



**ENGINEERING & AUTOMOTIVE
TRAINING COUNCIL INC.**

Engineering and Automotive

INDUSTRY WORKFORCE DEVELOPMENT PLAN

Update | October 2014



FOREWORD

This Industry Workforce Development Plan Update has been produced by the Engineering and Automotive Training Council Inc (EATC).

The Engineering and Automotive Industries are two of the largest economic drivers in the State of Western Australia. Virtually all occupations within these industries are utilised in other industry sectors in Western Australia, including mining, oil and gas, transport, aviation, health, food, agriculture, manufacturing, marine, power generation, building and engineering construction etc.

With the EATC occupational coverage crossing such a wide variety of industry sectors, it becomes necessary to provide a workforce plan that takes into consideration the context of application of our occupational skills.

This document summarises the content of other reports produced by the Engineering and Automotive Training Council that can be viewed on the EATC's website www.eatc.com.au.

Information and issues highlighted in the EATC 2012-2013 Industry Workforce Development Plan have not been duplicated in this update, but in most cases still remain relevant. This update should be viewed as a document that is subject to future refinement and updating.

Gathering information for these reports has been achieved through a variety of resources, which includes questionnaires, interviews, site visits, feedback and constant discussions with those working within the Engineering and Automotive Industries in Western Australia.

As the Chair of the EATC Board of Management, I am pleased to present this report to all industry stakeholders, government agencies and the wider community for comment and constructive feedback.

I would like to take this opportunity to thank all of the EATC staff on behalf of the Training Council for their hard work in producing this report.

It gives me great pleasure to commend this report to you.

JOE FIALA
CHAIRPERSON

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OVERVIEW

Issuing Authority

This Industry Workforce Development Plan (IWDP) update is issued under contract between the Department of Training and Workforce Development and the Engineering and Automotive Training Council (EATC) in accordance with the requirements of Schedule 2 of the Service Agreement and is updated annually by the EATC. This update is for the period September 2014 to September 2015

Aim

The aim of this IWDP update is to outline automotive and engineering industry workforce development trends, strategies, and actions that provide high-level advice to the Department to inform future strategic directions and Skilling WA – A Workforce Development Plan for Western Australia.

Objectives

The objectives of this plan are to provide the Department with the following information:

- (a) High level state and national industry data and forward projections in regards to:
- Economic trends and impacts on workforce planning:
The current uncertainty surrounding the demand for commodity such as Iron Ore, Coal and other base metals has led to the deferment of many resource projects in Western Australia. This action has a direct impact on the skills demand for professional and technical occupations covered by the EATC, ie Drafters, Engineers, Fabricators, Mechanical Fitters etc.

Recently resource companies have terminated the employment of entire teams of workers involved with the development of prospective project; this has caused some occupations like “Drafter” to be in over supply.
 - Current and future labour market modelling consistent with information provided for the development of the State Priority Occupation List (SPOL):
Notwithstanding the data provided to the Department for the development of the SPOL, the labour market both nationally and in Western Australia for some of the occupations covered by the EATC has shifted slightly to be in less demand. This shift is as a direct result of the decision to defer resource projects; a more detail explanation of the occupations affected can be seen under Section 3 Industry Profiles of this plan.
 - Regional variations that may affect workforce planning:
The regional consultation undertaken by the EATC has shown similarities between the Perth metropolitan area and regions in terms of shortages for skilled labour in most trades and professional occupations covered by the EATC. Most regional employers expected skill shortages to be an issue for the next several years.

In all regional areas, one issue that is raised constantly by employers is the lack of training infrastructure/resources that regional training providers have to undertake apprenticeship training. In most regions there is only one public provider available, unlike the Perth metropolitan area where employers have a choice of public and private training providers.

Regional employers believe the lack of training resources contributes to workforce planning issues.

- Training and education including VETiS:
The training sector in Western Australia in most parts is responding to the demand for additional trade training with the addition of new Trade Training Centres and the compulsory WACE requirements for 2015.

On the other hand, the education system in WA has been slow to respond to the need for better collaboration between the VET and education sector. There is an urgent need to better prepare students for a life in the workforce by structuring student curriculum to encompass the fundamental skills needed to operate in a business. To make them more “work ready”.

More involvement of industry and the VET sector in the development of VETiS program delivery will go a long way to break down the barriers between the two sectors and improve the candidates for apprenticeship training.

- Industry critical aspects that may impact on future planning:
 - Skilled labour supply not keeping up with demand (baby boomer retirements, attraction of new recruits to the automotive and engineering industries).
 - Quality of Apprenticeship training (deregulation of the public training providers).
 - The ability of local industry to attract work associated with resource projects.
 - Availability of funding for upskilling existing workers.
- (b) Identification of issues that impact on State Workforce Planning and that inform and are linked to Skilling WA strategies:
- Work with the State Government on the most appropriate ANZSCO classifications in the engineering and automotive trades to enable more effective data collection.
 - Define the issues associated with the existing apprenticeship model and develop alternative approaches to ensure the continued industry investment in the state’s engineering and automotive skills base.
 - Strengthen involvement in career promotion and industry advice to the schools sector. Consider the suitability of materials available through the Australian Apprenticeships and Traineeships Information Service for prospective apprentice aptitude self-assessment.
 - Work with the Department of Training and Workforce Development, to investigate the reasons for low level enrolments in key higher level skill units in the fabrication and mechanical trades, and determine how skill sets may contribute to improved participation rates.
 - Reposition welding as a full apprenticeship program, (including up to Certificate IV Advanced Welding), separate from the general heavy fabrication trade and train to the requirements of Certificate 1 to 9 under Australian Standard 1796 Certification of Welders.
 - Work towards the establishment of a direct entry Certificate IV apprenticeship program in the engineering trades.
 - Encourage continuous improvement by giving employers and individual Certificate III holders the option of accessing specific units to reach the Certificate IV outcome for trade up-skilling purposes in the engineering trades.
 - Investigate further the quality of engineering trade skills, the gaps in specialist skills and a rapid skills development model.
 - Identify and introduce mechanisms to capture automotive electrical/electronic skills within the automotive trades.
 - Review the current automotive apprenticeship pathways to capture intakes at Certificate levels II, III and IV, thereby more appropriately responding to industry requirements.

SECTION 1 - EXECUTIVE SUMMARY

This update reflects the findings from an extensive literature review, data analysis and research project examining the current and future skills requirements in the engineering and automotive trades in Western Australia.

Evidence collected during the project identifies serious concerns about the range, specialisation and quality of skills in the nominated engineering and automotive trades. The project has also defined difficulties with apprenticeship training that are impacting on the development of the state's skills base.

Although these skills and apprenticeship difficulties are causing current recruitment and retention issues and associated operational difficulties for employers, the scale of these problems is tempered by the slowing down of business activity, particularly associated with the completion of major engineering construction projects.

It is the effects of the current skills and apprenticeship dilemmas on the state's future skills base that are of greater concern. Without action, there is a risk the state is likely to experience a significant skill shortage in a range of engineering and automotive trades and a continuing decline in the overall quality of locally trained tradespersons.

If the risk is not managed, the lack of quality and shortage of skills will not just affect future major resource construction projects, but will extend to the general engineering and automotive workforce. There are already signs that employers' involved in general manufacturing, maintenance, servicing and construction are finding it hard to recruit the range, type and quality of skills they require.

The project has identified a gap in local skills development in both apprenticeships and up-skilling of existing workers. There is also an over-reliance on skilled overseas labour that has the potential to adversely affect local skills development.

Industry Snapshots

Industry Portfolios of the Engineering and Automotive Training Council:

Engineering Industry Profiles

- Aerospace Industry - Light Aircraft, Commercial Aircraft and Military- Avionics, Mechanical and Structures maintenance.
- Engineering Fabrication - Sheetmetal, Foundry, Heavy Fabrication Sector, Surface Finishing (Powder Coaters, Galvanisers and Electro Plating, Industrial Painters), Light Fabrication (Balustrade, Wrought Iron Works).
- Airconditioning and Refrigeration - Domestic and Commercial.
- Engineering Construction- Mining, Oil & Gas, Lift Industry, Commercial Buildings, etc.
- General Engineering - Maintenance across all industry sectors, ie Health, Food, Power Generation, Water Corporation, Mining, Oil and Gas, Transport, Agriculture and Manufacturing, etc.
- Ship and Boat Building - Manufacture and Maintenance of Leisure Craft, Fishing Boats, Passenger Ferries, Freight Shipping Vessels and Military Vessels.
- Engineering Electrical/Electronics/Instrumentation - Manufacture and Maintenance of Electrical Components, Switch Boards, Electric Motor Rewinds, PLC Controlled Flow Systems, etc.
- Professional Engineering Sector - Engineering Design, Mechanical, Structural and Production Engineering Services, Drafting Services, Metallurgical Services, Non-Destructive Testing (NDT) Services, Drafting Services and Engineering Consulting Services, etc.

- Miscellaneous Engineering Sectors - Locksmiths, Watch & Clock Repairs, Jewellery Manufacturing.

Automotive Industry Profiles

- Dealership/Retail - Light Vehicles, Motorcycles, Trucks, Mobile Equipment, Bicycles, Light Marine.
- Service and Repair Sector - Light Vehicles, Motorcycles, Bus and Trucks, Heavy Mobile Equipment, Agricultural Equipment, Bicycles, Tyre Outlets, Outdoor Power and Equipment, Light Marine, Body Trimmers, Auto Glazing and Auto Electrical.
- Vehicle Body Repair - Light Vehicles, Bus and Trucks
- Vehicle Body Building - Truck Trailers, Roo-Bars, Caravans/Mobile Homes, etc
- Motor Sports - Light Vehicle, Motorcycles, Trucks and Go-Carts
- After Market - Spare Parts, Motor Accessories Retail.

Engineering

General Facts

- Engineering SMEs play a critical role in the Australian economy; they generate \$530.248 billion or 57% of the value of Australia's GDP *[Source MSA Environmental Scan 2013]*
- 65% of engineering companies require higher-level technical skills within the workforce to remain competitive *[Source MSA Environmental Scan 2013]*
- 40,000 people are employed in WA in metal, engineering and boating industries, 87% of which are male
- \$180 billion worth of projects are currently committed to or are under consideration in WA, creating over 50,000 construction jobs and 15,000 permanent jobs, many of which will be engineering or manufacturing occupations
- \$176 billion of other projects for the mining and resources sectors are currently on hold or in the planning stage
- 65% of engineering and manufacturing companies are reporting skill shortages at Certificate III–IV level and 42% at Certificate II production level

Engineering Aerospace

- Aircraft manufacturing, maintenance and repair are an integral part of the Australian aerospace industry. Occupations that work within this sector are Aircraft Maintenance Engineer (Avionics), Aircraft Maintenance Engineer (Mechanical), Aircraft Maintenance Engineer (Structures)
- Commercial aircraft parts manufacturing nationally accounts for 34% of the market place, with military aircraft manufacturing, parts and guided missiles accounting for 33.5%
- Companies operating in WA - 51
- WA percentage of market share - 12.8%

Engineering Airconditioning and Refrigeration

- Firms in this industry operate within wide and diverse sectors such as resource and mining, automotive, aerospace, construction, retail, hospitality, health
- Occupations that work within this sector are Metal Fabricators, Welders, Mechanical Fitters, Electricians, Drafters and Refrigeration Airconditioning Mechanics
- Companies operating in WA – 490
- Revenue generated throughout Australia - \$15.96 billion
- Consumes 21.9% of all electricity produced in Australia
- Produces 7% of all greenhouse gas emissions in Australia

Engineering Construction

- Firms in this industry are mainly engaged in the construction of engineering projects or infrastructure such as railways, dams, irrigation systems, harbour or river works, water or gas supply systems, oil refineries (except buildings), pipelines and in the on-site assembly of boilers, furnaces or heavy electrical machinery from prefabricated components, or in the general repair of such structures, machinery or equipment
- Occupations that work within this sector are Metal Fabricators, Welders, Mechanical Fitters, Heavy Duty Fitters, Electricians, Drafters, Locksmiths, Plant Mechanics and Refrigeration Air Conditioning Mechanics
- Companies operating in WA - 808
- WA percentage of market share - 25%
- Revenue generated within WA - \$48.6 billion

General Engineering

- Firms in this industry operate within wide and diverse sectors such as resource and mining, automotive, aerospace and construction
- Occupations that work within this sector are Metal Fabricators, Welders, Mechanical Fitters, Heavy Duty Fitters, Electricians and Drafters
- Companies operating in WA - 611
- WA percentage of market share - 10%

Engineering Ship and Boat Building

- The marine sector is made up of a number of industries including defence, commercial fishing, transport (ferries), tourism and recreation
- Occupations that work within this sector are Shipwrights, Marine Engineers, Metal Fabricators, Welders, Mechanical Fitters, Heavy Duty Fitters, Electricians, Drafters, Locksmiths, Plant Mechanics and Refrigeration Air Conditioning Mechanics
- Companies operating in WA - 176
- WA percentage of market share: Boatbuilding 18.4%, Shipbuilding 27%
- Value of the marine industry to the WA economy is \$3.58 billion

Engineering Electrical/Electronics

- Firms in this industry operate within wide and diverse sectors such as mining and resources, construction and health
- Occupations that work within this sector are Mechanical Fitters, Electricians, Drafters, Plant Mechanics and Refrigeration Air Conditioning Mechanics
- Companies operating in WA - 74
- WA percentage of market share; motors/generators/electrical equipment manufacturing 10.3%, electronic components 7%, telecommunications 9.6%

Engineering Locksmiths, Watchmakers and Jewellers

- Firms in these industries operate within wide and diverse sectors such as building and construction, retail and the arts
- Occupations that work within this sector are Electricians, Locksmiths, Watchmakers and Jewellers
- Companies operating in WA - 504
- WA percentage of market share - 9.2%
- Revenue generated throughout Australia - \$889.5 million

Engineering Manufacturing

- Firms in this industry operate within wide and diverse sectors such as mining and resources, automotive, aerospace, construction and railways
- Occupations that work within this sector are Shipwrights, Marine Engineers, Metal Fabricators, Welders, Mechanical Fitters, Heavy Duty Fitters, Electricians, Drafters, Locksmiths, Plant Mechanics and Refrigeration Air Conditioning Mechanics
- Companies operating in WA – 808
- WA percentage of market share; structural metal products 10.4%, tool and hardware 13.3, sheet metal products 10.9
- Revenue generated throughout Australia - \$12.3 billion

Automotive

General Facts

- Annual turnover in the Australian automotive sector is in excess of \$209 billion
- The Automotive industry pays more than \$10 billion in tax to Australian governments each year
- Sales and service income represents 2.6% of Gross Domestic Product (GDP)
- Nationally the automotive industry employs approximately 360,000 people
- Evidence suggests a large cohort of automotive labour (approximately 13,000 mechanics) have left the automotive industry and are now providing services to other industries, including mining [Source ASA Environmental Scan 2013]
- Passenger vehicles contribute 7.6% of Australia's greenhouse gas emissions
- The Australian automotive sector exports around \$3.3 billion worth of vehicles and components per year
- The Automotive industry is the largest contributor to manufacturing research and development in Australia, investing around \$668 million. One of the benefits of this investment is that new vehicles emit 20% fewer CO₂ emissions than in 2000.
- There are 37,011 people employed within the automotive industry in Western Australia
- Employment within the automotive industry in Western Australia has fallen by 3750 persons in the past 12 months. [Source ASA Environmental Scan 2014]
- The largest impact has occurred within the Motor Vehicle Retailing sector, which has shed 3500 positions over the period, followed by the Fuel Retailing sector 250 [Source ASA Environmental Scan 2014]
- 50.7% of Western Australian automotive business are suffering from skilled labour shortages 60.8% of business expect that skill shortages will affect their business operations within the next 12 months. [Source ASA Environmental Scan 2013]

Automotive Service and Repair (Cars, Trucks, Motorcycles, Bicycles)

- Firms in this industry operate within wide and diverse sectors such as resource and mining, aerospace, construction, health, utilities, sport and recreation and emergency services
- Occupations that work within this sector are Automotive Technicians (Light and Heavy), Motorcycle Technicians, Auto Electricians, Vehicle Trimmers, Automotive Glaziers, Tyre Fitters, Bicycle Technicians, Automotive Airconditioning Technicians, Engine Reconditioners and Radiator Specialists
- Companies operating in WA - 6871
- WA percentage of market share - 11.5%
- Persons employed – 37,011 [Source ASA Environmental Scan 2014]
- Skill Shortage in WA - 52.6%

Automotive Vehicle Body Repair (Panel and Paint)

- Occupations that work within this sector are Panel Beater, Vehicle Painter, Auto Electricians, Vehicle Trimmers, Automotive Glaziers and Tyre Fitters
- Companies operating in WA – 489
- Persons employed (included within automotive service and repair figure)
- Skill Shortage in WA - 50%

Automotive Vehicle Body Building (Buses, Trucks, Trailers, Recreational Vehicles)

- Firms in this industry operate within wide and diverse sectors such as, resource and mining, aerospace, construction, health, utilities, sport and recreation, emergency services and building specialised equipment required by these industries
- Occupations that work within this sector are Vehicle Body Builder, Vehicle Painter, Automotive Technicians (Light and Heavy), Auto Electricians, Vehicle Trimmers, Automotive Glaziers and Tyre Fitters
- Companies operating in WA – 176
- Persons employed (included within automotive service and repair figure)
- Nationally the push to increase the use of public transport has led to an increase in small bus sales up 21.4% and large bus sales up 47.4%
- Skill Shortage in WA - 60%

Marine (Light) Recreational Boating

- Occupations that work within this sector are Marine Technicians, Automotive Technicians (Light and Heavy), Auto Electricians and Vehicle Trimmers
- Companies operating in WA - 98
- Persons employed - 662 *[Source ABS]*
- Skill Shortage in WA - 50%

Automotive Aftermarket (Including Accessories, Motor Trimmers, Outdoor Power and Equipment, Vehicle Dismantlers)

- Occupations that work within this sector are Auto Electricians, Vehicle Trimmers, Automotive Glaziers, Tyre Fitters, Automotive Airconditioning Technicians, Engine Reconditioners, Radiator Specialists, Automotive Administration, Automotive Sales and Parts Interpreter Companies operating in WA - 786
- Persons employed - 7074 *[Source ABS]*
- Skill Shortage in WA - 58.3%

Automotive Dealership/Retail (Light and Heavy Vehicle)

- Occupations that work within this sector are Automotive Technicians (Light and Heavy), Auto Electricians, Vehicle Trimmers, Automotive Glaziers, Tyre Fitters, Automotive Airconditioning Technicians, Engine Reconditioners, Radiator Specialists, Automotive Administration, Automotive Sales and Parts Interpreters
- Companies operating in WA - 478
- Persons employed - 25500 *[Source ASA Environmental Scan 2014]*
- Skill Shortage in WA - 60%

Industry Sections and Training Packages

Engineering and Automotive Training Council

Automotive Industry Sectors

- (a) Service & Repair (RS&R)
- (b) Vehicle Body Repair (Panel & Paint)
- (c) Vehicle Body Building
- (d) Motorsport
- (e) After Market
- (f) Dealership/Retail

Training Packages

- (a) AUR12
- (b) AUR12
- (c) AUM
- (d) AUR12
- (e) AUR12
- (f) AUR12

Engineering Industry Sectors

- (a) Aerospace
- (b) Heavy Engineering Fabrication
- (c) Airconditioning & Refrigeration
- (d) Engineering Construction
- (e) General Engineering
- (f) Ship & Boat Building
- (g) Engineering Electrical/Electronics
- (h) Locksmiths, Watchmakers, Jewellers
- (i) Manufacturing
- (j) Composite Materials Manufacturing

- (a) MEA11
- (b) MEM05
- (c) MEM05
- (d) MEM05
- (e) MEM05
- (f) MEM05
- (g) MEM05
- (h) MEM05
- (i) MSS11
- (j) MEM05

Workforce Development Drivers - Engineering and Automotive Industries

- Rapid technological change within our industries, especially within the automotive sectors of light and heavy vehicle and the vehicle body repair industry.
- Economic uncertainty/instability is currently a major workforce development driver that affects the automotive and the engineering industries. The shelving of project work by some resource companies is having a direct effect on many contractors associated with the project work.
- Apprenticeship commencements have dropped, in some cases to levels lower than that during the global financial crisis in 2009. This does not augur well for the future of a strong and sustainable local skills base.
 - The apprenticeship model relies on the continuous supply of employment-based training places. A drop in the availability of employment-based training places reduces opportunities for people to develop trade skills and creates a gap in the future skills base. Future local supply of trade skills depends on the level of apprenticeship investment now.
- The apprenticeship system, as it is currently designed, is not meeting current or future requirements. The apprenticeship model depends on the capacity of an employer to offer an extended training opportunity combined with full time employment. A transformation is needed to accommodate:
 - The highs and lows of the business cycle.
 - The particular needs of individual trades and industry sectors – the current ‘one size fits all’ apprenticeship system may no longer be appropriate.

- A rapid response to emerging skills demand.
- Changing demographics and the aptitude, expectations and suitability of young people.
- A greater focus on specialised skills – higher level certified welding and automotive electrical skills are examples, and
- The introduction of new delivery models and qualifications, including direct entry to higher level skills pathways.
- The current supply of quality, locally trained tradespersons is not adequate to meet current demand. Even though there are many applicants for advertised trade positions, employers report that the specific skills required are in short supply and the available skills are low calibre.
- Employers are reporting gaps in higher level and broader range skills in the existing skills base. Greater investment is needed in targeted, higher-level and post-trade training.
- Despite most employers stating a preference for employing local tradespersons the engineering and automotive sectors in Western Australia are likely to continue as importers of trade skills.
 - Tradespersons trained overseas have increased as a proportion of the trade population. Somewhere between one half to two thirds of employers have or are employing overseas workers. In some trades the increase in overseas born workers has been instrumental in maintaining employment levels.
- The skills base in some specific trades is in decline. These trades include: metal machinist (first class); welder (first class); and motor mechanics (general).
- While there are similarities in the issues faced in the engineering and automotive sectors, there are sufficient differences to warrant tailored solutions – for each trade group and in some cases for individual trades.
- There is a strong case for improved data collection, availability and reporting at the individual trade level to better inform decisions related to skills development, workforce planning and skilled migration.

