



**ENGINEERING & AUTOMOTIVE
TRAINING COUNCIL INC.**



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DRAFT

**Industry Workforce Development Plan
2011-2012**



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FOREWORD

The Engineering and Automotive Industry Development Plan 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 sector in Western Australia, including mining, transport, aviation, health, food, agriculture, manufacturing 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

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. This report should be viewed as a "work in progress" document that is subject to future refinement and updating.

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

EXECUTIVE SUMMARY

The Engineering and Automotive Training Council (EATC) has produced this Industry Workforce Development Plan 2011-2012 (IWDP) on behalf of the automotive and engineering industries in Western Australia (WA).

This report provides an overview of the automotive and engineering industries in WA, and identifies the current/future priority issues confronting both industry sectors. In identifying the issues, the EATC is recommending strategies to stakeholders to overcome current and future issues affecting industry.

The EATC is funded by the Department of Training and Workforce Development (DTWD) to produce this report for the Western Australian Government. The workforce development issues and strategies contained in this report will assist the State Government to update *Skilling WA - A Workforce Development Plan for Western Australia*.

The EATC has structured this report against the “five strategic goals” of *Skilling WA*, and has aligned each issue and strategy to these goals (marked as **SWA** items).

Another very positive outcome in the past twelve months has been the production of the State Priority Occupation List (SPOL) database, which was produced by the DTWD in collaboration with the ten Training Councils representing their respective industries.

The SPOL database will be upgraded on a regular basis by the DTWD in conjunction with the Training Councils; this will ensure Western Australia can monitor skills demand against supply for the immediate future. This will assist the automotive and engineering industries to overcome skill shortage issues.

In addition to the development of the SPOL database, the DTWD has produced the *Western Australia Skilled Migration Occupation List (WASMOL)*. This list will undergo periodic upgrade similar to the SPOL and will assist the respective industries to address skill shortage issues through the State sponsored *General Skilled Migration Program*.

The EATC attended forums and worked with industry in the development of the WASMOL. The EATC is requested, on a regular basis, to assist industry with skilled migration matters.

Strategic Environment 2011

During 2010, the Engineering and Automotive Training Council produced the first Industry Environmental Scan 2010; this report was complimented by the EATCs Industry Workforce Development Plan 2010.

The 2010 reports outlined the current environmental positions of the automotive and engineering sectors in Western Australia. Since then very little economic or strategic change has occurred in any sectors of the two respective industries.

A number of factors contributed to why the two industries remained relatively subdued and struggling to shake off the remnants of the Global Financial Crisis.

The uncertainty surrounding the European and United States sovereign debt crisis and the flow-on effect to the Australian economy has a direct impact on the automotive and engineering industries in WA, ie vehicle retail and servicing is down, non-resource engineering work is subdued.

The exception to the above is automotive and engineering maintenance work associated with the resources sector and infrastructure projects. This sector of the EATC industry coverage is experiencing skill shortages in the following occupations:

- Mechanical Fitters
- Plant Mechanics/ Automotive Heavy Mobile Equipment
- Engineering Electrical Trades
- Heavy Fabricators (Boilermakers)
- First Class Welders
- Coded Welders
- Auto Electricians
- Mechanical Fitters with Hydraulic Skills
- Engineers - Mechanical, Electrical and Structural

Notwithstanding that most of the automotive and engineering industry sectors are currently experiencing a downturn in production orders and/or sales/services, the occupations employed in these sectors are subject to skills shortage issues.

This is mainly due to the syphoning effect of skilled trades from the non-resource industry sectors into the ever-expanding resources industry, ie mining, oil and gas. Some of these occupations include:

- Light Vehicle Motor Mechanics
- Heavy Road Transport Motor Mechanics
- Panel Beaters
- Spray Painters
- Vehicle Body Builders
- Auto Electricians
- Mechanical Fitters

- Heavy Fabricators (Boilermakers)
- Welders
- Ship Building Trades

With the downturn in many sectors of the automotive and engineering industries over the past eighteen months, employers are reluctant to take on apprentices; this is due to the lack of contracts and sales/service demands. Couple this with the pending baby boomer retirements of skilled tradespeople will, subsequently, result in a major skill shortage in most occupations in the respective industries.

The “two-speed economy” cliché definitely applies to the automotive and engineering industries in Western Australia. There is increasing recognition that alignment to the resources sector and infrastructure projects can determine the health of enterprises.

Key Messages from Industry

- Across all industry sectors the same theme is conveyed back to the EATC, ie a very large portion of school students entering into apprenticeships have poor Language, Literacy and Numeracy (LLN) skills. This results in many apprentices struggling to complete the full training contract, which then results in high attrition rates in the automotive and engineering industries. This lack of basic LLN skills precludes many candidates from entering the industries. **SWA 4.2.2**
- The EATC has been lobbying the engineering fabrication sector to lift the intake of apprentice numbers in the heavy fabrication occupations. The response from company managers is especially loud and clear, “how can we take on apprentices when we have no contracts”. The issue relates to the lack of local content on infrastructure projects. The EATC was informed that the matter is being taken up with the State Government to intervene to ensure local industry is awarded contracts relating to resource projects. **SWA 3.1.2**
- Employer feedback to the EATC relative to apprenticeship matters has identified that industry requires several changes to the current Vocational Education and Training (VET) arrangements. The first being the desire to have the Trade Certificate reinstated and the second being the nominal term of the apprenticeship to be over a four-year period. The EATC has informed industry stakeholders that a review of the VET system is underway by the Commission of Australian Governments (COAG). **SWA 4.1.4**
- A primary concern of industry stakeholders relates to the lack of “work readiness” of school leavers entering into the general workforce. Employer observations are that a large amount of school leavers experience some form of cultural shock when confronted with the shopfloor environment. Companies believe a greater emphasis should be placed on work experience/work placement via pre-apprenticeships etc. **SWA 4.1.4, 4.1.5**

