Insights for tomorrow

2025 Automotive Workforce Plan

Acknowledgement of Country

We acknowledge the Traditional Custodians of the lands on which we live and work. We acknowledge Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We honour and respect their Elders, past and present, and extend that respect to all First Nations people.

2025 Workforce Plan – Evolving Together
Version 1.0
July 2025

Contents

Automotive

The automotive industry has undergone significant transformation in recent years, following the ceasing of large-scale passenger vehicle manufacturing in Australia, and the increasing adoption of Electric Vehicles (EVs) and Plug-in Hybrid Electric Vehicles (PHEVs). Recovering global supply chains following COVID-19 also led to a structural undersupply of new vehicles[1].

> With a total operational workforce of almost 318,000 workers, 21 million registered vehicles in Australia, and revenue projected to reach over $180 billion in 2024–25,[2,3] the industry is a major employer and innovator.

Through partnering with the Australian Government to increase EV uptake as part of the New Vehicle Efficiency Standard (NVES), and through more specialised vehicle and component manufacturing in place of large-scale passenger car manufacturing, the industry continues to drive innovation and evolve into an industry of the future. The industry has also responded to COVID-19-linked new vehicle supply issues and the associated structural undersupply, with a record 1,237,287 new vehicles sold in 2024, of which a further record of 23,163 (2%) were PHEVs and 91,292 (7%) were EVs.[4]

The retailing and wholesaling sector had the largest market share by far, based on both imported vehicle sales (66%) and parts and accessories (13%), alongside the second largest workforce. The Repair and Maintenance sector had the largest workforce, and the second-equal largest market share based on their services (13%). This was followed by automotive manufacturing, with both the smallest workforce and market share (7%) for locally manufactured vehicles, parts, accessories and other products.[5] Despite some challenges or volatility still associated with supply issues, newer and more affordable Chinese vehicles, and consumer sentiment, the industry is expected to be supported by technological advancements and a range of different incentives associated with the NVES and other similar federal and state initiatives. As such, industry profitability and revenue are expected to continue to grow, driven by increased imports, rising household income, and ongoing EV uptake.[6]

1 JSA, "Vacancy Report January 2024," 14 February 2024.
2 Department of Infrastructure, Transport, Regional Development, Communications and the Arts, "Road Vehicles, Australia, January 2024", 23 July 2024.
3 IBISWorld, and Misaki Lishi. "Automotive Industry in Australia," August 2024.
4 RACV. "Australia's Best-Selling Cars, Utes and SUVs for 2024 | RACV," RACV, 2024.
5 IBISWorld, and Misaki Lishi. "Automotive Industry in Australia," August 2024.
6 Ibid.

Key strategic and workforce issues in the automotive industry

Community perceptions

Many industry stakeholders have raised concerns about the negative perceptions of automotive work, particularly among female apprentices. To address this, the Mining and Automotive Skills Alliance (AUSMASA) conducted market research to understand the perceptions of automotive careers among priority cohorts, including females and youth.

Our national research revealed that a large proportion of young Australians are unaware of the diverse and evolving career opportunities within the automotive industry. In total, 61% of high school students and 47% of career starters aged 17 to 25 are not aware of potential automotive careers. This lack of awareness is particularly concerning given the industry's rapid transformation, with EVs and advanced technologies creating exciting new roles.

Change in Australian and New Zealand Standard Classification of Occupations (ANZSCO) terminology of Motor Mechanics

As identified in the Workforce Plan 2024, the automotive industry strongly believes that the terms 'Motor Mechanic' and 'diesel mechanic' are outdated and detract from the vocation's appeal.[7] AUSMASA continued to advocate for an overhaul of designations and titles. With the new release of the Occupation Standard Classification for Australia (OSCA) in late 2024, the Australian Bureau of Statistics (ABS) replaced the title 'Motor Mechanic' with 'Automotive Technician', reflecting the government's consideration of industry feedback and AUSMASA's efforts.[8]

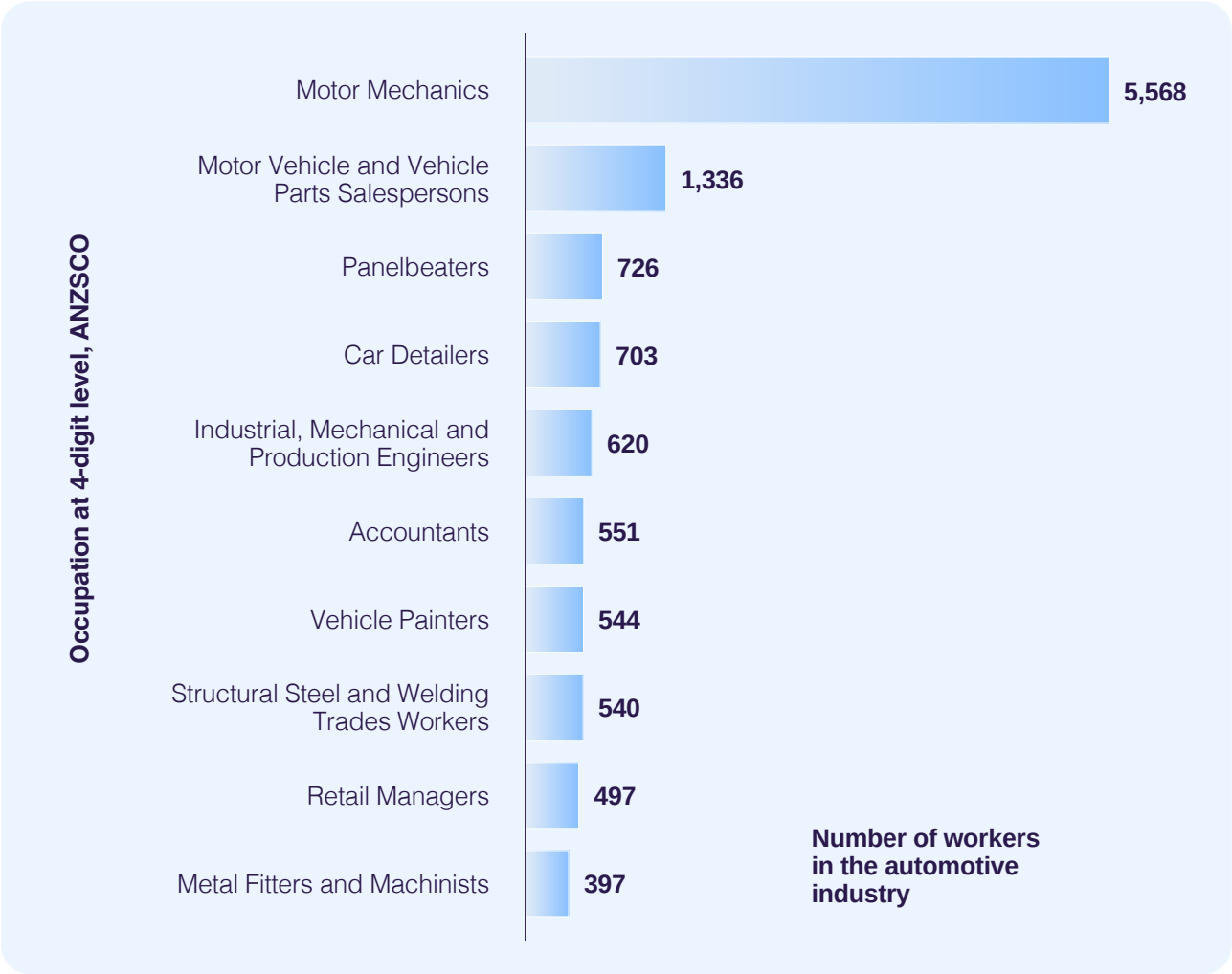
Skilled migration and international students

Various occupations in the automotive industry benefit from the migration system (Figure A1).[9] There are, however, significant barriers for international students to join the workforce, such as, the complexity and cost of the migration process.[10] Restrictions prevent international students from completing apprenticeships, leading to a lack of practical experience. Visa regulations also limit the programs that international students can participate in. AUSMASA has heard from stakeholders on the need to design more appropriate visa pathways for international students to participate in apprenticeship and Vocational Education and Training (VET) programs without restriction.[11]

There are other challenges with bringing in skilled migrants. Industry details problems with international certifications, where training is not adequate, and employers are forced to either upskill the new hire or find a replacement. Most automotive employers are also smaller businesses and cannot afford continuous recruitment and upskilling. A better aligned migration system will mean employers are able to reduce turnover and recruitment costs, which will improve productivity and morale.

7 NCVER, "Generation Z: life at 21", 2022.
8 ABS, "351131 Automotive Technician (General)", 2024.
9 For a more detailed discussion on the migration system and the automotive industry, please see the AUSMASA February Research Bulletin.
10 Reading Writing Hotline, "Submission to the Department of Employment and Workplace Relations Future Directions consultation paper", 2023.
11 At the time of writing, the Government was investigating caps on international student numbers.

Figure A1: Top 10 occupations with permanent skilled migrants, 2021



Source: Australian Bureau of Statistics, "Australian Census and Migrants, 2021, TableBuilder", 2021

Table A1: International students in VET[12]

Year	RII enrolment	AUR enrolment
2016	341	3,605
2017	43	5,558
2018	10	7,761
2019	75	12,093
2020	21	15,560
2021	17	15,604
2022	31	15,913
2023	13	17,382

Source: VOCSTATS, "Total VET students and courses", August 2024.

12 There are zero international student enrolments in AUM.

Female participation

Participation by females is low in the automotive sector, with 20% of the total workforce, and 3% of Automotive Technicians, including both light and heavy vehicle technicians, being females.[13] Additional research is needed to better understand the gender pay gap and initiatives that can support females in the industry.

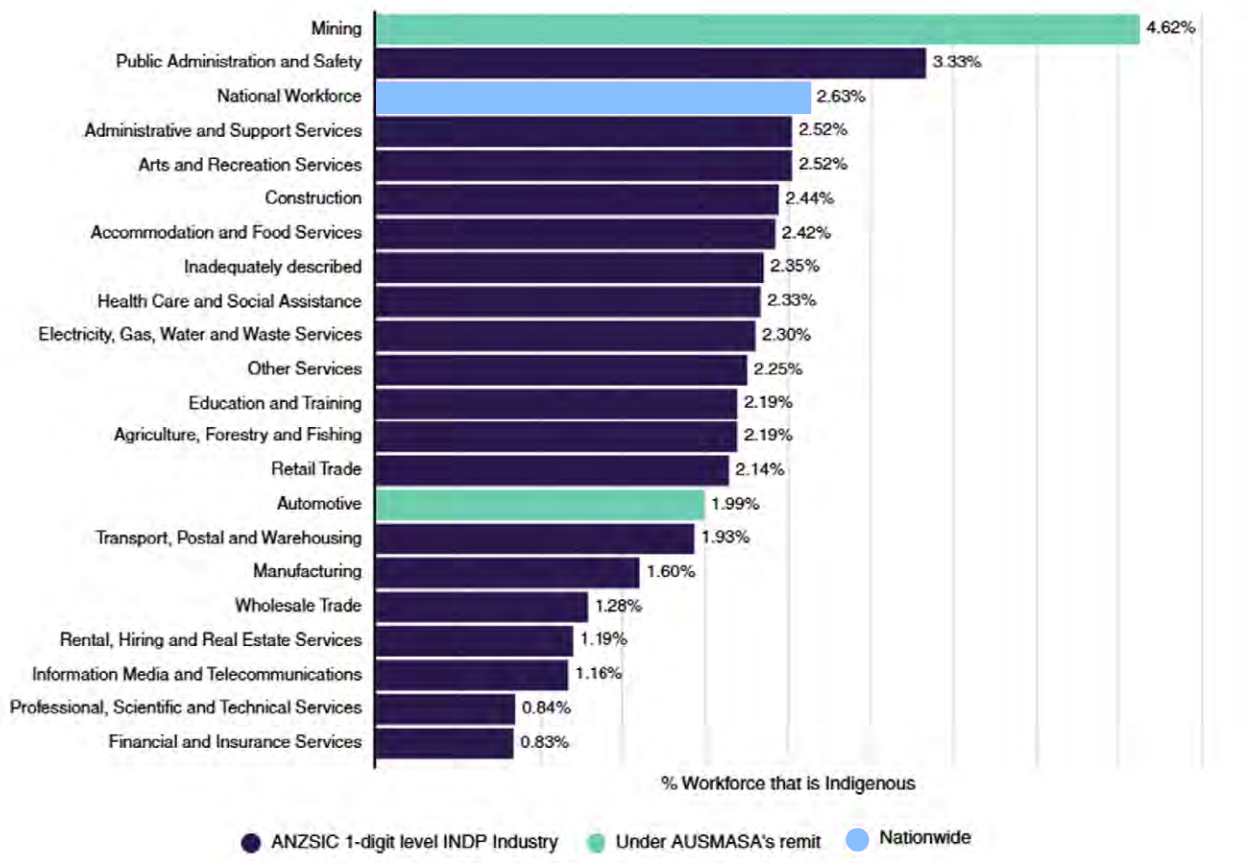
Stakeholder engagement has revealed that many within the industry are calling for better mentoring programs, more growth and upskilling opportunities for females, and greater transparency about the diversity of careers available to females. AUSMASA is continuing to research this area.

13 Jobs and Skills Australia, "Occupation and Industry Profiles – ANZSCO 3212 Motor Mechanics", February 2025.

First Nations employment

First Nations employees make up just 2% of the workforce, below the national average (Figure A2).

Figure A2: Proportion of Indigenous workforce by industry, 2021



Source: ABS Table Builder 2021 Census – employment, income, and education. Note: the proportion of the Automotive Industry has been calculated by aggregating the 3-digit ANZSIC groups covering the industry and applying the Indigenous Status (INGP) to derive the proportion.

The graph above highlights the underrepresentation of First Nations peoples in the automotive industry, where they make up only 1.99% of the workforce. This low representation reflects the broader challenges faced by First Nations peoples in accessing opportunities within this industry.

AUSMASA is committed to advancing Indigenous employment by working with industry to enable the design and implementation of employment and training programs tailored to First Nations communities. These are essential for fostering participation. AUSMASA will continue research into this space to better understand the nuances around the challenges.

Technological advancements

Technological advancement and adoption outpace curated training responses. For example, advanced technologies like Advanced Driver Assistance Systems (ADAS) attract new apprentices but pose challenges for VET providers, due to reluctance within the industry to share proprietary systems. There are also training concerns where Registered Training Organisations (RTOs) do not have the equipment necessary to train workers in the new technology. This absence can create a lag in adoption, meaning the technology will sit idle (or not be fully used) until the training of the existing workforce is completed.

Electrification

Australia's Automotive Repair and Maintenance sector faces significant challenges from servicing both existing and new EVs. Key workforce challenges include expanding EV-focused training and apprenticeships, transitioning the existing workforce to become qualified in multiple skills through retraining, and diversifying the workforce to ensure a sufficient labour supply for the transition to net zero.

The sector needs to increase the uptake of EV-focused VET programs, with Certificate III in Automotive Electric Vehicle Technology currently being the only EV-focused VET qualification. While the Certificate III in Light Vehicle Mechanical Technology covers some EV training, retraining Internal Combustion Engine (ICE) Automotive Technicians is critical because a dual-qualified/skilled workforce would be needed to service both during the transition.[14]

Broadly, the challenges posed by electrification in the automotive manufacturing, retail, and wholesale sectors are less pronounced, compared to the Repair and Maintenance sectors. This is due to the decline of large-scale passenger vehicle manufacturing in Australia and the rise of online EV purchases. There are, however, opportunities for the Repair and Maintenance sector to explore worker retraining and deployment options.

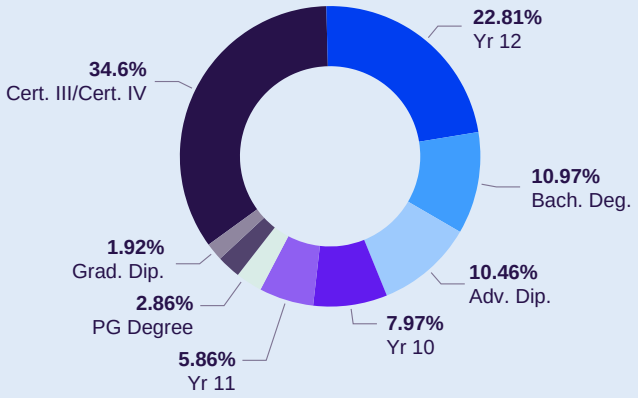
AUSMASA welcomed the establishment of the Canberra Institute of Technology's (CIT) EV Centre of Excellence (CoE). CIT's EV CoE will specialise in innovative training for light/heavy hydrogen electric vehicles, vehicle retrofitting, battery repurposing, and charging installation. It will also develop safety training for a range of occupations with touch points across the EV industry.

The Australian Government has supported the refit of the Wetherill Park TAFE college in New South Wales. This will enable the training and upskilling of both existing qualified technicians and new vehicle technicians on how to depower EVs for safe repair, and reinitialise them for full operation in a safe environment to work on high-voltage vehicles. The refurbished TAFE facility will enable the delivery of a key skill essential for the Automotive Repair and Maintenance sector and is a welcome development. Detailed career mapping of roles and skills required for the net zero transition is required to identify other similar opportunities.

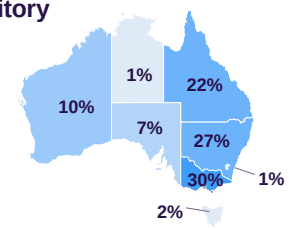
14 AUSMASA, Workforce Plan, 2024.