Summary of Issues

The project findings have identified a range of issues that need to be addressed. There is a requirement for further work in certain areas and the need for a continued focus on the factors that are influencing local skills development decisions.

There are risks to the sustainability of the state's engineering and automotive trade skills base that need to be managed and therefore it is recommended that the Engineering and Automotive Training Council:

- Work with the State Government on the most appropriate ANZSCO classifications in the engineering and automotive trades to enable more effective data collection.
- Define the issues associated with the existing apprenticeship model and develop alternative approaches to ensure the continued industry investment in the state's engineering and automotive skills base.
- Strengthen involvement in career promotion and industry advice to the schools sector. Consider the suitability of materials available through the Australian Apprenticeships and Traineeships Information Service for prospective apprentice aptitude self-assessment.
- Work with the Department of Training and Workforce Development, to investigate the reasons for low level enrolments in key higher level skill units in the fabrication and mechanical trades, and determine how skill sets may contribute to improved participation rates.
- Reposition welding as a full apprenticeship program, (including up to Certificate IV Advanced Welding), separate from the general heavy fabrication trade and train to the requirements of Certificate 1 to 9 under Australian Standard 1796 Certification of Welders.
- Work towards the establishment of a direct entry Certificate IV apprenticeship program in the engineering trades.

- Encourage continuous improvement by giving employers and individual Certificate III holders the option of accessing specific units to reach the Certificate IV outcome for trade up-skilling purposes in the engineering trades.
- Investigate further the quality of engineering trade skills, the gaps in specialist skills and a rapid skills development model.
- Identify and introduce mechanisms to capture automotive electrical/electronic skills within the automotive trades.
- Review the current automotive apprenticeship pathways to capture intakes at Certificate levels II, III and IV, thereby more appropriately responding to industry requirements.

This update is intended to provide solid research and analysis on current and future skills requirements in the engineering and automotive trades in Western Australia. It consolidates the findings from an extensive literature review, data analysis and market research and presents recommendations for consideration by the EATC Board.

Developments in the resources sector, particularly through the construction phase of various projects, have had a significant impact on demand for the engineering and automotive trades skills. Capital expenditure in the mining and construction sector has peaked and this has led to a changing labour market and an easing of some of the earlier shortages in certain occupations, including those in the engineering and automotive trades. In the past 12 months there have been less vacancies and more candidates for each vacancy.

Skilled Migration

When employers make greater use of skilled migration and flexible visa arrangements, as a general rule, they also increase their apprentice intake. However, it is the level of apprentice intake when the business cycle is low that ultimately influences future availability of skilled labour. Low apprentice numbers in any given year can produce a skills gap years into the future. Employers fill the gap with offshore recruitment and the cycle continues.

The research undertaken for this project supports the notion that the engineering and automotive trades in Western Australia are likely to continue as importers of trade skills. There are, however, some worrying trends.

While the number of apprentices is dropping – reflecting the softening labour market – overseas born workers have increased as a proportion of the working population in both the engineering and automotive trades. In some of the occupational categories the increase in overseas born workers has been instrumental in maintaining employment levels. Western Australian employers also continue to make significant use of the 457 visa. The state's share of the national number of primary visas granted was 16.7 per cent in the quarter ending 31 March 2014. This would seem to indicate a growing dependence on overseas labour to the possible detriment of the development of the local skills base.

Engineering Trades

In the engineering trades the proportion of Australian born workers fell from 66 per cent in 2006 to 63 per cent in 2011. The relatively high levels of overseas born workers suggest a growing dependence on imported skills and this situation needs monitoring.

The research found 76 per cent of employers of engineering tradespersons have or are employing overseas workers. At the same time employers also noted a preference for employing local workers and commented on the higher costs associated with importing labour. The fact that such a substantial number have turned to overseas workers to meet their trades skills requirements rings alarm bells.

Automotive Trades

Without growth in overseas workers, numbers in the automotive trades would most likely have suffered a real reduction. The overseas born workforce increased considerably compared to those who were Australian born. The share of overseas born workers who arrived in the past 5 years grew from 12 per cent in 2006 to 31 per cent in 2011. The number of 457 visa holders in automotive trades continued increasing right through until late in 2013.

Skills shortages

As workers move from resource sector projects to other trade related employment, many skills requirements change.

Engineering Trades

The recent challenges related to finding suitably qualified and skilled engineering trades workers are likely to continue into the foreseeable future. Even though the data shows an overall easing in areas of skill shortage and greater availability of tradespersons for vacant positions, there is a skills deficiency with gaps in specialised skills, such as welding and pipe fitting, and a lack of quality in the general engineering skills base.

While there is employer demand for higher level engineering skills, the research indicates insufficient levels of training delivery to meet such demand. Of all the reported training, only four per cent is in areas identified as critical by engineering employers.

Automotive Trades

Skills shortages in the automotive trades largely abated in the past year with most occupations moving from shortage to no shortage, and most employers being able to fill their advertised vacancies. There is still, however, a critical skills shortage for diesel mechanics with the demand and shortage expected to increase over the next 12 months.

While there are many more applicants for jobs, it appears that qualified and experienced tradespersons with the specific skills required by employers are still in short supply. Employers are reporting that while there are qualified tradespersons, their skills are low calibre.

Apprenticeships

The research identified a number of issues with the current apprenticeship model:

- The number of apprentices being trained is too low and at a level that will not sustain the future, locally trained skills base.
- The apprenticeship model is not coping with the highs and lows of the business cycle.
- There is a need for a direct entry apprenticeship to a higher level skills pathway.
- Greater emphasis should be placed on continuous improvement of skills both during the apprenticeship and once trade status is achieved.
- Some of the apprentice delivery models are too narrowly focused, and are not developing a broad enough range of technical skill sets.
- There is limited opportunity to develop specialised skills within the apprenticeship program – higher level certified welding skills and electrical skills for mechanics were cited as examples.
- Training providers are perceived as lacking the capacity and flexibility to respond to rapidly changing industry technologies – a particular issue for the automotive trades.
- There is a need to build the notion of a trade as a career.
- Apprentices need to be suited to, and have an aptitude for, the trade they have chosen; and
- A divergence in training requirements suggests the current ‘one size fits all’ apprentice system may no longer be appropriate.

The apprenticeship model relies on the continuous supply of employment-based training places. A drop in supply reduces opportunities for people to develop trade skills and creates a gap in the future skills base. Future local supply of trade skills depends on the level of apprenticeship investment now.

This training model depends on the capacity of an employer to offer an extended training opportunity combined with full time employment. Although apprentice numbers typically increase during upturns, the locally developed trade skills produced are not available for a further four years – often when the business cycle is on a downturn.

The apprenticeship model requires time. When a skills shortage occurs, businesses cannot wait four years for an apprentice to be trained, so employers revert to immediate solutions like recruiting overseas skilled labour.

Generally, employers in both sectors value, and are committed to, training apprentices. Approximately two-thirds of employers surveyed for this project employed apprentices. However, their capacity to employ and train apprentices is very much driven by costs and the business cycle. A number of employers indicated they were reviewing the size of their apprentice workforce due to rising costs and/or not having enough work.

The cyclical nature of industry affects apprentice numbers and leads to the threat of a lack of skilled workers when the next upswing occurs.

Engineering Trades

The current situation for engineering apprentices in WA appears to be more challenging than during previous business downturns. Commencements are lower than during the global financial crisis in 2009 and there is a non-completion rate of more than 30 per cent. Although most employers surveyed during the project supported apprenticeships and continue to employ apprentices, the number of apprentices employed is falling and employers report that the pressures on their businesses are leading them to re-think their investment in apprenticeships.

This poses a serious threat to the local supply of labour for these trades and for the state's engineering skills base in the future. Given that there is no other option available for the development of trade skills, something needs to be done to address the issues with the apprenticeship model. An examination of the apprenticeship situation in the engineering trades is a good starting point.

Automotive Trades

Apprentice commencements and numbers in training in the automotive trades are starting to decline, in line with the broader labour market trends.

Nationally, apprenticeship completions across all automotive trades are significantly lower than those of the engineering trades, and are estimated at 58.4 per cent. If this trend holds true for the automotive trades in Western Australia, it would mean that more than 40 per cent of commencing apprentices do not finish. Further, while the decline in commencements is not as intense as that in the engineering trades, the fact that non-completions are so much higher for automotive apprentices could compound skills shortages in select trades.

Ongoing employer engagement with the apprenticeship system is mixed. Overall, the trend is quite stable for employers of heavy automotive tradespersons. However, in the light automotive and vehicle body apprenticeships, where there is a much greater loading towards smaller employers, there appears to be a significant drop in the numbers of employers with apprentices.

SECTION 2 – METHODOLOGY

Prompted by ongoing feedback from employers about continuing issues with finding suitably skilled workers, the Engineering and Automotive Training Council (EATC) has undertaken an investigation into labour market trends in the following trade occupations:

- Engineering fabrication and mechanical.
- Automotive heavy plant.
- Heavy vehicle and light vehicle, and
- Vehicle body repair.

This report is intended to provide solid research and analysis on current and future skills requirements in the engineering and automotive trades in Western Australia. It consolidates the findings from an extensive literature review, data analysis and market research and presents recommendations for consideration by the EATC Board.

Approach Taken

The findings and recommendations in this report are based on:

- A literature review focused on research, reports and papers related to:
 - Training and skills development (including apprenticeships, skills shortages and skilled migration).
 - The resources sector.
 - Economic projections. and
 - The labour market.
- Analysis of a series of data sets, including:
 - Australian Bureau of Statistics (ABS) data from the 2006 and 2011 census years, specific to identified engineering and automotive trade occupations.
 - Publicly available data related to 457 visas from the Department of Immigration and Border Protection.
 - Apprenticeship data provided by the Department of Training and Workforce Development, and
 - Training delivery at Certificate IV from the engineering and automotive training packages.

Qualitative and quantitative information from employers via survey and focus groups taking the following approach:

- Survey questions were developed to address identified gaps in specific information about local employers' requirements for skilled workers.
- Employers in the engineering and automotive sectors were invited to participate via an online survey, or through telephone or face-to-face interviews.
- Direct quotes, typifying employer feedback, have been taken from the comments provided by survey and focus group participants and used throughout the report where they are pertinent to a particular discussion.

Initial Findings

The literature review completed in the initial phase of the project led to a range of conclusions, which informed the later research and analysis. The major conclusions drawn from the literature included:

- a) Developments in the resources sector, particularly through the construction phase of various projects, have had a significant impact on demand for the engineering and automotive trades skills.
- b) While some resource projects are still in planning and may require further construction, most activity in the sector has shifted to production and the demand for engineering trade skills is diminishing in this part of the economy.

- c) Economic growth and the associated demand for skilled labour in Western Australia (and nationally) have been fuelled by the growth in the resources sector in recent times. While economic growth is cooling, the outlook for Western Australia for the foreseeable future is still strong.
- d) The labour market is changing and some of the earlier shortages in certain occupations, including those in the engineering and automotive trades, no longer exist.
- e) As workers move from working on resources sector related projects to other trade related employment, many specific skills requirements are different.
- f) Some skills are still in shortage and there is a particular need for higher level skills development for the engineering trades in Western Australia.

A summary of the most relevant literature scanned is shown at Appendix A

Taking into account these conclusions, the later phase of the project has focused on researching and analysing the following issues:

- Employer requirements for higher levels of specialisation.
- Levels of reliance on imported labour to address demand for specific engineering and automotive trade skills.
- The skills base and levels for locally and overseas trained tradespersons.
- Levels of training occurring in higher level trade skills.
- Employer engagement with, and understanding of, the apprenticeship and vocational education and training (VET) system.
- Employers' perspectives on the effectiveness of the VET system and how best to address identified skill gaps.
- The most significant issues employers are facing with respect to their labour force in the nominated trades.
- Employer perspectives on long term trends for their own business and for their industry sector as it impacts on the labour force and skill requirements.

To address these issues, an on-line survey was administered, along with a series of face-to-face or telephone interviews using a structured interview guide, and three industry focus groups were conducted. The survey and focus group questionnaire and results are shown at Appendix B.

Data: Context and Analysis

Finding data that is sufficiently detailed and specific to enable meaningful analysis for the purposes of this project has been challenging. It has become apparent that an opportunity exists for the collection of publicly available data for engineering and automotive trades skills that would support workforce planning by employers, employer bodies and organisations such as the EATC.

The focus for this project has been on specific trades and there is little publicly available data at this level (ie ANZSCO¹). Discussions were held with a number of data collection agencies, including the Department of Immigration and Border Protection, the Department of Employment, and the Australian Bureau of Statistics (ABS). As a result, it was determined that the best available data sources for assessing changes to the labour force were the 2006 and 2011 population census data, using the Australian and New Zealand Standard Classification of Occupations (ANZSCO), country of origin and year of arrival.

ANZSCO, as the standard means of classifying occupations, is not always meaningful to the Western Australian context, does not match the trades nomenclature used in the state and does not adequately capture the detail of higher level trade skills that employers require.

¹ Australian and New Zealand Standard Classification of Occupations

Reliance on ABS census data has meant the project team worked with data that pre-dates the peak of demand for skilled tradespersons and as such does not fully reflect the current situation. Worth noting also is that the ABS census data includes apprentices in the count of persons employed within an occupation.

Notwithstanding the problems with the available data, a significant advantage of relying on the ABS census data has been the opportunity to consider the labour force figures as a whole and to assess comparative levels of Australian born versus overseas workers (something that does not seem to have been discussed to any significant extent in other labour force analyses).

Within this context, at various points throughout this report, references are made to the appropriateness or adequacy of data sources.

Before focusing more specifically on the engineering and automotive trades, an overview of some of the key commentary on the economy and the labour market has been included to describe the broader environment and context affecting the nominated trades.

SECTION 3 – INDUSTRY PROFILE

3A - Overview of the Engineering and Automotive Industries

Expanding and developing resource projects have driven strong employment growth and led to labour market shortages in recent years. At the height of the Western Australian mining boom in 2012, a third of all spending in the state's economy was due to investment in capacity expansion, mostly new mines and equipment.² As the resources sector moves from construction to operation and maintenance, employment growth is not likely to be as strong and the skills required by employers are likely to change.³

The general consensus of the literature reviewed for this report is that capital expenditure in the mining and construction sector has peaked. Consequently, it is expected that the resources sector share of employment in Western Australia will fall as the mining boom moves to a less labour-intensive operational phase. The outlook is for a 15.7 per cent fall in engineering construction in 2014-15, and a 20.5 per cent decrease in 2015-16.⁴

This does not mean there are no mining projects coming on line. There is still significant investment in Western Australia's resources sector. The peak is likely to come in 2015 and 2016 when it is expected about \$86.1 billion in projects will be completed.⁵ The level of future investment in major resource projects, and the associated establishment of major engineering construction projects, beyond this peak is unclear.

Industry Trends

Aligned with shifts in resource sector activity, the Western Australian labour market is softening, unemployment is increasing and skills shortages are less acute. In the past 12 months there have been less vacancies and more candidates for each vacancy.

Throughout the recent boom there were significant shifts in the labour market. Apprentice numbers increased, as did the number of skilled migrants, including 457 visa holders. Subsequently, apprentice numbers have dropped but indications are that at a national level the number of 457 visa holders has remained relatively stable – the subclass 457 quarterly report of 31 March 2014 shows a slight increase of primary visa holders compared to the same period a year ago⁶.

In Western Australia employers continue to make significant use of the 457 visa. The state's share of the national number of primary visas granted was 16.7 per cent in the quarter ending 31 March 2014. There were 22,502 primary visa holders (20.1 per cent of the national number of visa holders) in the state over the same period.⁷

² *Western Australian Business Outlook*, February 2014, Deloitte Access Economics

³ *WA Resources and Economics Report*, KPMG and Chamber of Minerals and Energy, December 2013

⁴ *CAN Commonwealth Bank Economics: Update* 2 April 2014

⁵ *WA Resources and Economics Report*, KPMG and Chamber of Minerals and Energy, December 2013

⁶ *Subclass 457 quarterly report, quarter ending at 31 March 2014*, p2, Australian Government, Department of Immigration and Border Protection.

⁷ *Western Australian Government Submission to the Independent Review of Integrity in the Subclass 457 Programme*, WA Department of Training and Workplace Development, 22 May 2014

There is little doubt that skilled migration has made an important contribution to addressing identified skills shortages. While there are mixed views about the effectiveness and sustainability of skilled migration, which were well described and summarised by a Senate Committee report in July 2012, it will continue to be a critical component in any strategy responding to identified and ongoing gaps in specific occupations within the labour market.

The Senate Committee report concluded that skilled migration may represent a short-term solution to skills shortages but it was not seen as a substitute for home grown skills in the longer term.⁸ The Western Australian State Training Board, however, has expressed a view that targeted skilled migration will continue to be an important “source of skills for the state’s labour market”.⁹ A recent report by the Australian Workforce and Productivity Agency also argues that there will continue to be a need to look overseas to meet identified shortfalls, particularly at times of peak demand.¹⁰

Labour and Skill Demand

Generally, changes occurring in the broader labour market are also reflected in many of the trades that are the focus of this report, where:

- The skills shortage status has shifted to “no shortage”.
- The growth in apprentice numbers has started to taper, and
- Skilled migration has been critical to addressing identified gaps in the labour market.

Feedback from employers indicates another effect of the resources boom on the engineering and automotive labour market is the erosion of specialist skills. Employers attribute this to either the low level of some tasks undertaken on mining projects, or the recruitment of lower skilled workers in the face of skills shortages.

These specific changes are discussed later in the report under each trade area.

The research undertaken for this report supports the notion that the engineering and automotive trades in Western Australia are likely to continue as importers of trade skills. This is due to:

- The cyclical and sporadic nature of work linked to a range of reports requiring engineering skills.
- The nature of the current apprenticeship model – it can take up to 4 years to develop a skilled tradesperson and when business is poor employers do not have the capacity to offer apprenticeship places, and
- Ongoing requirements for specialised and higher level skills that are not being delivered through the training system.

The reliance on skilled migration at times of high employment demand is evidenced by the fact that in recent times Western Australia has accepted applicants at well above its population share. For example, in the first half of the 2013-14 financial year (to 31 December 2013), 17.6 per cent of subclass 457 visa applicants were granted for positions in Western Australia¹¹, significantly above its total population share of just under 11 per cent.

⁸ *The shortage of engineering and related skills*, p29, The Senate Education, Employment and Workplace Relations References Committee

⁹ *State Training Plan 2014 – 2017*, p28, Government of Western Australia, the Department of Training and Workforce Development

¹⁰ *Engineering workforce study, June 2014*, p8, Australian Workforce and Productivity Agency

¹¹ *Subclass 457 quarterly report, quarter ending at 31 December 2013*, p5, Australian Government, Department of Immigration and Border Protection.

While the number of 457 visas issued for Western Australia remains relatively high, it dropped to 16.7 per cent of the national total in the quarter ending 31 March 2014, reflecting a softening labour market. For the year ended 30 September 2013, Western Australia also recorded the largest number of net overseas migration **departures** at 4,600 people (15.3 per cent).¹² This is most likely reflecting a change in the categories of occupations required, for example, there was a 48.2 per cent reduction in primary applications in the mining sector in 2013-14 and the only increases were in accommodation and food services and arts and recreation services.¹³

Notwithstanding recent changes in the mix of 457 visa holders, for Western Australia both mechanical engineering technician and motor mechanic general feature in the top 15 occupations for which 457 visas were granted in the twelve months to 31 March 2014.¹⁴ This points to ongoing requirements for skills that are not available locally.

The available data on 457 visas is defined using ANZSCO. The Western Australian Government submission to the Independent Review of Integrity in the Subclass 457 Programme¹⁵ identifies a need for more regular reviews of the ANZSCO by the Australian Bureau of Statistics, in consultation with state and territory governments, to account for occupational changes. This view is supported by the research undertaken for this report, which has identified a need for more specific occupation-linked data.

By linking occupation codes (ANZSCO) to the trades, the project team has used census data from the Australian Bureau of Statistics that identifies country of origin and year of arrival for identified trade occupations, and reasonable assumptions can be made about the contribution of skilled migration at the height of the boom.

As the following chart (Figure 1) illustrates, overseas born workers have increased as a proportion of the working population in both the engineering and automotive trades. Further, in some of the occupational categories the increase in overseas born workers has been instrumental in maintaining employment levels within those trades. More detailed analysis of the ABS data is included in the focused discussion of each the broad trade areas.