- During discussions with company representatives and industry associations, one concern that is highlighted constantly is the poor quality of career advice given to school students relative to VET occupational outcomes. The EATC has recommended strategies to overcome this concern later in this report. **SWA 4.1.2**
- With many companies experiencing skill shortages, the need to utilise the services of skilled migrants is on the increase. Industry representatives have expressed concern relating to the complexity of importing labour from overseas and, in some cases, the level of skills individuals hold. The EATC is assisting industry to facilitate positive outcomes in terms of quality candidates. **SWA 2.1.2**

Methodology

The EATC applies a formal research methodology to all of its information and data collection. These notes describe the general approach taken by the Training Council in the collection of information and data related to the range of workforce development activities it undertakes.

- The information and data from a qualitative inquiry approach is typically obtained from direct interaction using fieldwork. The EATC has adapted this fieldwork methodology and collects information from companies and individuals involved in engineering and automotive activity at the workplace, through one-on-one interviews and by other direct contact with industry representatives.
- Additional industry data and statistics is sourced from a broad range of other organisations with a direct interest and involvement in the workforce development and training needs of the Western Australian engineering and automotive sectors. These organisations include:
 - Skills Australia
 - Manufacturing Skills Australia
 - Chamber of Commerce and Industry of Western Australia
 - Australian Industry Group
 - Motor Trade Association of Western Australia
- Review of published and web-based information and data.
- Consultation with industry representatives of the various sectors for validation. This involves structured interviews with a standard questionnaire developed by the EATC.
- Utilisation of the EATC metropolitan and regional Industry Advisory Group Network to validate and seek industry feedback on training and workforce development issues.

- The EATC's Registered Training Provider (RTO) Network Advisory Groups are utilised to validate training and workforce development issues.

Although the EATC utilises observation and document examination, the key qualitative research tool used is a structured interview guide. For all of its data collection and analysis activity, the EATC develops an appropriate interview guide which allows for the sourcing of information in a structured and measured way, but also provides an opportunity for the in-depth exploration of particular issues, ideas and initiatives that may arise during the interview process.

An interview guide is a list of key questions, issues and prompts which allows each interview to proceed in the same direction and allows the collection of information on the same topic while providing flexibility. The interview guide provides for exploration of topics in greater depth, probing to elucidate and illuminate key areas and freedom to discuss issues within a pre-arranged framework.

The use of a structured interview guide is not restricted to a one-on-one approach. The same methodology may be applied within a group activity where the guide is used to stimulate discussion and to encourage participants to provide detailed information. The EATC conducts forums in all regions of the State and uses this structured approach in these settings.

Many of the people involved in the engineering and automotive sectors consulted by the EATC in relation to workforce development and training needs, have not previously been involved in formal research activity and, as such, the structured interview guide provides a non-threatening and unobtrusive model of data collection.

The use of quantitative data obtained from reputable sources such as the Australian Bureau of Statistics (ABS), IBIS World and other organisations, together with the widespread application of a standard qualitative approach, ensures that all the material produced by the EATC is evidence-based and open to rigorous scrutiny.

Industry Priority Issues and Strategies

The following tables identify the current and future priority issues confronting the automotive and the engineering industries in Western Australia. The issues have been prioritised in terms of importance to the relevant industry sector.

One common issue which both industries have rated priority one in the following tables, relates to poor "work readiness" of candidates entering into apprenticeship arrangements. This issue alone is ranked very high by industry as affecting their businesses, ie poor attrition rates for apprentices, productivity and quality of services matters etc.

The following tables have aligned the issues with the "Five Strategic Goals" of *Skilling WA* and identify strategies and actions to address each respective issue.

INDUSTRY PRIORITY ISSUES, STRATEGIES AND ACTIONS

Automotive Industry

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
1	1.1.1 1.2.1 1.2.4 1.2.5 1.2.6 1.3.1 2.1.4 3.1.2 4.1.3 4.2.2 4.3.4	<p>The automotive industry in Western Australia has expressed serious concerns in respect to the poor “work readiness” of candidates seeking apprenticeships and employment in the industry. This issue directly impacts on the ability of enterprises to recruit suitable applicants to fulfil the skill requirement of the automotive industry sectors.</p> <p>This issue, in particular, relates to school leavers, immigrants, mature-aged workers and under-represented groups. Poor work readiness can be defined as:</p> <ul style="list-style-type: none"> • Poor language, literacy and numeracy skills • Basic communication, language skills • Non-exposure or understanding of the shop floor environment. <p>The lack of these basic skills leads to high attrition rates of apprentices, poor productivity, quality service problems and, most of all, skill shortage issues. Employers believe the primary and secondary school system has let them down in terms of providing school leavers with the necessary numeracy and literacy skills required by industry.</p>	<p>The automotive industry acknowledges the initiatives the State and Federal governments are now implementing to overcome this serious industry issue.</p> <p>For example, the Workplace English Language and Literacy (WELL) program and other Language, Literacy and Numeracy (LLN) initiatives are delivering results, however, these programs are not well-known by industry.</p> <p>A more concerted effort is required to promote this service to employers and the general community.</p> <p>The Department of Education (DET) in collaboration with the Department of Training and Workforce Development (DTWD) and other stakeholders, ie Training Councils and industry associations, need to jointly develop a policy to ensure monitoring of LLN levels of proficiency is achieved throughout the primary and secondary years of schooling and into Vocational Education Training (VET) programs, ie pre-apprenticeship studies.</p>	<p>The reintroduction of trade mathematics classes outwith normal working hours, ie evenings and weekend.</p> <p>Dedicated communication and literacy classes for first year apprentices. Subjects should not be embedded into trade competencies and should be delivered by specialist trainers, not trade lecturers. New Foundation Skills Training Package delivered to pre-apprenticeship candidates in schools or RTOs.</p> <p>Who’s Responsible? DET, DTWD, STB and Training Councils with industry.</p>