Dashboard 7: Automotive industry[15]

Education level of the workforce



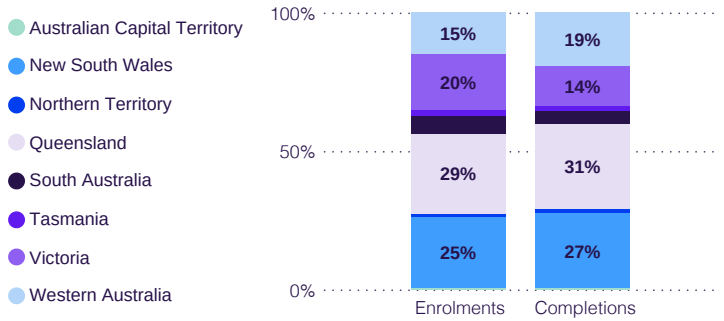
Total workforce by state/ territory



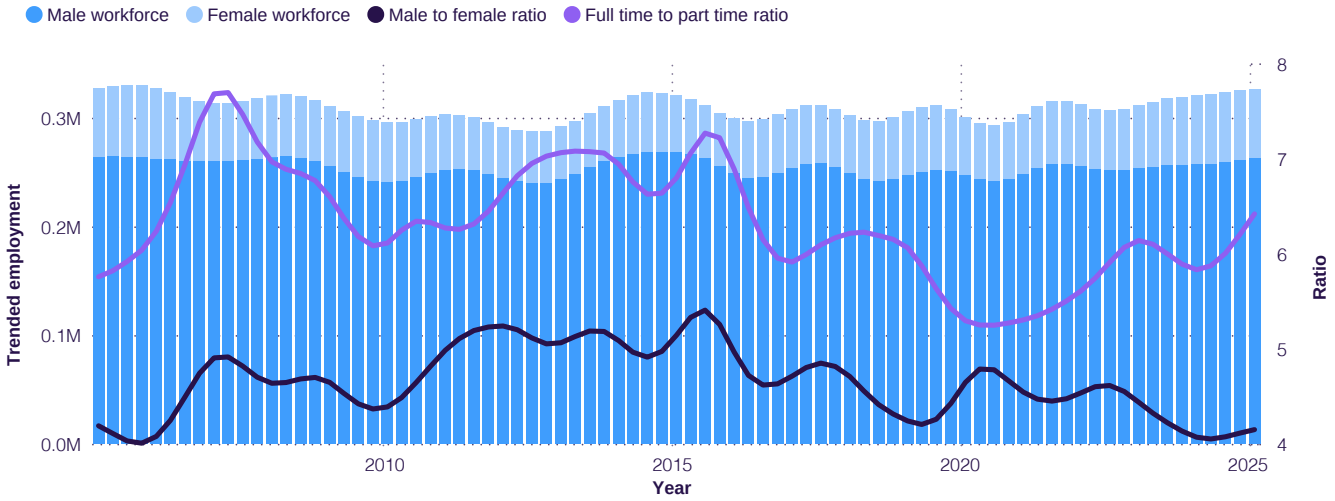
Projected growth over next decade	% female workforce
6%	17%

Median age	% workforce aged 24 or younger	% workforce aged 60 and above
40	15%	11%

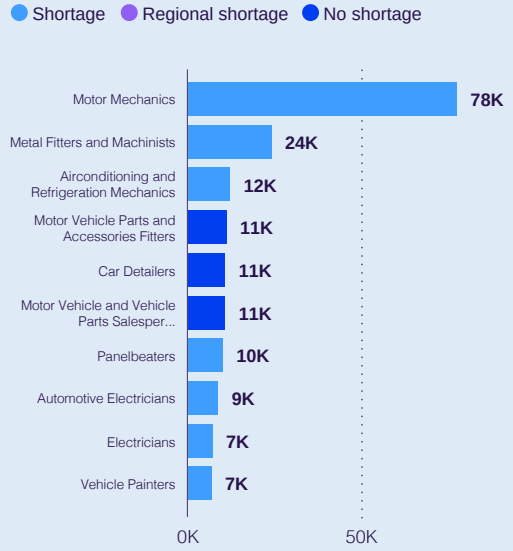
Training package status by state/territory of residence



Trends in employment by gender and work type



Top 10 ANZSCO occupations by workforce number



15 List of data source are in the Appendix 'Workforce Data Dashboard'.

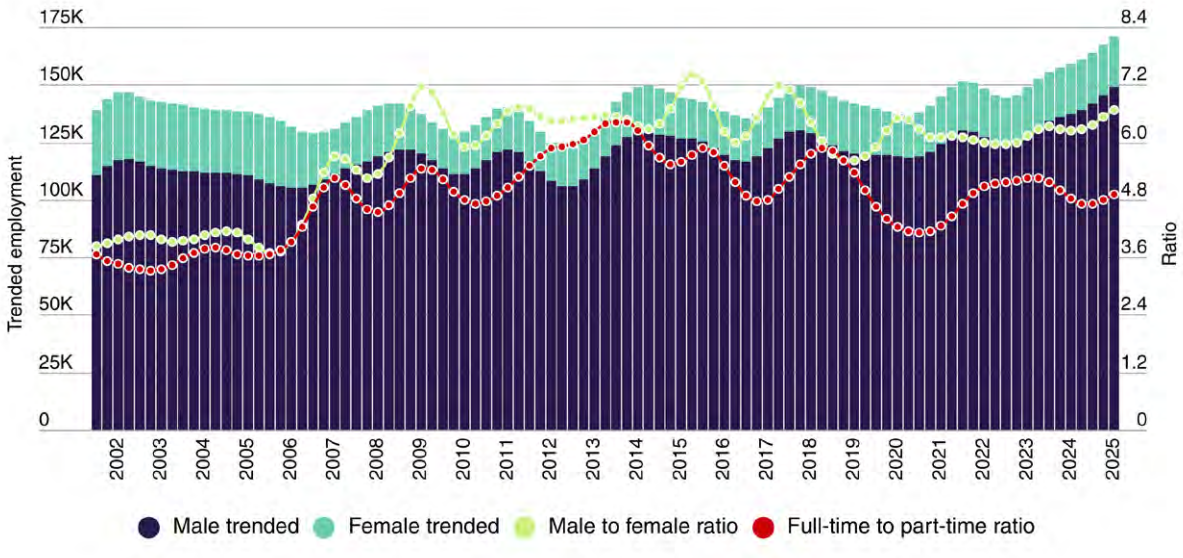
Automotive Repair and Maintenance

In the Automotive Repair and Maintenance sector, employment is at a 4-year high with 171,000 employees, driven by increases in male and full-time employment (Figure A3).[16,17] The sector, however, faces a skewed age distribution, with a median age of 38 and 25% of workers aged 51 or older, posing a risk of Skill shortages as older workers retire. The sector also faces challenges with retaining apprentices and gender diversity issues. In particular, there was a rise in the ratio of male to female workers following the 2009 Global Financial Crisis (GFC). A less diverse labour pool can add to skill shortages, illustrated by the sector experiencing the largest increase in vacancies in the industry from 2021 to 2023.

> Female participation in the Repair and Maintenance sector has remained largely consistent in recent years.

The ratio of male to female workers was around 4:1 prior to the 2009 GFC, after which it increased to roughly 7:1 and has remained at this level into 2025. This suggests the sector may now need to make more significant changes to improve female workforce participation.

Figure A3: Composition and employment trends in Automotive Repair and Maintenance, 2001–2025



Source: ABS, Labour Force, Australia, Detailed, Feb 2025*. Data Trended by AUSMASA.*

16 From February 2018 to August 2024, female workers increased by 11%, or by approximately 2,300 workers. During the same time period, part-time workers also increased by 5%, or by approximately 10,500 workers.

17 Please refer to our dashboard for Automotive Repair and Maintenance for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/c0iltsyo/94-automotive-repair_maintenance.pdf

A younger workforce

Across both census years, the age distribution for Automotive Repair and Maintenance workers was skewed towards younger workers, with a median age of 39 (Table A2). In contrast, the median age of all Australian workers was 42, which was also the same in both censuses.[18] However, 25% of workers are aged 51 years or older, and the sector continues to grow. Skill shortages become increasingly likely as older workers transition to retirement, noting that the average age of retirement was 57 for all workers in 2023.[19] Research commissioned by AUSMASA shows that around 60% of all automotive workers plan on remaining in the industry for 5 years or less, with existing Automotive Technicians and other trade workers reporting lower intentions to remain.

On the other hand, 25% of the sector's workers were 27 years old or younger as of the 2021 Census. Given the median age of apprentices in VET was 22 in 2021, and that most trade occupations are completed via apprenticeship pathways, apprentices are well-represented in this part of the workforce.[20] Yet, while 56% of apprentices have reported that they intend to remain in the industry for over 5 years in AUSMASA's research, only 21% saw themselves in the industry for their entire careers, compared to 44% for all automotive workers.

Some specific issues apprentices face may contribute to this. For example, their having to re-learn skills already gained from work experience at RTOs or TAFEs, potentially due to insufficient recognition of prior learning (RPL), may play a part.[21] Given apprentices' relative youth, their importance to the sector, and younger workers' higher rates of job mobility,[22] attrition amongst these workers is a likely risk. As such, the sector must prioritise retaining apprentices and younger workers, particularly since they can contribute more working years over time.

Table A2: Age distribution of the Automotive Repair and Maintenance workforce

Percentile	2021 Census	2016 Census	Apprentices and trainees in 2024 Age at the completion
25th	27	27	20
50th (median)	39	39	22
75th	51	51	27

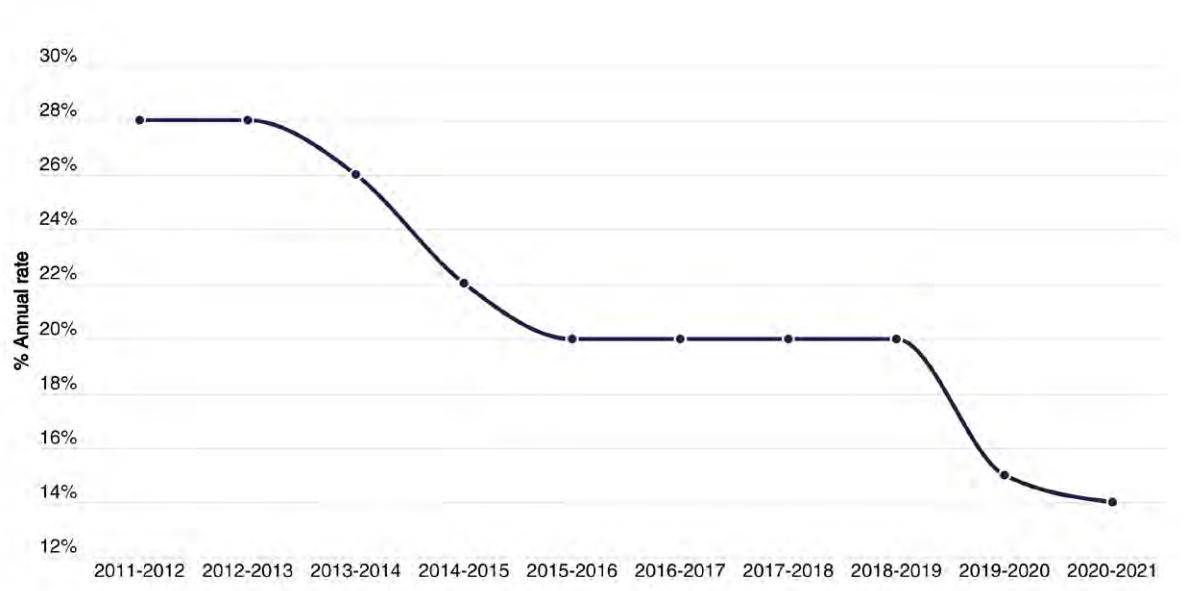
Source: 2021 Census – counting persons, 15 years and over; 2016 Census – Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees – June 2024, Age by type of training by reporting period and training contract status.

18 Australian Bureau of Statistics, "Employment in the 2021 Census | Australian Bureau of Statistics," www.abs.gov.au, 30 November 2022.
19 Australian Bureau of Statistics, "Retirement and Retirement Intentions, Australia, 2020-21 Financial Year | Australian Bureau of Statistics," www.abs.gov.au, 29 August 2023.
20 AUSMASA, "2023 and 2021 Apprentices," AUSMASA.org.au, 2025.
21 National Centre for Vocational Education Research, "Exploring the Recognition of Prior Learning in Australian VET," 2020.
22 Australian Bureau of Statistics, "Job Mobility, February 2021 | Australian Bureau of Statistics," www.abs.gov.au, 30 June 2023.

Falling labour turnover

Labour turnover fell to a series low of 14% (-14%) in 2020–21 (Figure A4). Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates that the workforce increasingly prefers to stay in the sector. Within the automotive industry, the Repair and Maintenance sector's labour turnover tended to be lower than that of other sectors within the industry. AUSMASA will continue to research what is needed to further reduce turnover and improve retention.[23]

Figure A4: Turnover in Automotive Repair and Maintenance, 2011–2021



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job adverts for key occupations in the Automotive Repair and Maintenance sector have steadily increased following the COVID-19 pandemic, rising by 14,000 (+81%) from January 2021 to March 2023. This trend later reversed, with a decrease of 5,800 (-20%) from March 2023 to October 2024.

23 Labour turnover is computed from data and research made available by JSA through their publication on Occupation Mobility – the data only goes up to 2020-21

Table A3: Top 5 Automotive Repair and Maintenance occupation growth in vacancies

Occupations	Workforce numbers in 2021 Census	5-yr changes in IVI	Included in CSOL?	Shortage
Motor Mechanics (Automotive Technician)	46,000	55.69%	Yes	S
Panel Beaters[24]	9,000	177.55%	Yes	S
Car Detailers	7,000	74.34%	No	No data
Vehicle Painters	7,000	155.36%	Yes	S
Motor Vehicle Parts and Accessories Fitters	5,000	101.87%	No	NS

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Automotive Repair and Maintenance snapshot *in the Workforce Plan 2024, including* Core Occupation Skills List (CSOL) *and* Occupation Shortage List.

Notes: S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

Employers' ability to fill vacancies is a primary measure of an occupation shortage used in Jobs and Skills Australia (JSA) and industry research, with a fill rate of less than 67% associated with a higher chance of occupation shortages.[25] For example, JSA's research has found that occupations with 90% plus male workers, like those of automotive engineering and trades workers, have the lowest fill rates of any group at ANZSCO's sub-major-group level from 2021 to 2023.[26] Research from JSA and industry has found that these occupations, at ANZSCO's second lowest unit-group level, had some of the lowest fill rates of any occupations in their research. This was also associated with gender disparities, as 99% of Automotive Electricians, 98% of Automotive Technicians, and 98% of Panel Beaters were male by share of employment in 2021.[27] These low fill rates make sense when compared to increases in average vacancies from 2021–23. Further research is needed to better understand how to improve female participation in these occupations.

According to the Australian Automotive Aftermarket Association (AAAA), about 43% of service and repair workshops were non-employing (or sole operator) businesses in 2023. The number of non-employing businesses increased by 12 percentage points from 2021 to 2023, compared to a 3-percentage point increase in the number of employing businesses.[28]

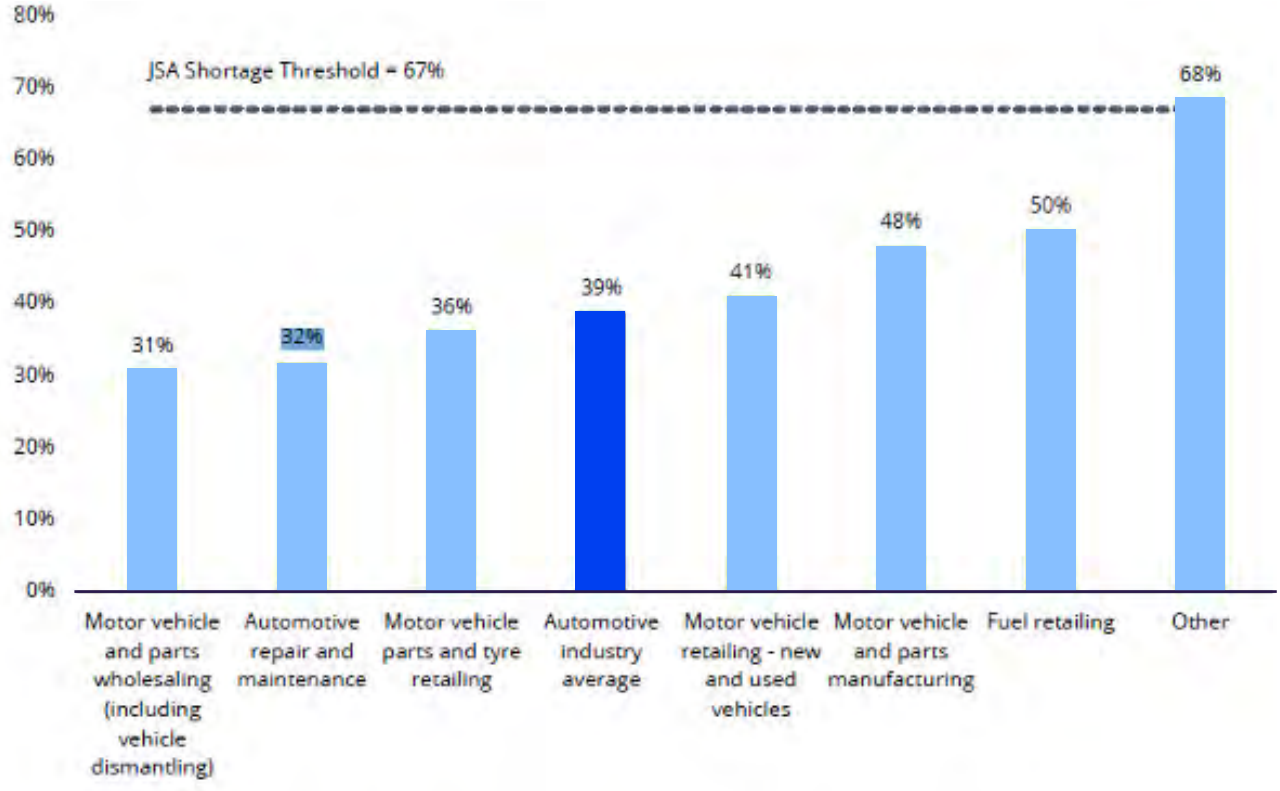
Since non-employing businesses are unable or less likely to use labour hire or online advertisements due to their cost, they often rely on word of mouth or advertisements placed on the door to secure additional staff and switch to becoming employing businesses. As such, their vacancies are not always captured in larger systematic studies and data can only be gained from industry-specific surveys, like the Motor Trades Association of Australia's (MTAA), which show lower fill rates for 2 of these key occupations.

24 With expressed concerns around the use of the word 'Panel Beater' as the qualification is titled automotive body repair, however, we defer to the use by ANZSCO as data is currently aligned to ANZSCO classifications
25 Jobs and Skills Australia, "2024 Occupation Shortage List," 14 October 2024
26 Jobs and Skills Australia, "Labour Market Update," March 2024.
27 Jobs and Skills Australia, "Occupations," Jobs and Skills Australia, 15 October 2024.
28 Australian Automotive Aftermarket Association, "AAAA State of the Industry 2024," October 2024.

Industry research has also highlighted issues with fill rates specific to the Repair and Maintenance sector. According to the MTAA, the sector had a fill rate of only 32% in 2024, below an industry average of 39% and the second-lowest rate in this research (Figure A5).[29] While the figures differ from JSA's, it is worth noting that the occupations with some of the lowest fill rates – like Panel Beater, Automotive Electrician, and Automotive Technician – were consistent and are common to the Repair and Maintenance sector.[30] Furthermore, the MTAA identified contributing factors like too few applicants, inadequate qualifications or experience, and inter-industry competition.[31]

This issue extends to EVs, where industry discussions continue on restricting Repair and Maintenance work to those with electrical or dual trades experience and VET qualifications. Since many such occupations, like Automotive Technician, are also important to the wider industry, intra-industry competition may contribute to the sector's low fill rates.[32] AAAA research also supports this, with only half of an estimated 80,000 Automotive Technicians and 40% of 37,000 Automotive Technician apprentices working in the sector.[33]

Figure A5: Fill rates in the automotive industry's sectors, 2024



Source: Deloitte, "Skills shortages in the Australian automotive industry - MTAA member survey findings 2024", 1 March 2024

29 Motor Trades Association of Australia, "MTAA Core Skills Occupations List Supporting Analysis," 31 May 2024.
30 Ibid.
31 Ibid.
32 Australian Automotive Aftermarket Association, "AAAA State of the Industry 2024," October 2024.
33 Ibid.

Enrolments in AUR Automotive Retail, Service and Repair qualifications

Over time, enrolments and completions for AUR Repair and Maintenance qualifications steadily increased, with proportionally larger increases in enrolments. From 2016 to 2023, enrolments increased to 85,757 (+64%) students, while completions only increased to 26,595 (+55%) students[34]. This disparity was larger for female students, as enrolments increased by over two and a half times from 2,246 to 5,671 students, while completions roughly doubled from 623 to 1,466 students[35].

Lower growth in commencements than enrolments, and even lower growth in completions, points to a growing build-up of enrolled students taking more time to complete their studies. This is possibly caused by the low use of RPL to shorten study duration for those with prior knowledge. The AUR training package had a rate of only 14.8% or RPL utilisation in 2018 – the lowest rate of 10 packages included in The National Centre for Vocational Education Research (NCVER) research.[36] Such issues have led some AUSMASA stakeholders to call for more funding and research into RPL, similar to work previously undertaken by the Council of Australian Governments.