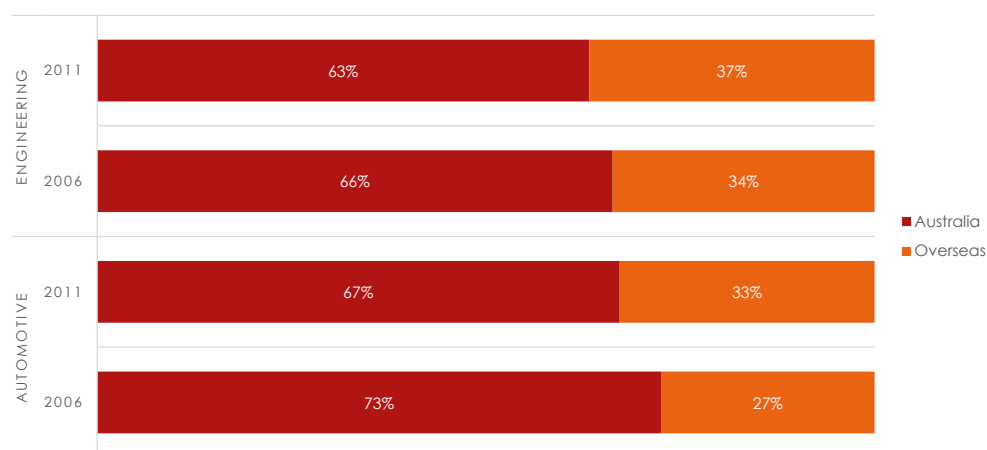
¹² 3101.0 – Australian Demographic Statistics, Sep 2013, Australian Bureau of Statistics, 27 March 2014

¹³ Subclass 457 quarterly report, quarter ending at 31 March 2014, p47, Australian Government, Department of Immigration and Border Protection

¹⁴ Subclass 457 quarterly report, quarter ending at 31 December 2014, Australian Government, Department of Immigration and Border Protection

¹⁵ Western Australian Government Submission to the Independent Review of Integrity in the Subclass 457 Programme, WA Department of Training and Workplace Development, 22 May 2014

FIGURE 1 - POPULATION SHARE BY TRADE AREA AND COUNTRY OF ORIGIN



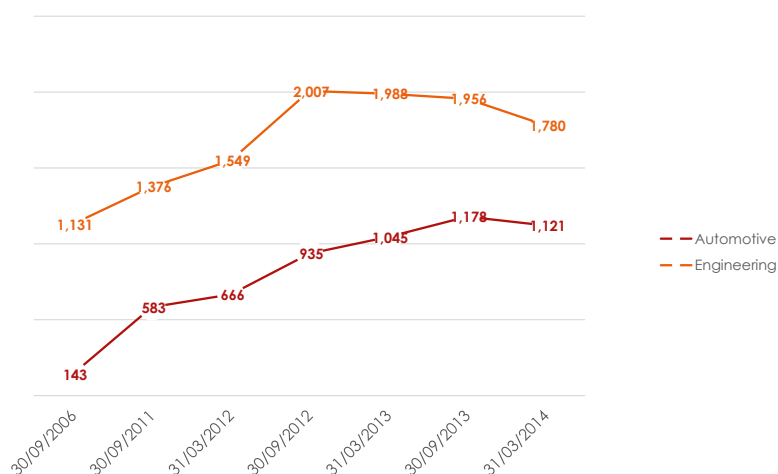
Based on ABS census data

Over the 5 year period from 2006 to 2011, the proportion of overseas born tradespersons in the selected engineering and automotive trades grew significantly, with the greatest shift occurring in the automotive trades.

Data on 457 visa holders at occupational level has recently become available on the Department of Immigration and Border Protection website¹⁶. Overall it shows a similar pattern to the ABS census data, although it is more current and provides more detail. Numbers of 457 visa holders grew for most of the occupations in the engineering and automotive trades from 2006 to 2008. Coinciding with the global financial crisis, numbers declined from 2009, with an upturn from 2012 until late 2013.

For the purposes of this report **some** of the 457 data has been extracted and compared to the ABS census data. Broad trends for the engineering and automotive trades are captured in Figure 2 (though the intervening period between the global financial crisis and 2012 is not captured here).

FIGURE 2 - TREND DATA 457 VISA HOLDERS IN THE ENGINEERING AND AUTOMOTIVE TRADES



Based on Department of Immigration and Border Protection data

¹⁶ <https://www.immi.gov.au/media/statistics/statistical-info/temp-entrants/subclass-457.htm>

The apprenticeship system is the only pathway for entry to the nominated engineering and automotive trades covered by this report. Development of local trade skills depends on the continuous intake of people into apprenticeship positions. This model relies on the capacity of employers to offer extended training opportunities combined with full-time employment. The research has identified some worrying trends. While the specific details for each of the sectors are discussed in detail later in this report, there are some common themes.

Generally, employers in both sectors value, and are committed to, training apprentices. Approximately two-thirds of employers surveyed for this report employed apprentices. However, their capacity to employ and train apprentices is very much driven by costs and the business cycle. A number of employers indicated they were reviewing the size of their apprentice workforce due to rising costs and/or having insufficient work.

In the focus groups participants discussed the cyclical nature of their industries, the effect this had on apprentice numbers, and the likelihood of having insufficient skilled workers when the next upswing occurs.

The decline in apprentice numbers when work slows, together with an apprenticeship term of up to four years, presents a challenge to ensuring the availability of appropriately skilled workers when demand grows.

While cost and business capacity were influencing factors on the employment of apprentices, there were also comments about the quality and readiness of young people. A number of survey respondents and focus group participants commented on the attitudes and expectations of young people, pointing to an apparent lack of the broader, more generic skills required to succeed in the chosen trade. This might point to a need for better support, or different models for matching apprentices and employers, an argument made by AWPA in its recent report¹⁷. Employers participating in the report research also identified a number of other issues with the current apprenticeship model, principally:

- Some of the apprentice delivery models are too narrowly focused, not developing a broad enough range of technical skill sets.
- There is limited opportunity to develop specialised skills within the apprenticeship program - higher level certified welding skills and automotive electrical skills for mechanics were cited as examples.
- A lack of capacity and flexibility in training providers to respond to rapidly changing industry technologies – a particular issue for the automotive trades.
- The need to build the notion of a trade as a career.
- The need to ensure apprentices are suited to, and have an aptitude for, the trade they have chosen, and
- A divergence in training requirements that suggests the current ‘one size fits all’ apprentice system may no longer be appropriate.

Discussion and recommendations related to some of the issues highlighted here are included elsewhere in this report. Apprentice suitability and aptitude, and the notion of a trade as a career were raised frequently by employers throughout this report.

Tools developed by the Australian Apprenticeships and Traineeships Information Service, including career information and quizzes¹⁸, could prove useful in addressing this area of concern.

¹⁷ *Engineering workforce study, June 2014*, p75, Australian Workforce and Productivity Agency

¹⁸ <http://www.aapathways.com.au/Career-Resources/Industry-Career-Information---Quizzes>

Gender/Age Participation

The Engineering and Automotive industries have an ageing workforce with the largest group of workers aged between 31-42. Attributing factors include the high attrition rate of the industry due to the physical nature of much of the work and over the past ten years a decrease in the numbers of apprentices employed by large government organisations.

The need to develop strategies to target mature-aged workers is becoming more of an additional urgency, given the impact of new and emerging technologies on all workplaces, the lack of post-compulsory qualifications held by mature-aged Australians and the need for some mature-aged people to update their skills as they move employment.

It is recommended industry is also encouraged to realise their financial responsibilities in terms of this existing workforce training.

There is a very low participation rate of females in the trades. Females are not well represented in the engineering and automotive industries in a trade's capacity.

"Occupational segregation between men and women continues to exist, and male dominated occupations tend to earn more than female dominated occupations. Women are more likely to be clerical, sales, community and personal service workers, while men are more likely to be technicians, trades workers, machinery operators, drivers and labourers. Women are still substantially under-represented in the manual trades in Australia, with the number of women in manual trades being less than 2 per cent" [Source: The Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) The review of the Equal Opportunity for Women in the Workplace Act 1999. (2009)].

In an industry sector where men make up the majority of workers, it is to be expected that men also make up the majority of enrolments. Just over 96% of all commencements in the Metal and Engineering Training Package were male, with the largest course enrolment (2,386) being males enrolling into Certificate III in Engineering – Mechanical Trade. [Source: MSA/NCVER VOCSTATS accessed September 2010].

ABS6202.0 May 2010 data shows that only 1.1% of the automotive and engineering trade workers are female. This is the lowest of all the trades in Australia.

Under-Represented Groups Participation

- Aboriginal participation in the engineering, construction and mining industries has been increasing over the last decade. Mining companies, particularly in regional areas, have dedicated programs of employment for Aboriginal people. Also with the increase in resource activity, more Aboriginal people are being attracted to the industry. However, Aboriginal participation in engineering training is still very low in WA. Factors attributing to this include the lack of culturally sensitive Aboriginal training needs based support programs (including effective literacy support), failure to recognise the need to employ more flexible, non-traditional modes of delivery, limited access to computer usage and ongoing practical experience of technology and, in certain situations, inappropriate placement of training facilities in relation to industry concentration and work placement opportunities.
- The EATC has developed an Aboriginal Employment Strategy to provide guidance and advice to those vocational training, employment and labour market service providers working to secure employment for Aboriginal people in the engineering and automotive industries. This document directly addresses the Skilling WA's Strategic Goal 1 *"Increase participation in the workforce particularly among the under-employed and disengaged, mature-aged workers, Aboriginal and Torres Strait Islander and other under-represented groups."*

- As part of its current strategic direction, the EATC is encouraging small and medium enterprises to identify opportunities to increase Aboriginal employment participation in the two sectors it represents.
- The vast majority of employers in the engineering and automotive industries are unable to establish and maintain the pre-employment preparatory services and the ongoing employment based services required to support Aboriginal people during the transition to permanent, sustainable employment.
- It is unlikely that the entry to employment arrangements in the two sectors will change in any significant way in the short to medium term and, as such, it is important that Aboriginal people have the pre-requisite knowledge and skills to compete directly for apprenticeship and traineeship positions.

3B - Engineering Industry

Major Challenges and Barriers

While the proportion of vacancies filled has improved significantly in recent times, employers are still reporting shortages for first class welders, fitters and metal machinists (first class). Although metal machinists are still considered to be in shortage, employers are not committing to taking on apprentices. In focus group discussions employers commented that, ideally, now is the time to be training more apprentices. However, the lack of work, and associated income, makes it neither possible nor practical.

An interesting trend reported by some focus group participants was the globalisation of the labour market. One company recruited workers from its workshops in the Philippines to meet demand here in Western Australia. The probability of using their Australian workforce in the United States given the downturn here was also mentioned. Having a flexible and mobile workforce means the peaks and troughs can be managed more efficiently and effectively. Not all companies have the resources to manage this level of global reach but it is a development worth noting.

Employers in the regular Department of Employment 'Survey of Employers who have Recently Advertised' commented that despite receiving multiple applications from trade qualified applicants, they were still getting a number of unsuitable applicants. Issues identified by employers included:

- Currency and relevance of skills.
- Lack of specialised skills specific to the business.
- Insufficient certification, for example welding, and
- Poor communication and customer service skills¹⁹.

These comments were echoed in the EATC Skills Requirement Survey and in the focus groups. Remedies identified in the focus groups included:

- Driving professionalism through the apprenticeship system – looking on a trade as a career, not a job.
- Upskilling workers by enrolling them in certificate IV to increase levels of expertise.
- A Certificate IV apprenticeship program.
- Certificate III and Certificate IV trained welders.
- Ensure supervising tradesmen have up-to-date skills, and
- More flexible RTOs.

¹⁹ *Labour Market Research – Engineering Trades Western Australia*, p.3 Labour Economics Office Western Australia, Department of Employment, September 2013

A recent trend towards more offsite and off shore construction, resulting from the use of more modular fabrication in the construction phases of resource projects, is likely to continue.²⁰ As a consequence, local companies will lose opportunities, which will impact on their skills and labour force requirements. The diminishing of specific fabrication skills, such as pipefitting, and the lack of skills in the welding trade were cited in the focus groups, (as well as the Department of Employment survey) as evidence of this phenomenon.

The Department of Employment's Occupational Employment Projections to November 2017 predict a fall in employment of engineering trades workers Australia-wide over the five years to November 2017, with a slight increase of 1400 for Structural Steel and Welding Trades Workers and a decrease of 3700 for Metal Fitters and Machinists.²¹ This means the lack of welding training described by employers in the EATC Skills Requirement Survey, along with the difficulties identified with recruiting welders with specialist skills are likely to be ongoing issues.

Modelling undertaken for the Australian Workforce and Productivity Agency suggests that employment of structural steel and welding trades workers and metal fitters and machinists will grow in resource project construction, mining operations and oil and gas operations between 2013 and 2018. The modelling suggests the strongest jobs growth will be in Oil and Gas Operations with an undersupply of appropriately skilled workers, particularly technical and trades, in the second half of this decade.²²

Activity levels in construction are subdued but showing signs of recovery, which may boost demand for engineering trade workers to a small extent. Although the value of annual civil construction activity in Western Australia is set to fall by about \$10 billion between 2013-14 and 2016-17, the total sum of construction work done in Western Australia over that period is estimated at \$170 billion.²³

The recent challenges related to finding suitably qualified and skilled engineering trades workers are likely to continue into the foreseeable future. Even though the data shows an overall easing in areas of skill shortage and greater availability of tradespersons for vacant positions, the research suggests that there is a skills deficiency, particularly specialised skills, and a lack of quality in the general engineering skills base.

In relation to the industry investment in apprenticeships, the research suggests that:

- The number of apprentices being trained is too low and at a level that will not sustain the future, locally trained skills base.
- The apprenticeship model is inadequate in coping with the highs and lows of the business cycle.
- The need to refocus on certain trade areas, particularly specialised welding, and consider the strengthening of welder certification requirements.
- There is support for a direct entry apprenticeship to a higher level skills pathway such as the Certificate IV in Engineering, and
- Greater emphasis should be placed on continuous improvement of skills both during the apprenticeship and once trade status is achieved.

²⁰ *Modular Fabrication in the Resources Sector in Western Australia: Current Practices and Strategies for Improvement*, Report for the Department of Commerce and the Industry Capability Network, Dr Martin West, November 2011

²¹ *Employment Outlook to 2017*, Australian Government Department of Education, Employment and Workplace Relations, Labour Market Research and Analysis Branch August 2013

²² *Resources sector skill needs*, Australian Government Australian Workforce and Productivity Agency, December 2013

²³ *WA Business News – Engineering construction set to fall* – Michael Ramsey, 14 April 2014

There would be great value in further work focused on:

- The overall quality of engineering trade skills in this state.
- The reasons why specialist skills such as pipefitting and higher level welding are in short supply, and
- What could be done to deliver a rapid skills development response during times of strong demand?

In Western Australia, the population of engineering trades workers has grown significantly. ABS census data for 2006 and 2011 shows growth in numbers of people working in the engineering trades of 23 per cent – well above the 14 per cent increase in the Western Australian population over the same period. However, there is a degree of variability in the individual occupational classifications, as shown below in Figure 3 and Table 1²⁴.

FIGURE 3 - ENGINEERING TRADES WORKERS - COMPARATIVE POPULATION (ABS CENSUS 2006 AND 2011)

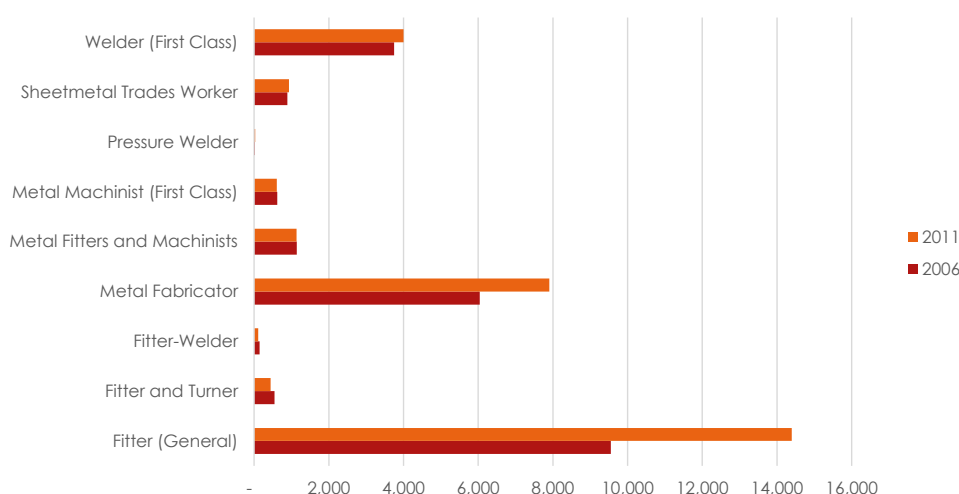


TABLE 1 - ABS CENSUS DATA - ENGINEERING TRADES WORKERS (ANZSCO)

Trade	2006	2011	% shift
Sheetmetal Trades Worker	891	933	5%
Metal Fabricator	6,044	7,907	24%
Pressure Welder	21	29	28%
Welder (First Class)	3,751	4,003	6%
Fitter (General)	9,554	14,397	34%

²⁴ Australian and New Zealand Standard Classification of Occupations (ANZSCO) is adopted by the Australian Bureau of Statistics to classify occupations. For the purposes of this report identified ANZSCO codes are used as a proxy for the trades in focus.

Fitter and Turner	547	439	-25%
Fitter-Welder	143	109	-31%
Metal Machinist (First Class)	618	607	-2%
Metal Fitters and Machinists	1,142	1,138	0%
Total	22,711	29,562	23%

Based on ABS data, which includes apprentices

In recent years, the mining and resources sectors have had a significant impact on demand for engineering trades workers, particularly the engineering fabrication and mechanical trades. However, given the slowdown in construction, demand for these trades has slowed, with the result that many engineering/metal trade workers are returning to metropolitan Western Australia, increasing the pool of workers within the engineering trades cluster.²⁵

Despite the greater availability of labour, many employers are still reporting difficulties with finding suitably qualified tradespersons and some specialist skills, particularly welders. There is also some concern that the inevitable decline in apprenticeships associated with a downturn in business activity will mean continuing skills shortages and a need to again turn to overseas labour markets for the recruitment of skilled labour in the next upturn.

New and Emerging Skills - Labour and Skills Demand

The softening of the labour market in the engineering trades is reflected in Table 2. What is apparent from scanning this table is that skills shortages still exist in at least two of the engineering trades. Even where there are no shortages, employers are commenting about the difficulty in finding people with specialised skills.

TABLE 2 - ENGINEERING TRADES LABOUR MARKET STATUS

3222-11 Sheetmetal Workers	
Labour Market Status 2012: No shortage	Labour Market Status Sept 2013: Shortage
% of vacancies filled: 91% within 4 weeks	No. of applicants per vacancy: 23 with 3 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 1
Issues: Some applicants unqualified and lacked relevant experience	
3223-11 Metal Fabricator	
Labour Market Status 2012: No shortage	Labour Market Status Sept 2013: No shortage
% of vacancies filled: 100% within 4 weeks	No. of applicants per vacancy: 23 with 6 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 3
Issues: Some employers taking skills and experience without formal trade qualifications	
3223-13 Welder (First Class)	
Labour Market Status 2012: Recruitment difficulty	Labour Market Status Sept 2013: Regional recruitment difficulty

²⁵ Labour Market Research – Engineering Trades Western Australia, September 2013, Australian Government Labour Economics Office Western Australia Department of Employment

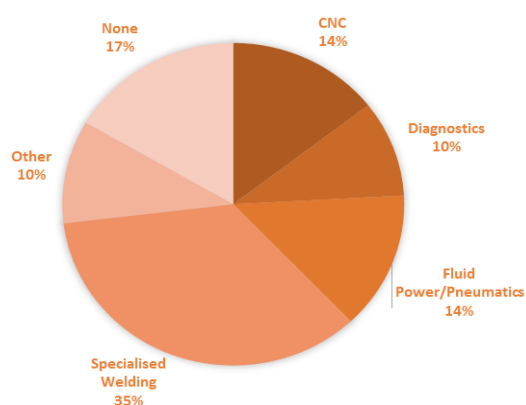
% of vacancies filled: 89% within 4 weeks	No. of applicants per vacancy: 37 with 5 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 1
Issues: Market eased but hard to find experienced welders with specialised skills	
3232-11, 12 & 13 Fitters	
Labour Market Status 2012: Recruitment difficulty	Labour Market Status Sept 2013: Regional shortage only
% of vacancies filled: 50% within 4 weeks	No. of applicants per vacancy: 21 with 2 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 1
Issues: Market has eased but hard to attract experienced fitters with relevant skills	
3232-14 Metal Machinist (1st Class)	
Labour Market Status 2012: Shortage	Labour Market Status Sept 2013: Shortage
% of vacancies filled: 50% within 4 weeks	No. of applicants per vacancy: 17 with 2 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 1
Issues: Many applicants had no machining tools experience or ability to use CNC technology	

Source: Information Sheets ANZSCO 3222-11 Sheetmetal Trades Worker, ANZSCO3223-11 Metal Fabricator, ANZSCO 3223-13 Welder (First Class), ANZSCO 3232-14 Metal Machinist (First Class), Australian Government, Labour Economics Office Western Australia, Department of Employment, September 2013, State priority occupation list (combined list) August 2013, Government of Western Australia, Department of Training and Workforce Development, Western Australian skilled migration occupation list 2013-2014, Government of Western Australia Department of Migration

The labour market information points to continuing skills gaps, so the project went directly to employers to gather information about their skill requirements. Employer feedback shown in Figure 4 echoes the findings of the Engineering Labour Market Status Report. There is a high demand for specialised welding, and a number of respondents chose more than one specific skill requirement. Those respondents who chose ‘other’ skills, identified:

- Fabrication – pipework (explained as work undertaken by pipefitters – another nomenclature example).
- Engine rebuilding.
- Specialist fabrication skills (described as boilermaking skills), and
- Other individual employer requirements such as equipment overhauling; brazing; higher level refrigeration skills; hydraulics; gas tungsten arc welding; instrumentation; electrical installation; and specialised boat building skills.

FIGURE 4 - EMPLOYER IDENTIFIED ENGINEERING SKILL REQUIREMENTS



Respondents to the EATC Skills Requirement Survey were almost evenly split between those who answered that they were experiencing problems recruiting suitably qualified tradespersons, at 51 per cent, and those who were not at 49 per cent. Many of those who said that recruiting was an issue seemed to be reflecting on past experiences, when demand for skilled tradespersons was much stronger. Many of the difficulties also related to what employers described as specialist skills or the specialised nature of their business. Comments were made in relation to:

- The need for specialists – welders, hydraulics, skilled fitter machinists, ship building, fluid power pneumatics, manufacturing skills, and
- The quality, expectations and attitudes of applicants.

A significant majority of respondents, 73 per cent, said they support the use of post-trade training to upskill employees. In subsequent focus group discussions, employers expressed concern about commitment to ongoing training and development, noting that many workers were not keeping their trades skills current. Post trade and higher-level training was identified as an important means of addressing some of the reported skills gaps and encouraging professionalism in their workforces.

It is clear that there is industry demand for higher level engineering skills. The Metals and Engineering training package (MEM05) is sufficiently flexible to support this demand. However, analysis of data provided by the Department of Training and Workforce Development indicates that the skills development needed at this level is not occurring. This may explain why employers are looking to overseas labour.

Of all the reported training, only four per cent is in areas identified as critical by employers. The following table illustrates the relatively low numbers of unit enrolments and training hours delivered in 2013.