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
2	4.1.2 4.1.4	<p>The automotive and engineering industries are very much reliant on the education system to provide personnel for the industry sectors.</p> <p>The level of career advice in schools relative to the automotive industry and associated career paths is poor, inaccurate and conveys a negative image towards the industry. <i>Source: Auto Skills Australia (ASA 2011).</i></p> <p>The general lack of structured career advisory training for personnel working in the education system is seen by industry as a barrier for employers trying to recruit new applicants from the schooling system.</p> <p>A large cohort of VET coordinators/career advisors believe the automotive and engineering occupations are low paying, is dirty work and gives no opportunity for career advancement. This misconception of the occupations is far from the truth and in reality all automotive and engineering occupations are:</p> <ul style="list-style-type: none"> • Well paying career choices • Clean, using state of the art systems • Most have pathways to professional occupations, ie managers, engineers, technicians and company owners. 	<p>Career advisors need to understand the industries before advising students of career pathways. This is a fundamental requirement to guide students to the appropriate career choice. The teaching profession, in general, has not been provided with the opportunity to access trade skill information relative to what career opportunities exist, particularly information on the automotive and engineering industries.</p> <p>The State Government needs to create a dedicated profession of Career Vocational Advisors. These advisors will be based in the secondary schools and will be responsible for providing career advice to students at a single or cluster of schools.</p> <p>The advisors will be trained to give clear and factual industry career advice. The benefits of this approach are:</p> <ul style="list-style-type: none"> • State-wide conformity for career advice. • Students have a dedicated contact person. • The career advisor fully understands the workplace requirements and functions. • Meaningful and intelligent career advice. • Fully informed career advice enables students to choose the appropriate subjects in their final year. • More parent/guardian contact. 	<p>The State Government should convene a working group consisting of representatives from the DET, DTWD and Industry Training Councils to develop the job description necessary for the profession of Career Vocational Advisor.</p> <p>This action is pivotal to ensure the skill shortage strategies and workforce participation strategies outlined in <i>Skilling WA</i> achieve their goals.</p> <p>Who's Responsible? DET, DTWD, Training Councils, State Government, STB</p>

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
3	3.1.2 3.1.3 4.1.2 4.1.3	<p>The automotive industry in Western Australia is currently experiencing difficulties in attracting suitable applicants to undertake automotive apprenticeships.</p> <p>The problems associated with recruitment are due mainly to the misconceived images of the industry by career advisors and parents of the students.</p> <p>As previously stated, the industry is not a low paying, dirty industry with no career-path opportunities; this is the main reason behind the lack of attraction.</p> <p>There is also a significant problem retaining qualified technicians, which is mainly due to the syphoning effect of skilled labour from the automotive industry to the resources sector.</p> <p>The main automotive occupations being recruited to the resources sector are:</p> <ul style="list-style-type: none"> • Light Vehicle Technicians • Automotive Electrical Technicians • Heavy Vehicle Road Transport Technicians <p>The automotive industry does not effectively portray itself as a viable career option to school leavers and other cohorts.</p> <p>This “attraction and retention” issue will become more critical when demand for skilled labour in the resources sector increases in 2012.</p>	<p>The automotive industry in Western Australia is recognised as being one of the largest economic drivers in the State. For the industry to lack sufficient skilled labour to operate effectively will have a detrimental effect on the economy of WA.</p> <p>Career promotion of the automotive industry is of paramount importance for the viability of the industry. A targeted marketing campaign throughout the secondary school system is urgently needed.</p> <p>The requirement to effectively compete for the right applicants in an increasingly diverse job market has been identified by the industry as a priority issue.</p> <p>The industry believes skilled migration will also play a vital role in alleviating critical skill shortages. The industry has serious concerns relative to the backlog of applications with Trades Recognition Australia (TRA).</p> <p>The Department of Education, Employment and Workplace Relations (DEEWR) needs to review the assessment structure of TRA to ensure a more streamlined system is achieved to cope with the volume of applications.</p>	<p>There is an urgent need to establish an automotive working group to address the “attraction/retention” and migration issues confronting the industry in WA.</p> <p>The working group should be made up of peak industry stakeholders, the EATC, plus several representatives from State and Federal Governments.</p> <p>Issues for the working group to address are:</p> <ul style="list-style-type: none"> • Attraction/retention • Migration issues • Career promotional campaign <p>Who’s Responsible? EATC, DTWD, STB, DEEWR, DET</p>