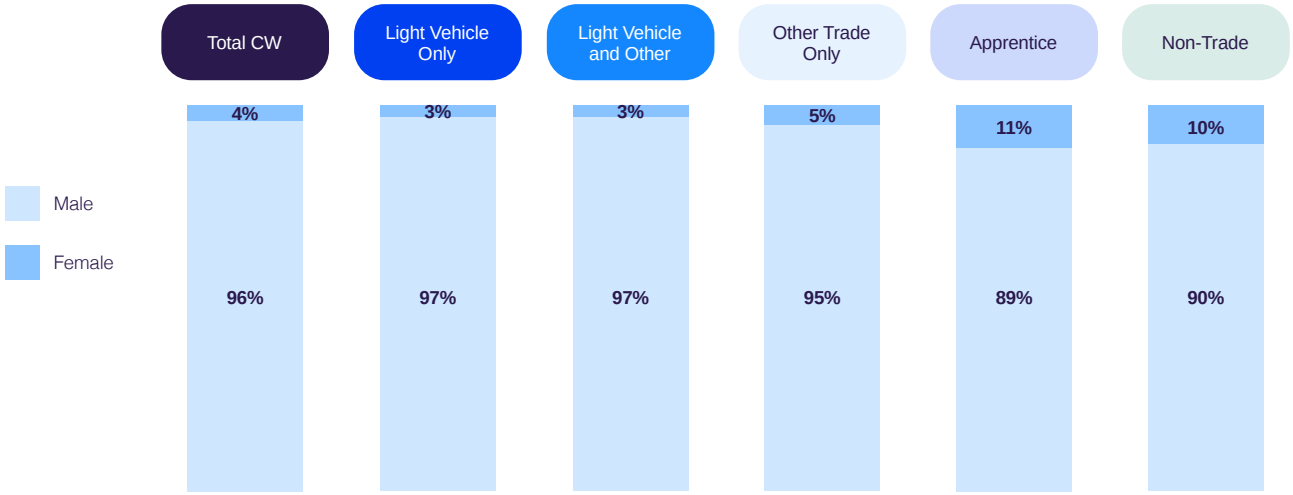
Another reason for the lengthening of the time taken to complete qualifications is illustrated by changes at the Australian Qualifications Framework (AQF) level – with shorter Certificate II level qualifications falling to 26% (-5%) of enrolments from 2016 to 2023, balanced by a similar-sized increase in longer Certificate III level qualifications, which represented two-thirds of enrolments in 2023. While these changes may not be positive for near-term supply, the former indicates that more students are studying at higher skill levels, particularly through the Certificate III in Light Vehicle Mechanical Technology, which could be of more benefit to the sector provided the qualifications are ultimately completed.

Apprentices are critical to filling key occupations in the sector, with both qualified and experienced workers.[37] The completions for Repair and Maintenance apprentices almost doubled from 3,613 in 2018 to 6,635 in 2023.[38] With moderately declining 4-year completion rates for all automotive and engineering trades apprentices, however, this points to continued challenges associated with converting students and apprentices into real supply for the industry's workforce.

34 VOCSTATS, "Total VET students and courses", August 2024.
35 Ibid.
36 National Centre for Vocational Education Research, "Exploring the Recognition of Prior Learning in Australian VET," 2020.
37 MTA Queensland, "State Election Blueprint Queensland," September 2024.
38 VOCSTATS, "Total VET students and courses", August 2024.

Although earlier data suggests that occupation and sector-specific shortages may persist, AUSMASA-commissioned research shows some promising signs of change (11% of apprentices surveyed in this research were female in 2024) (Figure A6). As apprentice roles also attracted the highest proportion of females amongst those surveyed, this suggests there are increasing numbers of entry-level opportunities for young females in the sector, given its high proportion of apprentices and a stable median age of 22 years for female apprentices in VET.[39] AUSMASA plans to continue to monitor these trends to better understand these changes.

Figure A6: Survey composition, 2024[40]



Base: all current workers (n=613), light vehicle mechanic only (n=340), light vehicle mechanic & other trade (n=112), other trade only (n=117), apprentice (n=42), non-trade (n=160)

39 AUSMASA, "2023 and 2021 Apprentices," AUSMASA.org.au, 2025.
40 Other trade is a catchall for all other categories.

Key issues identified in Automotive Repair and Maintenance

Uncompetitive wages

Many key occupations in the automotive industry require trade qualifications, but the wages for these trade-qualified workers are often lower than those in other trades. Research by the AAAA shows that apprentice Automotive Technicians earn an average of $40,000 per year, compared to $55,000 for apprentice Plumbers, Electricians, and Carpenters.[41] AUSMASA will continue to work with stakeholders and conduct research to better understand the nuances around this issue and potential solutions.

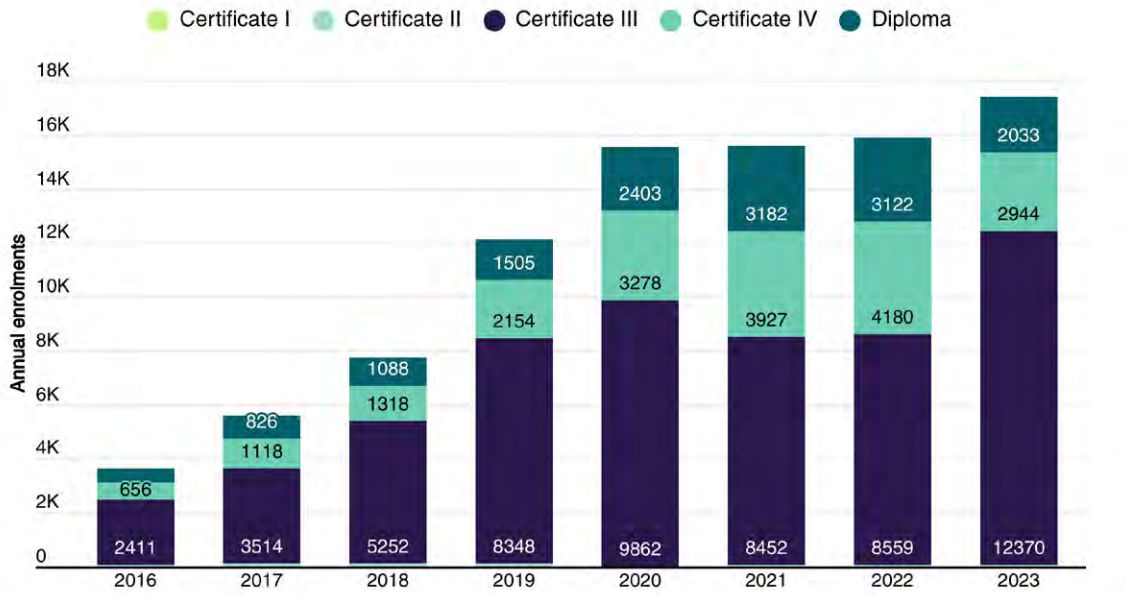
Lack of mentorship for apprentices

Training providers have expressed concerns about the lack of workplace mentorship, coaching, and support for automotive apprentices due to chronic skills shortages. Workshops are often understaffed, making it difficult to provide holistic support for apprentices, who may also need help with personal issues. This has led training organisations to feel that the responsibility of mentoring has shifted back to them.[42]

41 Australian Automotive Aftermarket Association, "Technician Salary Benchmarking Research," 2023.
42 AUSMASA, Workforce Plan 2024.

International enrolments in AUR

Figure A7: International enrolments in the AUR training package by qualification level, 2016–2023



Source: VOCSTATS, "Total VET students and courses", August 2024

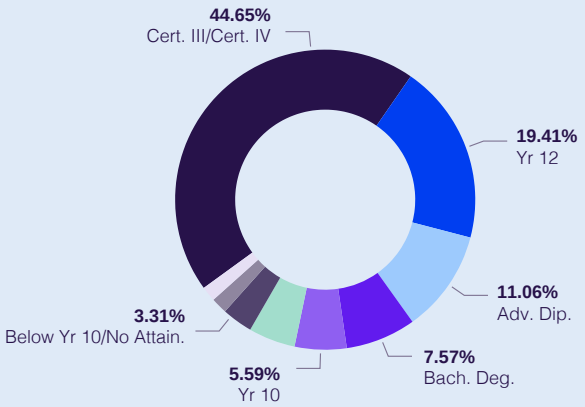
In 2023, 99% of international students were enrolled in AUR qualifications above certificate III (Figure A7). These qualifications, however, do not mandate any minimum number of practical workplace hours. International students generally cannot complete apprenticeships due to the eligibility rules requiring Australian citizenship or permanent residence.

As a result, the industry has raised significant concerns about the lack of actual, practical, and hands-on experience that international student graduates are bringing to the workforce. Many indicate that despite holding the required qualifications, international student graduates can rarely be employed as skilled Automotive Technicians.[43] AUSMASA will continue to work with industry to better understand potential solutions that can tailor entry pathways to better suit employers' needs in finding qualified workers.

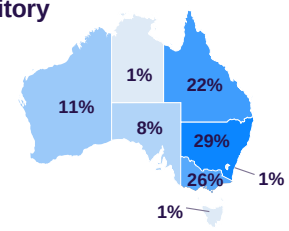
43 Ibid.

Dashboard 8: Automotive Repair and Maintenance[44]

Education level of the workforce



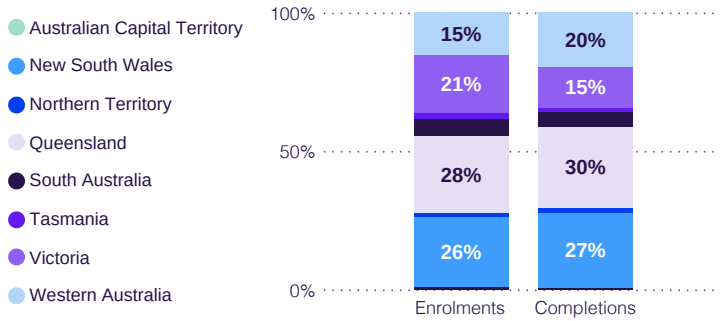
Total workforce by state/ territory



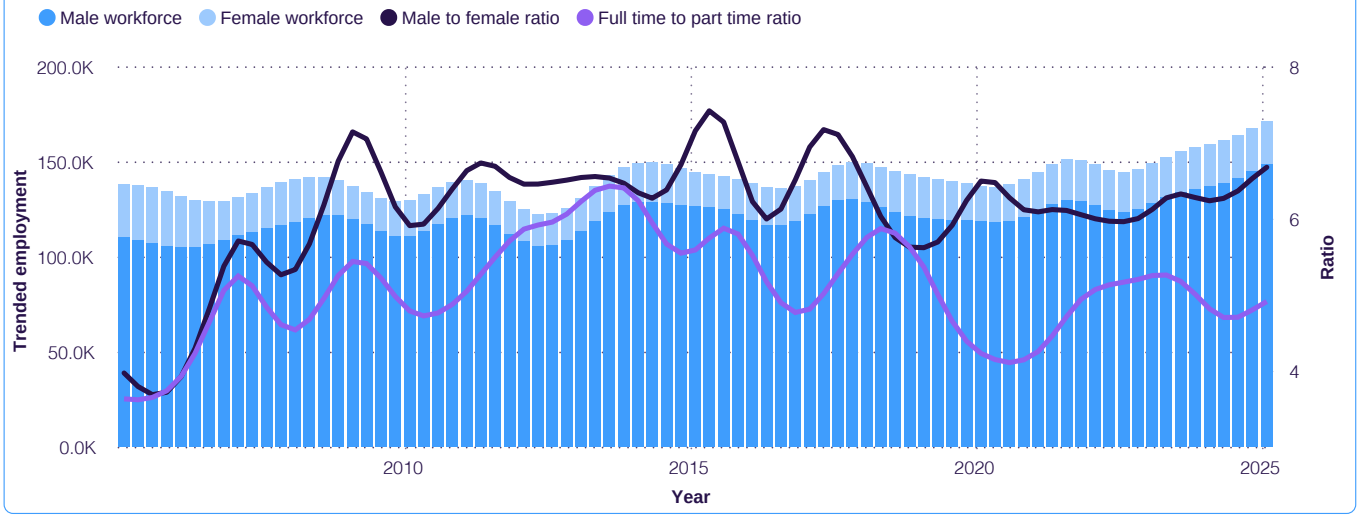
Projected growth over next decade	% female workforce
6%	13%

Median age	% workforce aged 24 or younger	% workforce aged 60 and above
39	18%	12%

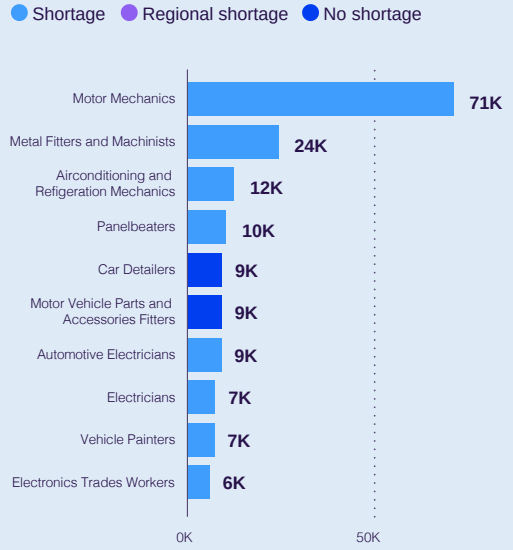
Training package status by state/territory of residence



Trends in employment by gender and work type



Top 10 ANZSCO occupations by workforce number



44 List of data source are in the Appendix 'Workforce Data Dashboard'.

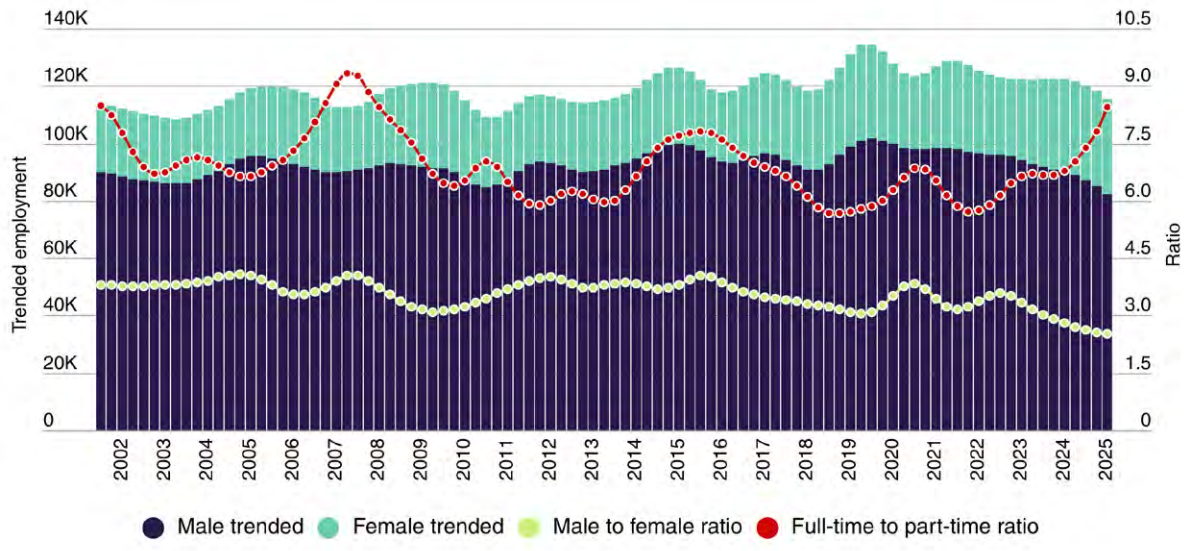
Automotive Retail and Wholesale

Although the Automotive Retail and Wholesale sector has the second-largest workforce in the industry, with 121,000 workers, it has not grown since COVID-19 (Figure A8).[45] This recent growth was driven by higher female participation across the workforce and within VET, as well as a shift in favour of more full-time roles.

> The sector faces issues with retaining existing workers in non-trades roles, as they report lower rates of intending to remain in the industry, despite high new vehicle sales and the need for workers in new digital and service-oriented roles.

Latest industry research suggests an increasing proportion of females in the industry have shifted out of retail and office roles and into working 'on the tools'.[46] This is likely driven by the greater flexibility of work offered by automotive retail compared to office-based sales or retail jobs, for example.

Figure A8: Composition and employment trends in Automotive Retail and Wholesale, 2001–2025



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. *Data trended by AUSMASA*

45 Please refer to our dashboard for Automotive Retail and Wholesale for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/2mrjokmz/3539-automotive-retail-and-wholesale.pdf

46 Capricorn, "State of the Nation," Capricorn.coop, 2024.

On the brink of an ageing workforce

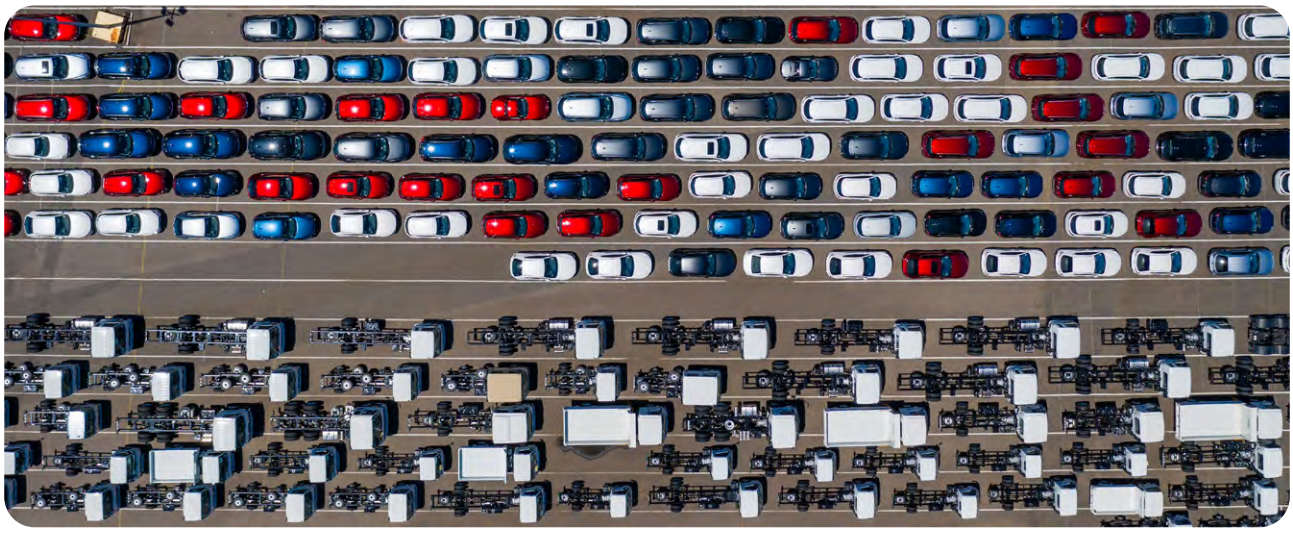
As of the 2021 Census, the median age of workers in the Automotive Retail and Wholesale sector was 40, comparable to the median age of 42 for all Australian workers in Census 2021 (Table A4).[47] While 25% of the sector's workforce was aged 52 and over, retirement poses less of a risk as the sector's non-trade roles are less physically demanding.[48] This enables older workers to remain in the sector for longer, reporting lower rates of job mobility that are often associated with health and reskilling, as they approach retirement.[49]

The size of the Automotive Retail and Wholesale workforce has continued to decline, and growth is predicted to moderate over future years. By comparison, 25% of the sector's workforce was 29 years old or younger in the 2021 Census, which was also one year older than in the 2016 Census (Table A4). As the sector continues to transition from traditional sales to more digital and service-oriented roles, with more online vehicle purchasing and customisation, younger workers will shift to new and emerging roles. Given younger workers have higher rates of job mobility, however, retention could become problematic.[50] Research commissioned by AUSMASA looks to support this view, given only 34% of automotive workers in non-trade roles saw themselves in the industry for their entire careers, compared to 44% for all automotive workers.

