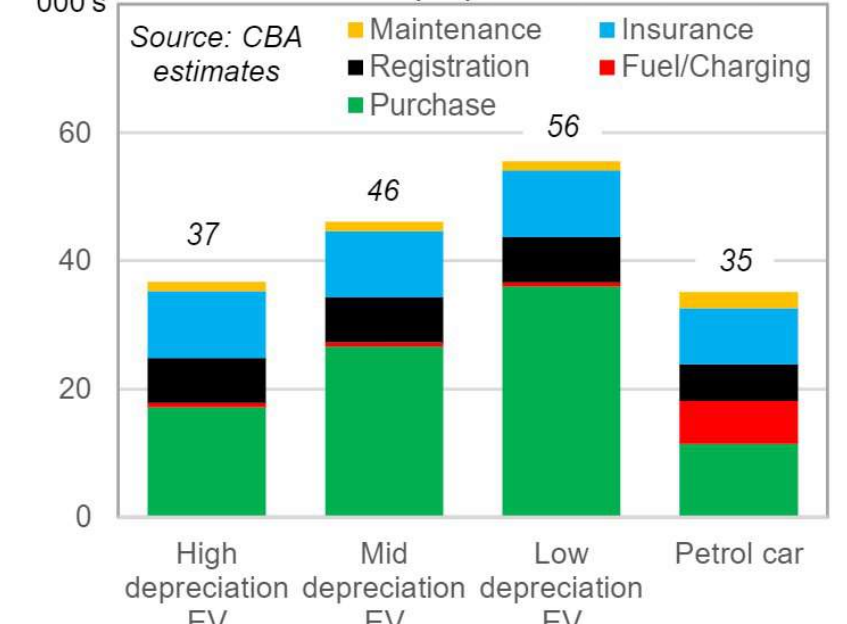
16. **11 YEAR TOTAL COST OF OWNERSHIP (\$A)**



17. **11 YEAR TOTAL COST OF OWNERSHIP IF DISCOUNTED (\$A)**



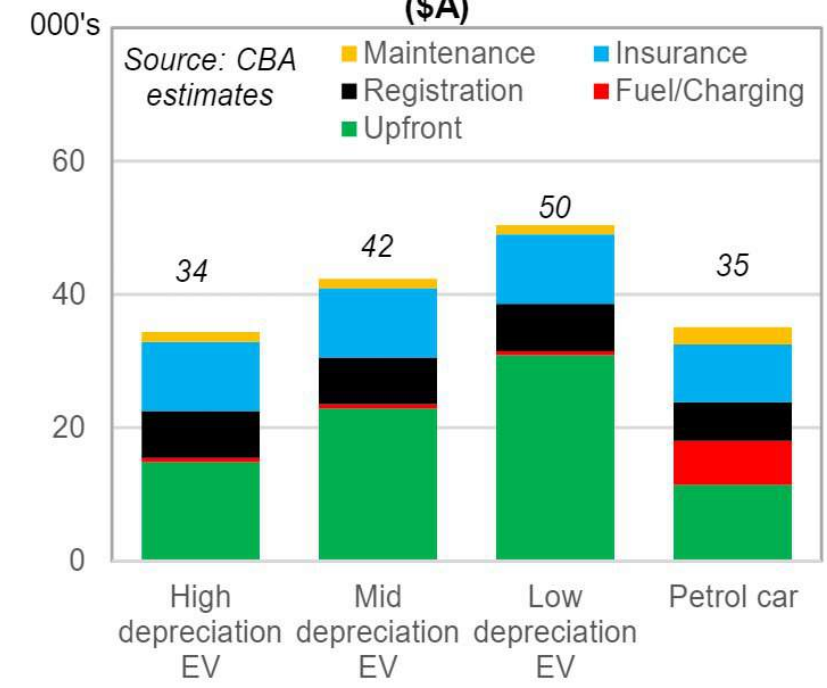
18. **5 YEAR TOTAL COST OF OWNERSHIP (\$A)**





19

5 YEAR TOTAL COST OF OWNERSHIP (\$A)



20. AUTOMAKERS 2023 TAILPIPE EMISSIONS COMPARED TO NVES PV 2025 AND 2029 TARGET

Make	2023 sales*	Sales weighted (grams of CO ₂)	2025 target 2029 target	
			141 grams of CO ₂	58 grams of CO ₂
Toyota	215,240	146.8	Major changes; high difficulty	Major changes; high difficulty
Mazda	100,008	156.6	Major changes; high difficulty	Major changes; high difficulty
Ford	87,483	196.6	Major changes; high difficulty	Major changes; high difficulty
Kia	76,120	151.9	Major changes; high difficulty	Major changes; high difficulty
Hyundai	75,172	161.9	Major changes; high difficulty	Major changes; high difficulty
Mitsubishi	63,511	165.8	Major changes; high difficulty	Major changes; high difficulty
MG	58,346	132.1	Major changes; high difficulty	Major changes; high difficulty
Tesla	46,116	0	No changed needed	No changed needed
Subaru	45,341	172.7	Major changes; high difficulty	Major changes; high difficulty
Isuzu	42,675	219.3	Major changes; high difficulty	Major changes; high difficulty
Volkswagen	39,376	161.7	Major changes; high difficulty	Major changes; high difficulty
Nissan	36,397	207.3	Major changes; high difficulty	Major changes; high difficulty
GWM	26,184	168.8	Major changes; high difficulty	Major changes; high difficulty
BMW	25,740	146.7	Major changes; high difficulty	Major changes; high difficulty
Mercedes-Benz	19,039	156.9	Major changes; high difficulty	Major changes; high difficulty
Audi	17,433	156.6	Major changes; high difficulty	Major changes; high difficulty
LDV	17,078	241.4	Major changes; high difficulty	Major changes; high difficulty
Suzuki	17,078	131	Major changes; high difficulty	Major changes; high difficulty
Lexus	15,192	133.6	Major changes; high difficulty	Major changes; high difficulty
Honda	13,734	144	Major changes; high difficulty	Major changes; high difficulty

*Includes both passenger and commercial sales

Major changes; high difficulty
Some changes; moderate difficulty
No changed needed