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
4	4.1.4 4.1.7	<p>Apprentice rates of pay and conditions in both the automotive and engineering industries are too low to attract quality applicants to the industries.</p> <p>The low rate of pay is seen as a major disincentive by school leavers to undertake an apprenticeship. The first-year apprentice rate is so low that, in some cases, an apprentice qualifies for Centrelink payments as they are deemed to be paid under the poverty line.</p> <p>The high attrition rate of apprentices leaving apprenticeships can be, in part, attributed to the low income paid to people in VET training.</p> <p>The rates and conditions of apprenticeships are governed by industrial awards, both Federal and State jurisdictions. Obtaining agreement from the industrial parties to lift apprentice/ trainees rates substantially is not a viable option. This issue can be categorised as being in the “too hard” basket.</p> <p>A public interest argument could be mounted to declare that if we continue to do nothing to address this problem, then skill shortage issues will continue in the trade areas in the future.</p>	<p>Acknowledging the difficulties, the industrial parties will have to change the current problems associated with low apprenticeship wages. The following strategy is proposed:</p> <p>The Council of Australian Governments (COAG) is currently reviewing the whole VET system. Part of this process is to harmonise the apprenticeship arrangements across Australia and legislate to remove inconsistencies within the VET Acts in each State.</p> <p>A proposal that should be considered is to develop a “Training Wage” schedule for insertion in all VET Acts. This will identify apprentice wages as a VET issue along with other matters contained in the “Training Contract” and not as an industrial matter.</p> <p>A Federal training summit should be convened to identify other initiatives with a view to reaching a consensus on such an important issue.</p>	<p>A meeting of all interested parties to be convened to explore this initiative and other alternative proposals.</p> <p>This can then be presented to the Federal and State Governments.</p> <p>Who’s Responsible? Training Councils, DTWD, STB, Unions, DEEWR</p>

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
5	4.1.2 4.1.3 4.2.3	<p>The Vehicle Body Repair (Panel and Paint) sector of the automotive industry is confronted with chronic skill shortages and a significant image problem relative to attracting people into the industry sector.</p> <p>The image of the panel and paint sector is one of being dirty and dusty, low paying with no career pathways available to applicants. School leavers are discouraged from entering the industry due to this perception.</p> <p>In reality, the vehicle body repair sector has undergone a transformation over the past few years and is now a high tech, clean, well-paying career option with pathways into advanced occupations such as:</p> <ul style="list-style-type: none"> • Vehicle Insurance Assessor • Managers • Owner operator <p>With the volume of motor vehicles increasing on the roads every year, it is essential that the industry sector grows to keep pace with demand. Unfortunately, with chronic skill shortage issues now confronting the sector, the industry is on the brink of contracting in size resulting in industries inability to meet customer demands.</p>	<p>The occupations of Panel Beater and, to a lesser degree, Spray Painter must be recognised as occupations in crisis demand.</p> <p>Special attention is urgently required to attract new applicants into apprenticeships in these occupations.</p> <p>A special promotional campaign is required to increase the 2012 intake of apprentices, and to attract existing workers into the industry through special retraining programs.</p> <p>The promotional campaign and retraining initiatives needs to attract special government funding.</p> <p>The vehicle insurance industry, in collaboration with other automotive stakeholders, can play a pro-active role in the development of post-trade career-path options.</p>	<p>The EATC, in conjunction with peak industry bodies, needs to develop promotional material necessary for the campaign.</p> <p>An industry delegation to meet with the Minister for Training and Workforce Development seeking government involvement with the initiatives is urgently required.</p> <p>Who's Responsible? EATC, Peak Industry Bodies, DTWD, STB</p>

INDUSTRY PRIORITY ISSUES, STRATEGIES AND ACTIONS

Engineering Industry

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
1	1.1.1 1.2.1 1.2.4 1.2.5 1.2.6 1.3.1 2.1.4 3.1.2 4.1.3 4.2.2 4.3.4	<p>Poor “work readiness” of job applicants, which includes reading and numeracy skills, is a major barrier to employment and training, particularly with school leavers, migrants, and Aboriginal people.</p> <p>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>There are numerous reports around that 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. The Australian Government’s initiative of testing all students in these areas will shine the spotlight on the issue and may help to impress on the education system how important it is.</p> <p>One post-school opportunity for employers to address this problem with both existing and new workers is to access the Workplace English Language and Literacy (WELL) program. This has been very effective over many years but our research has shown that the service is not as widely known as it should be. A more concerted effort to promote this service is required.</p>	<p>Reintroduction of trade maths classes available outside work times, such as evenings and weekends.</p> <p>Introduce dedicated communication and literacy classes for first year apprentices rather than embed these subjects into the trade specific classes. These classes to be delivered by communication specialists not trades lecturers.</p> <p>Who’s Responsible? DET, DTWD assisted by Training Councils and industry.</p>

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
2	<p>3.1.3</p> <p>3.2.1</p> <p>3.2.2</p> <p>3.2.3</p>	<p>Local content in the Engineering industry is an issue requiring urgent attention to ensure that local labour and local companies are used in the resources boom. It is reported that Australian engineering capability is diminishing as engineering design work goes overseas. There is also concern that training of new trade workers is under threat due to the use of overseas workers in Australia on working visas. Particularly, there is major concern amongst WA engineering metal fabrication companies over low levels of local content on major resource projects. It is widely believed that WA's skilled engineering and fabrication jobs are in danger of collapse. This view is supported by the Australian Steel Institute, UnionsWA and the Association of Professional Engineers, Scientists & Managers, Australia.</p> <p>The Engineering and Automotive Training Council's (EATC) primary concern relates to the lack of apprentice intake by industry and the subsequent skill shortage issues that flow from this action.</p> <p>The occupations employed in the engineering fabrication sector have been categorised as priority 1 on the State Priority Occupations List (SPOL). The EATC envisages that these occupations will become even more critical in the next twenty-four month period.</p>	<p>The State Manager for the Australian Steel Institute, James England, was quoted as saying "the use of offshore workers for some of WA's resource projects is having a devastating impact on the local fabrication industry. People might be surprised to learn that, despite a large number of huge resources projects being under construction up north, most of our fabrication workshops are almost empty and some businesses are close to collapse," (Ibid).</p> <p>The State Government is unfortunately in a position where they are required to support local industry, but at the same time attract investment from international investors. Balancing the needs of all stakeholders is difficult in relation to this issue.</p> <p>The EATC believes that more flexible training contracts need to be developed to allow more than one employer to be a named party to a training contract for an individual apprentice. This will overcome the fear of employers not having enough work available for the duration of the apprenticeship. Apprentices could be shared between employers based on availability of contracts in their workshops.</p> <p>Alternative government incentives need to be offered to employers to take on apprentices.</p>	<p>A number of actions need to be implemented to help overcome the crisis developing in the Engineering Fabrication sector. These being:</p> <ul style="list-style-type: none"> • Legislation to define minimum local content levels on significant projects. • Alternative Training Contracts to be developed. • Training incentives to employers need to be revised. <p>Who's Responsible? Federal and State Governments, DTWD, Training Councils</p>

PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
3	3.1.1 3.1.2	<p>From 1 July 2012, national licensing will commence for electrical trades, state and territory licenses will be transferred across to the new system at this time. The Electrical Regulators Advisory Committee (ERAC) made a decision not to recognise the MEM30405 qualification for licensing as a trade Electrician (Mechanic).</p> <p>The National Skills Council, Manufacturing Skills Australia (MSA), has written six new assessment units of competency which MSA proposed to insert into the MEM30405 qualification. These assessment units were to meet ERAC requirements for the capstone testing and a revised form of the qualification showing the proposed new units. ERAC rejected these proposed changes.</p> <p>ERAC also advised that from 30 September 2015 the MEM30405 qualification will not be recognised as eligible for an Electrician's licence. Only the EE-Oz Training Package qualification will be recognised.</p> <p>ERAC will accept the MEM30405 qualification to be recognised as eligible for an Electrical Fitters licence. This does not require a capstone test or installation experience. After 2015 an electrical fitter wishing to upgrade to a full Electrician's Licence, will need to apply to the Electrical Licensing Board (ELB) for a permit to carry out</p>	<p>Industry needs to decide if they want or need electrical mechanics or if fitters are sufficient. However, they should not be forced by a regulator or government decision to take a person with a licence that does not meet their needs.</p> <p>All electrical apprentices currently need to do the "capstone test" as it is part of the training footprint. The capstone rules and content will be re-written by Curriculum Department in DTWD</p> <p>DTWD made an offer to the Electrical Licensing Board that additional installation units be added to the engineering training footprint and be funded up to 1240 hours, essentially to give a dual trade status. An installation logbook is completed during the four-year engineering apprenticeship and, after successful completion of a capstone test, all the evidence is presented to the ELB at the time they apply for a licence at the end of the apprenticeship. Where there is no installation evidence then an Electrical Fitter's licence will be issued.</p> <p>This offer was refused; no valid reason was given other than the ELB was bound by the ERAC decision.</p>	<ul style="list-style-type: none"> Pursue the proposal that an installation logbook be completed during the four-year engineering apprenticeship and, after successful completion of a capstone test, all the evidence is presented to the ELB at the time they apply for a licence at the end of the apprenticeship. Bridging provisions need to be put in place up to September 2015. An option is to sign apprentices up in both qualifications and present the one that leads to the full licence to the ELB. <p>MSA to continue to lobby all relevant government ministers to address this issue.</p> <p>Who's Responsible? Western Australian</p>

		<p>electrical installing work under supervision. They will be issued with a logbook to record their on-the-job electrical installing experience. After attaining at least twelve months installing experience, applicants will sit the Electrical Licensing Board's examination. (Capstone) If successful, they will be issued an Electrician's Licence upon payment of the prescribed fee.</p>		<p>industry employer associations, Unions, MSA, DTWD with the assistance of Training Councils.</p>
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PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
4	<p>4.1.1</p> <p>4.1.2</p> <p>4.1.3</p> <p>4.1.4</p> <p>4.2.3</p>	<p>Skills shortages in engineering trades are at critical levels. There are skill and labour shortages in a number of trades, particularly experienced and highly skilled Machinists, Electricians with instrumentation skills, Mechanical Fitters with hydraulic skills, Heavy Fabricators and Welders with high level code skills. Intensive specialised training may be done in a post-trade capacity.</p> <p>Fitters, fabricators and electricians may be employed in any industry sector outside of engineering specific enterprises in a service, construction or maintenance capacity. As a training issue the emphasis on core skills within all of the trades is paramount, particularly in the engineering industry. The application of core skills in a variety of situations is the key to a good engineering tradesperson. It is the duty of the RTO to provide these skills for apprentices that can then be applied in the particular workplace in which the apprentice or trainee is employed.</p> <p>Companies who require the skilled labour often consider personnel in their workforce as possibly benefiting from up-skilling training. These workers are usually working long hours, which restricts their ability to attend structured training courses. This is a major barrier to increasing the higher level skills in the workforce. Cost is also a</p>	<p>Flexible delivery is the key to this issue and the willingness of the employer to allow sufficient time during working hours for the up-skilling to take place.</p> <p>It is government policy to encourage the attainment of higher level qualifications. The MEM40105 Certificate IV in Engineering is a qualification designed to provide an industry recognized skills profile related to trade work as a Higher Engineering Tradesperson or a Special Class Engineering Tradesperson. Skills development would be undertaken through post-apprenticeship training or as part of an Australian Apprenticeship arrangement where the mix of on and off-the-job training would be specified in the Training Plan associated with the Contract of Training between the employer and apprentice.</p> <p>This qualification may be accessed by direct entry provided the applicant can provide evidence of relevant trade qualifications or demonstrate equivalence through a skills recognition process.</p>	<p>RTOs need to provide support material, on-the-job mentoring and assessment services more effectively.</p> <p>Ensure that flexible delivery of training for apprentices and trades people is made available for companies who have particular skill shortage issues.</p> <p>Both Federal and State funding is required to assist companies with casual workforce payments, allowing time off-the-job for “existing workers” to be up-skilled.</p> <p>Who’s Responsible? Registered Training Organisations, DTWD with the assistance of Training Councils, DEEWR.</p>