Table A4: Age distribution of the Automotive Retail and Wholesale workforce

Percentile	2021 Census	2016 Census	Apprentices and trainees in 2024 Age at the completion
25th	29	28	20
50th (median)	40	39	24
75th	52	50	31

Source: 2021 Census – counting persons, 15 years and over; 2016 Census – Counting Employed Persons, POW; NCVER VOCSTATS, Apprentices and trainees – June 2024, Age by type of training by reporting period and training contract status.

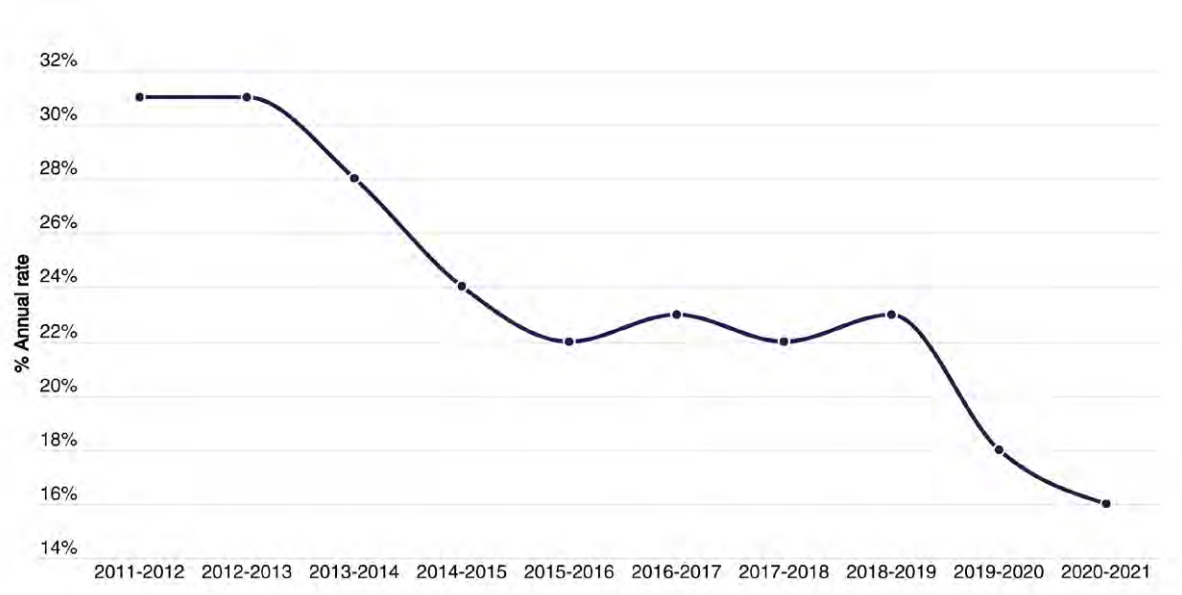


47 Australian Bureau of Statistics, "Employment in the 2021 Census | Australian Bureau of Statistics," www.abs.gov.au, 30 November 2022.
48 Capricorn, "State of the Nation," Capricorn.coop, 2024.
49 Australian Bureau of Statistics, "Left or Lost a Job," www.abs.gov.au, 24 May 2022.
50 Australian Bureau of Statistics, "Job Mobility, February 2021 | Australian Bureau of Statistics," www.abs.gov.au, 30 June 2023.

Falling labour turnover

Labour turnover in the sector fell to 16% (-15%) in 2020–21 (Figure A9). Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates that the workforce increasingly prefers to stay in the sector. Although positive, the sector's turnover started from a higher level and did not fall as low as that for all other industries, illustrating that its turnover was slightly above 'average.' Within the automotive industry, the retail and wholesale sector's labour turnover started and remained at a higher level compared to all other sectors within the industry. AUSMASA will continue to work with stakeholders to identify learnings from the sector on reducing labour turnover.[51]

Figure A9: Turnover in Automotive Retail and Wholesale, 2011–2021



Source: JSA, Data on Occupation Mobility, Jan 2024; Key occupations by sub-industry mapped by AUSMASA.

51 Labour turnover is computed from data and research made available by JSA through their publication on Occupation Mobility – the data only goes up to 2020-21

Job adverts in the Automotive Retail and Wholesale sector have steadily increased following the COVID-19 pandemic, rising by 9,300 (+74%) from January 2021 to March 2023 (Table A5). This trend later reversed, with a decrease of 5,000 (or -23%) from March 2023 to October 2024.

Table A5: Top 5 Automotive Retail and Wholesale occupation growth in vacancies

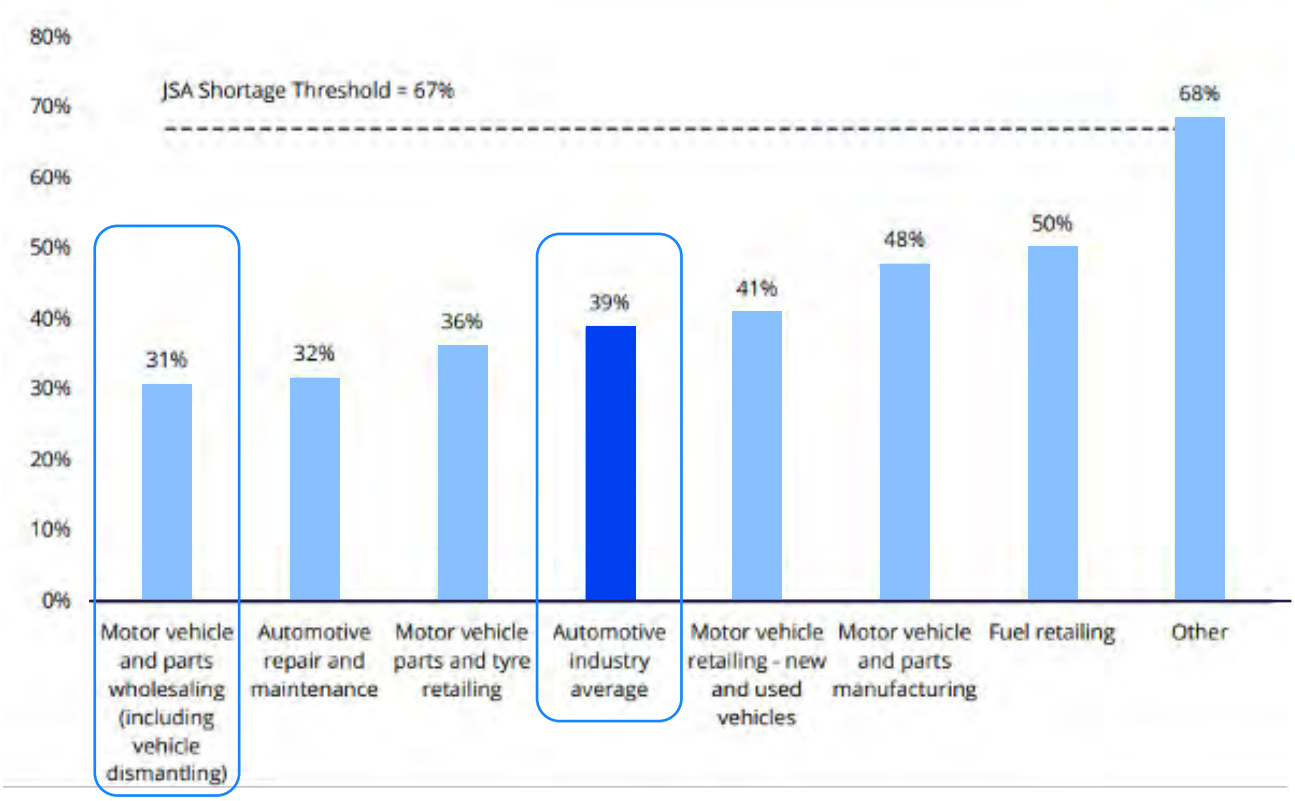
Occupations	Workforce numbers in 2021 Census	5-yr changes in IVI	Included in CSOL?	Shortage
Motor vehicle and vehicle parts salespersons	23,000	63.28%	No	NS
Motor Mechanics (Automotive Technician)	14,000	55.69%	Yes	S
Car Detailers	4,000	74.34%	Yes	No data
Sales representatives	3,000	17.79%	No	NS
Storepersons	3,000	67.27%	No	NS

Source: JSA, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Automotive Retail and Wholesale snapshot in the Workforce Plan 2024, including Core Occupation Skills List (CSOL) and Occupation Shortage List.

Notes: S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

Employers' rates of recruitment difficulty and ability to fill vacancies are 2 key measures of skill shortages used in JSA and industry research, with a fill rate of less than 67% associated with a higher chance of occupation shortages (Figure A10).[52] Recruitment difficulty increased in roles against Automotive Retailing, but decreased in roles across the automotive wholesale sector.[53] Industry-specific research from the MTAA, however, looks to go against the broader division-level trends, with fill rates for the automotive wholesaling subsector 10 percentage points lower than those for the Automotive Retailing sector.[54] Since an inverse relationship between recruitment difficulty and fill rates can usually be expected,[55] both JSA and industry research suggest the automotive wholesaling subsector faces greater difficulties with recruitment and vacancies than Automotive Retailing and retail trade more broadly.

Figure A10: Fill rates in the automotive industry's sectors, 2024



Source: Deloitte, "Skills shortages in the Australian automotive industry - MTAA member survey findings 2024", 1 March 2024

Similarly, JSA data at ANZSCOs second lowest unit group level partially differs from more detailed industry data. For example, customer service managers had fill rates of 79%[56] according to JSA and 78%[57] according to MTAA. All sales representatives had a 69% fill rate in JSAs research,[58] compared to fill rates in MTAA's industry research of 48% for sales representatives (motor vehicle parts and accessories), 56% for motor vehicle parts interpreter and automotive parts salespersons, and 78% for motor vehicle or caravan salespersons.[59]

52 JSA, "2024 Occupation Shortage List," 14 October 2024.
53 JSA, "Labour Market Update," March 2024.
54 Deloitte Access Economics, "Automotive Skills Shortages". 31 May 2024.
55 JSA, "2024 Occupation Shortage List," 14 October 2024.
56 JSA, "2024 OSL Key findings report figures and tables," 14 October 2024.
57 Deloitte Access Economics, "Automotive Skills Shortages,". 31 May 2024.
58 SA, "2024 OSL Key findings report figures and tables," 14 October 2024.
59 JSA, "Vacancy Report January 2024," 14 February 2024.

None of the sector-specific sales occupations were classified as being in a national shortage as part of JSA's Annual Skills Priority List.[60] Given the importance of these sector-specific sales occupations to Automotive Retailing and Wholesaling, their sub-67% fill rates in industry research suggest the sector faces occupation shortages that are not always visible in JSAs research.

Enrolments in AUR Retail and Wholesale qualifications

Over time, enrolments, and completions for AUR Retail and Wholesale qualifications have remained flat, with some notable fluctuations. From 2016 to 2018, enrolments decreased by 30% from 2,423 to 1,688 students and remained flat until they increased by 40% from 1,730 to 2,471 students from 2021 to 2023.[61] Female students followed the same decreasing and increasing trend, accounting for a steady average of 20% of enrolments from 2016 to 2023 – the highest proportion across all automotive qualifications.[62] By comparison, from 2016 to 2018 completions almost doubled from 246 to 480 students, remaining near this level into 2020[63]. Completions notably fell 30% to 318 students in 2021, however, and largely remained at this level into 2022, before a large 86% increase to a new high of 652 student completions in 2023.

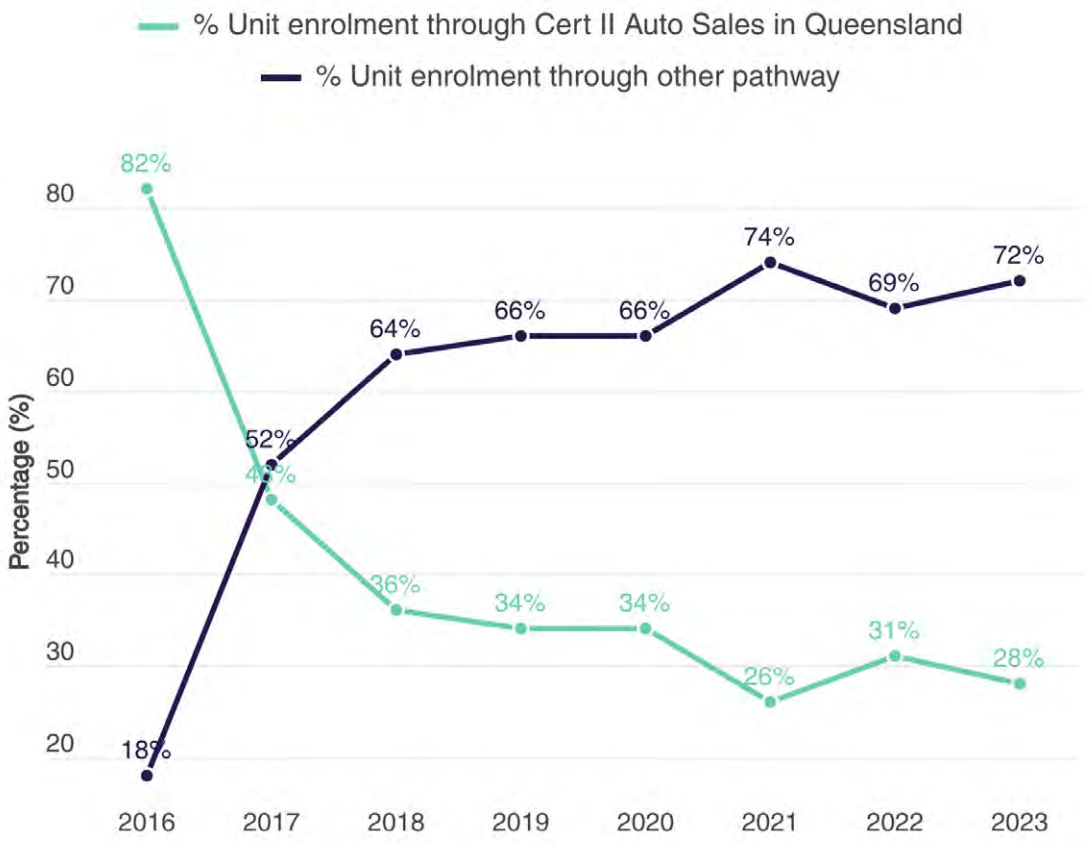
As all AUR Retail and Wholesale qualifications are at the Certificate III level, and the proportion of part-time students remained steady at an average of 96% of enrolments from 2016 to 2023, we cannot determine the exact reasons for the recent increase in completions from the data alone.[64] Increases in commencements and enrolments from 2022 onward likely contributed, with higher commencements and enrolments adding to higher completions in 2023 and future years, adding to the potential supply for the sector's workforce. We would welcome insight from industry and partners into supply and demand forces acting on the VET sector.

By jurisdiction, Queensland accounted for an outsized proportion of students (Figure A11). The state accounted for 61% of enrolments and 50% of completions on average each year from 2016 to 2023, despite only accounting for 22% of the workforce.[65]

As noted in our 2024 Workforce Plan, such discrepancies are of interest to us as they suggest mismatches between VET supply and the wider workforce. In Queensland, motor dealers are required to complete one of 2 sets of several units from Certificate III in Automotive Sales – leading to a licence – to be able to work in their occupation.[66] This requirement accounted for 92% of all student enrolments in Retail and Wholesale qualifications on average from 2016 to 2023.[67] Because Queensland only requires completion of the units for the license, however, enrolments in them via the qualification fell 54 percentage points from 82% of unit enrolments in 2016 to 28% in 2023, in favour of other pathways. As such, an increasing proportion of Queensland's students opt to avoid or withdraw from a full qualification in favour of the units only, which the state's lower proportion of enrolments and completions also looks to support. This raises questions about completing a full qualification in the state.

60 JSA, "Vacancy Report January 2024," 14 February 2024.
61 VOCSTATS, "Total VET students and courses", August 2024.
62 Ibid.
63 Ibid.
64 Ibid.
65 Ibid.
66 Queensland Government, "Apply for a Motor Dealer license", 26 November 2021.
67 VOCSTATS, "Total VET students and courses", August 2024.

Figure A11: Motor dealer unit enrolment pathway, Queensland, 2016–2023



Source: VOCSTATS, "Total VET students and courses", August 2024.

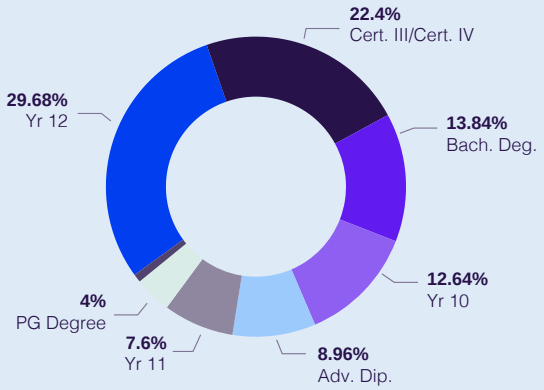
Key issues identified in Automotive Retail and Wholesale

The Automotive Retail and Wholesale sector is experiencing gradual changes in consumer behaviour and how manufacturers bring products to market. The ability to complete vehicle orders online is becoming more common, particularly among EV brands like Tesla and BYD, which have replaced traditional dealerships with company-owned stores. This shift has reduced the role of salespersons to order fulfilment in some cases. These changes highlight the evolving landscape of the Automotive Retail and Wholesale sector, driven by technological advancements and changing consumer preferences.[68] AUSMASA will continue to research and work with stakeholders to identify opportunities for workforce reskilling and redeployment.

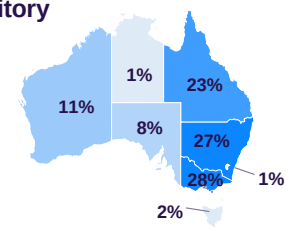
68 AUSMASA, Workforce Plan 2024.