Source: MTAA, AFR



21. **AUTOMAKERS 2023 TAILPIPE EMISSIONS COMPARED TO NVES LCV 2025 AND 2029 TARGET**

Make	2023 sales*	Sales weighted (grams of CO2)	2025 target 2029 target	
			199 grams of CO2	81 grams of CO2
Toyota	215,240	223.7		
Mazda	100,008	205.7		
Ford	87,483	215.2		
Kia	76,120	-		
Hyundai	75,172	183		
Mitsubishi	63,511	223.1		
Isuzu	45,341	206.1		
Volkswagen	42,675	207.3		
Nissan	39,376	207.5		
GWM	36,397	245.1		
Mercedes-Benz	25,740	165.4		
LDV	17,433	236.3		
BYD	12,438	-		
RAM	6,833	304.5		
Renault	6,673	171.9		
Ssangyong	5,966	231.1		
Jeep	4,634	288		
Chvrolet	3,703	-		
Peugeot	2,448	132.9		

*Includes both passenger and commercial sales

Major changes; high difficulty
Some changes; moderate difficulty
No changes needed

Source: MTAA, AFR

22. **TOP 10 BRANDS IN AUSTRALIA AND SALES MIX**

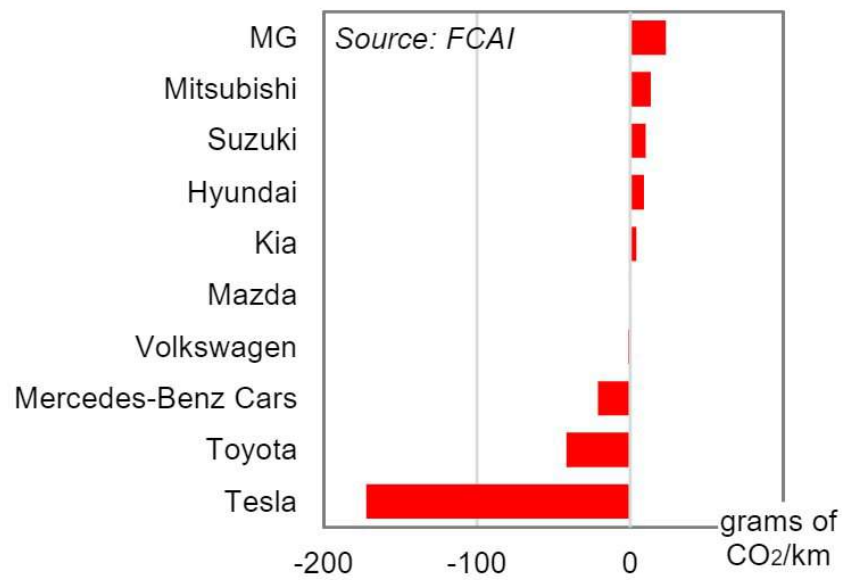
Rank	Brand	Volume Full-Year 2023	ICE	Hybrid		PHEV		BEV	
			-	Aus	Overseas	Aus	Overseas	Aus	Overseas
1	Toyota	215,240	Yes	Yes		-	Yes	Yes	-
2	Mazda	100,008	Yes	Yes		Yes	-	-	Yes
3	Ford	87,800	Yes	-	Yes	Yes		Yes	-
4	Kia	76,120	Yes	Yes	-	Yes	-	Yes	-
5	Hyundai	75,183	Yes	Yes			Yes	Yes	
6	Mitsubishi	63,511	Yes			Yes	-		
7	MG	58,346	Yes			Yes		Yes	-
8	Tesla	46,116						Fully Electric	
9	Subaru	46,114	Yes	Yes	-			Yes	-
10	Isuzu Ute	45,341	Yes	No	Yes			No	Yes

Models available or incoming
Models not available in Australia but available overseas
No current available models in Australia and overseas