TABLE 3 - ENROLMENTS IN SPECIALIST UNITS ALIGNED TO SKILL SHORTAGES

Unit code	Unit Title	Unit Enrolments	Student Contact Hrs
MEM05016C	PERFORM ADVANCED WELDING USING MANUAL METAL ARC WELDING PROCESS	18	648
MEM05020C	PERFORM ADVANCED WELDING USING GAS TUNGSTEN ARC WELDING PROCESS	21	756
MEM05018C	PERFORM ADVANCED WELDING USING GAS METAL ARC WELDING PROCESS	6	216
MEM05048B	PERFORM ADVANCED WELDING USING FLUX CORE ARC WELDING PROCESS	6	216
MEM10010B	INSTALL PIPEWORK AND PIPEWORK ASSEMBLIES	16	576
MEM18020B	MAINTAIN HYDRAULIC SYSTEM COMPONENTS	140	5,040
MEM18021B	MAINTAIN HYDRAULIC SYSTEMS	114	4,104
MEM18022B	MAINTAIN FLUID POWER CONTROLS	31	2,232
Total		352	13,788
All Certificate IV in Engineering Delivery		8,338	340,667

Given the advice on demand provided during the report, overall figures for the units shown and for a broad range of other higher level skill units are very low compared to the size of the fabrication and mechanical trades population in the state. The reasons for the overall low level of engagement are unclear and warrant further investigation.

While employers in the focus groups reported good quality applicants currently available, their comments echoed those of employers in the Western Australian Labour Economic Office September 2013 survey that “Generally, unsuitable applicants had been working in the mining industry for an extended period and had no recent experience working with lighter gauge metals used in manufacturing.”²⁶

“The quality of tradespersons who have worked in the north-west needs improving. Many cannot identify materials. They don’t keep up with standards and they cannot identify symbols which means they make basic mistakes.”

Employers in the focus groups also noted a serious shortage of specialist welders and pipe fitters and commented on the poor quality of skills in these areas. This issue identifies the availability of suitably skilled tradespersons rather than the number of available tradespersons.

Employers advised that the skills required to interpret pipework drawings and welding symbols and the practical skills required to install pipework are not available, further, many current tradespersons in these skills areas were perceived as being unable to satisfy expected industry standards. They noted that;

“During the boom there were few welding apprentices. It is still difficult to find welders and the numbers for welding training are too low.”

“There is a need for competent welders and huge benefits in having Certificate III and IV trained welders.”

The employer feedback about the availability of the key fabrication skills for pipe-fitting and specialised welding was as follows:

- There has never been a specific pipe fitting apprenticeship in Western Australia and industry has relied on fabrication tradespersons who have completed a general heavy fabrication apprenticeship (boilermaking) to undertake pipe fitting work. As a consequence, many fabrication tradespersons undertaking high level pipework assembly and installation are skilled migrants from the UK where pipefitting is a recognised trade.
- Pipe-fitting skills are typically learned on-the-job by Australian trained fabrication tradespersons and this requires access to suitable work for this purpose.
- Most RTOs only offer a general combined fabrication/welding pathway (what is typically known as a boilermaker/welder program) and this has resulted in a diminution of local specialist welding skills.
- During the boom periods, many welders are sent by contractors to resource sector construction sites without a formal trade certificate and are simply trained to pass the site welding specifications. When work becomes scarce these welders are unable to apply a broader range or higher level of welding skills because they have not completed a full apprenticeship program.
- There are not enough welders trained to satisfy the requirements of Certificate 1 to 9 under Australian Standard 1796 Certification of Welders – this approach would formalise welding training and raise the overall skill standard.

²⁶ Labour Market Research – Engineering Trades Western Australia, September 2013, Labour Economics Office Western Australia, Department of Employment

- There is a need to promote and reposition welding as a full apprenticeship program separate from the general heavy fabrication trade. The trade of Engineering Tradesperson Fabrication – First Class Welding is already established but has very few enrolments. This will require RTOs to promote a welding pathway rather than the current combined fabrication/welding pathway.

Employers also reported that heavy fabrication skills were being lost due to the shift of major fabrication projects to large offshore fabrication yards as part of a shift to modularised construction.

The number of fabrication tradespersons in Western Australia has increased in recent years to support increased engineering construction activity. An increase in numbers does not necessarily mean an increase in the quality of the skills base.

Feedback gathered during the report suggested that much of the general fabrication construction work did not require higher level skills (other than the pipe-work and specialised welding areas) and that tradespersons focused on specific and often narrow project or contractor requirements.

Workforce Development Opportunities

Much of the growth in engineering trade workers can be attributed to a significant increase in overseas born workers, including skilled migrants and 457 visa holders. Analysis of data from the 2006 and 2011 ABS census (see Table 4) shows increases in overseas born engineering trades workers at a much higher rate than the Australian born workforce. In some trades, without growth in overseas born workers the skills base would have shrunk – probably at a time when demand was reaching its peak.

TABLE 4 - ENGINEERING TRADES WORKERS: AUSTRALIAN AND OVERSEAS BORN

Engineering Trades	Census Year 2006	Census Year 2011	% Growth
Fitter (General)	9,554	14,397	33.6%
Australia	6,728	9,657	30.3%
Other Countries	2,826	4,740	40.4%
Fitter and Turner	547	439	-24.6%
Australia	353	273	-29.3%
Other Countries	194	166	-16.9%
Fitter-Welder	143	109	-31.2%
Australia	74	56	-32.1%
Other Countries	69	53	-30.2%
Metal Fabricator	6,044	7,907	23.6%
Australia	4,164	5,231	20.4%

Other Countries	1,880	2,676	29.7%
Metal Fitters and Machinists	1,142	1,138	-0.4%
Australia	782	851	8.1%
Other Countries	360	287	-25.4%
Metal Machinist (First Class)	618	607	-1.8%
Australia	339	260	-30.4%
Other Countries	279	347	19.6%
Pressure Welder	21	29	27.6%
Australia	10	15	33.3%
Other Countries	11	14	21.4%
Sheetmetal Trades Worker	891	933	4.5%
Australia	591	572	-3.3%
Other Countries	300	361	16.9%
Welder (First Class)	3,751	4,003	6.3%
Australia	2,016	1,797	-12.2%
Other Countries	1,735	2,206	21.4%
Grand Total	22,711	29,562	23.2%

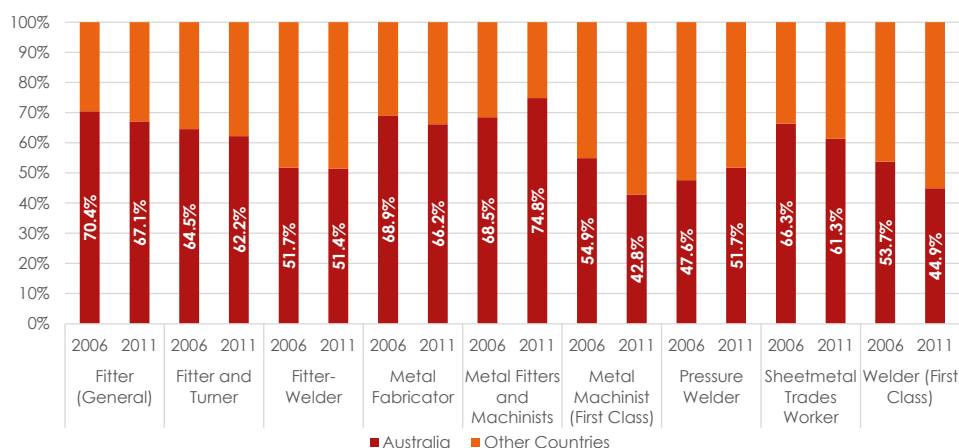
Based on ABS data, which includes apprentices

Over the five years from 2006 to 2011, Australian born engineering trades workers grew by 24 per cent, while the number of workers from other countries grew by 42 per cent. Noting that the data includes apprentices, some of the growth in Australian born workers could be associated with increases in apprentice numbers, (assuming that a majority of those apprentices would be Australians), so the differential may be more acute.

In effect, the proportion of Australian born workers fell from 66 per cent of engineering trades workers in 2006 to 63 per cent in 2011. The relatively high levels of overseas born workers suggests a growing reliance on skilled migration – this situation needs monitoring.

The impact of such a shift in the make-up of the workforce at occupation level is shown Figure 5.

FIGURE 5 - ENGINEERING TRADES WORKERS – COMPARATIVE POPULATION AT ABS CENSUS 2006 AND 2011



BASED ON ABS DATA

Caution must be exercised when considering this data because a significant proportion of workers from other countries have been in Australia for some time and are likely to be Australian citizens or permanent residents – many may even have done their apprenticeships here. Fundamentally, the assumption cannot be made that all overseas born workers are temporary workers – it is likely that a significant proportion of them are part of the permanent workforce. However, by looking at the year of arrival, shown in the following charts, it is apparent that the numbers of recently arrived workers (ie those who arrived within five years of the census dates) grew dramatically, from 14 per cent at the 2006 census to 34 per cent in 2011.

Data from the Department of Immigration and Border Protection website indicates that most of the growth in overseas born workers across the engineering trades can be attributed to 457 visa holders. Figure 8 shows trends for the fabrication and mechanical trades since September 2006.

FIGURE 6 - OVERSEAS BORN ENGINEERING TRADES WORKERS BY YEAR OF ARRIVAL (2006 ABS CENSUS)

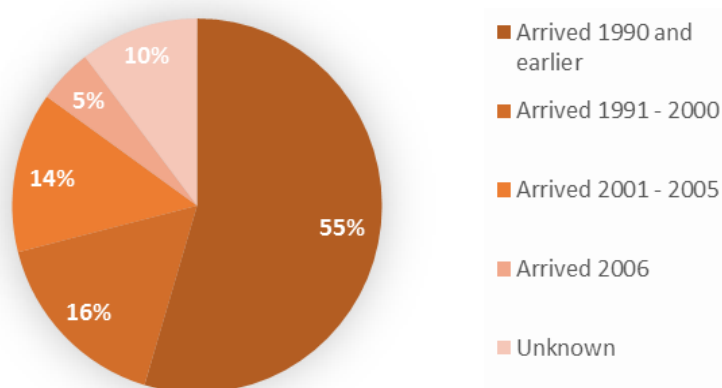


FIGURE 7 - OVERSEAS BORN ENGINEERING TRADES WORKERS BY YEAR OF ARRIVAL (2011 ABS CENSUS)

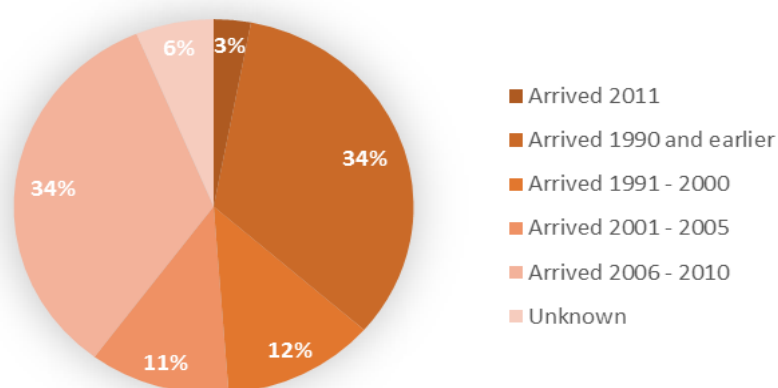
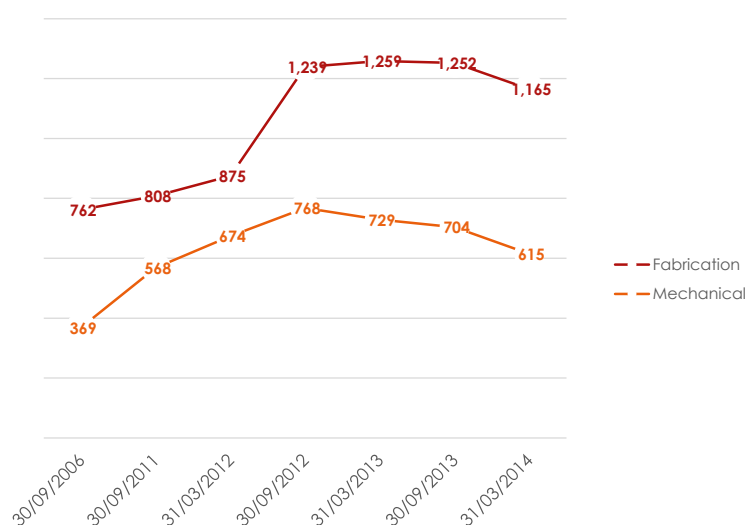


FIGURE 8 - 457 VISA HOLDER NUMBERS WORKING IN WA IN SELECT ENGINEERING FABRICATION AND MECHANICAL TRADES OCCUPATIONS



Based on data from the Department of Immigration and Border Protection website. Note does not include data for trade occupations: fitter and turner; fitter welder; and pressure welder²⁷

Taking the information in figures 6, 7 and 8 as a whole, there appears to be at least a couple of occupational trade areas warranting closer attention:

- Metal Machinist (First Class):** In this occupational category the proportion of Australian born workers declined, so that they made up less than half the working population. Machinist – metal apprentices in-training also declined from 31 December 2009 to 2013. Over the same period reliance on 457 visas holders rose significantly. Taking all of these factors together, it may be that this trade is at risk.
- Welder (First Class):** The proportion of Australian born workers declined and, here too, they made up less than half the workforce. The decline in fabrication (welding) apprentices in training is even more dramatic than that witnessed for the machinist-metal apprentices. Part of this decline may have been offset by a fairly dramatic increase in 457 visa holders in the welder (first class) occupational category, which points to the shortage of specialised welding skills.

²⁷ 457 intake numbers in these occupations are low and would not make a material difference to the data in the chart.

Over the five years between the 2006 and 2011 census there was a noticeable shift in the countries of origin for overseas born engineering trades workers, as can be seen in Table 5.

TABLE 5 - OVERSEAS BORN ENGINEERING TRADES WORKERS – TOP 10 COUNTRIES OF ORIGIN (2011)

Country of Origin	Census Yr 2006	Census Yr 2011	Growth
England	2,335	2,469	5%
New Zealand	1,140	1,754	35%
Philippines	248	1,028	76%
South Africa	533	844	37%
China	96	574	83%
Scotland	446	478	7%
India	133	442	70%
Zimbabwe	159	389	59%
Ireland	115	244	53%
Vietnam	150	167	10%
Other countries	1,835	2,125	14%
Unknown	464	336	-38%
Grand Total	7,654	10,850	29%

Based on ABS 2011 census data

Looking at employer feedback provided through the skills requirement survey, 76 per cent of employers of engineering tradespersons have or are employing overseas workers. Given that employers have also commented on their preference to employ local workers and the higher costs associated with importing labour, the fact that such a substantial number have turned to overseas workers to meet their trades skills requirements is worth noting. Further, employers reported variable experiences with overseas workers some of which is captured in Table 6.

TABLE 6 - ENGINEERING EMPLOYER PERCEPTIONS OF COMPARATIVE SKILL LEVELS

Overseas Trained Perceived As...	Count	Comments
Better	19	Overseas trained workers tend to have a better attitude; it depends on where they are from – some are good and some are bad; they are better trained on working in high risk.
Same	42	Some are good, some are bad; they generally have a better work ethic; language can be a barrier
Worse	14	Communications issues; lack of independent thinking
Not applicable	25	

The data shows that during the recent times of increasing demand engineering employers have used the 457 visa arrangements to fill skills gaps. In some specialist trade areas such as metal machinist and welder (first class) the use of the 457 arrangements has been significant in maintaining the trade skills base.

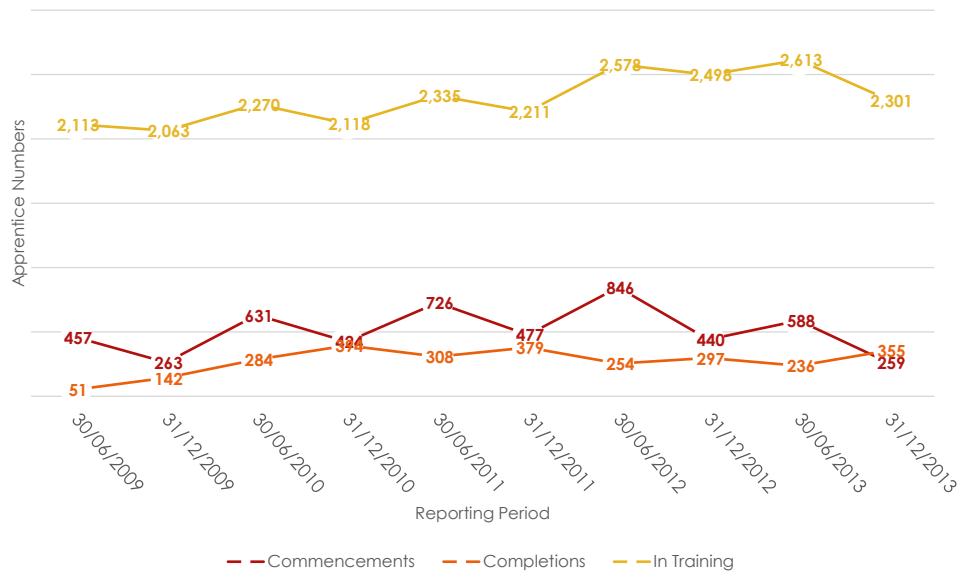
Employer feedback during the report is that the use of 457 visa holders and the recruitment of overseas based tradespersons is a costly exercise and that it could be less prevalent if specific trade skills were available locally.

When employers make greater use of skilled migration and flexible visa arrangements, as a general rule, they also increase their apprentice intake. However, it is the level of apprentice intake during periods when the business cycle is at a low point that ultimately influences future skilled labour recruitment choices. Low numbers of apprenticeship commencements in any given year can produce a skills gap four, five and six years into the future. Employers fill the gap with offshore recruitment and the cycle continues.

VET Training Data by Qualification – Enrolments and Completions

Apprentice numbers often serve as a barometer for the health of the labour market and longer term supply of a skilled workforce. The following chart has been derived from data supplied by the WA Department of Training and Workforce Development. It shows that after a period of steady growth from the beginning of 2010, the numbers of apprentices in the nominated engineering trades, started to decline in the second half of 2012.