Dashboard 9: Automotive Retail and Wholesale[69]

Education level of the workforce



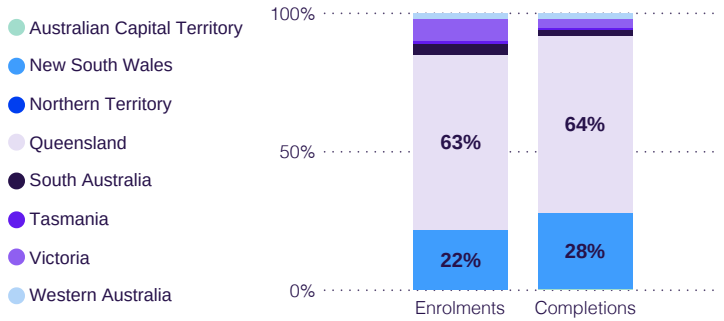
Total workforce by state/ territory



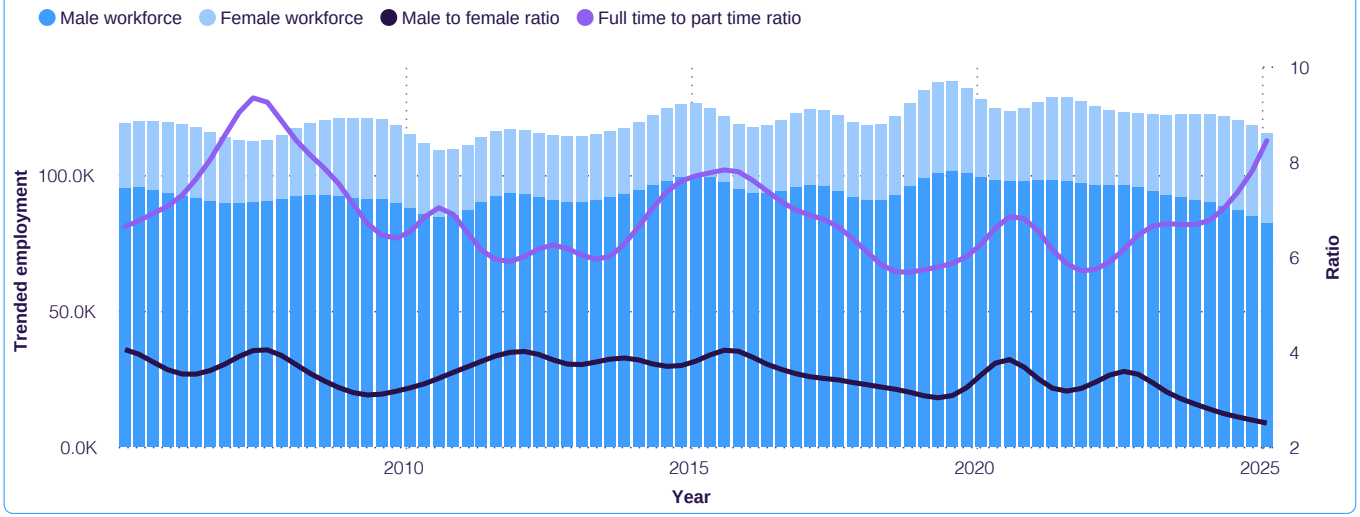
Projected growth over next decade	% female workforce
9%	24%

Median age	% workforce aged 24 or younger	% workforce aged 60 and above
40	14%	11%

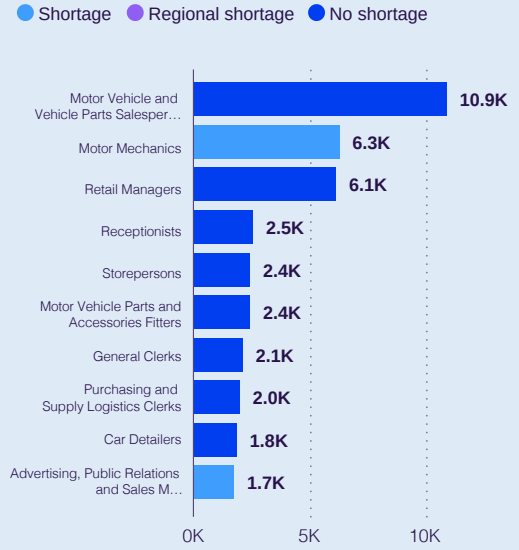
Training package status by state/territory of residence



Trends in employment by gender and work type



Top 10 ANZSCO occupations by workforce number

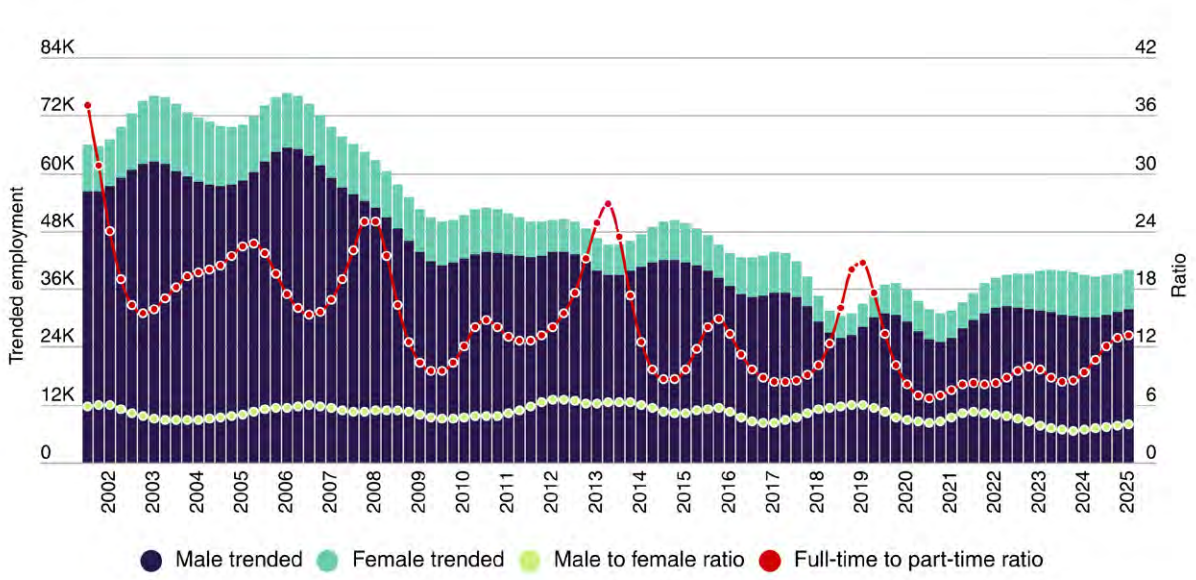


69 List of data source are in the Appendix 'Workforce Data Dashboard'.

Automotive manufacturing

The automotive manufacturing sector, employing 39,900 individuals as of February 2025, has seen a notable increase in female participation (Figure A12). The ratio of male to female workers fell from 6:1 in the early 2000s to 4:1 in 2025.[70] This sector has also shifted towards more full-time employment, which rose by 18% as part-time employment fell by 9%. Despite these positive trends, however, the sector faces challenges with an ageing workforce, as a quarter of employees are over 52 years old, indicating potential future skill shortages as workers retire. Additionally, with VET enrolments and completions remaining stable, the sector will likely require a greater contribution from VET to keep up with demand and support the shift towards specialised vehicle manufacturing and associated skills.

Figure A12: Composition and employment trends in automotive manufacturing, 2001–2025



Source: ABS, Labour Force, Australia, Detailed, Feb 2025*. Data Trended by AUSMASA.*

An ageing workforce

The median age of automotive manufacturing employees went from 43 to 42 between the 2021 and 2016 censuses, compared to the Australian median workers' age of 42 in Census 2021.[71] The stability in the median age indicates robust fill rates in the industry. Across the census years, however, the oldest quarter of the workforce was above 52 – nearing retirement. The sector's shift to manufacturing more specialised vehicles and components has required different skills and training.[72] This creates career path dependence and the potential for a retirement cliff. It also means that replacement workers have higher barriers to entry in terms of training and specialised training needs. As older workers transition into training and mentoring roles, it can affect their work experience and may cause higher attrition rates or lower productivity, causing future skill shortages (Table A6).

70 Please refer to our dashboard for Automotive Manufacturing for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/k0if0dqc/231-automotive-manufacturing.pdf

71 Australian Bureau of Statistics, "Employment in the 2021 Census | Australian Bureau of Statistics," www.abs.gov.au, 30 November 2022.

72 AUSMASA, "Industry Workforce Plan Moving Ahead Together 2024," 2024.

Table A6: Age distribution of the automotive manufacturing workforce

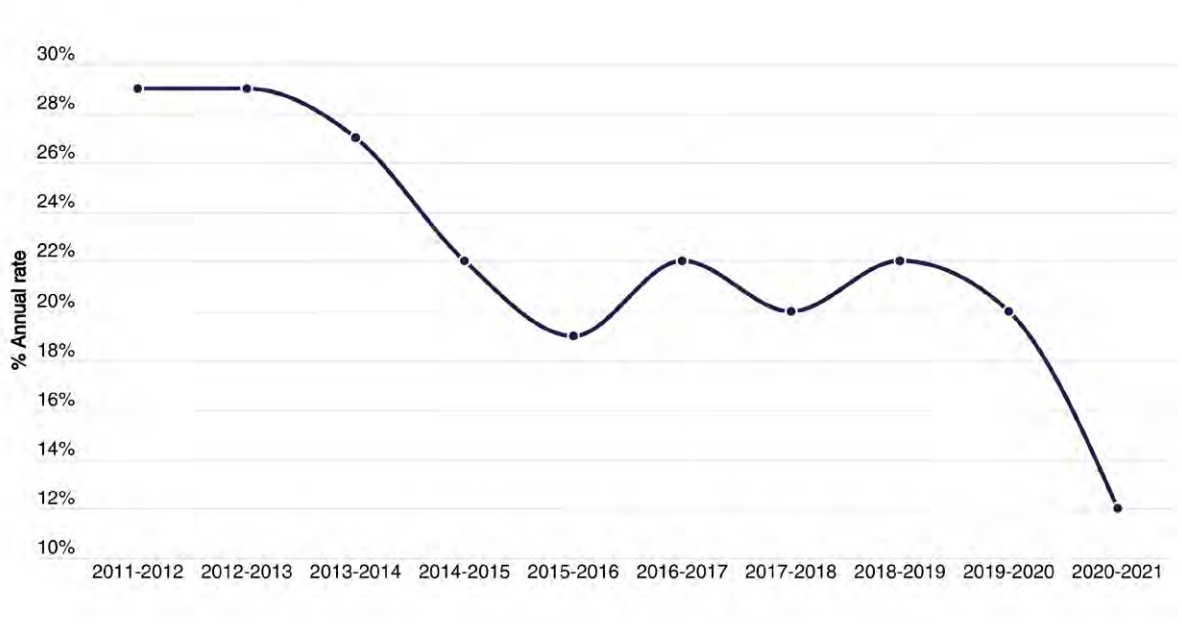
Percentile	2021 Census	2016 Census	Apprentices and trainees in 2024 Age at the completion
25th	31	33	20
50th (median)	42	43	22
75th	52	52	27

Source: 2021 Census – counting persons, 15 years and over; 2016 Census – Counting Employed Persons, POW; NCVER VOCSTATS, Apprentices and trainees – June 2024, Age by type of training by reporting period and training contract status.

Falling labour turnover

Labour turnover in the automotive manufacturing sector has fallen to 12% (-17%) in 2020–21 (Figure A13), representing the largest fall within the automotive industry. Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates that the workforce prefers to stay in the sector, and in this case, in this sector more than the rest of the industry. AUSMASA will continue to research and work with stakeholders to better understand the learnings from this falling trend, which may be activated for the broader industry and used to further reduce turnover.[73]

Figure A13: Turnover in Automotive Manufacturing, 2011–2021



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job adverts for vacancies in the Automotive Manufacturing sector have steadily increased following the COVID-19 pandemic, rising by 13,300 (+77%) from January 2021 to March 2023. Subsequently, vacancies then fell by 6,400 (-21%) from March 2023 to October 2024.

73 Labour turnover is computed from data and research made available by JSA through their publication on Occupation Mobility – the data only goes up to 2020-21.

Table A7: Top 5 automotive manufacturing occupation growth in vacancies

Occupations	Workforce numbers in 2021 Census	5-yr changes in IVI	Included in CSOL?	Shortage
Structural Steel and Welding Trades Workers	3,600	23.42%	Yes	S
Product Assemblers	2,800	27.78%	No	No data
Vehicle Body Builders and Trimmers	1,800	30.38%	Yes	S
Industrial, Mechanical and Production Engineers	1,500	40.07%	Yes	S
Metal Fitters and Machinists	1,300	45.92%	Yes	S

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Automotive Manufacturing snapshot *in the workforce plan 2024, including* Core Occupation Skills *and* Occupation Shortage List.

Notes: S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

Enrolments in AUM automotive manufacturing qualifications

Student enrolments and completions for AUM automotive manufacturing qualifications have remained stable over time. From 2016 to 2020, enrolments and completions fell to 391 (-33%) and 78 (-10%), respectively.[74] The fall in completions looks to be driven by changes at the AQF level, with the proportion of students studying Certificate III qualifications that take longer to complete increasing to 91% (+22%) from 2016 to 2018 and remaining stable into 2020.[75] However, from 2020 to 2023, enrolments and completions increased, respectively, by 551 (+41%) to 103 (+31%) students.[76] Although falls in completions may not be positive for more immediate workforce supply, it is worth noting that shifts in favour of longer, Certificate III qualifications mean students are studying at higher skill levels, which will likely be of more benefit to the sector in the long term.

By jurisdiction, Western Australia was well represented in this data, as it accounted for 27% of enrolments and 36% of completions on average from 2016 to 2023.[77] Similarly, New South Wales and Queensland both accounted for 25% of enrolments, and 29% and 26% of completions, respectively, on average from 2016 to 2023.[78] While Victoria also made up 23% of enrolments, it only accounted for 8% of completions on average over this time. In comparison, in 2016, Victoria accounted for closer to half of enrolments, while Western Australia, Queensland, and New South Wales represented closer to one-fifth of enrolments.[79] This change is of interest, as Victoria still accounts for 54% of Australia's automotive manufacturing workforce, followed by Queensland at 21%, New South Wales at 11%, and Western Australia at 9%.[80] The workforce in both New South Wales and Western Australia is smaller than the data on VET students would suggest.

74 VOCSTATS, "Total VET students and courses", August 2024.
75 Ibid.
76 Ibid.
77 Ibid.
78 Ibid.
79 In 2016, Victoria accounted for 47% of enrolments, compared to 19% of enrolments for both New South Wales and Queensland.
80 ABS, "Labour Force, Australia, Detailed", December 2024.

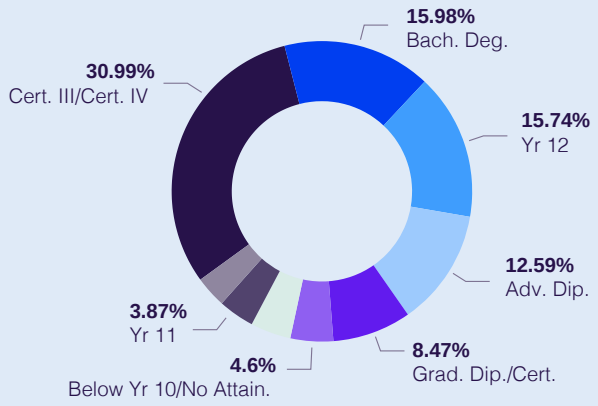
Key issues identified in automotive manufacturing

Australia's adoption of EV technology is creating new automotive manufacturing opportunities and challenges. The sector is also poised to support local EV component manufacturing, including batteries if Australia's Critical Mineral Strategy is fulfilled.[81] This would increase demand for existing skills and require new, advanced skills linked to emerging technologies, ranging from EV technicians to programming and diagnostic experts who lead the implementation and development of complex safety and driving software.

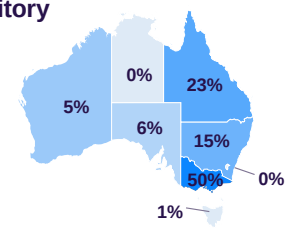
81 Mard Dean, "Rebuilding Automotive Manufacturing in Australia: Industrial Opportunities in an Electrified Future", 2022.

Dashboard 10: Automotive manufacturing[82]

Education level of the workforce



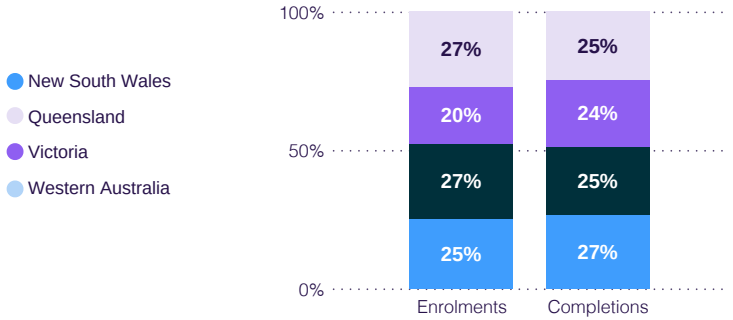
Total workforce by state/ territory



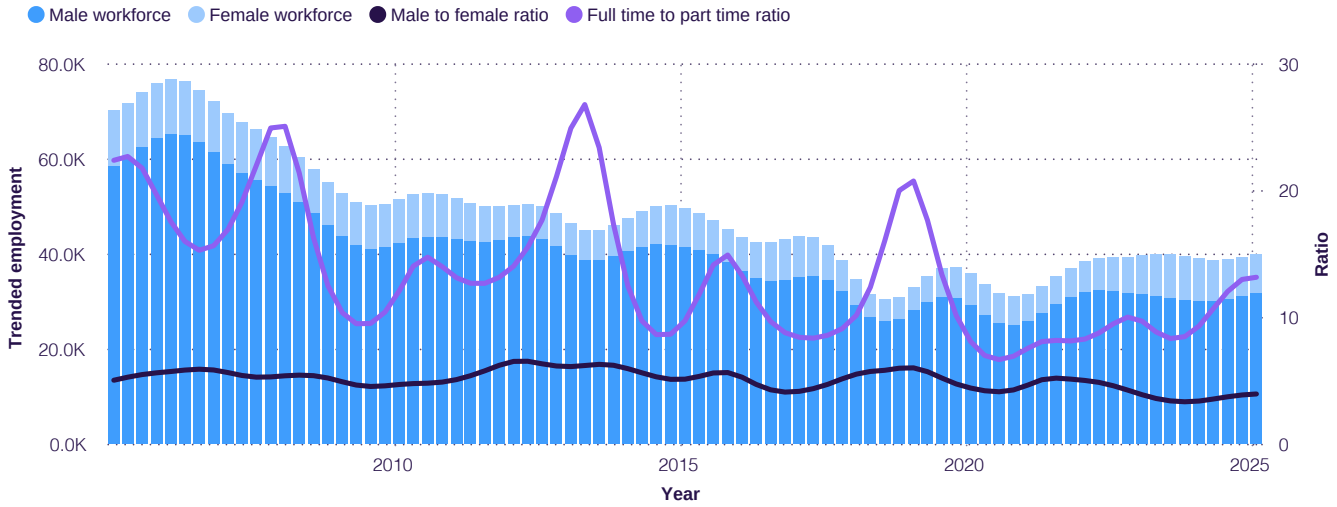
Projected growth over next decade	% female workforce
-3%	13%

Median age	% workforce aged 24 or younger	% workforce aged 60 and above
42	10%	11%

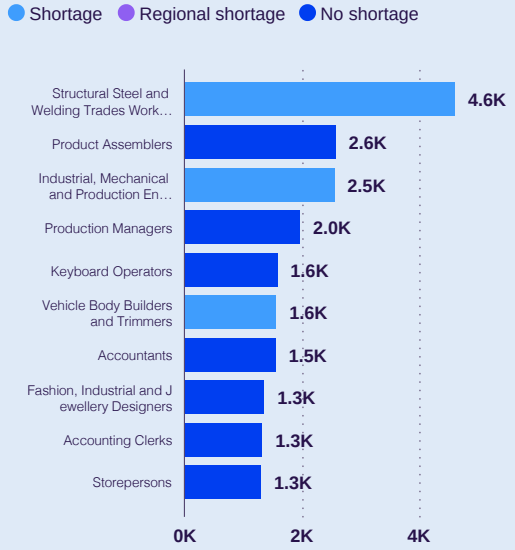
Training package status by state/territory of residence



Trends in employment by gender and work type



Top 10 ANZSCO occupations by workforce number

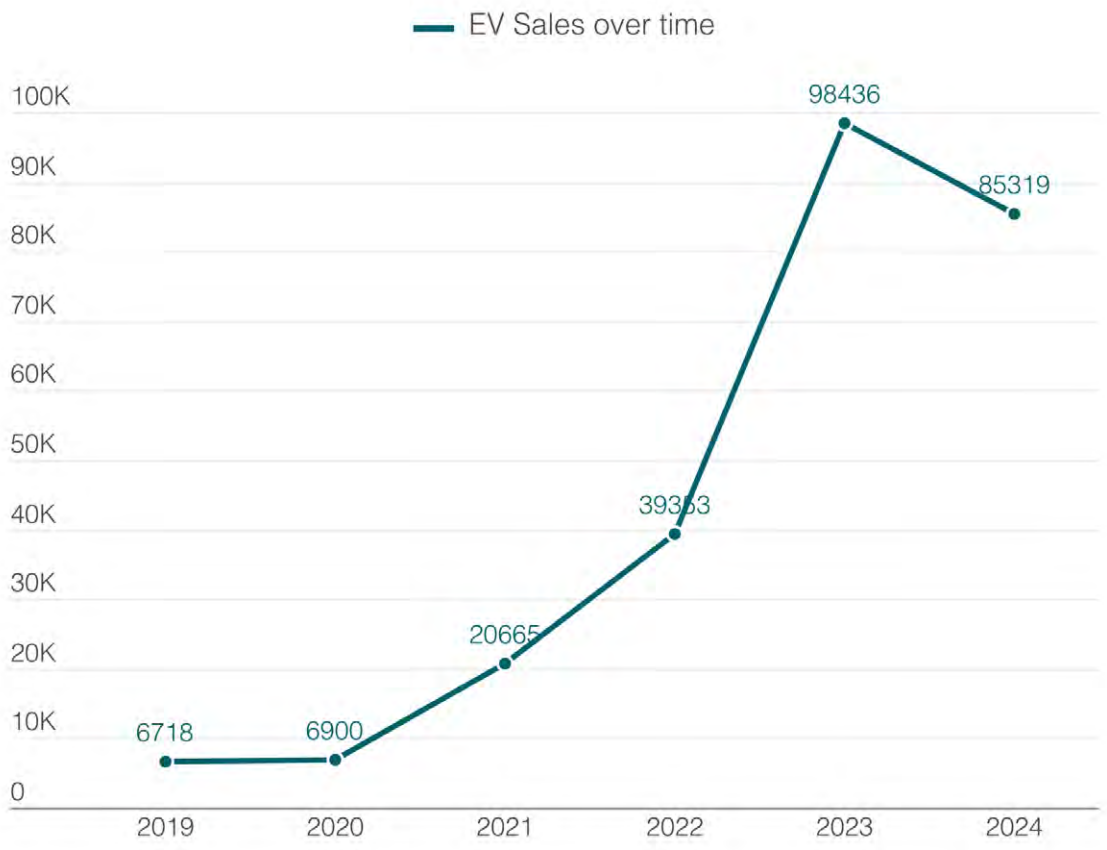


82 List of data source are in the Appendix 'Workforce Data Dashboard'.

Electric vehicles

Approximately 85,319 EVs were sold across Australia in 2024, accounting for 9.53% of all new cars purchased for the year (Figure A14).[83] The automotive industry is seeing a slow but sustained shift towards EVs or hybrid models, which align with global sustainability goals and responds to consumer demand for net zero-aligned transport solutions.