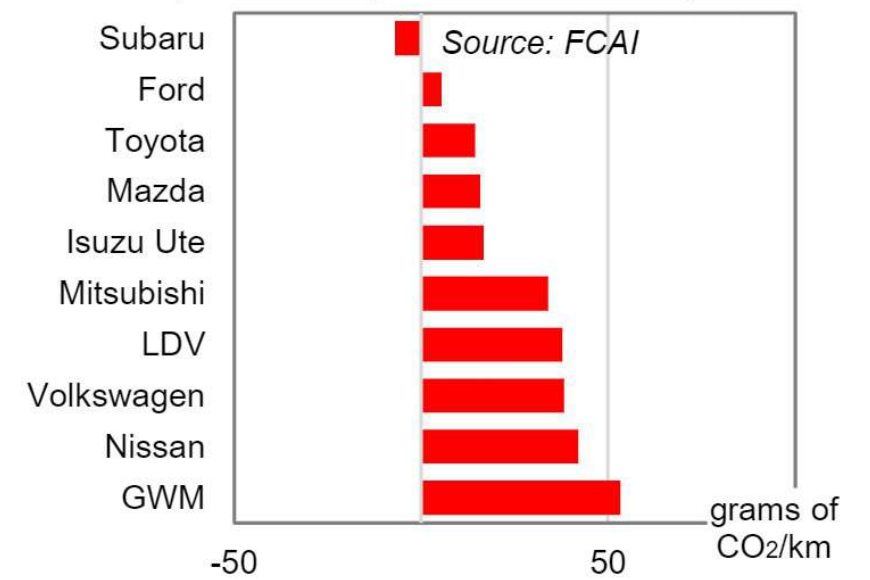
Source: Drive, WhichCar



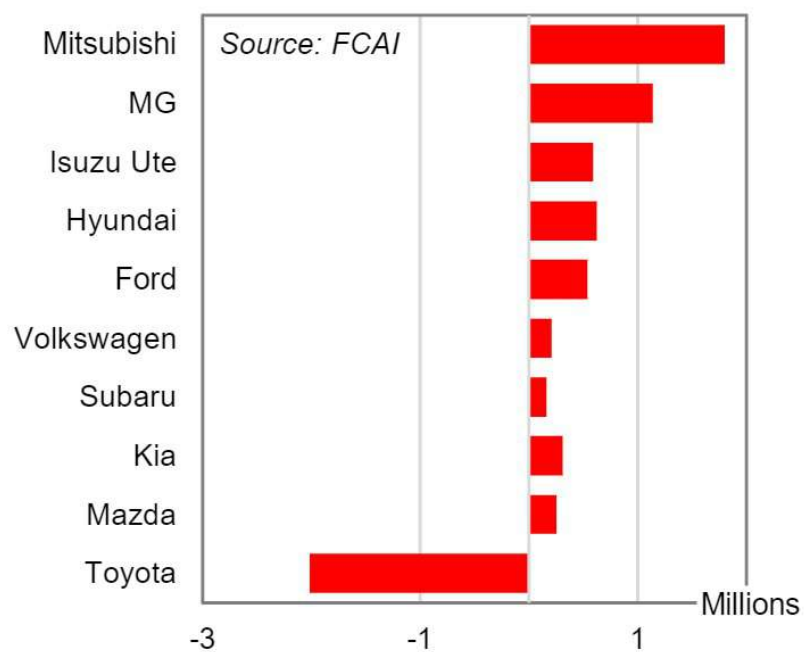
23. **DIFFERENCE BETWEEN AVERAGE CO₂ EMISSIONS AND SPECIFIC TARGET (Passenger Class as of 2022)**



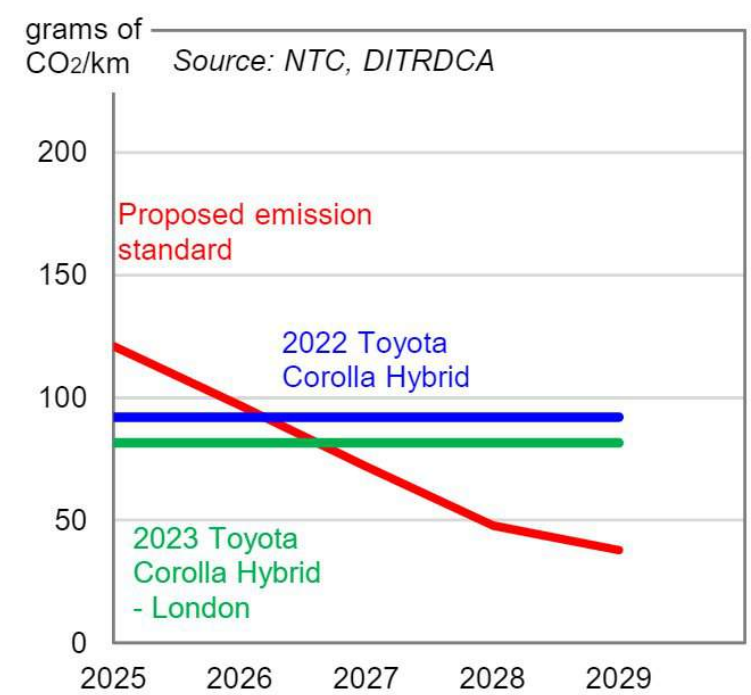
24. **DIFFERENCE BETWEEN AVERAGE CO₂ EMISSIONS AND SPECIFIC TARGET (LCV + Large SUV as of 2022)**