		prohibitive factor and consideration for many training providers in delivering flexible and appropriate training to meet the requirements of industry to personnel working on remote worksites.		
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PRIORITY ISSUE NUMBER(S)	STRATEGIC GOAL ALIGNMENT NUMBER(S)	ISSUE	STRATEGIES	ACTION(S)
5	4.1.5 4.1.6 4.3.5	<p>In August 2011, EATC completed a report on the findings of a research project into the demand for and use of higher level (post-trade) engineering qualifications by industry in Western Australia. To establish the level of industry need and demand for higher level engineering qualifications at the Diploma, Advanced Diploma and Associate Degree level.</p> <p>With the exception of the two government agencies, there was virtually no industry recognition of higher level Vocational Education and Training (VET) engineering qualifications and, consequently, no need or demand factors were identified.</p> <p>EATC conducted a follow-up survey to validate the findings of the first part. The combined projects have identified a lack of knowledge and understanding of higher level VET engineering qualifications in the industry and an almost total lack of demand for these qualifications in relation to typical positions above the base trade level.</p> <p>For example:</p> <ul style="list-style-type: none"> • Drafter/Draftpersons • Planner • Workshop or Shift Supervisor • Maintenance Supervisor 	<ul style="list-style-type: none"> • Consider further work to identify and define employment pathways for VET higher level engineering graduates. • Seek specific advice from public VET institutes on the industry demand for Associate Degrees in Engineering before supporting the development and establishment of these courses. • Examine the industry concerns in relation to the inflexibility of the current MEM05 Training Package rules for higher level qualifications and identify a process to improve the flexibility and responsiveness of these qualifications. 	<ul style="list-style-type: none"> • Support and encourage public and private VET institutes to actively market and promote higher level engineering courses to industry, particularly private sector employers. • Support the development of Western Australian specific higher level engineering accredited courses where it can be shown there is a direct industry demand and the MEM05 Training Package qualifications are inappropriate. • Encourage public VET institutes to develop formal processes to track and record employment destinations for VET

		<ul style="list-style-type: none"> • Scheduler; Estimator • Process or Laboratory Technician • Engineering Associate • Engineers-Mechanical, Structural etc <p>The combined projects also identified a high level of regard and recognition within industry for trade level qualifications and the use of these qualifications as the base for further skills development and progression into above trade engineering positions.</p>		<p>higher level engineering graduates.</p> <p>Who's Responsible? Registered Training Organisations, DTWD with the assistance of EATC and National Industry Skills Council (MSA).</p>
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References

The following organisations and publications are referenced in this report:

1. Australian Bicycle Council
2. Australian Bureau of Statistics (ABS)
3. Australian Steel Institute Reports
4. Auto Skills Australia (ASA)
5. Boating Industry Association of Australia (BIA)
6. Federal Chamber of Automotive Industries (FCAI)
7. Financial Review
8. Manufacturing Skills Australia (MSA)
9. Mining the Truth
10. Motor Trade Association of WA (MTAWA)
11. MSA Environmental Scan 2011
12. Report on the Western Australian Marine Industry, Dr Helen Cripps, Edith Cowan University, 2010
13. Sydney Morning Herald
14. WA Jobs from WA Resources, Campaign Update August 2011
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16. Engineering and Automotive Training Council – Industry Database
17. Australian Government Productivity Commission

AUTOMOTIVE INDUSTRY OVERVIEW

The automotive industry in Western Australia (WA) is a large and diverse industry which includes manufacturing, light vehicle retail service and repair, vehicle body repair, outdoor power equipment, agricultural machinery, bicycles, recreational boating, recreational vehicles, motorcycles and heavy vehicle mobile equipment and road transport.

The automotive industry is a major contributor towards the Western Australian economy.

The automotive industry is one of the main drivers of the Australian economy with an annual turnover in excess of “\$200 billion (2009-2010), this represents 2.7% of Gross Domestic Product (GDP) and it employs in excess of 342,000 people (as of end of May 2011)”.

(Source: Auto Skills Australia (ASA))

The industry is a constantly changing landscape and due to the ever-increasing demands placed on vehicle manufacturers to conform to changing environmental and safety regulations and fashion trends, the automotive sector has now become a hot bed of new technologies, eg dual fuel, hybrid, electric vehicles, the use of carbon composite construction technologies, water-based paint systems, light alloys and high strength steels and a heavy emphasis upon computer-based control and diagnostic technologies.

With the advent of these new technologies, new methods of training and skill sets will need to be developed. Automotive is now a very high-tech industry, thus creating the need for highly qualified Automotive Technicians.

Consumer and customer service demands are a key driver of skilling needs in all of the automotive sectors and customer expectations are very high at all stages of the product life cycle from initial purchase through to regular maintenance, and repair. These expectations must be met by the organisations and employees providing the products and services.