FIGURE 9 - ENGINEERING TRADES APPRENTICES – TREND DATA 2009 TO 2013

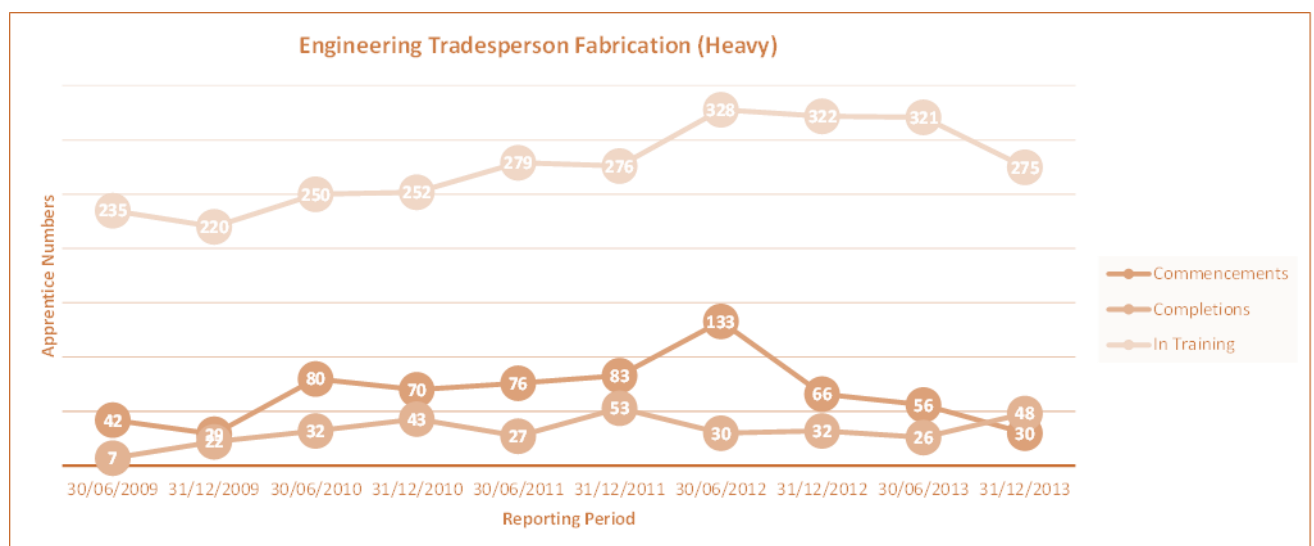


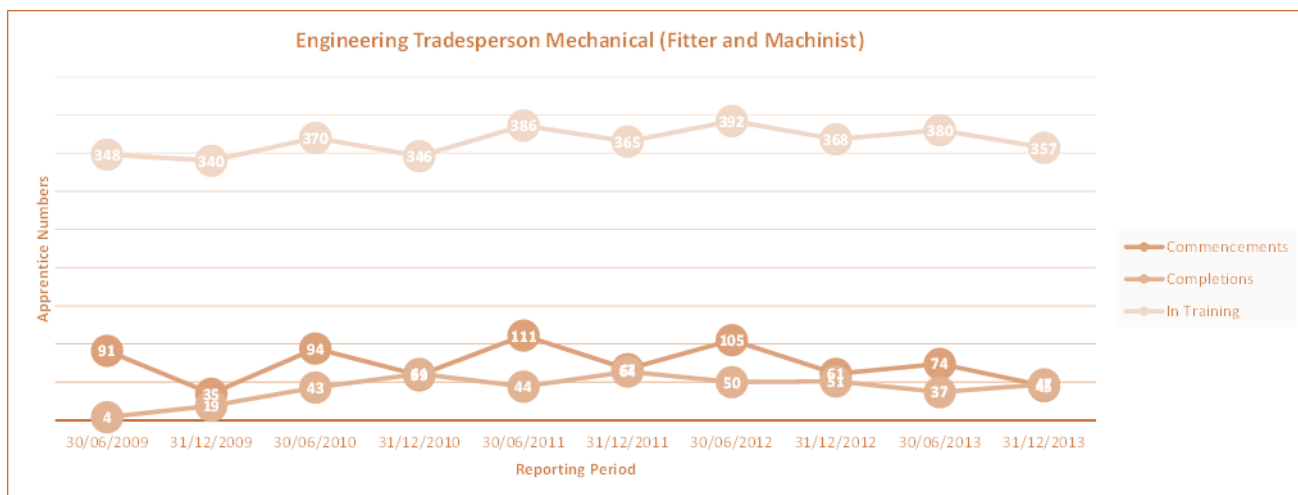
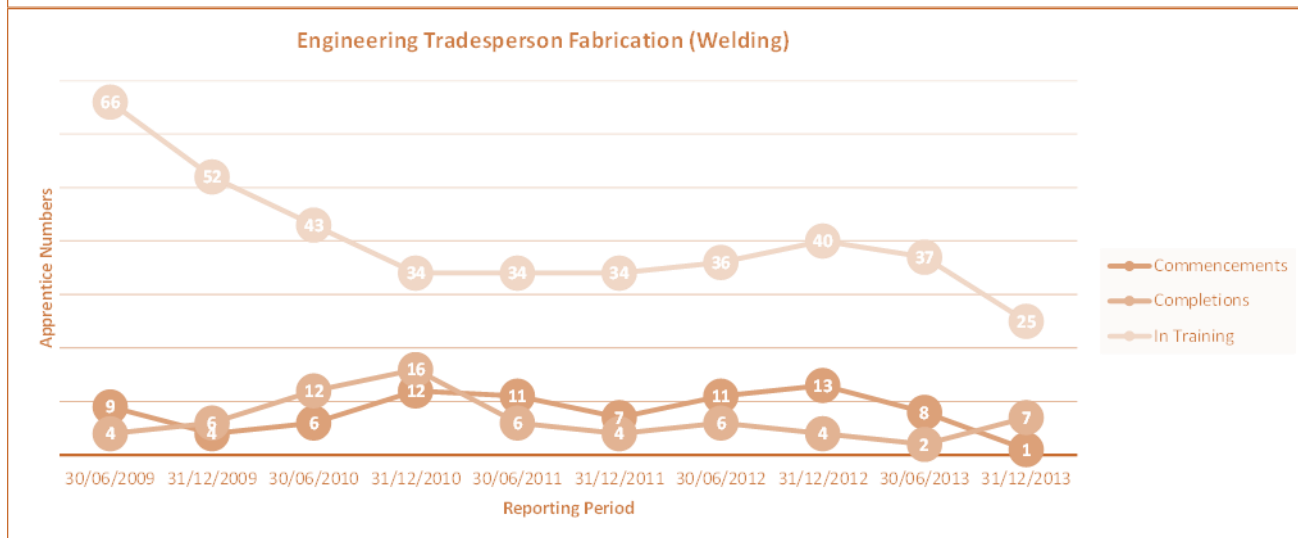
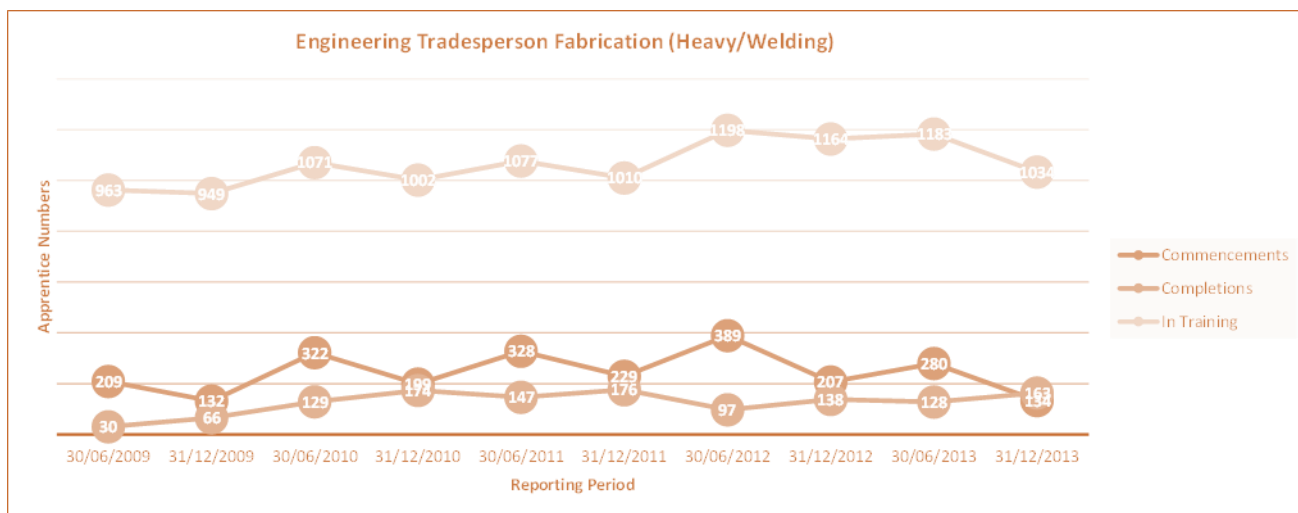
Most worrying is the decline in apprenticeship commencements in the second half of 2013, where numbers have dropped to a level lower than the same period in 2009 (noting that the 2009 figures most likely reflect the after effects of the global financial crisis).

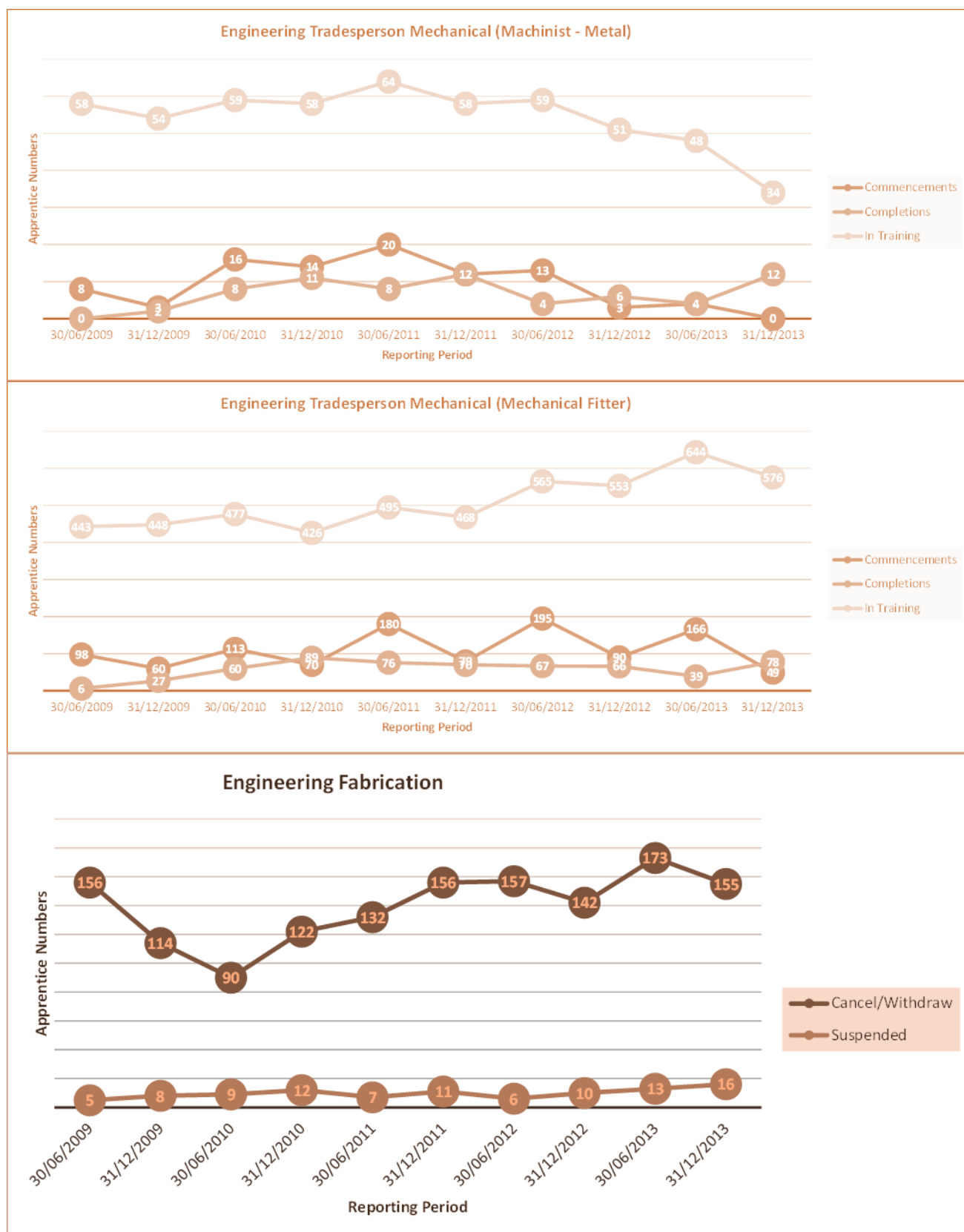
Notwithstanding this potentially longer term trend, the decline for both reporting periods from 2012 to 2013 is in the order of 30 per cent.

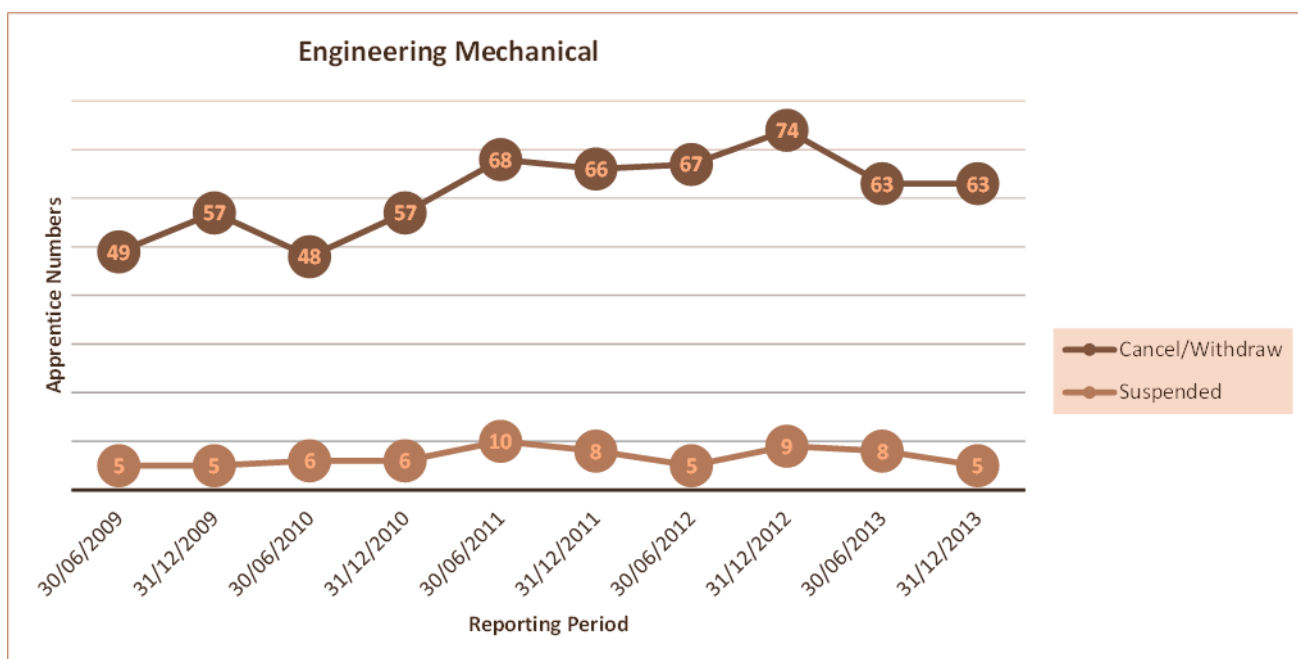
ENGINEERING APPRENTICE DATA

Engineering Trades – Apprentice Commencements, In-Training, Completions (and Consolidated Cancellations, Withdrawals, Suspensions)









All charts in this appendix are based on data provided by the Department of Training and Workforce Development

- Engineering Tradesperson Fabrication (Heavy), where commencing numbers in 2013 show a 55 per cent reduction compared to the same periods in 2012.
- Engineering Tradesperson Fabrication (Heavy/Welding), where there was a marked decline in commencements in the December 2013 reporting period.
- Engineering Tradesperson Mechanical (Machinist – Metal), a highly specialist trade with very low numbers of apprentices – there were no commencements in the second half of 2013 and only 4 commencements in the first half of the year.

The longer term impact of lower commencements is compounded by relatively high apprenticeship attrition rates. Research undertaken by ACIL Allen Consulting and NCVER shows that there is a significant level of non-completion.

Western Australia has a completion rate of 65.6 per cent in the engineering trades.²⁸ While qualification completion rates in the engineering trades are higher relative to other trades, and WA is doing better than most other states, the data presented by ACIL Allen Consulting suggests that over one third of engineering trades apprentices in WA are not finishing their apprenticeship.

Variability is evident across the trades within the engineering grouping, with the ACIL Allen Consulting report showing a 68.4 per cent completion rate for mechanical engineering trades (ANZSCO 323), compared to 61.3 per cent for fabrication engineering trades (ANZSCO 322).²⁹

Another factor reported as influencing qualification completion rates is the qualification level “...with students undertaking a Certificate IV qualification having completion rates approximately

²⁸ Review of Qualification Completions in Engineering Trades Apprenticeships, ACIL Allen Consulting, 2013, p 17

²⁹ As above

5 percentage points higher than those studying a Certificate III".³⁰ Although the ACIL Allen Consulting report identifies the benefits of the Certificate IV completion rates, this does not apply in WA where the Certificate IV qualifications are not available for mechanical and fabrication engineering trades as a direct entry apprenticeship program.

The argument mounted by ACIL Allen Consulting is that a focus on improving apprenticeship completion rates could make a significant contribution to addressing skills shortages and their report suggests a number of strategies related to apprentice recruitment, information and mentoring, along with employer support and suitability.

Employers are signalling a lack of advanced and specialised skills in the engineering trades, as captured through the labour market surveys shown in Table 2. Such feedback indicates that the current decline in apprentice numbers may be compounded by the fact that there is no higher level apprenticeship option at Certificate IV in Western Australia.

The employer focus groups strongly indicated an appetite for Certificate IV trades as a direct entry apprenticeship program. It was also noted that there is a need to ensure supervising tradesmen have up-to-date skills too so that they can supervise apprentices.

The Metals and Engineering training package provides a clear training pathway for additional skilling and allows direct entry into a Certificate IV qualification so that an employer may choose an apprenticeship program that delivers a higher level skills outcome. This option is not available for mechanical or fabrication apprentices in Western Australia. By comparison, there is a direct entry Certificate IV in Engineering for electrical/instrumentation apprentices.

A scan of the websites of training authorities in other states, including New South Wales, Victoria and Queensland, shows there are advanced trade options offered at Certificate IV level and higher – which is not the case in Western Australia. While the numbers of higher level trades apprentices may not be high³¹, the fact that the completion rates are significantly better for this cohort suggests there may be some benefit in exploring such an option locally.

Data (Table 7) related to the number of employers of apprentices reveals reasonably steady levels of engagement with the apprenticeship system over the past 5 years, noting a peak in 2012.

TABLE 7 - SUM OF EMPLOYERS OF ENGINEERING APPRENTICES BY EMPLOYER SIZE

Year	Engineering Trades			All Engineering
	Large	Medium	Small³²	Total
2009	163	170	241	574
2010	161	189	247	597
2011	163	178	247	588
2012	185	206	268	659
2013	160	183	253	596

³⁰ As above, p 18

³¹ The ACIL Allen Consulting report, on page 12, indicates that approximately 6 per cent of engineering trades apprentices are at Certificate IV level.

³² Large employers are categorised as those with 100 or more employees, medium employers have employee numbers between 20 and 99, and small employers have less than 20 employees.

Looking at the data in more detail indicates the following factors may be significant:

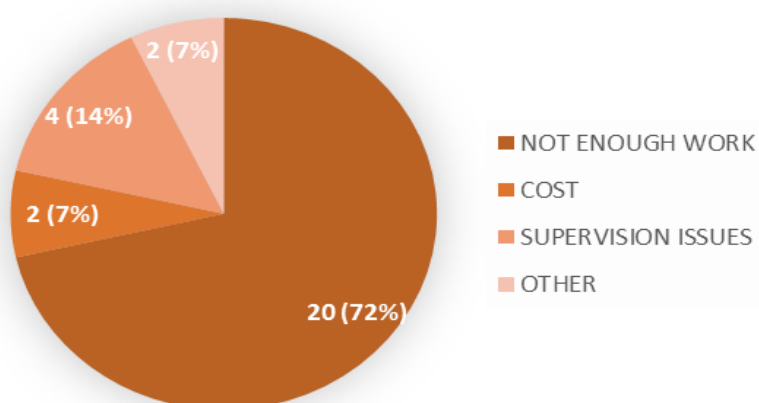
- Generally the number of small employers has remained steady. However, in the Mechanical (Machinist-Metal) engineering trade the apprentice employer numbers have halved and were down to just five employers across the state in 2013.
- In the Fabrication (Heavy) engineering trade there has been a significant fall in the number of medium-sized employers in the mining sector.
- Most of the decline in the large-sized employer category can be attributed to employers in the mining sector, which in recent years has recorded the most employers of apprentices (though not the most apprentices).

The detailed data (supplied by the Department of Training and Workforce Development) that informed this analysis was provided in the interim report and can be provided on request.

Results from the EATC Skills Requirement Survey show strong commitment to the employment of apprentices in engineering, given that 72 per cent of respondents replied that they were employing apprentices. A few of those respondents commented on the fact that rising costs were causing them to review their apprenticeship arrangements. Those who don't employ apprentices mainly identified the issue of not having enough work and/or an appropriate spread of work.

The following chart summarises the reasons respondents identified for not employing apprentices.

FIGURE 10 - REASONS FOR NOT EMPLOYING ENGINEERING APPRENTICES



In response to the question “Would you employ apprentices if the cost of wages and on-costs were subsidised or shared with other employers?” 62 per cent of engineering employers indicated that it would make a difference, while 34 per cent replied ‘no’, which would suggest that cost is not the sole consideration for a substantial number of employers.

3C - Automotive Industry

Major Challenges and Barriers

The 2014 Automotive Environmental Scan notes the potential for further skills shortages down the track, in view of:

- A rapidly aging workforce.
- Low levels of apprentice employment, and
- Signals that over the next 12 months even fewer employers intend to hire an apprentice³³.

The situation could be exacerbated by what some employers believe the automotive trades have an “image” problem, with perceptions of working conditions being difficult and dirty, making it challenging to attract people to these trades.³⁴

Results from the EATC skills requirement survey, show that there is a higher proportion of employers (62 per cent) engaged with the apprenticeship system in Western Australia than the national Automotive Environmental Scan would indicate. However, employers here reported similar issues and the decline in apprenticeship numbers signals that future skills shortages, as predicted nationally, are also likely in Western Australia across all of the automotive trades that have been the focus of this report.

Some employers expressed concern about future supply of skilled workers, given the low levels of training. The new supply of automotive trades workers to the labour market has been constrained by a plateau in apprenticeship and traineeship completions in recent years.³⁵ Fewer employers taking on apprentices and a significant decline in the Australian born workforce, present considerable challenges to the automotive industry. It is not clear at this stage how these challenges will be resolved.

The Australian Motor Industry Federation, in its *An Industry at Crossroads* paper highlights the fact that the automotive industry is undergoing significant and ongoing change and questions the capacity of the training and qualifications frameworks to reflect that change.³⁶ Some of these changes are technologically driven, while others relate to societal factors and industry restructuring. The federation has identified education, training and skills development as having an important role in helping the industry to adapt.

The 2014 Automotive Environmental Scan Survey of 550 automotive businesses Australia-wide found variable business conditions across most automotive sectors.

The key issues facing automotive businesses in order of magnitude were:

- Maintaining profitability.
- Economic conditions.
- Government policy/regulation, and
- Technological change.³⁷

³³ *Automotive Environmental Scan 2014*, Auto Skills Australia

³⁴ *Labour Market Research – Automotive Trades Workers, September 2013*, Australian Government, Labour Economics Office Western Australia, Department of Employment

³⁵ *Automotive Environmental Scan 2014*, Auto Skills Australia

³⁶ *An Industry at Crossroads, Automotive 2018*, Australian Motor Industry Federation

³⁷ As above

Concerns about technological change focused on access to OEM repair and servicing information which businesses report is controlled through OEM dealership networks. This affects many independent and unincorporated service and repair businesses.

Key labour issues, in order of importance, were:

- Attracting skilled workers.
- Achieving productivity improvements with current staff and skills base, and
- Workforce retention and skills utilisation³⁸.

There has been rationalisation in the Automotive Repair and Maintenance industry over the past decade with the closure or consolidation of some smaller motor vehicle repair workshops, a large decline in service station based workshops and the growth of generalist and specialist chains and franchised repairers and dealer-associated workshops.³⁹

The EATC Skills Requirement Survey responses identified business downturn and technological change as the major issues in relation to employing either qualified tradespersons or apprentices.

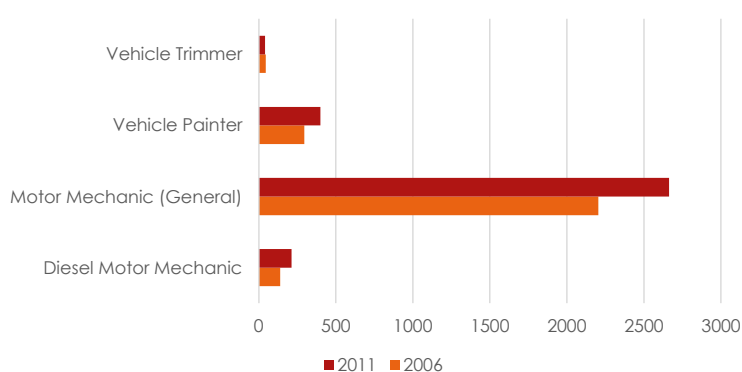
“It is patchy at the moment. Some businesses are doing well, such as commercial vehicles, heavy on-road vehicles, 4 wheel drive and recreational vehicles, but it is very variable outside those areas. Optimism is low at the moment.”