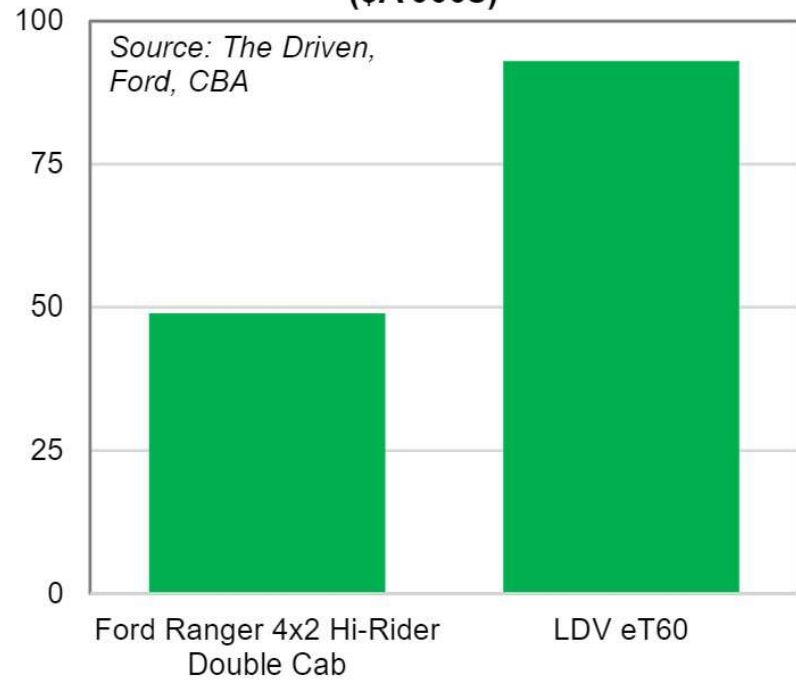
25. **OVERALL DEBIT/CREDIT POSITION OF TOP 10 MANUFACTURERS IN 2022**



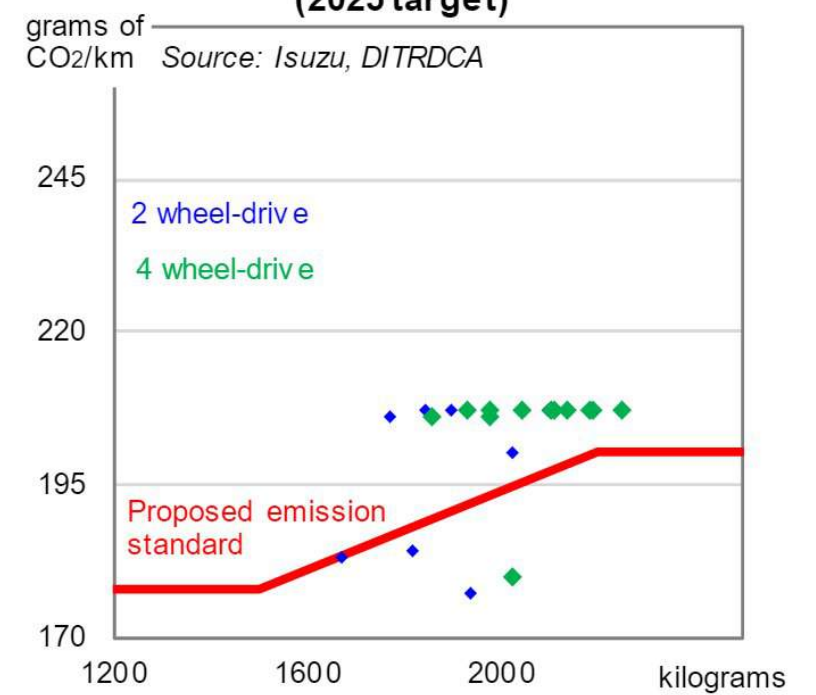
26. **TOYOTA COROLLA SERIES: HYBRID MODEL COMPARED TO THE NVES STANDARD**



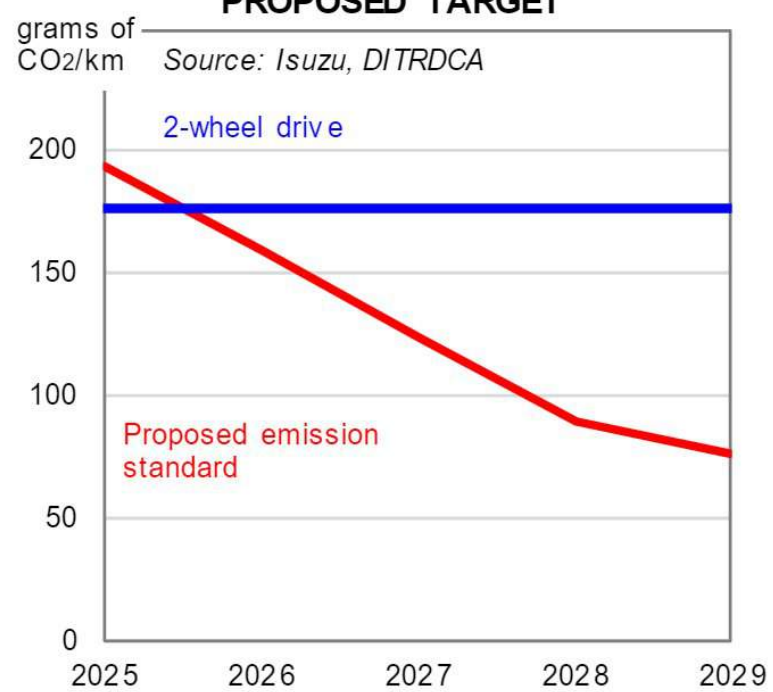
27. **PURCHASE PRICE COMPARISON: EV UTE VS FORD RANGER (\$A'000s)**



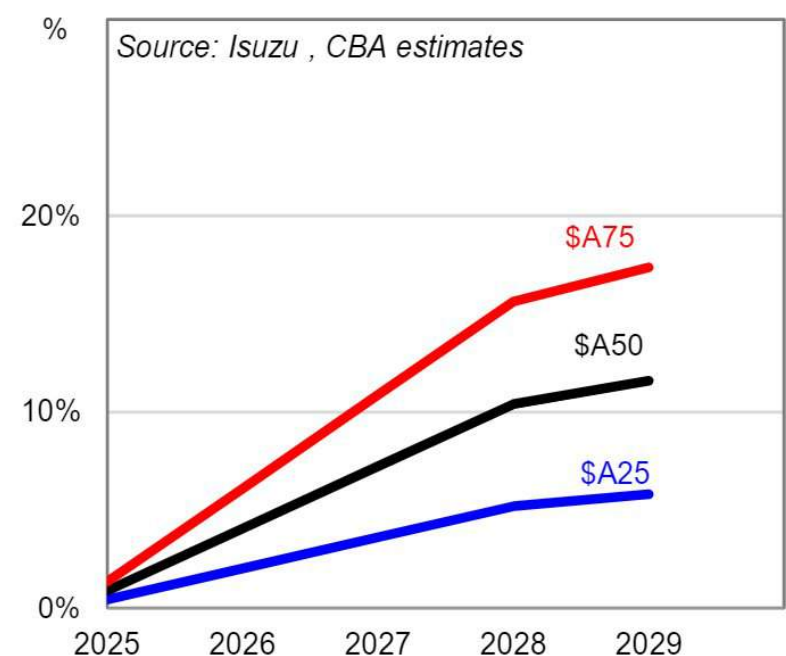
28. **ISUZU UTE D-MAX SERIES: EMISSIONS PERFORMANCE COMPARED ACROSS VARIANTS (2025 target)**



29. **ISUZU UTE D-MAX: EMISSIONS PERFORMANCE OF MOST EFFICIENT MODEL COMPARED TO PROPOSED TARGET**



30. **CREDIT AS A PORTION OF AVERAGE SALE PRICE: ISUZU UTE D-MAX**





Appendix A: Total cost of ownership – BEV and ICE vehicle compared.

We have revised our total cost of ownership (TCO) methodology in this note to include:

- upfront cost;
- charging cost;
- registration cost;
- insurance cost;
- maintenance cost;
- charging equipment cost (for Battery Electric Vehicles); and
- resale value.

We acknowledge that the limit of our analysis is that each vehicle has unique driving profile. Our analysis is based on driving profile with assumptions that are clearly outlined in this note. We have done a sensitivity analysis to estimate TCO under different assumptions for:

- charging;
- different upfront cost (discounted compared to non-discounted); and
- resale value.

TCO analysis 1: 11-year ownership with no reselling. Sensitivity analysis for charging scenario and different upfront cost.

Energy costs

Electricity costs can vary significantly depending on whether the vehicle is charged from solar, from the grid at home or in public charging stations.

We calculate energy costs based on the fuel consumption/electricity consumption of vehicles (table 1) and petrol and electricity costs (table 2, chart 3). The petrol cost is based on average weekly price from the last 12 months. We based electricity cost based on average retail price offering from big 3 electricity retailers Origin, AGL and Energy Australia. We assume that EV drivers will get be on off-peak EV electricity plans that offer a significantly lower rate than the standard plans. Energy Australia does not offer an EV plan and we have excluded the provider for our assumptions.