Confidence within the automotive industry, post Global Financial Crisis (GFC) has not shown any noticeable recovery and factors that have contributed to this are:

- Global economic uncertainty, in particular the European financial crisis
- The newly legislated Carbon Tax, which has impacted upon consumer confidence.
- The Japanese Tsunami created a massive shortage in product supply.
- The value of the Australian dollar against other currencies - consumers are turning towards the global market.
- The advent of a possible mining tax.
- The anticipated 2010-2011 mining and resource surge did not materialise.

The continued global uncertainty will, for the foreseeable future, impact upon the automotive industry not only in WA but for the whole of Australia. Business and consumer confidence will not return until the global financial market shows some stability.

Car sales in WA are notably down on last year's figures. New vehicle sales in Western Australia for the period 2010/2011 were (53,921), this figure is down by (5,866) from the period 2009/2010. This fall can be partially attributed to the removal of the Government incentives applied during the GFC in 2009, which boosted sales in a difficult climate.

(Source: Federal Chamber of Automotive Industries VFacts June 2011)

New vehicle sales in WA were 4.3% lower in September 2011 than in September 2010 in trend terms.

(Source: ABS)

Nationally, new vehicle sales followed a similar trend:

New motor vehicle sales rose significantly in August 2011 compared with the same month last year, according to official figures released today by the FCAI.

88,082 new vehicles were sold during August, representing an increase of 7.3% (or 5,960 vehicles) over August 2010.

Despite these encouraging figures, year-to-date new vehicle sales are still trailing 2010 levels by some 4.4% or 30,357 vehicles.

(Source: Federal Chamber of Automotive Industries (FCAI))

The trend towards smaller and more fuel efficient vehicles is increasing, but the large sedan market is continuing to diminish. Some examples of this are:

- Ford Falcon sedan sales are down 37% to the end of October 2011
- Falcon Ute sales are down 26.7% year-to-date
- Holden Commodore sales are down 20.3%
- Toyota Arian sales are down 22.4%

While sales in the three main passenger car segments are down, the light and medium segments have continued to flourish and are ahead by 1.8% year-to-date. That puts the small car segment on track for a record 240,000 units by the end of 2011; 25,000 units more than last year, an increase of 31.8% year-to-date, and some 80,000 units ahead of where the segment was just 10 years ago, a 98% increase in 10 years.

(Sources: Federal Chamber of Automotive Industries VFacts, Go Auto News November 2011)

During the early part of 2011, the proposed Carbon Tax created an air of uncertainty amongst the business community and the consumer, not knowing how this proposed tax would affect them, has impacted upon employment and business planning along with consumer spending. A good indicator of consumer confidence is the housing market which is currently stagnant in WA. House prices are down approximately 20% on the previous year with houses taking up to twelve months to sell. Now that the Carbon Tax has been legislated the uncertainty will continue until the full cost to the business community and the consumer is known following implementation during 2012-2013.

Further uncertainty will also continue until the outcome of a proposed mining tax is known. If the tax were to be implemented, the impact upon the Australian economy will not be known until 2013-2014.

The Japanese tsunami early in 2011 had a massive effect upon the automotive industry in all areas from light vehicle through to trucks and earthmoving equipment, creating supply shortages from vehicles and equipment through to spare parts. As the year draws to a close these issues are slowly being resolved.

The strong Australian dollar has enabled the consumer to look towards the global market. The recreational boating industry has suffered as a result of this trend, boat and equipment customers are increasingly buying offshore, favouring the American and Chinese markets. The issue is also evident in the recreational vehicle sector, particularly with Chinese manufactured products.

The anticipated mining and resource sector surge predicted for 2010-2011 did not fully materialise. This can, in part, be attributed to business uncertainty resulting in projects being slowed down or put on hold. 2012 onwards will start to show a marked increase in employment activity; several large mining and resource companies are currently putting into place programs to retrain light vehicle mechanics into heavy vehicle qualifications for 2012-2015.

With the expected growth of the mining and resource industries, the automotive industry will need to be prepared for further skill shortages. Areas of major concern are:

- Light and Heavy Vehicle Mechanics
- Auto Electricians
- Panel Beaters
- Spray Painters

The reluctance by a large proportion of the automotive industry to employ apprentices will continue to have a long-term negative effect upon the industry for the foreseeable future. Skilled migration cannot fill the void that currently exists. The need to train a large cohort of apprentices in skill shortage areas is of paramount importance.

The automotive industry has a major image problem when it comes to attracting potential workers (see page 26). If this situation is not addressed, the industry will continue to suffer and the lack of suitable applicants will continue to diminish.

“It is not considered fashionable by many young Australians to take up a trade and as a consequence there is a structural undersupply in this occupation group”.

(Source: Clarius Skills Index)

Skilled migration will continue to play a major role in the growth of the WA economy but immigration will need to be closely monitored and systems will need to be put into place to ensure that the skill deficiency areas are being addressed.

“The recent changes to skilled migration redefining Perth as a regional centre will significantly improve WA’s ability to attract skilled workers from international markets. There is also an ample market ready to accept skilled workers. One of the key issues is the practice of skilled migrants, particularly using the sub class 457 visa, to start with an employer in the automotive sector and then look for opportunities in the resources sector. The MTA is lobbying for a requirement that 457 workers stay within the industry that they were recruited for”.

(Source: MTAWA 2011)

Industry Overview by Sectors

The following information is provided by the Clarius Group who commissioned KPMG Econtech to analyse, index and forecast labour demand against labour supply across 20 occupation categories as defined by the Department of Education, Employment and Workplace Relations, using Australian Bureau of Statistics labour force data. The Clarius Skills Index is the only index that examines the shortage or oversupply of skilled labour compared to demand.