The strong Western Australian economy and population growth in recent years has not translated into boom times for the automotive industry with total industry employment of 37,018 people in 2012-13, down 970 over the previous year.⁴⁰

The industry has also been hit by the slowdown in the resources sector with a marked decline in commercial truck sales and servicing activity together with a decline in trend sales of new motor vehicles.⁴¹

For the particular trades in focus, ABS census data indicates minimal growth over the 5 year period 2006 to 2011, shown in Figure 11.

FIGURE 11 - AUTOMOTIVE TRADES WORKERS: COMPARATIVE POPULATION (ABS CENSUS 2006 AND 2011)



³⁸ As above

³⁹ As above

⁴⁰ *Automotive Environmental Scan 2014*, Auto Skills Australia

⁴¹ As above

Taking the four trades as a whole, the number of automotive trades workers increased by 3 per cent, well below the overall population growth of Western Australia for the same period. This may be explained by the fact that business closures in Western Australia are increasing, particularly in the repair and maintenance sector, with 90 per cent of closures being sole proprietor businesses with no employees. Automotive body, paint and interior repair businesses are closing in greatest numbers and these numbers are expected to escalate.⁴²

Table 8 provides the detail about what has happened in the individual trades and it is evident that at least two of those trades may need further consideration.

TABLE 8 - ABS CENSUS DATA - AUTOMOTIVE TRADES WORKERS (ANZSCO)

Trade	2006	2011	% shift
Motor Mechanic (General)	7,985	8,115	2%
Diesel Motor Mechanic	524	623	16%
Vehicle Trimmer	216	201	-7%
Vehicle Painter	1,049	1,172	10%
Total	9,774	10,111	3%

Motor Mechanic (General) – Clearly, numbers of general motor mechanics have increased only minimally, and it is questionable whether the 2% growth between 2006 and 2011 was sufficient to meet demand. Apprentice numbers since then have remained relatively stable, with a very slight decrease from 2012 to 2013. Looking at the 457 visa data, it appears that employers are increasingly turning overseas to meet their labour force requirements for this trade.

Vehicle Trimmer – there are relatively few people employed in this occupation, and the numbers declined between 2006 and 2011. It appears that this is a niche occupation, which given the already low levels of tradespersons, may be at risk.

New and Emerging Skills - Labour and Skills Demand

The move to the production phase of the mining cycle requires fewer workers on site, resulting in many of the automotive trade workers, recruited for their generic skills base, returning to metropolitan Western Australia and increasing the pool of workers available in the automotive cluster.⁴³

This means skills shortages in the automotive trades have largely abated in the past year with most occupations within the automotive trades moving from shortage to no shortage, and most employers being able to fill their advertised vacancies.⁴⁴ There is still, however, a critical skills shortage for diesel mechanics with the demand and shortage expected to increase over the next 12 months.

⁴² *Automotive Environmental Scan 2014*, Auto Skills Australia

⁴³ *Labour Market Research – Automotive Trades Western Australia September 2013*, Australian Government, Labour Economics Office Western Australia, Department of Employment

⁴⁴ As above

TABLE 9 - AUTOMOTIVE TRADES LABOUR MARKET STATUS

3211-11 Automotive Electrician	
Labour Market Status 2012: No shortage	Labour Market Status Sept 2013: Shortage
% of vacancies filled: 92% within 4 weeks	No. of applicants per vacancy: 10 with 3 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 1
Issues: Increase of app 3.5% in vehicle registrations in 2012-13 – slowdown in resources sector increased pool	
3212-11 Motor Mechanic (General)	
Labour Market Status 2012: No shortage	Labour Market Status Sept 2013: Shortage
% of vacancies filled: 82% within 4 weeks	No. of applicants per vacancy: 14 with 4 considered suitable
Occupation in demand for WA skilled migration: No	SPOL category: Priority 3
Issues: Some applicants had unreasonable pay expectations. Servicing competition from dealerships affecting small businesses	
3241-11 Panelbeater	
Labour Market Status 2012: Shortage	Labour Market Status Sept 2013: Shortage
% of vacancies filled: 63% within 4 weeks	No. of applicants per vacancy: 5 with 1 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 1
Issues: About 17% received no applications. Some applicants had unreasonable pay expectations. Negative perceptions of the work involved	
3243-11 Vehicle Painter	
Labour Market Status 2012: No shortage	Labour Market Status Sept 2013: No shortage
% of vacancies filled: 80% within 4 weeks	No. of applicants per vacancy: 9 with 2 considered suitable
Occupation in demand for WA skilled migration: Yes – Schedule 1	SPOL category: Priority 1
Issues: Some applicants lacked work ethic and experience. Others had unrealistic pay expectations. WA demand relatively stable over past two years, possibly due to 5.5% decrease in accidents.	

Source: Information Sheets Automotive Electrician, ANZSCO 3212-11 Motor Mechanic (General), ANZSCO 3241-11 Panel Beater, ANZSCO 3243-11 Vehicle Painter, Australian Government, Labour Economics Office Western Australia, Department of Employment, September 2013, *State priority occupation list (combined list) August 2013*, Government of Western Australia, Department of Training and Workforce Development, *Western Australian skilled migration occupation list 2013-2014*, Government of Western Australia Department of Migration

Table 9 provides a summary analysis of automotive trades labour market research published by the Department of Employment along with information drawn from the skilled migration list. The analysis shows that, some of the automotive trades have shifted from a status of 'no shortage' to 'shortage' in the 12 months to September 2013.

Both the labour market data and the skilled migration list report at six digit ANZSCO level, which does not capture the level of specialised and higher level skills that employers are saying they need. It is possible that ANZSCO, as it currently works, is not the most suitable mechanism for identifying and reporting skills shortages, particularly where advanced and specialised skills are required.

The misalignment of the ANZSCO classifications with the nomenclature used by employers to describe trade positions created problems during the research phase of the report (an issue already highlighted in the engineering skills section of this report).

Qualified and experienced tradespersons with the specific skills required by employers are still in short supply, despite the fact that there are now many more applicants for jobs. Employers are saying that while there are qualified tradespersons, their skills are low calibre.⁴⁵

In 2013, Automotive Skills Queensland undertook a workforce development project focused on heavy automotive skills. The project report⁴⁶ identified shortages in a range of heavy automotive occupations across Australia, many of which crossed into the engineering trades. However, the specialised nature of the skills required was not fully identified or discussed.

Findings from the Queensland project that are similar to the Western Australian experience include:

- Given a choice, employers would prefer to employ local workers over 457 visa holders.
- In the key heavy automotive occupations there is a 'very small pool of skilled people'⁴⁷, and
- Employer concerns about the capacity of the training system to 'match new equipment models and technology'.⁴⁸

The fact that the Queensland Government invested in this specialised workforce development project shows how important these trades are to the economy of resource based states.

When asked whether they were experiencing problems recruiting suitably qualified tradespersons, more than 60 per cent of respondents in the EATC Skills Requirement Survey answered "yes".

Employer comments indicate that they are still mindful of and reflecting on their experiences in the recent past, at the height of the mining boom. However, respondents also mentioned:

- A lack of broad-based, general trade skills or a narrow range of skills.
- Poor training and skills, and unsuitable applicants.
- Difficulties in finding a good tradesperson and/or dealer trained technicians.
- A misalignment between what tradespersons expect to be paid and their skill levels, and
- The challenges of attracting good staff to the regions.

Almost all respondents, 89 per cent, replied that they would use post-trade training. It is interesting that employer support for post-trade training is so much higher for the automotive trades, compared to feedback from employers of engineering trades. In focus group discussions employers reported a need for more specialised training, and expressed the view that employers tended not to invest in post-trade training due to the risks associated with losing higher skilled staff to other employers in the industry.

"Post-trade training isn't seen as a priority by employees – many don't think they need any further training and if they do, the employer will pay."

⁴⁵ Automotive Environmental Scan 2014, Auto Skills Australia,

⁴⁶ Heavy Automotive Skills: Moving earth with the right people, Automotive Skills Queensland, May 2013

⁴⁷ Heavy Automotive Skills: Moving earth with the right people, Automotive Skills Queensland, May 2013, p23

⁴⁸ As above, p22

Despite strong industry support for higher level and specialised training, there is little evidence of it occurring. Data provided by the Department of Training and Workforce Development, related to part-time enrolments in the Certificate IV in Automotive Technology (AUR40205 and AUR40208), shows 3,000 hours of delivery in 2013, which is negligible. Approximately half of that delivery was in generic, non-specialised units.

It appears that there is a severe lack of higher and specialised training in the VET system – it may be falling back to employers to fill this gap.

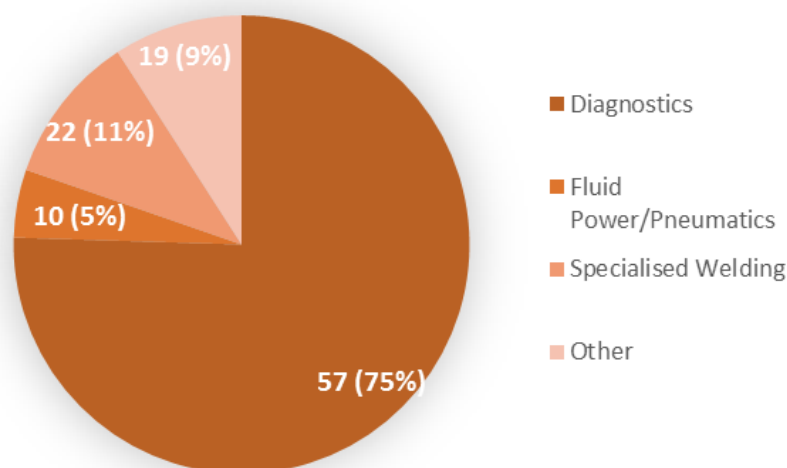
“Industry has to say a Certificate IV is useful to them and say it’s worth doing and the industry has to market the good result.”

“The Certificate IV needs to be recognised as attracting higher wages and status.”

An overwhelming majority of survey respondents indicated a need for diagnostic skills, when asked about requirements for specific skills. Figure 12 shows the identified skill requirements, noting that a number of respondents chose more than one specific skill. In some instances, other skills were identified as follows (and in order of frequency):

- Basic/practical skills.
- Automotive electrical and electronics.
- Air-conditioning.
- Hybrid vehicles, and
- Other individual requirements such as overhauling, panel beating, skills associated with different marques, new service requirements for cars and mechanical skills.

Figure 12 - Employer Identified Automotive Skill Requirements



A common theme in the focus groups was an additional requirement for either mechanics who can also do automotive electrical work, or a new role for people with both mechanical and automotive electrical skills. The increasing use of technology in vehicles, particularly in commercial and agricultural machinery, has led to a significant change in the skill set required to maintain and repair these vehicles. Representatives of both the agricultural and mining sectors in the focus groups identified a need for mechanics with automotive electrical training or vice versa.

“We need people with four discrete skills: mechanics, hydraulics, electric, and electronics. We can accept people skilled in 2 or 3 skills and train them in others, but we can’t accept anyone with only one skill.”

Employers in the regular Department of Employment 'Survey of Employers who have Recently Advertised' commented that despite receiving multiple applications from trade qualified applicants, they were still getting a number of unsuitable applicants. Employers considered applicants unsuitable because they had:

- Unrealistic remuneration expectations and some issues with work ethic.
- Lack of required specialist skills.
- No recent experience working in their trade because of having worked in the mining industry using skills outside the mainstream tasks common to their trade.
- Lack of additional certificates or licenses required, eg police clearance, or
- Lack of 'soft skills' such as workplace communication.⁴⁹

Similar comments were reflected in the EATC Skills Requirement survey in both the on-line and face-to-face surveys and in the focus groups.

Workforce Development Opportunities

The demand for skills and labour in the automotive trades is driven by the traditional mechanical retail sector and the transport industry. Although there has been a decline in the motor vehicle retailing sector, the 2013 ABS Motor Vehicle Census shows Western Australia had the second largest growth (17.3 per cent) rate for vehicle registrations. The annual average increase was 3.4 per cent over the five year period of 2008 to 2013.⁵⁰

The drop in demand for skills and labour may be attributed to the modest decrease (about 4.7 per cent) in the number of motor vehicle accidents in the state between January to September 2012 and 2013 compared to the same months in 2011 and 2012⁵¹ and improvements in motor vehicle paint technology and paint protection products.⁵²

By comparison to the relatively modest growth in the overall numbers of automotive trades workers, the numbers of overseas born workers increased considerably compared to those who were Australian born, as can be seen in the following table.

While the numbers of overseas born diesel mechanics and vehicle painters grew quite dramatically between the census dates, overseas born vehicle trimmers decreased at an even higher rate than the Australian born workforce, and has contributed to the overall reduction in workers noted earlier.

⁴⁹ *Labour Market Research – Automotive Trades Workers, September 2013*, Australian Government, Labour Economics Office Western Australia, Department of Employment

⁵⁰ As above

⁵¹ As above

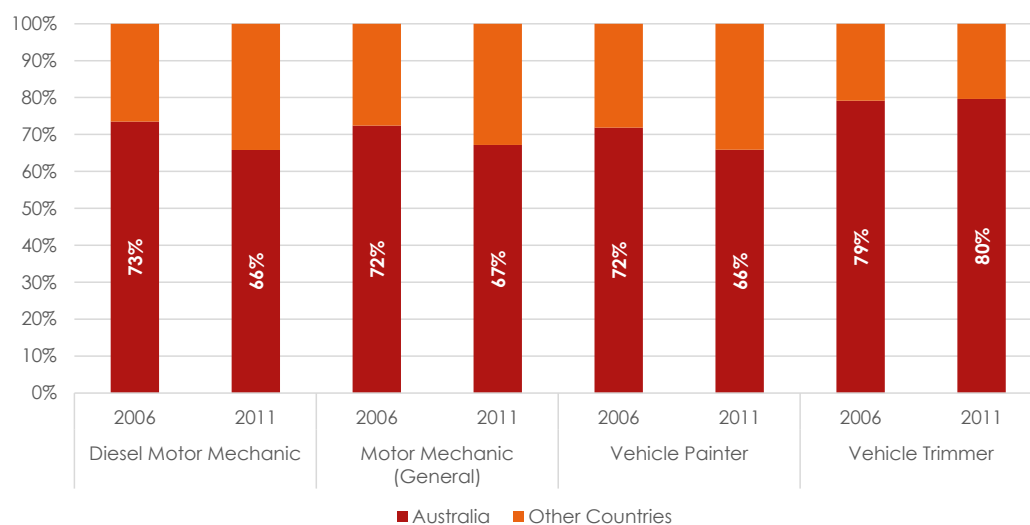
⁵² *ANZSCO 3243-11 Vehicle Painter Western Australia September 2013*, Australian Government, Labour Economics Office Western Australia, Department of Employment

TABLE 10 - AUTOMOTIVE TRADES WORKERS BY COUNTRY OF ORIGIN

Auto Trades	Census Year 2006	Census Year 2011	% Growth
Diesel Motor Mechanic	524	623	15.9%
Australia	385	410	6.1%
Other Countries	139	213	34.7%
Motor Mechanic (General)	7,985	8,115	1.6%
Australia	5,780	5,452	-6.0%
Other Countries	2,205	2,663	17.2%
Vehicle Painter	1,049	1,172	10.5%
Australia	754	772	2.3%
Other Countries	295	400	26.3%
Vehicle Trimmer	216	201	-7.5%
Australia	171	160	-6.9%
Other Countries	45	41	-9.8%
Grand Total	9,774	10,111	3.3%

Worth noting is the reduction in real terms of the number of Australian born motor mechanics. Fortunately, the overseas born trades workers grew by over 17 per cent, which served to at least maintain the total numbers of motor mechanics working in WA. However, the growth in this trade is comparatively lower than levels seen for diesel mechanics and vehicle painters.

FIGURE 13 - AUTOMOTIVE TRADES WORKERS – COMPARATIVE POPULATION AT ABS CENSUS 2006 AND 2011



Again, it is important to be mindful of the fact that many overseas born workers have been here for a number of years and may be Australian citizens or permanent residents.

The following figures are drawn from the 2006 and 2011 ABS Census and show the dates of arrival of overseas born automotive trades workers.

FIGURE 14 - OVERSEAS BORN AUTOMOTIVE TRADES WORKERS BY YEAR OF ARRIVAL (2006 ABS CENSUS)

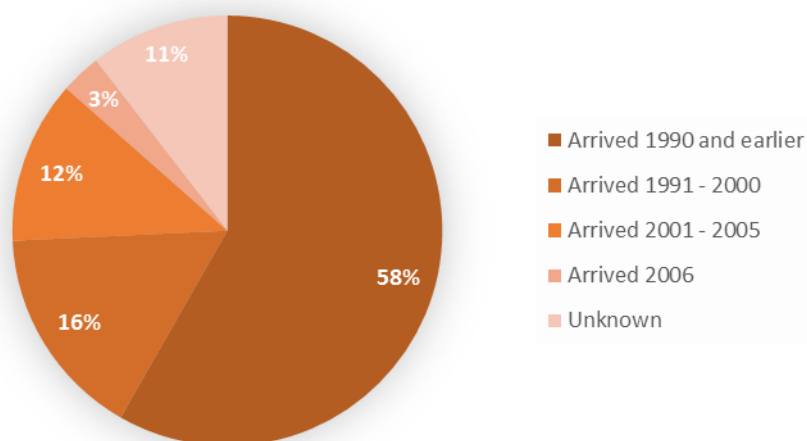
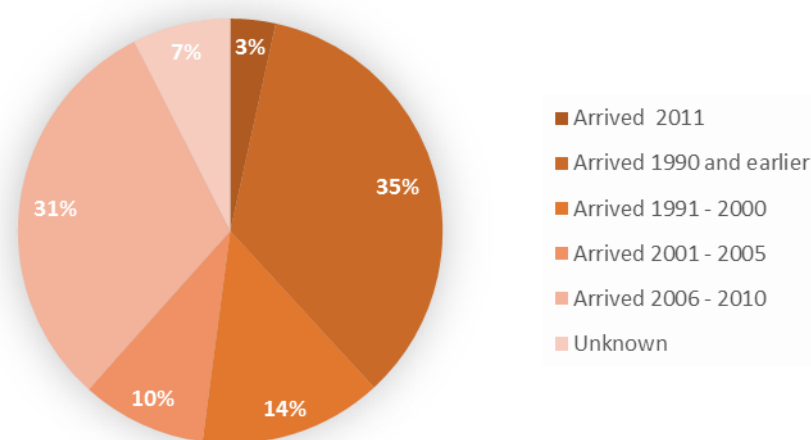


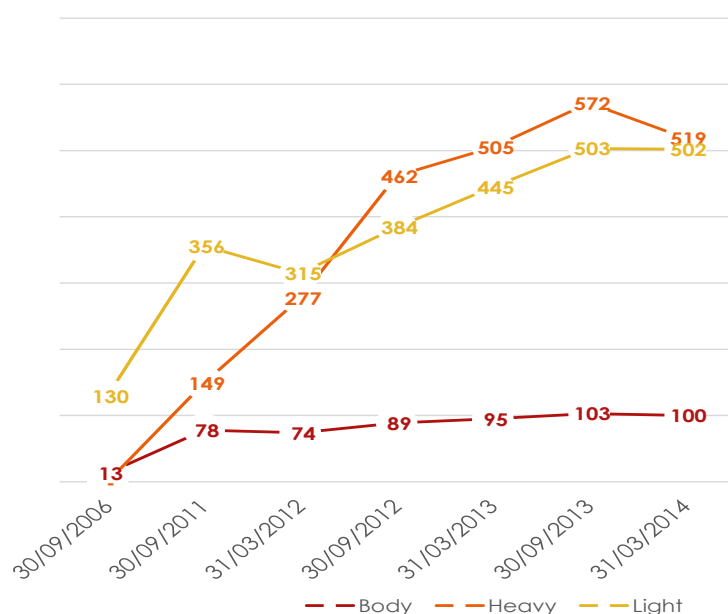
FIGURE 15 - OVERSEAS BORN AUTOMOTIVE TRADES WORKERS BY YEAR OF ARRIVAL (2011 ABS CENSUS)



Consistent with trends in the engineering sector, the share of overseas born workers who arrived in the past 5 years grew from 12 per cent in 2006 to 31 per cent in 2011. Without this growth the automotive trades would most likely have suffered a real reduction in the number of workers.

Figures from the Department of Immigration and Border Protection website, suggest that the number of 457 visa holders in automotive trades occupations continued increasing right through until late 2013. Notably, 457 visa holders in the motor mechanics (general) occupational category have held steady for the first quarter of 2014. Comparing the ABS census and the 457 visa data sets indicates that approximately 70 per cent of the growth in overseas born workers can be attributable to 457 visa holders. Figures for 457 visa holders in the vehicle trimmer category are not included because the intakes have been quite low (less than 10) and until 2012 were not specified.

FIGURE 16 - 457 VISA HOLDER NUMBERS WORKING IN WA IN SELECT AUTOMOTIVE TRADES OCCUPATIONS



Over the period between the 2006 and 2011 ABS census there was a shift in the countries of origin of overseas born workers (captured in table 11), possibly as a result of the significant increases in 457 visa holders. Proportionally, and in real terms, the growth in workers from the Philippines is notable, particularly given the increased levels growth in numbers of 457 visa holders, after 2011. Trades workers from India and Ireland also grew to a remarkable extent.