1. Vehicle assumptions

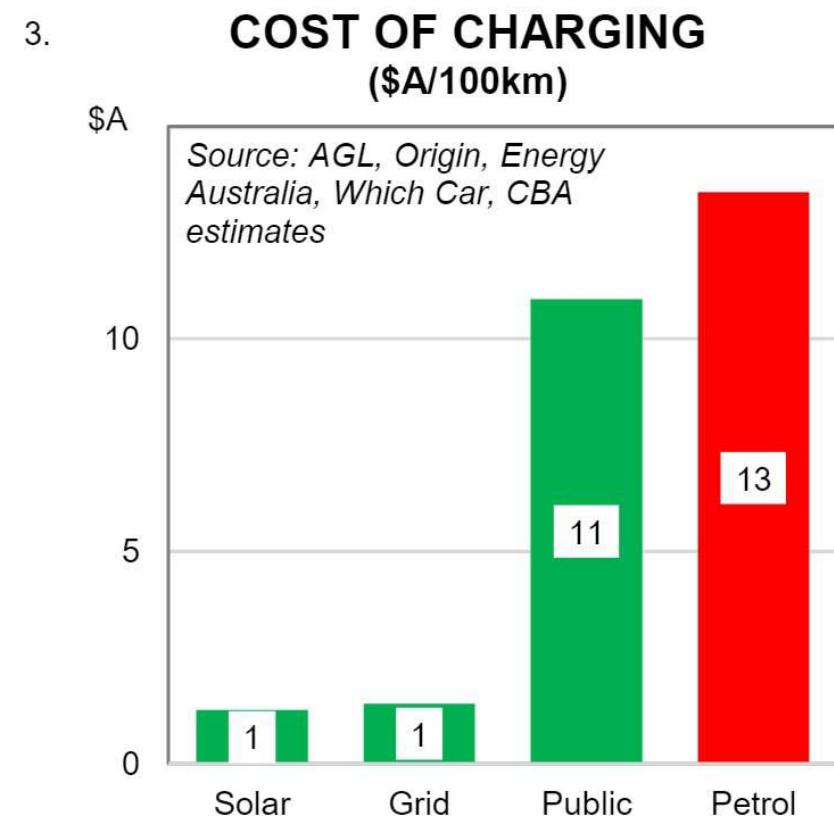
Vehicle	Fuel efficiency (L/100km)	Electricity consumption (wH/km)	Annual distance (km)
MG ZS EV EXCITE		177	12,100
MG ZST EXCITE	7		12,100

Source: MG, ABS estimates

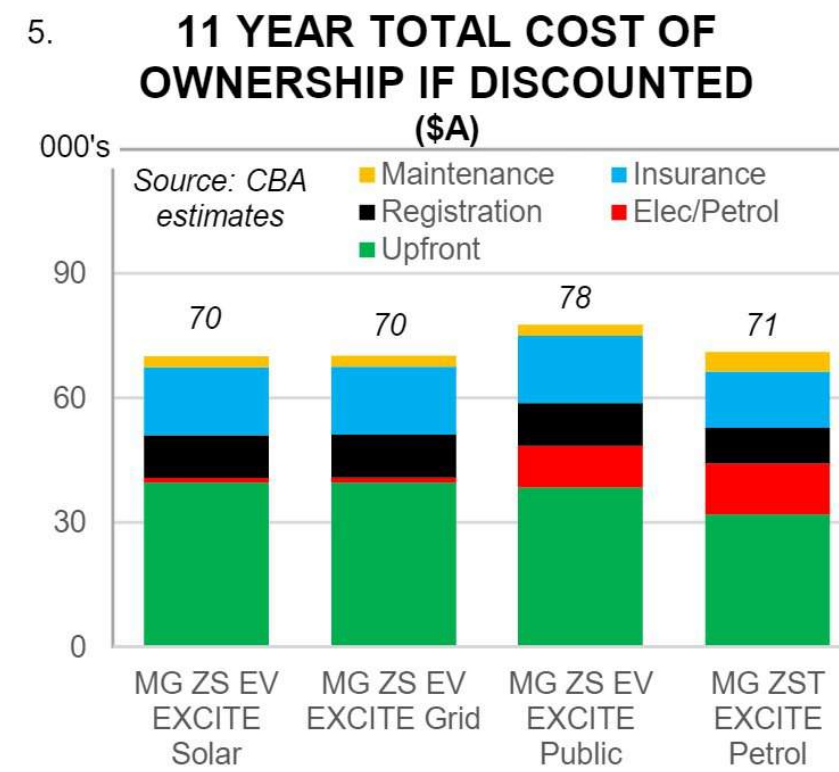
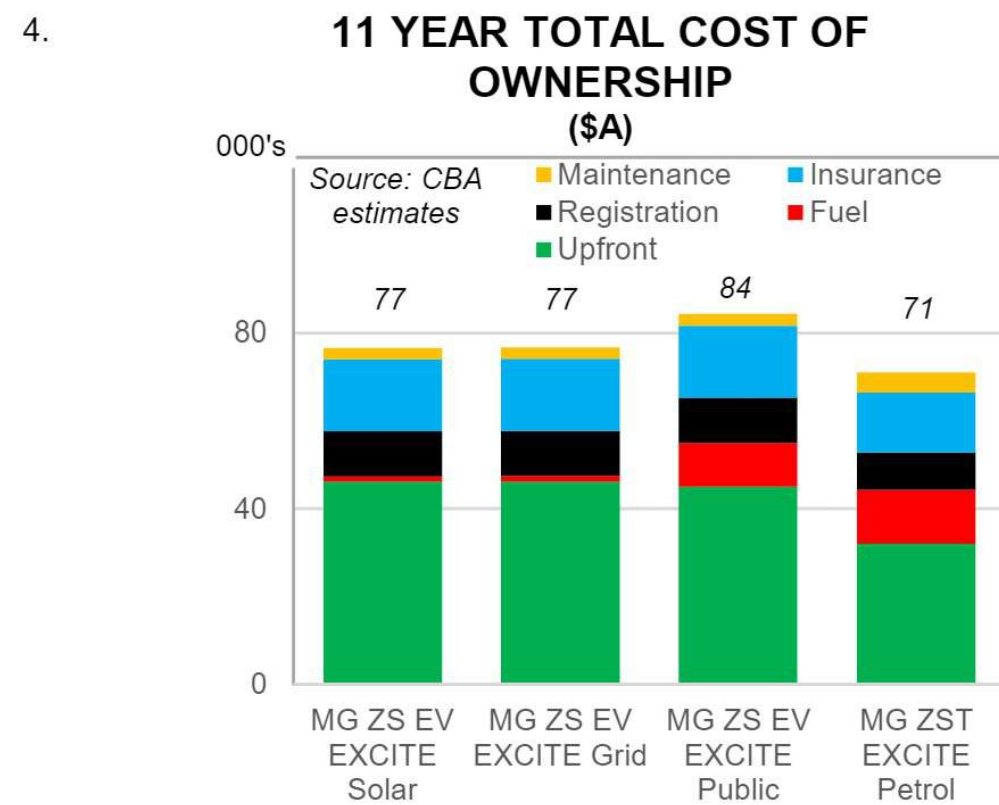
2. Electricity price assumptions