Figure A14: Annual light EV sales, 2024



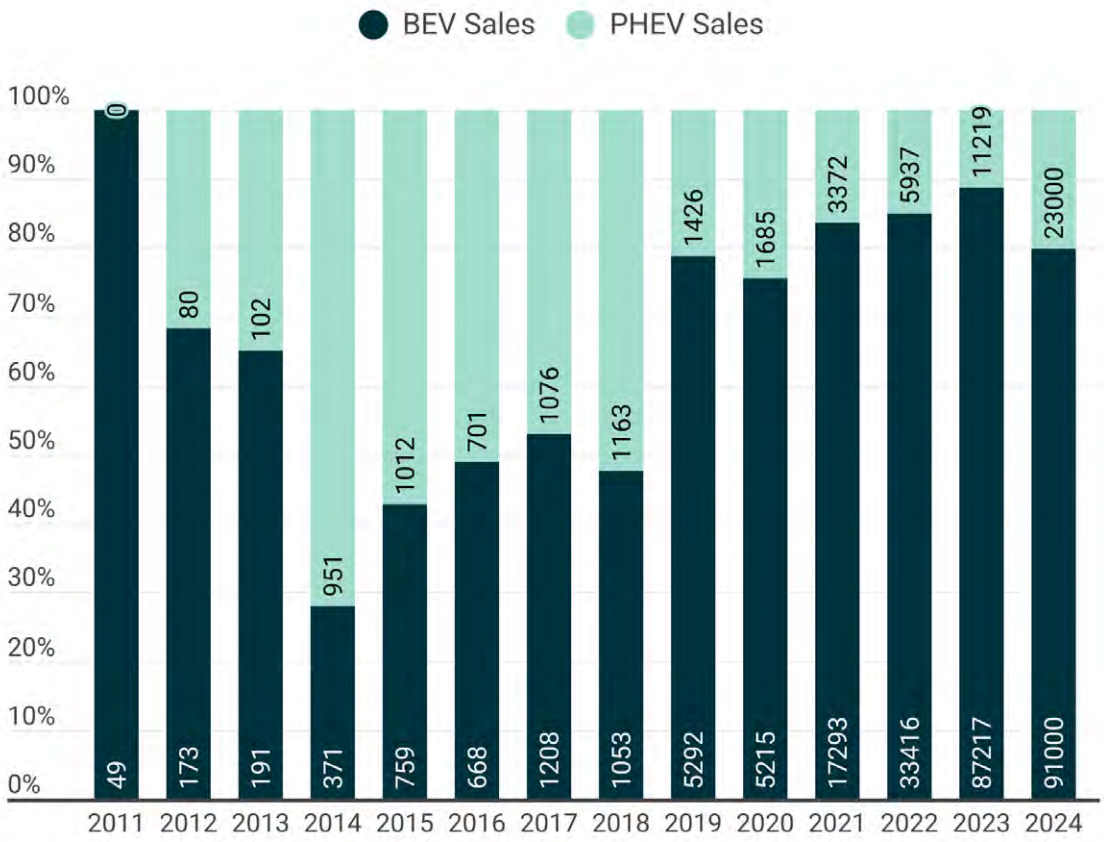
Source: Electric Vehicle Council, 'State of Electric Vehicles,' 2024. Note: the 2024 EV sales does not include data for the fourth quarter of 2024.

According to the Electric Vehicle Council (EVC), electric vehicle sales in Australia reached a record high in 2023, highlighting the growing demand for cleaner and cost-effective transportation. Data from the EVC and public sources show that about 114,000 new BEVs and PHEVs were sold in 2024 (Figure A15). This total includes around 91,000 BEVs and 23,000 PHEVs. As a result, EVs accounted for 9.65% of all new car sales, up from an 8.45% market share in 2023, showing a continuous positive trend towards the greater adoption of EVs and the transition to a lower-emission automotive market (Figure A16).[84]

Approximately 248,000 of the EVs sold to date are BEVs, while around 53,500 are PHEVs.[85] Australians have access to over 120 electric vehicle models and more than 200 variants.[86]

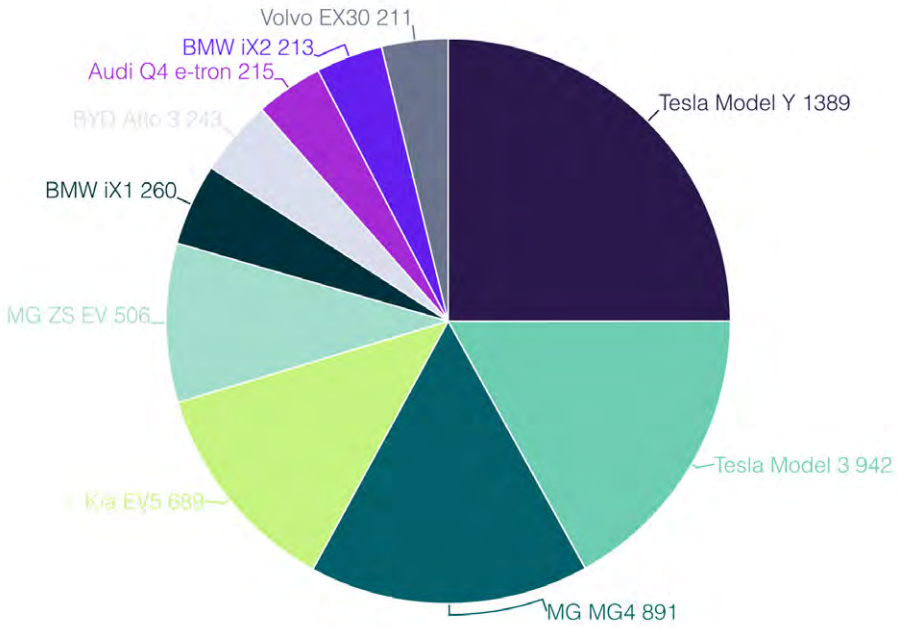
83 Electric Vehicle Council, "State of Electric Vehicles 2024 STATE of EVs | 2024," 2024.
84 Electric Vehicle Council, "2024 sets new record for EV sales in Australia", 6 January 2025.
85 Electric Vehicle Council, "State of Electric Vehicles 2024 STATE of EVs | 2024," 2024.
86 Ibid.

Figure A15: EV sales by category, 2011–2024



Source: Electric Vehicle Council, "State of Electric Vehicles", 2024.

Figure A16: EV sales by brand and model 2025



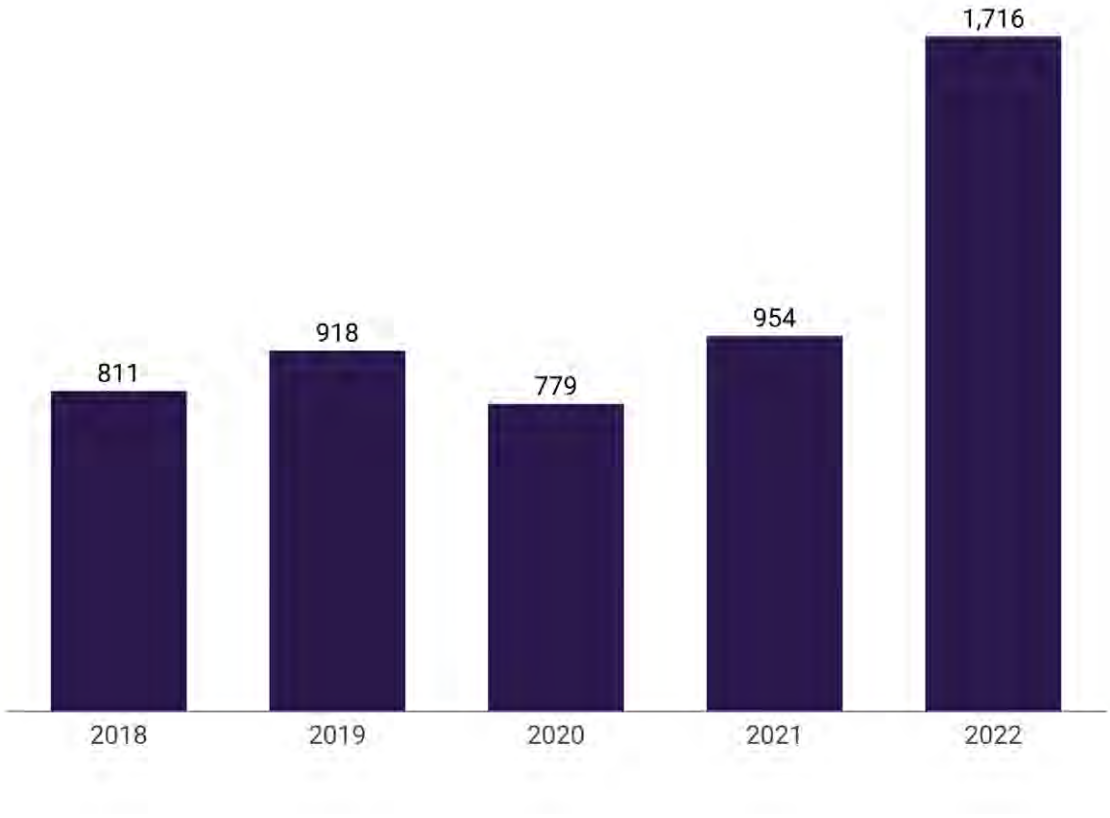
Source: The Driven, 'Australian Electric Vehicle Sales by Month and Model in 2025', 2025.

Tesla, MG, Kia and BYD models led EV sales in 2024 and will continue into 2025. (Figure A16) Collectively, they represent over 50% of annual sales.[87] The Tesla Model Y and Tesla Model 3 have an average range of 511km, while the average range of the top 5 best-selling EV models in 2025 is around 441km after a full charge.[88]

EV technicians

Activities related to EVs currently fall under ANZSCO codes, such as Automotive Electricians and EV Technicians (ANZSCO code 321111 and 233311), rather than having a distinct occupation group. An EV technician, however, is an occupation that is separate from a Motor Mechanic or more traditional technician. EV Technicians require different skills and training, as shown by the occupation's unique national training qualification. Demand for this occupation is rising in line with EV car sales (Figure A17). Under the ABS's OSCA, a separate class for EV Technicians has been introduced. This transition will provide better resolution on the occupation, however, we have summarised our findings relating to the occupation below.

Figure A17: EV technician job advertisements, 2018–2022



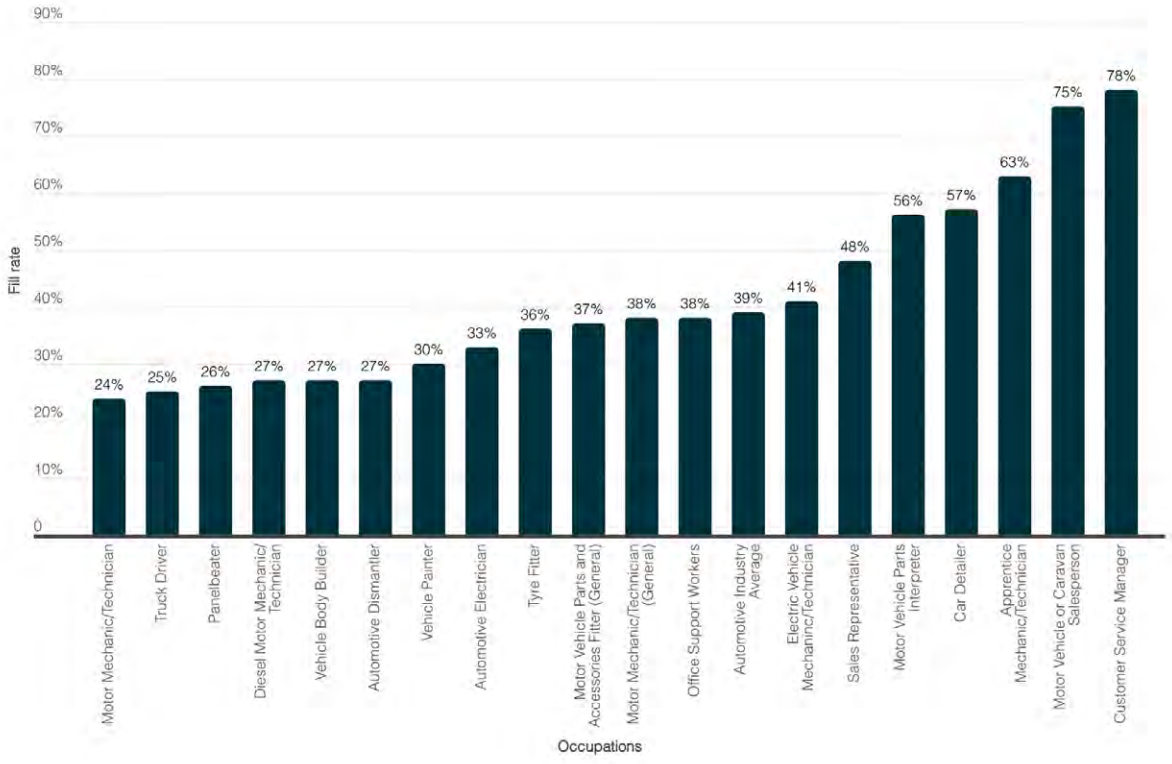
Source: Jobs and Skills Australia, "Electric Vehicle Technician", 2025. Census of Population and Housing 2021, Lightcast data 2022. Note: Workforce data is not available for this role due to small number of Australians reporting in Census 2021.

87 Plugshare. "Plugshare.,"2019.
88 Electric Vehicle Council, "State of Electric Vehicles 2024 STATE of EVs | 2024," 2024.

Occupational fill rates

The fill rates for EV Technicians (41%) also suggest that automotive businesses are having difficulties finding employees in these occupation groups (Figure A18). This means there is a growing demand for skilled workers in the EV sector, which highlights the need for targeted training and workforce development initiatives.[89]

Figure A18: Vacancy fill rates by occupation, 2024



Source: Deloitte, "Skills shortages in the Australian automotive industry - MTAA member survey findings 2024", 1 March 2024

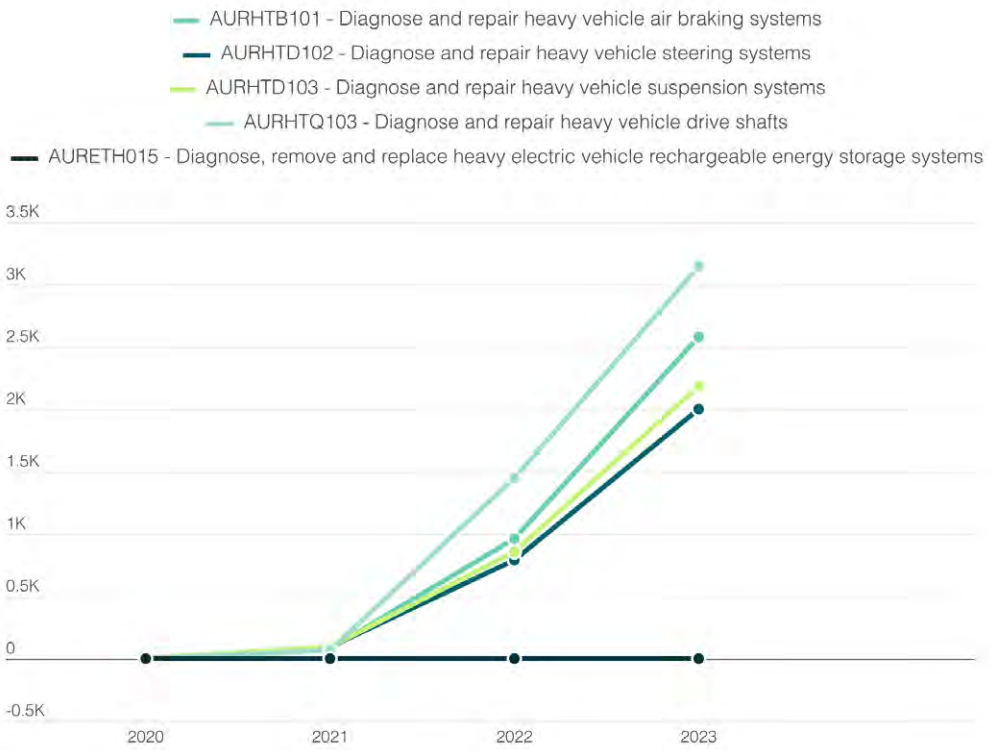
In response to the surge in the demand for EVs and the associated workforce, the Australian Government rolled out major changes to the New Energy Apprenticeships Program (NEAP) in 2022.[90] The new program is designed to equip the automotive workforce for the future and ensure the sector remains competitive amid the global transition to sustainable technologies.[91] According to the National Register on VET in Australia, these EV qualifications reflect the role of individuals who service, diagnose and repair BEVs and components in the automotive, service and repair industry and who carry out work according to Australian Standards (AS) 5732 Electric Vehicle Operations – Maintenance and Repair.