TABLE 11 - OVERSEAS BORN AUTOMOTIVE TRADES WORKERS – TOP 10 COUNTRIES OF ORIGIN (2011)

Country of Origin	Census Year 2006	Census Year 2011	Growth
England	913	965	5%
New Zealand	339	432	22%
Philippines	30	272	89%
South Africa	126	197	36%
Scotland	99	113	12%
Italy	118	98	-20%
Zimbabwe	75	91	18%
India	37	87	57%
Malaysia	72	69	-4%
Ireland	39	65	40%
Other countries	653	796	18%
Unknown	183	132	-39%
Grand Total	2,684	3,317	19%

Based on ABS census data

A little over half the employers responding to the skills requirement survey have had experience with overseas workers, which is interesting within the context of the proportion of the workforce who are overseas born and/or hold 457 visas. Employers' experiences with their overseas workers varied and, like the engineering sector, their preference for local workers.

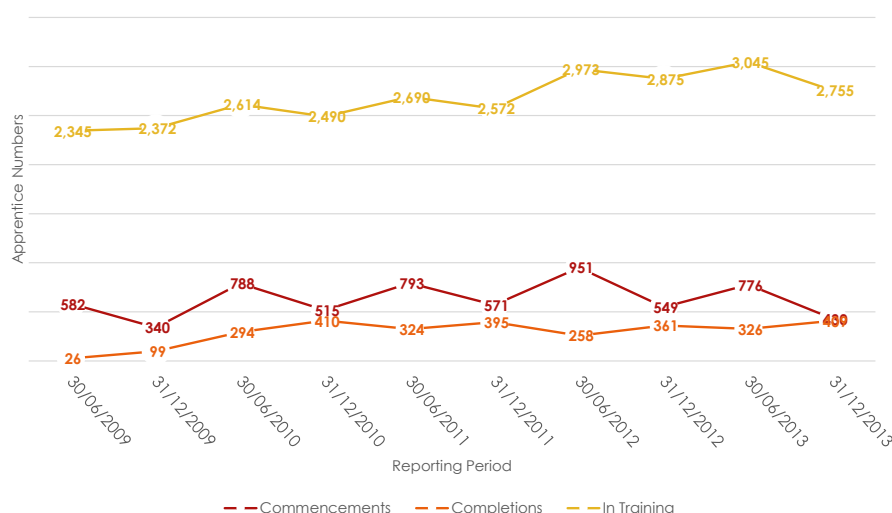
TABLE 12 - AUTOMOTIVE EMPLOYER PERCEPTIONS OF COMPARATIVE SKILL LEVELS

Overseas Trained Perceived As...	Count	Comments
Better	31	Overseas trained have better skills and attitude; better on European vehicles; standards/skills are higher from nominated countries; better now that I go overseas to interview the tradespersons myself.
Same	48	It depends or varies according to the individual; it depends on the country of origin; some are good, some are bad, like those trained in Australia; they generally have a better work ethic; their experience is better but their skills are poorer
Worse	19	Overseas trained need more supervision; bad experience with 457 visa holders – never again; better work ethic but skills not as good
Not applicable	97	

VET Training Data by Qualification – Enrolments and Completions

Apprentice commencements and numbers in training are starting to decline, consistent with the broader labour market trends. This does not augur well for the future supply of trained tradespersons and is particularly acute in the heavy automotive trades. Figure 17 has been derived from apprenticeship data provided by the Department of Training and Workforce Development.

FIGURE 17 - AUTOMOTIVE TRADES APPRENTICES – TREND DATA 2009 TO 2013



While automotive apprentice numbers have declined from 2012 to 2013, the reduction, which sits at approximately 20 per cent, is not quite as steep as that showing for the engineering trades.

More detailed information about the trends in each of the individual trades is included at Appendix D. Taking each of the trade areas individually it is apparent that:

- The sharpest decline seems to have been in heavy automotive trades apprentices, where commencements fell by approximately 40 per cent from December 2012 to December 2013. This is consistent with the slowdown of major resource construction activity.
- The reduction in light automotive trades is not as sharp as can be seen in many other trades.
- In both panel beater and vehicle painter trades, there was a reasonably sharp decline in numbers from 2011 to 2012 but the decline steadied out to some degree in 2013.

According to the ACIL Allen Consulting report apprenticeship completions across all automotive trades (ANZSCO 321) are significantly lower than those of the engineering trades, and are estimated at 58.4 per cent.⁵³ If this trend holds true for the automotive trades in Western Australia, it would mean that more than 40 per cent of commencing apprentices do not finish. Further, while the decline in commencements is not as intense as that witnessed in the engineering trades, the fact that non-completions are so much higher for automotive apprentices could compound skills shortages in select trades.

Ongoing employer engagement with the apprenticeship system is mixed. Overall, the trend is quite stable for employers of heavy automotive tradespersons. However, in the light automotive and vehicle body apprenticeships, where there is a much greater loading towards smaller employers, there appears to be a significant drop in the numbers of employers with apprentices, as indicated in the following table.

TABLE 13 – EMPLOYERS OF AUTOMOTIVE APPRENTICES BY EMPLOYER SIZE

	Auto Tech (Heavy)			Auto Tech (Light)			Vehicle Body		
Year	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
2009	117	76	98	60	73	372	20	36	235
2010	146	76	107	58	73	366	20	30	242
2011	159	84	114	63	68	361	21	34	243
2012	187	99	128	71	68	377	17	32	207
2013	216	114	125	78	81	371	20	31	190

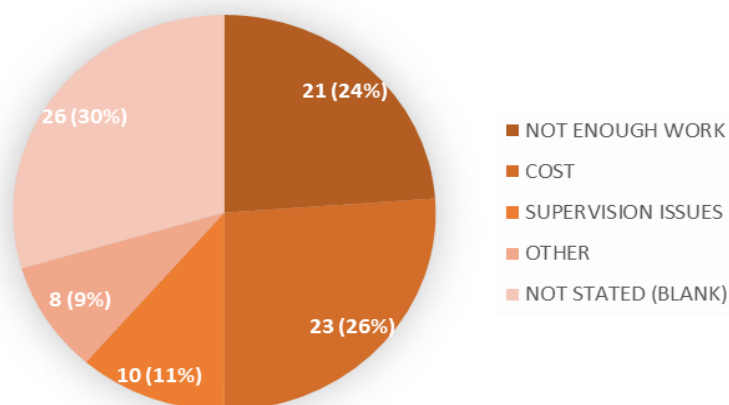
Based on data provided by the Department of Training and Workforce Development

“One of the largest employers of apprentices in the state had no intake this year. Only 2 mining companies put on apprentices this year, everyone else is down.”

When canvassed in the EATC Skills Requirement Survey as to whether or not they currently employ apprentices, 62 per cent of respondents answered in the affirmative. Those who did not have apprentices were asked to identify the factors that influenced their decision. Interestingly, a number of respondents chose more than one reason and many also took the time to provide additional information to explain their decision. The following chart summarises reasons given for not employing apprentices.

⁵³ Review of Qualification Completions in Engineering Trades Apprenticeships, ACIL Allen Consulting, 2013, p17

FIGURE 18 - REASONS FOR NOT EMPLOYING AUTOMOTIVE APPRENTICES



The cost of employing apprentices and not having enough work were the major factors influencing the non-employment of apprentices. However, analysis of the comments provided by respondents (including some who do employ apprentices) reveals that employers are also concerned about:

- Not being able to find a suitable person and/or the quality of applicants for apprenticeships.
- A lack of alignment between the business need and the apprenticeship system. The issues here ranged from the business being too small; the owner not being qualified; only wanting mature and experienced staff; contractors not wanting to work with apprentices; or having a limited range of work.
- The attitudes and expectations of young people.
- Bad experiences with apprentices in the past, such as apprentices leaving or being too much trouble, and
- Other factors, such as the amount of red tape or employer obligations.

“Money is not the issue, it is more important to get the right person”

“Apprentice attitude is important”

“When we advertise for an apprentice position, it is surprising how many people from other industries apply (70% of applicants in one instance). This indicates poor decision making on the part of the apprentices. Many have no mechanical aptitude at all.”

Employers in the focus groups felt an aptitude test would be useful to help identify whether prospective apprentices were likely to be compatible with the trade and complete the training, as well as establishing literacy and numeracy levels.

The difficulty in keeping up with technological change was also discussed, with comments that it was hard to get technicians to undertake further training. Employers are reluctant to invest in training because highly skilled employees tended to get poached. It was felt there is a need to see the trades as a profession that involves keeping up with skills and developments in the industry. This also needs to be reflected in the standard of training and trainers.

There has been a move in recent times to specialise and segregate automotive skills in the apprenticeship program and this was supported by employers in the focus groups, although they reported that there were insufficient registered training organisations with access to the new technologies. Given, the rapid rate and complexity of technological change across the industry, and such great diversity in marques, employers recognised that no single RTO could be expected to meet their ever-changing needs.

“The agricultural automotive sector has evolved such that it has outstripped the ability of the VET sector to serve its needs.”

There are 64 different marques across manufacturers and models, which require knowledge and skills specific to each marque. Employers recognised that Certificate II level training provides the core and generic skills needed to work in the industry and that this could be delivered off the job. Given that no RTO has the capacity to deliver the more specialised and marque specific knowledge, this would be better delivered fully on the job at Certificate III level. The apprenticeship would thus be achieved after specialised on the job training more specific to employer requirements.

A Certificate IV apprenticeship is seen as a useful option. Training at this level is currently done in the individual's own time and after hours. A Certificate IV apprenticeship would give employers who want broader skills the option of enrolling an apprentice into a higher qualification on commencement of the apprenticeship, as already happens in other states. It may also be possible to allow employers and individual Certificate III holders access to specific units to reach the Certificate IV outcome for trade upskilling purposes.

Some employers in the focus groups also commented on the need for flexible training that most RTOs were unable to deliver such flexibility. There needs to be a genuine partnership between the employer and the RTO.

3D - Engineering and Automotive Industry Issues

Evidence collected during the report highlights serious concerns about the range, specialisation and quality of skills in the nominated trades. Problems with apprenticeship training were also identified.

Although these skills and apprenticeship difficulties are causing recruitment and retention issues, and associated operational difficulties for employers, the scale of these problems is tempered by the slowing down of business activity, particularly associated with the completion of major engineering construction projects.

The recommendations provided are focused on alleviating the effects of the current skills and apprenticeship dilemmas on the future skills base. Without action, the state is likely to experience a significant skill shortage in certain engineering and automotive trades and a continuing decline in the overall quality of locally trained tradespersons.

Lack of quality and shortage of skills will not just affect future major resource construction projects, but will extend to the general engineering and automotive workforce. There are already signs that employer's involved in general manufacturing, maintenance, servicing and construction are finding it hard to recruit the range, type and quality of skills they require.

The report has identified a gap in local skills development in both apprenticeships and up-skilling of existing workers. There is also an over-reliance on skilled overseas labour that has the potential to adversely affect local skills development.

Recruiting skills from other states and other countries has been an integral part of the state's engineering and automotive labour market and will continue to be an important part of the skills mix.

Apprenticeship commencements have dropped significantly in the nominated trades, in some cases to lower than during the global financial crisis in 2009, which does not augur well for the

future of local skills development. This is compounded by an unacceptably high non-completion rate for engineering and automotive apprenticeships of around 35 and 40 per cent respectively.

Employers report being unable to find tradespersons with the range of necessary skills, which has affected the capacity of business to provide the trade supervision required for apprenticeships. In many of the companies surveyed, a significant reduction in the number of employed tradespersons had affected the capacity of the business to offer apprenticeship places. Employers also noted that sourcing tradespersons from new overseas labour markets has resulted in cultural and communications difficulties.

The level of ongoing training in higher skills seems to be very low. There seems to be minimal interest in up-skilling within the trade population which may be affecting overall skill development. Finally, employers state that the quality of applicants for apprenticeship positions is low and this contributes to poor quality outcomes and the high non-completion rate.

While there is a commonality associated with the skills and apprenticeship issues in the automotive and engineering trades there are differences that need to be considered.

The strong demand for skilled labour to support resource sector expansion affected both sectors, but the engineering sector felt the biggest impact. Tradespersons who have been employed on resource projects for any period of time are often unable to demonstrate the broader range and higher quality of skills required for general trade work when they return to the general workforce.

For both mechanical and fabrication trades, most engineering construction work is routine, repetitive and does not require the broader trade skills needed in general jobbing, manufacturing, maintenance and servicing work. This is not to suggest that engineering construction projects do not need highly skilled tradespersons, only that the range and application of skills is different from those required in the general engineering trade workforce.

Specific skills demanded on construction projects and in the mainstream trade area, such as fabrication pipe work and specialised welding, appear to be in short supply and depend too much on the use of overseas labour. Training of local people in these specific skill areas – at both the apprenticeship and post-trade levels – appears to be minimal. Employers specified a need to re-focus specialised welding training and to encourage use of Australian Standard 1796 – Welder Certification within apprenticeship and post-trade training.

The report has identified a need for a broader skills base and higher skill sets for both apprenticeships and trade up-skilling. There is also a demand for direct entry to a Certificate IV in Engineering for mechanical and fabrication apprentices. Such a program currently exists for electrical/instrumentation apprentices and should be available for other engineering trade areas.

A greater focus is needed on the up-skilling of existing tradespersons in higher level mechanical and fabrication skills. Although there is some public investment in Certificate IV in Engineering outcomes for existing tradespersons, the level of enrolment is low, particularly in relation to specialised welding, pipe-fitting and a range of mechanical skill areas.

The actual training and development needs for the engineering and automotive trades are sufficiently divergent to warrant different entry level training models. Employer feedback points to the desirability of moving away from a 'one size fits all' apprenticeship system to one that:

- a. accommodates multiple models,
- b. enables ongoing, higher level and specialised skills development,
- c. is customised to the unique requirements of identified trade or industry areas, and
- d. is able to support a rapid response to emerging skill demand.

The automotive sector is undergoing significant structural change. The data indicates a contracting workforce in relation to the state's overall population and an increasing dependence on skilled migration to fill gaps in the general trades workforce. At the same time, rapid technological change is moving ahead of the apprenticeship training on offer and the increase in the number of brands and models is driving a move to greater skill specialisation.

Employers surveyed for the report were clear that the skills required to service many automotive proprietary brands and models cannot be addressed within the current Certificate III apprenticeship, suggesting that many of the core level skills could be developed at Certificate II level.

Under such an approach, the generic skills required at the apprenticeship level could be provided through training to the Certificate II level under current on-the-job and off-the-job arrangements, while the Certificate III outcome should be completed fully on-the-job. This alternative apprenticeship model would deliver basic core skill sets and enable the development of workplace skills aligned to specific models and brands.

Automotive employers also reported that consideration needs to be given to developing a new trade occupation and apprenticeship combining automotive mechanic and electrician skills. Apprentices in this program would get direct entry to a Certificate IV. This arrangement would address some of the problems currently being encountered in the mining and agricultural sectors where they have to allocate two different trades to service and repair complex computerised civil and agricultural machinery.

In the engineering sector, recruiting and training apprentices now to ensure skills are available in the near future for both general trade activity and for new engineering construction projects is critical.

The decline in numbers and the high attrition rates for engineering apprentices will undermine the supply of skilled tradespersons. Employers are keenly aware of this likelihood but feel constrained by the existing apprenticeship model that requires access to real work, qualified tradespersons to provide workplace supervision and a commitment to a four year training contract.

The reality is that the current apprenticeship model is unable to guarantee local engineering skills development during low points in the business cycle. Low levels of business require less tradespersons and this nearly always results in lower investment in apprentice training – as is the case currently.

Although the engineering and automotive sectors have suggested different approaches, employers from both sectors are interested in the same outcome – how to ensure that there is a sufficient supply of high quality, skilled workers in the future.

3E - Engineering and Automotive Recommendations

1. Work with relevant Government agencies on the most appropriate occupational classifications in the engineering and automotive trades to enable more effective data collection.
2. Define the issues associated with the existing apprenticeship model and develop alternative approaches (whilst maintaining the integrity of the apprenticeship system) to ensure the continued industry investment in the state's engineering and automotive skills base.

3. Strengthen involvement in career promotion and industry advice to the schools sector. Consider the suitability of materials available through the Australian Apprenticeships and Traineeships Information Service for prospective apprentice aptitude self-assessment.
4. Work with the Department of Training and Workforce Development and other stakeholders, to investigate the reasons for low level enrolments in key higher level skill units in the fabrication and mechanical trades, and determine how skill sets may contribute to improved participation rates.
5. Reposition welding as a full apprenticeship program, (including up to Certificate IV Advanced Welding), separate from the general heavy fabrication trade and train to the requirements of Certificate 1 to 9 under Australian Standard 1796 Certification of Welders.
6. Work towards the establishment of a direct entry Certificate IV apprenticeship program in the engineering trade.
7. Encourage continuous improvement by giving employers and individual Certificate III holders the option of accessing specific units to reach the Certificate IV outcome for trade up-skilling purposes in the engineering trade.
8. Identify and introduce mechanisms to capture automotive electrical/electronic skills within the automotive trades.
9. Review the current automotive apprenticeship pathways to capture intakes at Certificate levels II, III and IV, thereby more appropriately responding to industry requirements.

The major research completed by EATC published in August 2014 in the report “A Skills Base at Risk” has led to the updating and replacement of many of the priority issues and strategies. The recommendations from the report will act as the new EATC priority actions aligned to Skilling WA – refer to “Section 4 – Industry Issues and Strategies”.

SECTION 4 – INDUSTRY ISSUES AND STRATEGIES

The major research completed by EATC published in August 2014 in the report “A Skills Base at Risk” has led to the updating and replacement of many of the priority issues and strategies. The recommendations from the report will act as the new EATC priority actions aligned to Skilling WA. They are documented in the tables below:

Engineering and Automotive

Skilling WA: Strategic Goal 3

Attract workers with the right skills to the Western Australian workforce and retain them by offering access to rewarding employment and a diverse and vibrant community and environment to live in.

Issue	Strategy	Skilling WA Priority Action
<p>There is concern that training of new trade workers is under threat due to the use of overseas workers in Australia on working visas. The reliance on skilled migration at times of high employment demand is evidenced by the fact that in recent times Western Australia has accepted applicants at well above its population share. Research undertaken by EATC supports the notion that the engineering and automotive trades in Western Australia are likely to continue as importers of trade skills. This is due to:</p> <ul style="list-style-type: none">• The cyclical and sporadic nature of work linked to a range of projects requiring engineering skills.• The nature of the current apprenticeship model – it can take up to 4 years to develop a skilled tradesperson and when business is poor employers do not have the capacity to offer apprenticeship places, and• Ongoing requirements for specialised and higher level skills that are not being delivered through the training system.	<p>Work with relevant Government agencies in providing advice to the Australian Bureau of Statistics on the most appropriate occupational classifications in the engineering and automotive trades to enable more effective and useful collection of data.</p>	<p>3.1.1 3.1.2 3.1.3 3.2.1 3.2.2 3.2.3 4.1.1 4.1.2 4.1.3 4.1.4 4.1.5 4.2.1 4.2.3 5.1.1</p>

Engineering and Automotive

Skilling WA: Strategic Goal 3

Attract workers with the right skills to the Western Australian workforce and retain them by offering access to rewarding employment and a diverse and vibrant community and environment to live in.

Issue	Strategy	Skilling WA Priority Action
<p>Development of local trade skills depends on the continuous intake of people into apprenticeship positions. This model relies on the capacity of employers to offer extended training opportunities combined with full-time employment.</p> <p>A number of employers indicated they were reviewing the size of their apprentice workforce due to rising costs and/or having insufficient work.</p> <p>Employers have discussed the cyclical nature of their industries, the effect this had on apprentice numbers, and the likelihood of having insufficient skilled workers when the next upswing occurs.</p> <p>The decline in apprentice numbers when work slows, together with an apprenticeship term of up to four years, presents a challenge to ensuring the availability of appropriately skilled workers when demand grows.</p>	<p>Define the issues associated with the existing apprenticeship model and develop alternative approaches (whilst maintaining the integrity of the apprenticeship system) to ensure the continued industry investment in the state's engineering and automotive skills base.</p>	<p>3.1.1</p> <p>3.1.2</p> <p>3.1.3</p> <p>4.1.1</p> <p>4.1.4</p> <p>4.1.5</p> <p>4.2.1</p>

Engineering

Skilling WA: Strategic Goal 4

Provide flexible, responsive and innovative education and training which enables people to develop and utilise the skills necessary for them to realise their potential and contribute to Western Australia's prosperity.

Issue	Strategy	Skilling WA Priority Action
<p>Poor “work readiness” of job applicants for the engineering trades, which includes reading and numeracy skills, is a major barrier to employment and training, particularly with school leavers, migrants, and other potential candidates.</p> <p>Many reports have identified this serious issue and it is difficult to undo many years of primary and secondary school neglect of numeracy and literacy skills, but this problem does not seem to be getting any better. A major complaint from employers is the lack of basic literacy and numeracy skills in school leavers and other candidates who apply for apprenticeships. The perception that trades are a low achievers' destination is one that seems to be perpetuated by many in the teaching profession. Engineering is a profession that requires high applied numeracy skills and all tasks require, to some extent, measurement and computations. Being able to read and understand complex instructions is fundamental to productivity.</p> <p>Accurate and relevant career advice in schools is vital for students who aspire to enter the engineering and automotive industries.</p>	<p>Strengthen involvement in career promotion and industry advice to the schools sector. Consider the suitability of materials available through the Australian Apprenticeships and Traineeships Information Service for prospective apprentice aptitude self-assessment.</p>	<p>4.1.1 4.1.2 4.1.4 4.1.5 4.2.1 4.2.2 4.3.3 4.3.4</p>

Engineering

Skilling WA: Strategic Goal 4

Provide flexible, responsive and innovative education and training which enables people to develop and utilise the skills necessary for them to realise their potential and contribute to Western Australia's prosperity.

Issue	Strategy	Skilling WA Priority Action
<p>The softening of the labour market in the engineering trades is becoming more apparent. However, skills shortages still exist in at least two of the engineering trades. Even where there are no shortages, employers are commenting about the difficulty in finding people with specialised skills.</p> <p>There is a particular high demand for specialised welding skills.</p> <p>Other skills identified:</p> <ul style="list-style-type: none"> • Fabrication – pipework (explained as work undertaken by pipefitters – another nomenclature example). • Engine rebuilding. • Specialist fabrication skills (described as boilermaking skills) and • Other individual employer requirements such as equipment overhauling; brazing; higher level refrigeration skills; hydraulics; gas tungsten arc welding; instrumentation; electrical installation; and specialised boat building skills. 	<p>Work with the Department of Training and Workforce Development and other stakeholders, to investigate the reasons for low level enrolments in key higher level skill units in the fabrication and mechanical trades, and determine how skill sets may contribute to improved participation rates.</p>	<p>4.1.1 4.1.2 4.1.3 4.1.4 4.2.1 4.2.3</p>

Engineering

Skilling WA: Strategic Goal 4

Provide flexible, responsive and innovative education and training which enables people to develop and utilise the skills necessary for them to realise their potential and contribute to Western Australia's prosperity.