Data	\$
Petrol price (median weekly price from past 12 months) (\$/L)	\$1.91
Origin (\$/kWh)	\$0.08
AGL (\$/kWh)	\$0.08
Energy Australia (\$/kWh)	-
Electricity Price (average) (\$/kWh)	\$0.08
Origin (\$/kWh)	\$0.07
AGL (\$/kWh)	\$0.07
Energy Australia (\$/kWh)	\$0.08
Feed-in tariff (average of big 3) (\$/kWh)	\$0.07

Source: AGL, Origin, Energy Australia, Bloomberg



We estimate 11 year TCO of the MG ZS EV Excite compared to the MG ZST Excite. Compared to the petrol car, the EV charged with solar or off-peak electricity can have ~8% higher TCO than the petrol car (chart 4). However, if credits earned are passed on, the EV charged with solar or off-peak electricity can be 1% lower TCO than the petrol car (chart 5). Please see table 6 for breakdown of the costs.





6. Total cost of ownership over 11 years (\$A)

	Full price	NVES discount price	Full price	NVES discount price	Full price	NVES discount price		
	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZST EXCITE	MG ZST EXCITE
	Solar	Solar	Grid	Grid	Public	Public	Petrol	Petrol
Upfront	46,114	39,571	46,114	39,571	44,996	38,453	31,990	31,990
Fuel/Charging	1,160	1,160	1,289	1,289	9,960	9,960	12,245	12,245
Registration	10,302	10,302	10,302	10,302	10,302	10,302	8,505	8,505
Insurance	16,382	16,382	16,382	16,382	16,382	16,382	13,702	13,702
Maintenance	2,670	2,670	2,670	2,670	2,670	2,670	4,631	4,631
Total	76,628	70,085	76,757	70,214	84,310	77,767	71,073	71,073
% diff to Petrol	8%	-1%	8%	-1%	19%	9%	0%	0%

Source: MG, AGL, Origin, Energy Australia, Allianz, NRMA, QBE, RACV, CBA estimates

The user pays an EV premium but receives the lower associated operating cost. We estimate the net present value (NPV) of purchasing MG ZS EV compared to the MG ZST Excite Petrol. NPV adjusts future cash flows with an interest ('discount') rate so as to compare the future purchasing power of today's money. Using a discount rate at 6.94% - the variable rate of small business loans – we estimate the NPV in table 7. Internal rate of return is the discount rate at which NPV is zero. Some businesses make investment decisions if the IRR is above a hurdle rate specific to the business. We estimate the IRR of MG ZS EV in different charging scenarios in table 7.

Table 7: NPASSENGER VEHICLE & IRR of MG ZS EV under different charging scenarios and upfront cost scenarios

	Full price	NVES discount price	Full price	NVES discount price	Full price	NVES discount price
	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE
	Solar	Solar	Grid	Grid	Public	Public
NPV	-5,555	988	-5,683	859	-13,237	-6,694
IRR	-1%	9%	-1%	9%	-23%	-18%

Source: MG, AGL, Origin, Energy Australia, Allianz, NRMA, QBE, RACV, CBA estimates

TCO results vary depending on the discount rate used. We conduct a sensitivity analysis with discount rate of 5% and 10%. See table 8 and table 9 below.

Table 8: Total cost of ownership over 11 years with 5% discount rate (\$A)

	Full price	NVES discount price	Full price	NVES discount price	Full price	NVES discount price		
	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZS EV EXCITE	MG ZST EXCITE	MG ZST EXCITE
	Solar	Solar	Grid	Grid	Public	Public	Petrol	Petrol
Upfront	46,114	39,571	46,114	39,571	44,996	38,453	31,990	31,990
Fuel/Charging	1,281	1,281	1,423	1,423	11,000	11,000	13,523	13,523
Registration	11,057	11,057	11,057	11,057	11,057	11,057	9,142	9,142
Insurance	17,765	17,765	17,765	17,765	17,765	17,765	14,859	14,859
Maintenance	2,948	2,948	2,948	2,948	2,948	2,948	5,114	5,114
Total	79,165	72,623	79,308	72,765	87,767	81,224	74,628	74,628
% diff to Petrol	6%	-3%	6%	-2%	18%	9%	0%	0%

Source: CBA estimates



Table 9: Total cost of ownership over 11 years with 10% discount rate (\$A)

	MG ZS EV EXCITE Solar	MG ZS EV EXCITE Solar	MG ZS EV EXCITE Grid	MG ZS EV EXCITE Grid	MG ZS EV EXCITE Public	MG ZS EV EXCITE Public	MG ZST EXCITE Petrol	MG ZST EXCITE Petrol
Upfront	46,114	39,571	46,114	39,571	44,996	38,453	31,990	31,990
Fuel/Charging	1,002	1,002	1,113	1,113	8,601	8,601	10,574	10,574
Registration	9,302	9,302	9,302	9,302	9,302	9,302	7,662	7,662
Insurance	14,552	14,552	14,552	14,552	14,552	14,552	12,172	12,172
Maintenance	2,305	2,305	2,305	2,305	2,305	2,305	3,999	3,999
Total	73,275	66,732	73,387	66,844	79,757	73,214	66,397	66,397
% diff to Petrol	10%	1%	11%	1%	20%	10%	0%	0%

Source: CBA estimates

Table 10 and table 11 show the cost timeline of the vehicles over the 11-year period that was used for the analysis.