The apprenticeship vocations are[92]:

- AUR32721 Certificate III in Automotive Electric Vehicle Technology (Heavy Vehicle)
- AUR32721 Certificate III in Automotive Electric Vehicle Technology (Light Vehicle)

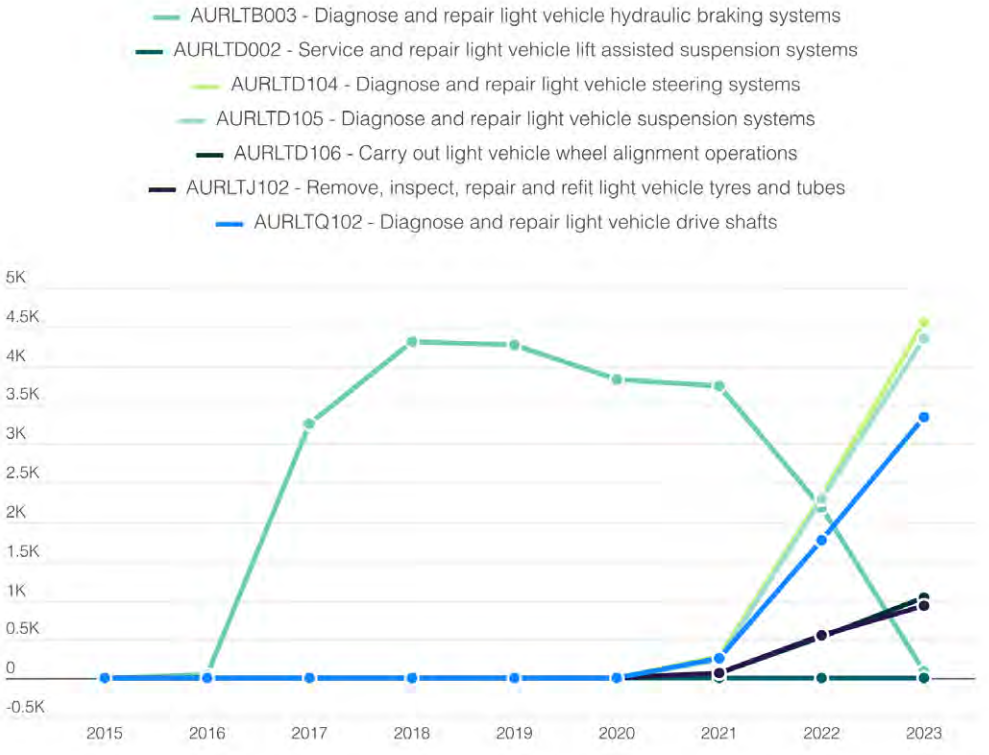
89 Deloitte, "Skills shortages in the Australian automotive industry - MTAA member survey findings 2024", 1 March 2024.
90 MTANSW, "New Electric Vehicle Apprenticeship Qualifications | MTA NSW," 17 December 2024.
91 MTANSW, "Apprenticeship program changes the right step in creating a future EV workforce', 2024.
92 MTANSW, "New Electric Vehicle Apprenticeship Qualifications | MTA NSW," 17 December 2024.

Figure A19: AUR32721 Certificate III in Automotive Electric Vehicle Technology (Heavy Vehicle) unit enrolments, 2020–2023



Source: VOCSTATS, "Total VET students and courses", August 2024.

Figure A20: AUR32721 Certificate III in Automotive Electric Vehicle Technology (Light Vehicle) unit enrolments, 2015–2023



Source: VOCSTATS, "Total VET students and courses", August 2024.

Other training and skills relevant to EVs

Below are the current qualifications and units that are becoming widely used in the EV space. In particular, AURETH101 and AURETH102, are used to upskill technicians to safely depower and reinitialise vehicles before work and after work, respectively.

National qualifications/skill sets:

AUR32721 Certificate III in Automotive Electric Vehicle Technology

AURSS00063 Battery Electric Vehicle Diagnose and Repair Skill Set[93]

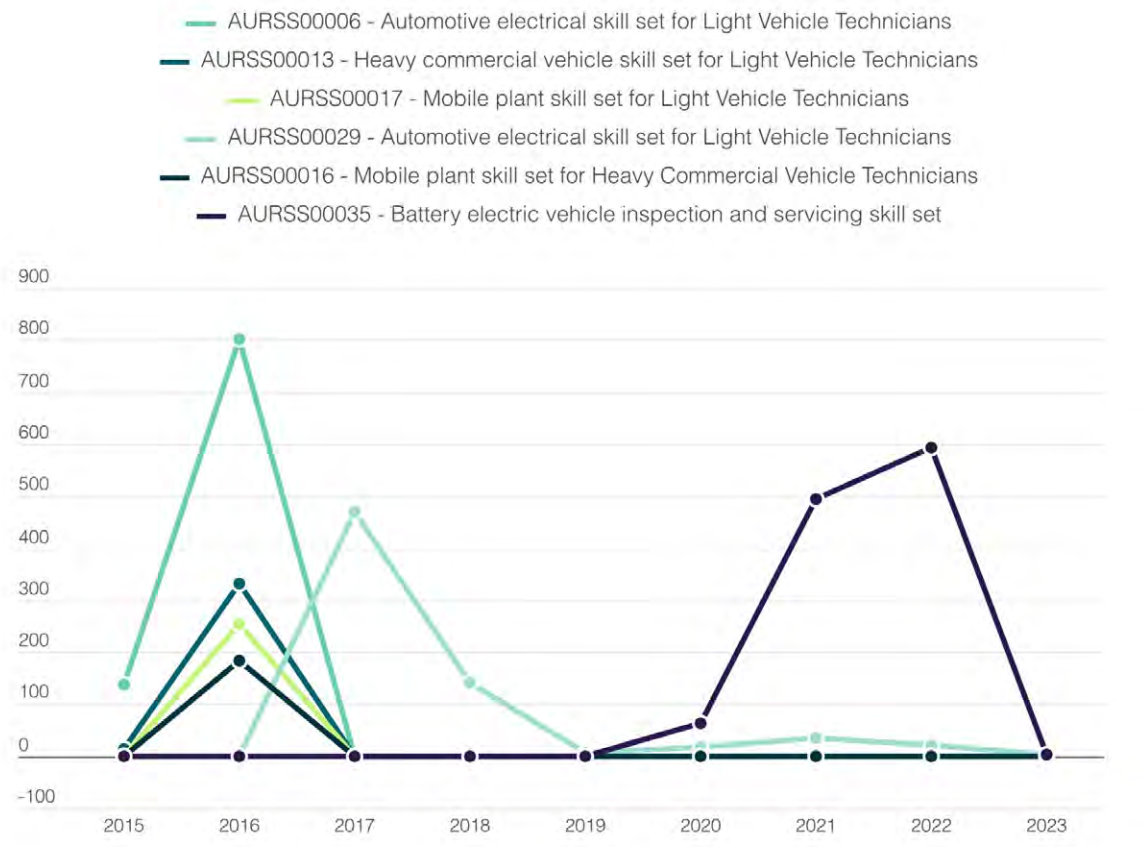
AURSS00064 Battery Electric Vehicle Inspection and Servicing Skill Set[94]

Individually delivered units:

AURETH101 Depower and Reinitialise Battery Electric Vehicles (This unit cites the AS5732:2022 Standard)

AURETH102 Inspect and Maintain Battery Electric Vehicles

Figure A21: AUR skills set enrolments, 2015–2023



*Source: VOCSTATS, "Total VET students and courses", August 2024; *AURSS00035 superseded by and equivalent to AURSS00064 in 2022.*

93 Superseded AURSS00034 Battery Electric Vehicle Diagnose and Repair Skill Set.
94 Superseded AURSS00035 Battery Electric Vehicle Inspection and Servicing Skill Set.

Licensing

In Western Australia and New South Wales, Automotive Technicians require a motor trade certificate to operate their own business. None of the above national qualifications or units are on the list of trades accepted for a New South Wales trade certificate. The Western Australia process is carried out on a case-by-case basis.

Technicians working on EVs are required to hold a motor trade certificate. The Williams review in 2020 in Queensland recommended that work on EVs be included under the *Electrical Safety Act 2002 (QLD)* and require that appropriately licensed electrical workers carry out the electrical work on the electrical components.[95] Restricted electric licencing does classify Electric Motors and HV propulsion.[96] These are not widely used in industry, however, and are not regulated as a requirement beyond Queensland.[97] To access original equipment manufacturer (OEM)-level information under the new Motor Vehicle Service and Repair Information Scheme, receiving information for EVs requires that the technician complete that AURETH101 unit (or equivalent) and upload the evidence to the Australian Automotive Service and Repair Authority (AASRA).

Qualifications and skill sets needed to maintain charging stations:

- AUR20420 Certificate II in Automotive Electrical Technology
- AURSS00063 Battery Electric Vehicle Diagnose and Repair Skill Set
- AURSS00064 Battery Electric Vehicle Inspection and Servicing Skill Set
- AUR20820 Certificate II in Outdoor Power Equipment Technology.

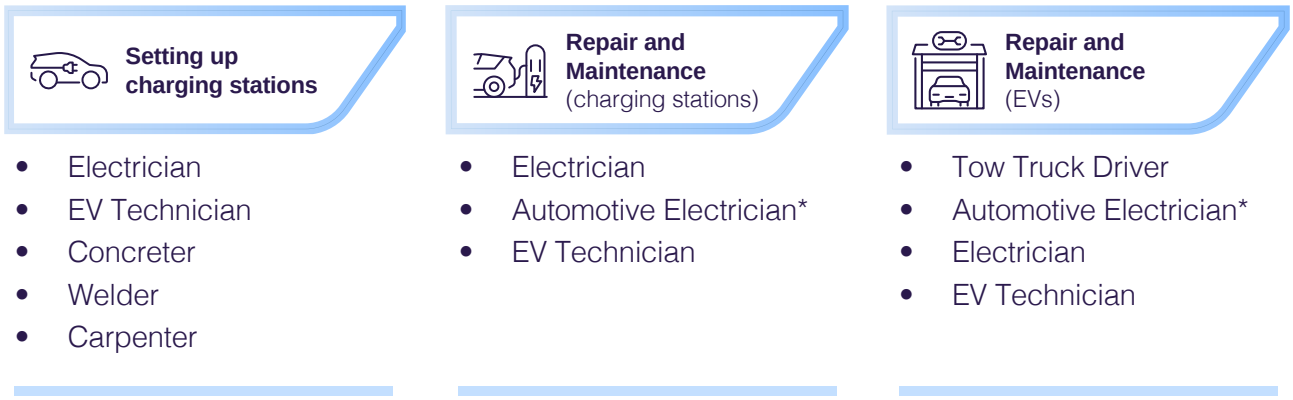
Table A8: AUR qualification enrolments, 2022–2023

Qualification enrolments	2022	2023
AUR20820 – Certificate II in Outdoor Power Equipment Technology	75	113
AUR20420 – Certificate II in Automotive Electrical Technology	228	1721
AUR32721 – Certificate III in Automotive Electric Vehicle Technology	3	67

Source: VOCSTATS, "Total VET students and courses", August 2024.

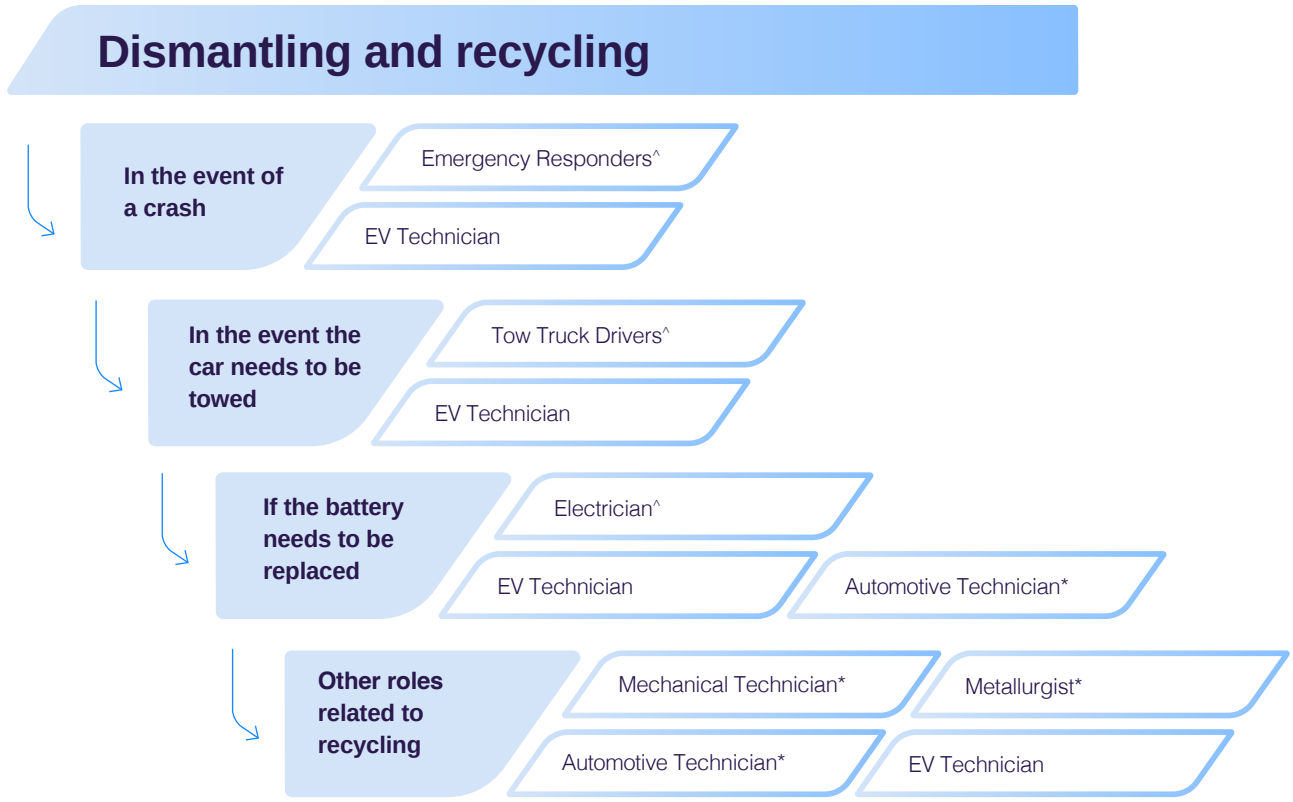
95 Office of Industrial Relations. "Electrical Safety Act 2002 Review | Office of Industrial Relations," 2020.
96 The Queensland government has released their response to the Review of the Electrical Safety Act (The Williams Review) and chose not to proceed with the review's proposal to require EV-related work to be included under the Electrical Safety Act and require a restricted electrical licence (AADA, Dealer Bulletin, 2024).
97 Including in the most relevant Australian standard (AS5732:2022), which does not require a regulator. The AS 5732:2022 Electric vehicle operations – maintenance and repair is currently the most applicable in the bulk of training delivered in Electric vehicles: "1.1 Scope (C) Handling procedures and storage precautions are required in the event the vehicle's structural integrity has been compromised and the REESS (rechargeable electric energy storage system) is to be removed from it".

Figure A21a: Occupations relevant to EV and charging station life stages



*Notes: * designates that the occupation is in AUSMASA's remit and in shortage.*

Figure A22: Occupations relevant to EV recycling



*Note: ^designates occupations beyond AUSMASA's remit. In order to support the EV ecosystem AUSMASA will continue to coordinate efforts with the respective JSCs to ensure optimal solutions for the automotive industry; * designates the occupation is within AUSMASA's remit and in shortage.*

Depowering, isolation, and OEMs

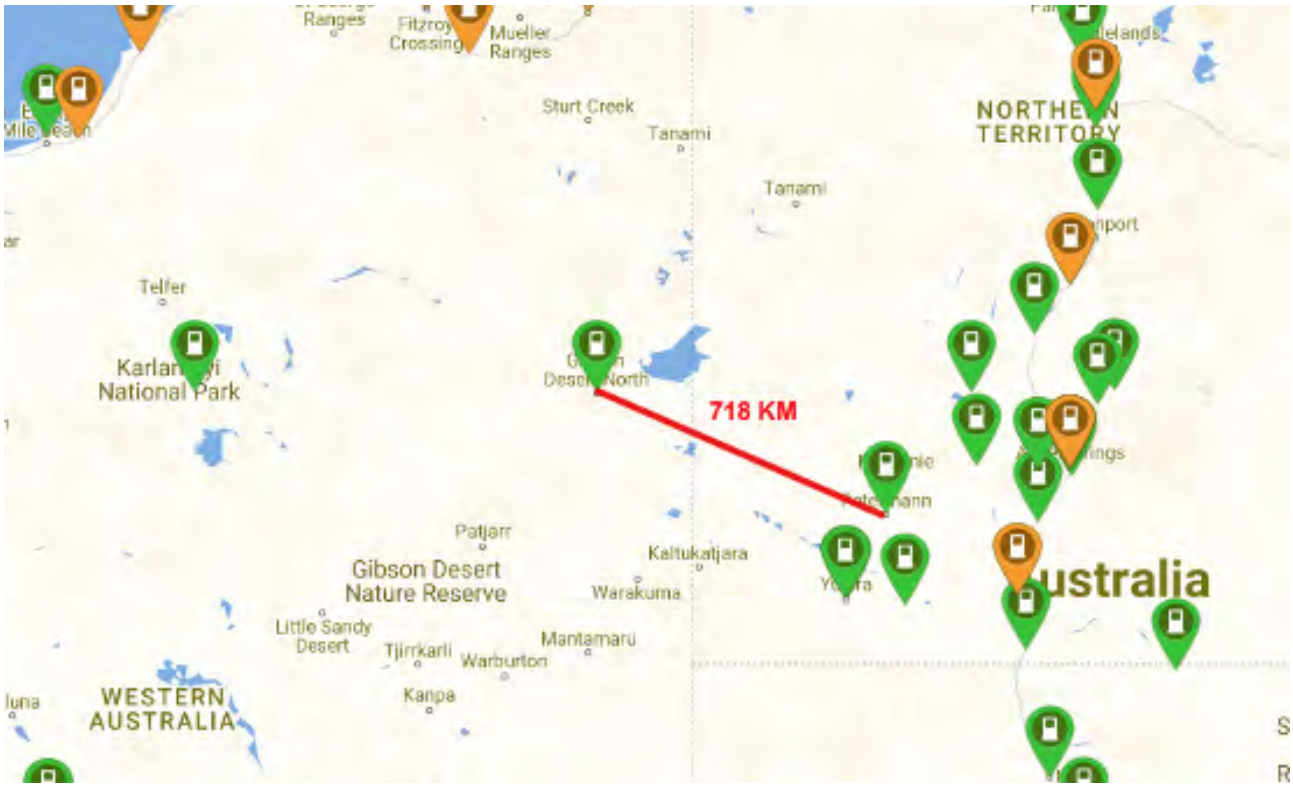
There is information about decommissioning, reuse and recycling in the standard (AS5732) which specifically singles out the battery packs and follows OEM and/or local and state government regulations for disposal, recycling or reuse. Automotive Technicians (with the appropriate skill set) can depower and remove the battery unit, but cannot open it up for service and repair or disposal, recycling or reuse. OEMs said that their internal training and, indeed, their scope of work, stops where the OEM training manuals stop. The normal limit of work is that technicians would not open a battery pack or any piece of high-voltage equipment, including inverters and motors. These would be returned to the OEM for disposal or recycling, and the high-voltage components would be replaced with new ones.

There are other standards that have definitions of electrical work, such AS/ANZ 3000:2018, and the definitions of voltages do differ. This has added complexity in the mobile plant and heavy vehicle space, with some large trucks using voltages as high as 2,800 VAC, which fall outside the scope of AS5732.

How are EVs maintained in remote areas?

Australian drivers on average travel around 33km a day.[98] With an average range of 400 kilometres, EVs available in the Australian market can generally meet the driving needs of many regional commuters.[99] A significant number of EV owners reside in regional areas of Australia, yet despite there being 280 public charging stations nationwide, not all regional areas are serviceable by the existing charging station network. The lack of complete charging station coverage can result in barriers to the wider adoption of EVs in regional areas.