Issue	Strategy	Skilling WA Priority Action
<p>Employers noted a serious shortage of specialist welders and pipe fitters and commented on the poor quality of skills in these areas. This issue identifies the availability of suitably skilled tradespersons rather than the number of available tradespersons.</p> <p>Employers advised that the skills required to interpret pipework drawings and welding symbols and the practical skills required to install pipework are not available, further, many current tradespersons in these skills areas were perceived as being unable to satisfy expected industry standards.</p> <p>The employer feedback about the availability of the key fabrication skills for pipe-fitting and specialised welding was as follows:</p> <p>There has never been a specific pipe fitting apprenticeship in Western Australia and industry has relied on fabrication tradespersons who have completed a general heavy fabrication apprenticeship (boilermaking) to undertake pipe fitting work. As a consequence, many fabrication tradespersons undertaking high level pipework assembly and installation are skilled migrants from the UK where pipefitting is a recognised trade.</p>	<p>Reposition welding as a full apprenticeship program, (including up to Certificate IV Advanced Welding), separate from the general heavy fabrication trade and train to the requirements of Certificate 1 to 9 under Australian Standard 1796 Certification of Welders.</p>	<p>4.1.2 4.1.5 4.1.6 4.2.3 4.3.5</p>

Engineering

Skilling WA: Strategic Goal 4

Provide flexible, responsive and innovative education and training which enables people to develop and utilise the skills necessary for them to realise their potential and contribute to Western Australia's prosperity.

Issue	Strategy	Skilling WA Priority Action
<p>Certificate IV qualifications are not available for mechanical and fabrication engineering trades as a direct entry apprenticeship program.</p> <p>Employers are signaling a lack of advanced and specialised skills in the engineering trades. Such feedback indicates that the current decline in apprentice numbers may be compounded by the fact that there is no higher level apprenticeship option at Certificate IV in Western Australia.</p> <p>Employer focus groups strongly indicated an appetite for Certificate IV trades as a direct entry apprenticeship program. It was also noted that there is a need to ensure supervising tradesmen have up-to-date skills too so that they can supervise apprentices.</p> <p>The Metals and Engineering training package provides a clear training pathway for additional skilling and allows direct entry into a Certificate IV qualification so that an employer may choose an apprenticeship program that delivers a higher level skills outcome. This option is not available for mechanical or fabrication apprentices in Western Australia. By comparison, there is a direct entry Certificate IV in Engineering for electrical/instrumentation apprentices.</p>	<p>Work towards the establishment of a direct entry Certificate IV apprenticeship program in the engineering trade.</p> <p>Encourage continuous improvement by giving employers and individual Certificate III holders the option of accessing specific units to reach the Certificate IV outcome for trade up-skilling purposes in the engineering trade.</p>	<p>4.1.1 4.1.2 4.1.4 4.2.1 4.2.3 3.1.3</p>

Automotive

Skilling WA: Strategic Goal 4

Provide flexible, responsive, and innovative education and training which enables people to develop and utilise the skills necessary for them to realise their potential and contribute to Western Australia's prosperity.

Issue	Strategy	Skilling WA Priority Action
A common theme from employers was an additional requirement for either Automotive Technicians who can also do automotive electrical work, or a new role for people with both mechanical and automotive electrical skills. The increasing use of technology in vehicles, has led to a significant change in the skill set required to maintain and repair these vehicles. Representatives of both the agricultural and mining sectors identified a need for technicians with automotive electrical training or vice versa.	Identify and introduce mechanisms to capture automotive electrical/electronic skills within the automotive trades.	4.1.1 4.1.2 4.1.3 4.1.4 4.1.5 4.2.1 4.2.3 4.3.2 4.3.3

Automotive

Skilling WA: Strategic Goal 4

Provide flexible, responsive, and innovative education and training which enables people to develop and utilise the skills necessary for them to realise their potential and contribute to Western Australia's prosperity.

Issue	Strategy	Skilling WA Priority Action
<p>The cost of employing apprentices and not having enough work were the major factors influencing the non-employment of apprentices. However, analysis of the comments provided by respondents (including some who do employ apprentices) reveals that employers are also concerned about:</p> <ul style="list-style-type: none"> • Not being able to find a suitable person and/or the quality of applicants for apprenticeships. • A lack of alignment between the business need and the apprenticeship system. The issues here ranged from the business being too small; the owner not being qualified; only wanting mature and experienced staff; contractors not wanting to work with apprentices; or having a limited range of work. • The attitudes and expectations of young people. • Employers have expressed concern about future supply of skilled workers, given the low levels of training. The automotive industry is undergoing significant change and there are questions about the capacity of the training and qualifications frameworks to reflect that change. 	<p>Review the current automotive apprenticeship pathways to capture intakes at Certificate levels II, III and IV, thereby more appropriately responding to industry requirements.</p>	<p>4.1.1 4.1.2 4.1.3 4.1.4 4.1.5 4.2.1 4.3.2</p>

SECTION 5 – RECOMMENDED PRIORITY ACTION PLAN

Engineering and Automotive

Skilling WA Strategic Goal 3:			
Strategy from Section 4 - Work with the state Government in providing advice to the Australian Bureau of Statistics on the most appropriate occupational classifications in the engineering and automotive trades to enable more effective and useful collection of data.			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
EATC to continue to work cooperatively with the Department of Training and Workforce Development and industry stakeholders to ensure that specific occupations are identified to ensure that priority occupations are included in all workforce planning policy decisions.	<ul style="list-style-type: none"> EATC will review all information from industry stakeholders and organisations and relevant government departments to ensure the correct decisions are made in relation to State Priority Occupations List (SPOL). 	High	Ongoing
Lead Agency: EATC			

Skilling WA Strategic Goal 3:			
Strategy from Section 4 – Define the issues associated with the existing apprenticeship model and develop alternative approaches (whilst maintaining the integrity of the apprenticeship system) to ensure the continued industry investment in the state's engineering and automotive skills base.			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
Work with employers and RTOs to ensure that the apprentice training programs and patterns are suitable to the requirements of the employers.	<ul style="list-style-type: none"> Assist training providers to develop flexible delivery strategies and materials through the engagement with industry and government agencies. Liaise and engage with Department of Training and 	High	Ongoing

	<p>Workforce Development directorates to promote funding of flexible delivery methods and materials.</p> <ul style="list-style-type: none"> Engage with Manufacturing Skills Australia and Auto Skills Australia to develop and promote new training package qualifications that are relevant and promote flexibility of delivery, while still maintaining the integrity of the trades. 		
Lead Agency: EATC			

Engineering

Skilling WA Strategic Goal 4:

Strategy from Section 4 - Strengthen involvement in career promotion and industry advice to the schools sector. Consider the suitability of materials available through the Australian Apprenticeships and Traineeships Information Service for prospective apprentice aptitude self-assessment.

Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
<p>Highlight the responsibility of the education system, industry and VET practitioners to ensure that the capabilities and understanding of the requirements and skills of our industries are addressed. Accurate and relevant career advice in schools is vital for students who aspire to enter the engineering and automotive industries.</p> <p>Address the general lack of understanding by many in the teaching profession on what the trades skills are and what career opportunities exist, particularly knowledge of the industry.</p>	<ul style="list-style-type: none"> Promote the opportunity among employers with both existing and new workers to access the Workplace English Language and Literacy (WELL) program. EATC to continue with its initiative of engaging with schools using video promotional films highlighting the benefits of our trades, using real apprentices and employers as the principle performers. Liaise closely with the DTWD Career Centre to ensure their message is appropriate and clear for our employees of the future. Liaise directly with the Education Sector to ensure the VET in Schools programs delivered are aligned to the most suitable training package qualifications and the competence and currency of teachers. 	High	Ongoing
Lead Agency: EATC			

Skilling WA Strategic Goal 4:			
Strategy from Section 4 - Work with the Department of Training and Workforce Development and other stakeholders, to investigate the reasons for low level enrolments in key higher level skill units in the fabrication and mechanical trades, and determine how skill sets may contribute to improved participation rates.			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
Assist industry and RTOs to address up skilling of existing and disengaged engineering trades workers. There are skills in a number of trades, particularly experienced and highly skilled machinists, engineering electricians with instrumentation skills and mechanical fitters with hydraulic skills, heavy fabricators and welders with high level coded welding skills. Intensive specialised training may be carried out in a Certificate IV trade pathway or post-trade capacity.	<ul style="list-style-type: none"> Liaise and engage with Department of Training and Workforce Development sections to promote funding of flexible delivery methods and materials. Assist training providers to develop flexible delivery strategies and materials through the engagement with industry and government agencies. Promote Certificate IV apprenticeships where appropriate. 	High	Ongoing
Lead Agency: EATC			

Skilling WA Strategic Goal 4:			
Strategy from Section 4 – Reposition welding as a full apprenticeship program, (including up to Certificate IV Advanced Welding), separate from the general heavy fabrication trade and train to the requirements of Certificate 1 to 9 under Australian Standard 1796 Certification of Welders.			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
Address the serious shortage of specialist welders and pipe fitters and the poor quality of skills in these areas. This issue identifies the availability of suitably skilled tradespersons rather than the number of available tradespersons.	<ul style="list-style-type: none"> Work with industry and RTOs to develop and register a Certificate IV in Advanced Welding Promote the increased use of MEM30305 Certificate III in Engineering – Fabrication Trade (Welding) 	High	June 2015
Lead Agency: EATC			

Skilling WA Strategic Goal 4:			
Strategy from Section 4 - Work towards the establishment of a direct entry Certificate IV apprenticeship program in the engineering trade.			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
Address the situation where Certificate IV qualifications are not available for mechanical and fabrication engineering trades as a direct entry apprenticeship program.	<ul style="list-style-type: none"> Work with industry and RTOs to develop and register a direct entry Certificate IV apprenticeship program in selected mechanical and fabrication trades 	High	Ongoing
Lead Agency: EATC			

Skilling WA Strategic Goal 4:			
<ul style="list-style-type: none"> Strategy from Section 4 - Encourage continuous improvement by giving employers and individual Certificate III holders the option of accessing specific units to reach the Certificate IV outcome for trade up-skilling purposes in the engineering trade. 			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
Address the identified a need for a broader skills base and higher skill sets for both apprenticeships and trade qualified workers for up-skilling in the mechanical and fabrication engineering trades	<ul style="list-style-type: none"> Work with industry and RTOs to promote Certificate IV post trade programs in mechanical and fabrication trades 	High	Ongoing
Lead Agency: EATC			

Automotive

Skilling WA: Strategic Goal 4:			
Strategy from Section 4 - Identify and introduce mechanisms to capture automotive electrical/electronic skills within the automotive trades.			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
Develop and implement a working strategy to develop a new trade occupation and apprenticeship combining automotive mechanical and electrical skills.	<ul style="list-style-type: none"> Work with industry and RTOs to develop and register a direct entry Certificate IV apprenticeship program in a combined automotive mechanic and electrician in selected automotive trades 	Very High	June 2015
Lead Agency: EATC			

Skilling WA: Strategic Goal 3:			
Strategy from Section 4 – Review the current automotive apprenticeship pathways to capture intakes at Certificate levels II, III and IV, thereby more appropriately responding to industry requirements.			
Recommended Priority Actions	Steps to Implement Actions	Priority	Date to be Completed
<p>Develop strategies to move away from a 'one size fits all' apprenticeship system to one that:</p> <ul style="list-style-type: none"> Accommodates multiple models, Enables ongoing, higher level and specialised skills development, is customised to the unique requirements of identified trade or industry areas, and is able to support a rapid response to emerging skill demand. 	<ul style="list-style-type: none"> Liaise and engage with Department of Training and Workforce Development sections to promote funding of flexible delivery methods and materials. Assist training providers to develop flexible delivery strategies and materials through the engagement with industry and government agencies. Promote Certificates II, III and IV apprenticeships where appropriate. 	High	Ongoing
Lead Agency: EATC			

SECTION 6 – PLAN ADMINISTRATION

Plan Contact

This plan is maintained by the Chief Executive Officer for the Engineering and Automotive Training Council. Feedback regarding this plan should be made in writing to:

- (a) Email: dhicks@eatc.com.au
- (b) Mail: P O Box 1820, OSBORNE PARK, 6917
- (c) Fax: (08) 9444 6986
- (d) Office number: (08) 9201 2999

Review Requirements and Issue History

Schedule 2 of the Service Agreement requires that this plan is reviewed and updated annually.

This issue entirely supersedes the previous issue of the plan. Superseded issues should be destroyed, or clearly marked as superseded and removed from general circulation and the Training Council website.

Issue No	Year Approved	Comments/Summary of Main Changes

Distribution List

This plan is issued electronically on the Training Council website after it is approved. Print/paper copies are provided as follows (if applicable).

Organisation	Position

Consultation for this Issue

The review of this issue of this plan was coordinated by the Chief Executive Officer for the Engineering and Automotive Training Council. This issue was rewritten at the request of DTWD as part of the annual review process and the main round of consultation with industry representatives and the Engineering and Automotive Training Council's Board of Management will occur in June, 2013 following DTWD approval.

Over this period, the EATC invited comment from:

- (a) All EATC industry members
- (b) All relevant industry associations
- (c) Industry Skills Councils

Communications Plan Summary

Once the plan is approved, its update will be:

- (a) Endorsed by the Engineering and Automotive Training Council's Board of Management
- (b) Noted by the Department of Training and Workforce Development
- (c) Sent to all persons listed on the Distribution List (paper copies)
- (d) Posted on the www.eatc.com.au website

Validation of this Plan

The EATC Board of Management intends to validate arrangements in this plan by undertaking the following actions:

- Regular review of data.
- Validation of data via extensive consultation with industry stakeholders.
- Update of sections.
- Invite comment(s) via website as part of the process.

SECTION 7 – APPENDICES

SURVEY TOOLS - TRADES SKILLS ANALYSIS PROJECT SURVEY



**ENGINEERING & AUTOMOTIVE
TRAINING COUNCIL INC.**

AUTOMOTIVE SKILLS REQUIREMENT SURVEY

1. What is your industry sector?

- ☐ **Light Vehicle**
- ☐ **Dealership**
- ☐ **Vehicle Body Repair**
- ☐ **Heavy Vehicle Repair (Road Transport)**
- ☐ **Auto Electrical**
- ☐ **Heavy Vehicle Mobile Equipment**
- ☐ **Motorcycle**

Other Industry Sector

--

2. Do you currently employ apprentices?

☐ **Yes**

☐ **No**

Comments

3. If no, what are the reasons for not employing apprentices?

☐ **Not Enough Work**

☐ **Supervision Issues**

☐ **Cost**

Other

4. Would you employ apprentices if the cost of wages and on-costs were subsidised or shared with other employers?

☐ **Yes**

☐ **No**

Comments

5. Are you currently experiencing problems recruiting tradespersons with the specific skills you require?

☐ **Yes**

☐ **No**

Comments

6. Do you require specific skills in any of the following areas?

☐ **Fluid Power/Pneumatics**

☐ **Diagnostics**

☐ **Specialised Welding (if applicable)**

Other Areas

7. Would you utilise post-trade training in specific skill areas to up-skill existing tradesperson?

☐ Yes

☐ No

8. Do you currently employ or have you employed tradespersons trained overseas?

☐ Yes

☐ No

9. If yes, how do the skills of these overseas trained tradespersons compare with the skills of tradespersons that have completed an apprenticeship in Australia?

☐ Better

☐ Same

☐ Worse

Comments

THANK YOU FOR COMPLETING THIS SURVEY



ENGINEERING SKILLS REQUIREMENT SURVEY

1. What is your industry sector?

- ☐ **Sheet Metal Fabrication**
- ☐ **Heavy Metal Fabrication**
- ☐ **General Engineering (Fitting and Machining)**
- ☐ **Marine Engineering**
- ☐ **Refrigeration/Air Conditioning**

Other Industry Sector

2. Do you currently employ apprentices?

- ☐ **Yes**
- ☐ **No**

Comments

3. If no, what are the reasons for not employing apprentices?

- ☐ **Not Enough Work**
- ☐ **Supervision Issues**
- ☐ **Cost**

Other

4. Would you employ apprentices if the cost of wages and on-costs were subsidised or shared with other employers?

- ☐ **Yes**
- ☐ **No**

Comments

5. Are you currently experiencing problems recruiting tradespersons with the specific skills you require?

- ☐ **Yes**
- ☐ **No**

Comments

6. Do you require specific skills in any of the following areas?

- ☐ Fluid Power/Pneumatics
- ☐ Diagnostics
- ☐ Specialised Welding
- ☐ CNC Machining

Other Areas

7. Would you utilise post-trade training in specific skill areas to up-skill existing tradesperson?

- ☐ Yes
- ☐ No

8. Do you currently employ or have you employed tradespersons trained overseas?

- ☐ Yes
- ☐ No

9. If yes, how do the skills of these overseas trained tradespersons compare with the skills of tradespersons that have completed an apprenticeship in Australia?

☐ Better

☐ Same

☐ Worse

Comments

THANK YOU FOR COMPLETING THIS SURVEY

SECTION 8 – LIST OF TABLES

This section should be used to provide a list of tables and figures used within the main body of the document.

TABLES

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Table 5	Overseas Born Engineering Trades Workers – Top 10 Countries of Origin (2011)
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Table 9	Automotive Traders Labour Market Status
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FIGURES

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Figure 3	Engineering Trades Workers – Comparative Population (ABS Census 2006 and 2011)
Figure 4	Employer Identified Engineering Skill Requirements
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Figure 6	Overseas Born Engineering Trades Workers by Year of Arrival (2006 ABS Census)
Figure 7	Overseas Born Engineering Trades workers by Year of Arrival (2011 ABS Census)
Figure 8	457 Visa Holder Numbers Working in WA in Select Engineering Fabrication and Mechanical Trades Occupations
Figure 9	Engineering Trades Apprentices – Trend Data 2009 to 2013
Figure 10	Reasons for not Employing Engineering Apprentices
Figure 11	Automotive Trades Workers: Comparative Population (ABS Census 2006 and 2011)
Figure 12	Employer Identified Automotive Skill Requirements
Figure 13	Automotive Trades Workers – Comparative Population of ABS Census 2006 and 2011
Figure 14	Overseas Born Automotive Trades Workers by Year and Arrival (2006 ABS Census)
Figure 15	Overseas Born Automotive Trades Workers by Year of Arrival (2011 ABS Census)
Figure 16	457 Visa Holder Numbers Working in WA in Select Automotive Trades Occupations
Figure 17	Automotive Trades Apprentices – Trend Data 2009 to 2013
Figure 18	Reasons for not Employing Automotive Apprentices

SECTION 9 – GLOSSARY

The following terms that are used in this plan are particular to this Training Council.

Acronyms

Table 29 lists acronyms that are used in this plan.

TABLE 29 – ACRONYMS

Acronym	Full Title
ABS	Australian Bureau of Statistics
AME	Aircraft Mechanical Engineer
AMWU	Australian Manufacturing Workers Union
ASA	Auto Skills Australia
ASI	Australian Steel Institute
ASQA	Australian Skills Quality Authority
ATO	Australian Taxation Office
BIA	Boating Industry Association of Australia
CASA	Civil Aviation Safety Authority
CCIWA	Chamber of Commerce and Industry Western Australia
CEPU	Communication, Electrical, Plumbing Union
CIAB	Composites Industry Advisory Board
COAG	Council of Australian Governments
CVIA	Commercial Vehicle Industry Association (a division of MTAWA)
DIISRTE	Department of Industry, Innovation, Science, Research and Tertiary Education
DoE	Department of Education
DTWD	Department of Training and Workforce Development
EATC	Engineering and Automotive Training Council (Inc)
ELB	Electrical Licensing Board of WA
ERAC	Electrical Regulators Advisory Committee
ERASS	Exercise Recreation and Sport Survey

Acronym	Full Title
FaHCSIA	Department Families, Housing, Community Services and Indigenous Affairs
FCAI	Federal Chamber of Automotive Industries
FIFO	Fly-In Fly-Out
FMIA	Farm Machinery and Industry Association of WA (Inc)
GFC	Global Financial Crisis
GTO	Group Training Organisation
IAME	Institute of Automotive Mechanical Engineers
ISC	Industry Skills Council
IWDP	Industry Workforce Development Plan
JSA	Job Service Australia
LAME	Licensed Aircraft Maintenance Engineers
LLN	Language, Literacy, Numeracy
MarineWA	Marine Western Australia Inc
MSA	Manufacturing Skills Australia
MTAWA	Motor Trade Association of Western Australia
NSSC	National Skills Standards Council
NQC	National Quality Council
OEM	Original Equipment Manufacturers
OTR	Off-the-Road
RTO	Registered Training Organisation
RITC	Resource Industry Training Council
RSMS	Regional Skilled Migration Scheme
SPOL	State Priority Occupations List
STB	State Training Board
SWA	Skilling WA
SWP	State Workforce Planning
TAC	Training Accreditation Council
TRA	Trades Recognition Australia
VET	Vocational Education and Training
VETiS	Vocational Education and Training in Schools

Acronym	Full Title
WA	Western Australia
WABN	West Australian Bicycle Network
WASMOL	Western Australia Skilled Migration Occupation List
WCA	Watch and Clock Association of Australia
WELL	Workplace English Language and Literacy

Acronyms – Training Packages

Acronym	Full Title
AUM08	Automotive Manufacturing Training Package
AUR05-AUR12	Automotive Industry Retail, Service and Repair Training Package
MEA11	Aeroskills Training Package
MEM05	Metals and Engineering Training Package
MSS11	Sustainability Training Package