Table 10: Cost timeline over the 11 years

MG ZS EV EXCITE (Solar)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront (Car + Charger)	46,114											
Charging		154	154	154	154	154	154	154	154	154	154	154
Registration	2,463	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	0
Insurance	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	0
Maintenance		355	355	355	355	355	355	355	355	355	355	355
Total	50,614	3,659	3,659	3,659	3,659	3,659	3,659	3,659	3,659	3,659	3,659	509
Total												
MG ZS EV EXCITE (Grid)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront (Car + Charger)	46,114											
Charging		171	171	171	171	171	171	171	171	171	171	171
Registration	2,463	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	0
Insurance	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	0
Maintenance		355	355	355	355	355	355	355	355	355	355	355
Total	50,614	3,676	3,676	3,676	3,676	3,676	3,676	3,676	3,676	3,676	3,676	526
MG ZS EV EXCITE (Public Charging)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront (Car)	44,996											
Charging		1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Registration	2,463	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	0
Insurance	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	0
Maintenance		355	355	355	355	355	355	355	355	355	355	355
Total	49,496	4,829	4,829	4,829	4,829	4,829	4,829	4,829	4,829	4,829	4,829	1,679
MG ZST Excite (Petrol)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront	31,990											
Charging		1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628
Registration	1,898	938	938	938	938	938	938	938	938	938	938	0
Insurance	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	0
Maintenance		616	616	616	616	616	616	616	616	616	616	616
Total	35,592	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	2,244

Source: MG, AGL, Origin, Energy Australia, Allianz, NRMA, QBE, RACV, CBA estimates

**Table 11: Cost timeline over the 11 years (with assumed NVES credit discount)**

MG ZS EV EXCITE (Solar)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront (Car + Charger)	39,571											
Charging		154	154	154	154	154	154	154	154	154	154	154
Registration	2,463	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	0
Insurance	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	0
Maintenance		355	355	355	355	355	355	355	355	355	355	355
Total	44,071	3,659	3,659	3,659	3,659	3,659	3,659	3,659	3,659	3,659	3,659	509
MG ZS EV EXCITE (Grid)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront (Car + Charger)	39,571											
Charging		171	171	171	171	171	171	171	171	171	171	171
Registration	2,463	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	0
Insurance	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	0
Maintenance		355	355	355	355	355	355	355	355	355	355	355
Total	44,071	3,676	3,676	3,676	3,676	3,676	3,676	3,676	3,676	3,676	3,676	526
MG ZS EV EXCITE (Public Charging)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront (Car)	38,453											
Charging		1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Registration	2,463	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	0
Insurance	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	2,037	0
Maintenance		355	355	355	355	355	355	355	355	355	355	355
Total	42,953	4,829	4,829	4,829	4,829	4,829	4,829	4,829	4,829	4,829	4,829	1,679
MG ZST Excite (Petrol)												
	0	1	2	3	4	5	6	7	8	9	10	11
Upfront (Car + Charger)	31,990											
Charging		1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628	1,628
Registration	1,898	938	938	938	938	938	938	938	938	938	938	0
Insurance	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	1,704	0
Maintenance		616	616	616	616	616	616	616	616	616	616	616
Total	35,592	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	2,244

Source: MG, AGL, Origin, Energy Australia, Allianz, NRMA, QBE, RACV, CBA estimates

5-year TCO with resale value

Resale value

Historically, EVs have depreciated more faster than ICE vehicles. The price depreciation could be attributed to (i) uncertainty amongst buyers about an emerging technology and (ii) the strong price cuts of new EVs over the years. To the second point, price cuts of new EVs are good news for buyers. However, strong price cuts negatively impact resale value as second-hand cars now have to compete with new EVs selling at lower prices.

When EV adoption becomes high enough, the depreciation of ICE vehicles may depreciate stronger than EVs. However, the current historical data shows EV depreciation to be stronger at this moment. AADA data shows the entire second-hand market retains 69% of original value after 5-7 years. In comparison, EVs hold 24% of original value after 5-7 years.



For context, EV uptake 5 years ago was less than 1% when it was nascent technology. Therefore, we expect depreciation rates to improve over the years. For our analysis, we use three scenarios resale value scenarios based on Australian Automotive Dealers Association (AADA).

- Best case scenario with EV depreciation at historical rates.
- Middle case scenario with EV depreciation mid-way between depreciation rate of EVs and entire market.
- Worst case scenario with EV depreciation equal to depreciation rates of entire market.

See Table 12 for different rates.

Table 12: Value retained of second hand cars

5-7 years	Electric Cars	Entire Market
Best	24%	69%
Middle	46%	69%
Worst	69%	69%

Source: AADA, CBA estimates

Our analysis shows that depreciation rate has a significant weighting to total cost of ownership (see Table 13 and Table 14).

Table 13: Total cost of ownership over 5 years including resale (\$A)

	MG ZS EV EXCITE Solar	MG ZS EV EXCITE Grid	MG ZS EV EXCITE Public	MG ZST EXCITE Petrol
Weak Depreciation	36,692	36,763	40,380	35,075
Medium Depreciation	46,096	46,167	49,784	35,075
Strong Depreciation	55,500	55,571	59,188	35,075

Source: CBA estimates



Table 14: Total cost of ownership over 5 years including resale (\$A) (with assumed NVES credit discounts)

	MG ZS EV EXCITE Solar	MG ZS EV EXCITE Grid	MG ZS EV EXCITE Public	MG ZST EXCITE Petrol
Weak Depreciation	34,359	34,429	38,046	35,075
Medium Depreciation	42,395	42,466	46,083	35,075
Strong Depreciation	50,432	50,502	54,119	35,075

Source: CBA estimates

Table 15 outlines the IRR of purchasing the MG ZS EV Excite over MG ZST Excite petrol car over a 5 year period with different depreciation rates. Table 16 outlines the IRR of purchasing the MG ZS EV Excite (with further discounts from NVES credit trading) over MG ZST Excite petrol car over a 5 year period with different depreciation rates. Our estimates show positive IRR is achieved under a weak-depreciation rate scenario and when the EV is charged at home with solar or off-peak electricity.