Figure A23: Illustration of EV charging hindrances associated with remoteness



Source: PlugShare

98 Green Vehicle Guide. "Electric Vehicle Information | Green Vehicle Guide," 2024.
99 Electric Vehicle Council. "State of Electric Vehicles 2024 STATE of EVs | 2024," 2024.

For instance, the Kiwirrkurra Community in Western Australia is widely regarded as one of the most remote locations in the country. Its only charging station is located approximately 718 km (see Figure A23 on page 120) from the nearest alternative in Kings Canyon Resort. Regular breaks every 2 to 2.5 hours are essential for road safety, as prolonged driving increases the risk of accidents due to fatigue, especially in remote areas. As the average EV lasts around 400 km from a full charge, infrastructure and charging stations need to be in closer proximity to each other to sustain longer trips.

The rollout of fast charging stations in regional areas is managed by a combination of government initiatives, private investment, and partnerships in preparation for the surge of EV use.[100] The state and territory governments have agreed to 6 key areas of collaboration with the Australian Government to enable the transition to EVs:[101]

- national standards
- data sharing
- EV affordability
- remote and regional EV charging infrastructure
- fleet procurement
- education and awareness.

Potential actions:

- Research to map out skills and occupation needs around the EV ecosystem.
- Stakeholder engagement to investigate how the current pathways system services the skills and occupation needs of the EV ecosystem.
- Research to identify current best practices for alleviating skilled shortages.
- Training product gap analysis to identify optimal pathways for EV-related training.

100 Department of Climate Change, Energy, the Environment and Water. "Australia's National Electric Vehicle Strategy | Energy.gov.au." April 19, 2023.
101 Ibid.

Artificial intelligence in the automotive industry

Artificial intelligence (AI) is being used across the automotive industry, for example to assist drivers and improve manufacturing processes.

Enhancing vehicle safety with ADAS

Many automotive manufacturers are incorporating AI-powered ADAS to elevate vehicle safety. These systems include features like adaptive cruise control, traffic sign recognition, forward-collision warning, and drowsiness detection. ADAS help to ensure better vehicle control even in challenging driving conditions, minimising the risk of road accidents.[102]

Predictive maintenance

AI is also used for predictive maintenance in the automotive industry. By analysing data from vehicle sensors, AI can predict when parts are likely to fail and schedule maintenance before a breakdown occurs. This can reduce unexpected downtime and extend the lifespan of vehicles.[103]

Challenges in adopting AI in the industry

The emergence of new technology also leads to new challenges. As AI and automation take over tasks traditionally performed by humans, there is a risk of job losses, particularly in roles that involve repetitive or hazardous tasks.[104] This can lead to significant social and economic impacts, especially in regions that are heavily dependent on this type of employment.[105]

Implementing AI in industries requires a workforce with the necessary skills and expertise in AI-related disciplines, such as data science and machine learning. Consequently, there may be a shortage of talent with these specialised skills, highlighting the need for extensive training within the industry. OEMs could play a crucial role in bridging this gap by providing training and support.[106]

Potential actions:

- Stakeholder engagement to understand skills and occupations that can benefit from AI and AI integration.
- Stakeholder engagement to map occupations relying on AI tools.
- Research to understand industry needs relating to AI.
- Research to identify occupations at risk from AI.
- Training product gap analysis to establish whether AI deployment, diagnosis, and maintenance capabilities are required in training packages in our remit.

102 Itransiton, "AI in Automotive: Use Cases, Examples, and Guidelines,"2025.
103 Evox Images, "9 Examples of Artificial Intelligence in the Automotive Industry," 2021.
104 Mining Doc, "Ethical and operational challenges in AI adoption in mining - Mining Doc," 2025.
105 Itransition, "AI in Automotive: Use Cases, Examples, and Guidelines," 2025.
106 International Society of Automation,"ISA-Mining-AI-whitepaper-Dec-2024_final.pdf,"2024.

Heavy automotive

With continued growth in freight and other applications, heavy vehicles are an important part of Australia's automotive industry.[107] In particular, with the decline of large-scale passenger car manufacturing, heavy vehicles like buses and trucks have helped sustain the automotive industry's revenue. Higher domestic freight has provided work via fitting and maintaining new and existing components, parts, and accessories for the Repair and Maintenance sector.[108] In the retail and wholesale sector, the post-COVID-19 economic recovery has also supported specialised dealers that provide heavy vehicles for freight and other commercial purposes.[109]

Each sector and the wider industry rely on qualified tradespeople with expertise in heavy vehicles, which in turn creates a reliance on the VET system.[110]

Within the VET system, there are only 2 current qualifications that are specific to heavy vehicles. Both are specific to the Repair and Maintenance sector:

- Certificate III in Heavy Commercial Vehicle Mechanical Technology
- Certificate III in Heavy Commercial Trailer Technology.

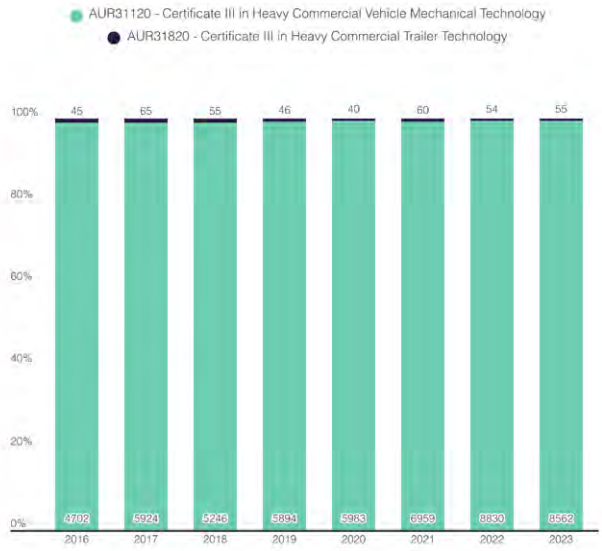
The first is linked to Motor Mechanic (General) in ANZSCO,[111] and the second is linked to Diesel Motor Mechanic in ANZSCO.[112] Unfortunately, the generic nature of Motor Mechanic (General) makes it difficult to compare the qualification's enrolments and completions to related employment trends. In contrast, the second occupation's focus on 'motors and the mechanical parts of trucks, buses and other heavy vehicles' in ANZSCO provides a high degree of confidence that the qualification's enrolments and completions can be compared to related employment trends in the Diesel Motor Mechanic occupation.

From 2016 to 2023, the Certificate III in Heavy Commercial Vehicle Mechanical Technology accounted for 99.17% of enrolments on average for the 2 heavy vehicle VET qualifications. It is a sharp contrast to the 0.83% for the Certificate III in Heavy Commercial Trailer Technology (Figure A29). Enrolments for the former qualification also increased to 8,562 over this period (+82%), while those for the latter qualification only increased to 55 (+22%). At the same time, only the Certificate III in Heavy Commercial Vehicle Mechanical Technology had any female enrolments, rising from 1.5% in 2016 to 4.2% in 2023.

From 2016 to 2023, the Certificate III in Heavy Commercial Vehicle Mechanical Technology accounted for 98.89% of completions on average for the 2 heavy vehicle VET qualifications, compared to only 1.02% for the Certificate III in Heavy Commercial Trailer Technology (Figure A30). Completions for the former qualification also increased to 1,957 over this period (+72%), while those for the latter qualification fell to 2 (-90%). With respect to gender, only the Certificate III in Heavy Commercial Vehicle Mechanical Technology had any female completions, at 1.5% in 2016 and 1.4% in 2023.

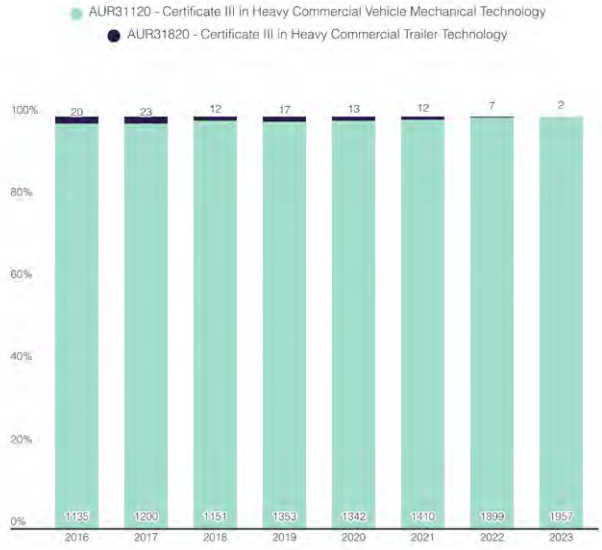
107 IBISWorld, and Misaki Lishi. "Automotive Industry in Australia," August 2024.
108 Ibid.
109 IBISWorld, and Misaki Lishi."Motor Vehicle New Parts Wholesaling in Australia," April 2025.
110 AUSMASA. 'Workforce Plan', 2024.
111 Training.gov.au. "Qualification: AUR31120 Certificate III in Heavy Commercial Vehicle Mechanical Technology," 2020.
112 Training.gov.au. "Qualification: AUR31820 Certificate III in Heavy Commercial Trailer Technology," 2020.

Figure A29: Enrolments for the Certificate III Motor Mechanic (General) and Diesel Motor Mechanic qualifications, 2016 – 2023



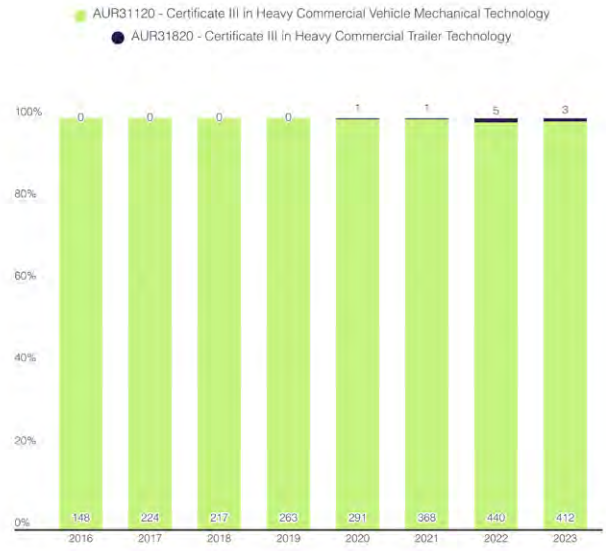
Source: VOCSTATS, 'Total VET students and courses 2023', 2024.

Figure A30: Completions for the Certificate III Motor Mechanic (General) and Diesel Motor Mechanic qualifications, 2016 – 2023



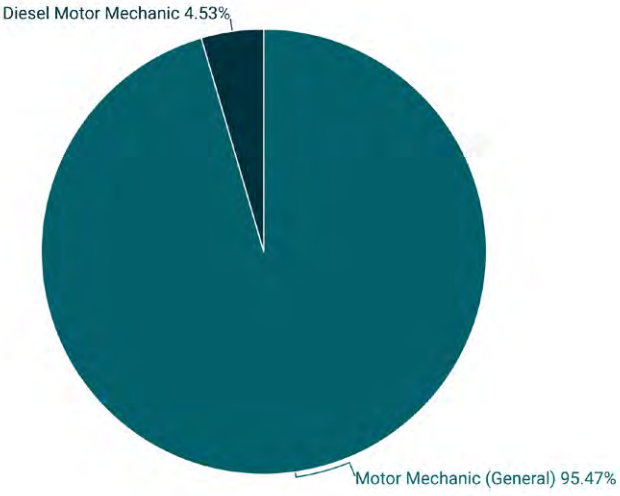
Source: VOCSTATS, 'Total VET students and courses 2023', 2024.

Figure A31: Enrolments for the Certificate III Motor Mechanic (General) and Diesel Motor Mechanic qualifications for Indigenous students, 2016 – 2023



Source: VOCSTATS, 'Total VET students and courses 2023', 2024.

Figure A32: Employment in Light Vehicle and Heavy Vehicle Mechanics, 2021



Source: Australian Bureau of Statistics, "Table Builder 2021 Census – INDP Industry of Employment, OCCP Occupation", 2022.

Indigenous representation

In Certificate III in Heavy Commercial Vehicle Mechanical Technology, Indigenous enrolments increased to 5.37% (+1.9%) in 2023 (Figure A31). Meanwhile, enrolments in Certificate III in Heavy Commercial Trailer Technology fell to 8.93% (-11.07%) in 2023. There were no Indigenous student enrolments from 2017 to 2020. At the same time, only the Certificate III in Heavy Commercial Vehicle Mechanical Technology had any Indigenous completions, which rose to 3.76% (+0.28%).

Unit group – Motor Mechanics

The unit group of Motor Mechanics is a broad category that further represents 4 occupations:

- 321211 Motor Mechanic (General)
- 321212 Diesel Motor Mechanic
- 321213 Motorcycle Mechanic
- 321214 Small Engine Mechanic.

The second occupation, Diesel Motor Mechanic, has a specialisation stream – automotive heavy mechanic. This occupation would be most relevant to the heavy automotive sub-industry, however, data availability prohibits analysis at this granular level.[113] Currently, we are restricted to analysing trends at the occupation and unit group level, where possible. We welcome insight from industry on obtaining better resolution for the heavy automotive sub-industry.

In 2021, Motor Mechanic (General) made up the vast majority of the automotive Repair and Maintenance workforce, accounting for 95.47% of workers.[114] In contrast, Diesel Motor Mechanic comprised 4.53% of the workforce. There were 2,028 Diesel Motor Mechanics employed. Meanwhile, 1,422 students completed heavy vehicle-related qualifications (Figure A30). This suggests that while the number of Diesel Motor Mechanics in the workforce is relatively small, the VET completion rate is proportionally high, highlighting a strong training pipeline to support the heavy vehicle sector's workforce needs. With over 1,900 job listings for Heavy Diesel Mechanics posted on Seek (as at publication date), the demand for skilled workers is urgent.[115]

113 A forthcoming AUSMASA Research Bulletin will further explore the heavy automotive sub-sector in greater detail.
114 Australian Bureau of Statistics, "Table Builder 2021 Census – INDP Industry of Employment, OCCP Occupation", 2022.
115 Seek, "Heavy Diesel Mechanic jobs", 28 April 2025.

Industry voice

Industry has expressed concerns around the shortage of skilled professionals in the sector. To address this, there is a pressing need for a consistent talent pipeline to meet the growing demands of the industry. Industry feels that the shortage is exacerbated by the current educational landscape, as VET is de-prioritised despite delivering higher income outcomes for its graduates.

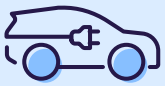
To address this, the Heavy Vehicle Industry Association (HVIA) is actively promoting careers in the heavy vehicle industry through initiatives such as the National Apprentice Challenge and the 'Much More Than Just a Job' campaign. These efforts aim to attract young talent to the industry, reshape perceptions of VET, and encourage a diverse range of individuals to pursue rewarding careers in heavy vehicle trades.[116] The findings from AUSMASA's research into youth perceptions of automotive careers can aid in these efforts.

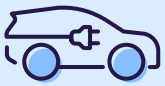
Potential actions:

- Research to better understand the scope of the heavy automotive sub-industry.
- Training pathway gap analysis to identify streams into the sub-industry.
- Stakeholder engagement to better understand competing forces applying pressure to skills demands.
- Research to better map out underlying supply and demand forces affecting the sub-industry.

116 HVIA, "Critical shortages highlighted during National Skills Week", 21 August 2023.

Figure A33: Summary of stakeholder comments from national roundtables and potential actions

 **EV transition and electrification of the workforce**	**Keywords:** EV technician pathways, connect/ disconnect licences, high voltage safety, AUR/ UEE crossover, hydrogen safety, restricted licences, electrification automation.	Huge demand for skilled EV technicians- formal pathways, pre-apprenticeships (Cert I/II), and upskilling programs are urgently needed. Skills around high-voltage isolation, hydrogen safety, and battery systems (for both vehicles and mobile machinery) are critical.	Restricted electrical licences for auto and mobile plant techs are needed to safely work on EV systems. Better alignment of AUR and UEE to growing electrification.
 **Cross-skilling and convergence of trades**	**Keywords:** AC, refrigeration, electrical merging with auto, marine mechanics, bicycle/e-bike qualifications, remote area mechanics.	Trades are blending – refrigeration, electrical, and AC skills can cross into automotive and EV servicing. Needs identified for remote area mechanics qualifications (Cert I/II), including bike and e-bike mechanics.	Opportunities exist to build flexible pathways that recognise overlapping foundational knowledge across trades.
 **Training system challenges**	**Keywords:** outdated qualifications (e.g. AUR40116), low VET trainer supply, digital literacy, micro-credentials, RPL via AI.	Many qualifications (especially in AUR) are outdated, and new ones must reflect emerging tech (e.g. 3D printing, AI, composite materials). Trainer shortages in VET, particularly with EV-relevant skills, is a barrier to delivery.	Growing support for micro-credentials, stackable units, and AI-assisted RPL to improve agility and reduce barriers to qualification updates.
 **Safety and regulatory requirements**	**Keywords:** ageing workforce, school placements, retention challenges, pre-apprenticeships, buddy systems, workplace mentoring.	The ageing automotive workforce and low retention in remote areas are critical risks. Programs like school-based apprenticeships, buddy systems, and mentoring (TAESS00017) are seen as key to retaining talent and rehabilitating the industry's image.	Formal support structures and career exposure at earlier education stages are vital to recruitment and retention.
 **Operational evolution and role changes**	**Keywords:** ICT skills, networking, programming, AI for RPL, digital tools, immersive learning, communications.	EV and advanced vehicle systems require ICT knowledge (networking, database management, control systems). Digital literacy gaps, especially among older workers, need targeted support.	Use of AI for qualification mapping, RPL, and immersive/VR tech is seen as a solution to improve training quality and access.



EV transition and electrification of the workforce

Potential actions:

Stakeholder engagement to investigate and better understand demand for skilled EV technicians.
Research to better understand skills needs around high-voltage isolation, hydrogen safety, and battery systems (for both vehicles and mobile machinery).
Stakeholder engagement to report on the need for restricted electrical licences for auto and mobile plant techs.

Training products analysis to investigate opportunities for the better alignment of AUR and UEE regarding electrification.

Cross-skilling and convergence of trades

Potential actions:

Research to map out how trades are evolving.
Stakeholder engagement to better understand needs around remote area technical qualifications.

Stakeholder engagement to understand in-streams and underlying demand and supply forces around regional automotive workforces.

Training product analysis to investigate flexible pathways that recognise overlapping foundational knowledge across trades.

Training system gaps and qualification reform

Potential actions:

Gap analysis to investigate whether qualifications are outdated.
Research to identify opportunities for new training solutions around emerging tech (e.g. 3D printing, AI, composite materials).

Stakeholder engagement to better understand the need for micro-credentials, stackable units, and AI-assisted RPL to improve agility and reduce barriers to qualification updates.

Research to investigate trainer shortages in VET, particularly with EV-relevant skills, is a barrier to delivery.

Workforce attraction and retention

Potential actions:

Research to better understand the ageing automotive workforce and low retention in remote areas.

Stakeholder engagement to identify successful retention strategies in remote areas.
Workforce planning to report on the success of succession planning and retention strategies.

Research to better understand the ongoing and evolving needs around formal support structures and career exposure at earlier education stages.

Digital, ICT, and AI integration

Potential actions:

Research to identify skills needs around EV and advanced vehicle systems require ICT knowledge (networking, database management, control systems).

Stakeholder engagement to identify current and emerging skills streams around above skills.
Research to investigate digital literacy gaps, especially among older workers.

Research to investigate the use/incidence of AI for qualification mapping, RPL, and immersive/VR tech.

Mining and Automotive Skills Alliance

Jobs and Skills Councils
An Australian Government Initiative

The Mining and Automotive Skills Alliance (AUSMASA) is a Jobs and Skills Council funded by the Australian Government Department of Employment and Workplace Relations.