Table 15: IRR of purchasing EV compared to ICE over 5 years

	MG ZS EV EXCITE Solar	MG ZS EV EXCITE Grid	MG ZS EV EXCITE Public
Weak Depreciation	2%	1%	-7%
Medium Depreciation	-24%	-24%	-64%
Strong Depreciation	-33%	-34%	-68%

Source: CBA estimates

Table 16: IRR of purchasing EV compared to ICE over 5 years (with assumed NVES credit discounts)

	MG ZS EV EXCITE Solar	MG ZS EV EXCITE Grid	MG ZS EV EXCITE Public
Weak Depreciation	9%	9%	-6%
Medium Depreciation	-18%	-18%	-61%
Strong Depreciation	-29%	-29%	-66%

Source: CBA estimates



Vehicle cost

We collect the upfront cost from available price from the car manufacturer 'MG' (table 17). We collect price for Sydney, Australia. The EV price premium is \$A13,006. If we assume the credits earned from MG ZS EV Excite is passed on as discounts, the EV price premium narrows to \$A6,463.

Table 17: Car upfront cost

Vehicle	\$A
MG ZS EV EXCITE	44,996
MG ZS EV EXCITE - discounted	38,453
MG ZST EXCITE	31,990

Source: MG website, CBA estimates

Insurance

We estimated insurance costs across the vehicle types through online quotes from comprehensive car insurance providers Suncorp, Allianz and NRMA (table 18). Insurance premiums on the MG ZS EV Excite is ~19% higher than insurance premium for the MG ZST Excite. We used the following user profile: 30 year old female, lives in inner city Sydney, drives 3-4 days a week, parks in the garage, zero motor claims and incidents in the past 5 years.

Most motorists have some form of insurance. There were around 16.4 million motor retail policies issued in 2021/22, reported by General Insurance Code Governance Committee (see [here](#)). The insurance quotes gathered are below in table 7.

Table 18: Insurance cost

	MG ZS EV EXCITE	MG ZST EXCITE
<i>Suncorp</i>	1790	1670
<i>Allianz</i>	2447	1970
<i>NRMA</i>	1874	1471
Average annual insurance premium	2037	1704

Source: Suncorp, Allianz, NRMA, CBA

Maintenance costs

EVs have less moving parts than ICE vehicles and would likely to result in lower maintenance costs ([here](#)). In our estimates, EV maintenance costs are 42% lower than ICE maintenance costs (table 19). We collected this data from Royal Automobile Club of Victoria (RACV). As the EV market develops, more reliable data on maintenance costs will become available.

**Table 19: Maintenance costs**

Vehicle	Annual maintenance cost (\$A)
MG ZS EV Excite	355
MG ZST Excite	616

Source: RACV

Registration cost

We have included three costs to our registration cost estimates. The three cost components are: annual registration cost, annual compulsory third party (CTP) insurance, and stamp duty (table 20). Road user charge (RUC) of 2.8 cents/km will be introduced from July 2027 or when EVs make up 30% of all new vehicle sales ([here](#)). However, in Victoria, the high court has ruled against Victoria's road user charge ([here](#)). For our estimates, we have excluded the road-user-charge.

Table 20: Registration costs

	MG ZS EV Excite	MG ZST Excite
Annual registration cost (NSW)	575	575
Annual CTP (NSW)	452	452
Stamp duty one off (NSW)	1350	960
Total	2377	1987

Source: Service NSW, [greenslips.nsw.gov.au](https://www.greenslips.nsw.gov.au)

Battery charger cost

Home battery charging can be done by two types of chargers: level 1 and level 2. Level 1 charging occurs from a standard power plug used in the household and do not require purchase of a charger. Level 1 charging speed is not fast enough to charge daily driving needs but not enough for the whole battery. Level 2 charging offers faster charging and can recharge most BEV models overnight. However, level 2 charging requires purchase of a charger. Charger purchase costs vary by manufacturer. We estimate the average charger purchase cost to be around \$A1118 (table 21).

**Table 21: Level 2 chargers by brand**

Brand	Price (\$A)
MG	1199
JetCharge	2125
Tesla	750
EVolution	699
Evnex	1395
ChargePoint	540
Average	1118

Source: The Drive



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Global Economic & Markets Research

Stephen Halmarick Chief Economist - Head of Global Economic & Markets Research +612 8388 3030 stephen.halmarick@cba.com.au

Australian Economics		Telephone	Email Address
Gareth Aird	Head of Australian Economics	+612 8255 1762	gareth.aird@cba.com.au
Belinda Allen	Senior Economist	+612 8255 1752	ballen@cba.com.au
Stephen Wu	Economist	+612 8388 3050	Stephen.Wu@cba.com.au
Harry Ottley	Economist	+612 8255 1746	Harry.Ottley@cba.com.au

International and Sustainable Economics		Telephone	Email Address
Joseph Capurso	Head of International and Sustainable Economics	+612 8255 1764	joseph.capurso@cba.com.au
Kristina Clifton	Senior Economist and Senior Currency Strategist	+612 8255 1745	kristina.clifton@cba.com.au
Vivek Dhar	Mining & Energy Commodities	+613 8668 5686	vivek.dhar@cba.com.au
Carol Kong	Economist and Currency Strategist	+612 8255 1751	carol.kong@cba.com.au
John Oh	Sustainable Economist	+612 8255 1743	John.Oh@cba.com.au
Dennis Voznesenski	Sustainable Agri Economist	+612 8388 4685	Dennis.Voznesenski@cba.com.au

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