The index is based on the premise that where skilled labour demand (employment plus vacancies) equals supply (employment plus unemployment), the index is equal to 100. During times of labour market tightness, when employers experience difficulty finding appropriately skilled employees, the index is greater than 100. Conversely, at times when skilled employees are easier to find (in a loose labour market), the index is less than 100. The Index has also been interpreted into a skills shortage barometer to highlight the levels of risks to employers in relation to the availability of skilled labour. The barometer has five readings that are based on the following ranges for the index.

Low – index is less than 95

Moderate – index is between 95 and 98

Balanced – index is between 99 and 101

High – index is between 102 and 105

Extreme – index is greater than 105

*“Automotive Tradespersons: **High***

*The Clarius Skills Index for Automotive Tradespersons was **103.7** in the September quarter, easing slightly from 103.8.*

*The Skills Index though remained on **high**, and Automotive Tradespersons are the occupation with the third-highest skills shortage, after Metals Tradespersons and Chefs.*

There is a shortage of Automotive Tradespersons of 5,500 persons, easing from 5,900 in the previous quarter.

Behind the less severe skills shortage lie both decreasing demand and supply for labour with these skills.

The labour demand was 154,000 jobs, slipping by 7,700 positions, while supply of Automotive Tradespersons dropped by 7,300 people, or 4.7 per cent each, during the quarter.

The demand for Automotive Tradespersons will likely return once the economy firms and the carbon tax requires alterations to existing equipment.

When this time arrives one can only hope that some of the people previously employed within this trade are willing to return to this occupation.

At its highest, there were 164,000 Automotive Tradespersons in Australia, around 15,600 more than the September quarter of 2011”.

(Source: Clarius Skills Index September Quarter 2011)

The automotive sector in WA has 5,037 individual businesses ranging from small to medium enterprises to large corporate companies.

(Source: EATC Industry Database)

The main sectors involved within the automotive industry in WA are:

- Automotive Manufacturing
- Automotive Retail Service and Repair
- Vehicle Body Building
- Vehicle Body Repair
- Motorcycles
- Bicycles
- Marine (Light)
- Recreational Vehicles
- Outdoor Power Equipment

Automotive Manufacturing

Western Australia does not have a major presence within the manufacturing sector, manufacturing that takes place is mainly in specialised sectors through small to medium enterprises.

Nationally, three main companies operate manufacturing plants in Australia; Ford, Holden and Toyota. Ford and Holden have announced rationalisations in line with their parent companies in the US. The traditional market for large passenger vehicles is steadily declining, and this can be attributed to increased competition from cheaper imported vehicles (the Chinese and Korean imports are steadily growing) and the escalation of global oil prices. The focus on smaller and more fuel efficient and environmentally friendly vehicles is also a major factor for this shift in consumer purchases.

Automotive Retail Service and Repair

The retail service and repair sector is by far the largest sector within the automotive industry, and equates to 80% of the automotive sector within WA. It comprises of more than five thousand small to medium enterprises to large multi-franchise companies, and covers a wide spectrum of the automotive industry from light vehicle, heavy vehicle, dealerships, sole repairers and franchise outlets.

- **Light Vehicle** – sales, service and repair of motor vehicles, light passenger vehicles, light trucks and vans.
- **Heavy Vehicle** – sales, service and repair of trucks, trailers, heavy mobile equipment and buses.
- **Agricultural/Machinery** – sales, service and repair of trucks, trailers, tractors and associated farm equipment.
- **Motorcycles** - sales, service and repair of motorcycles and scooters.
- **Recreational Marine**- sales, service and repair of recreational boats, jet skis and associated marine equipment.
- **Outdoor Power and Equipment** - sales, service and repair of lawn mowers, hedge trimmers, ground keeping equipment, hire equipment such as cement mixers, mini diggers etc and associated equipment.
- **Vehicle Body Repair** - repair and restoration of light vehicles and trucks.
- **Vehicle Body Building** - repair and modifications to trucks, trailers and buses.
- **Bicycles** - sales, service and repair of bicycles and associated equipment.

Light Vehicle Service and Repair

The light vehicle sector accounts for a large proportion of the automotive industry within WA and has within its scope a variety of occupations, from low skill levels to high skill levels.

The industry encompasses a wide spectrum of businesses:

- **Sole Trader** - this business model can be in the form of one person operating a mobile (come to you) workshop or it could be in the form of a small independent workshop.
- **Small to medium enterprise** - this model mainly encompasses service centres that may be independent or part of a franchise chain.
- **Corporate companies** - businesses within this area are mainly large dealerships or multi franchise PTY companies.

Occupations that work within the light vehicle sector, qualification structure (as commonly used in WA):

- **Trades Assistant** - Certificate II qualifications mainly
- **Tyre Fitter** - Certificate II qualifications
- **Windscreen Fitter** - Certificate II qualifications
- **Automotive Technician** - Certificate III
- **Automotive Electrician** - Certificate III
- **Automotive Specialist** - Certificate III (brakes, driveline, engine reconditioning, gas, transmission, steering and suspension)
- **Automotive Parts Interpreter** - Certificate II to Certificate III
- **Automotive Administration** - Certificate II to Certificate III
- **Automotive Sales** - Certificate II to Certificate III
- **Automotive Management** - Certificate IV to Diploma

Businesses Currently Operating in Light Vehicle Service and Repair

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										TOTAL
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	
Automotive Electrical	3	17	23	9	17	22	176	14	44	40	365
Automotive Air Conditioning	0	1	3	1	1	1	34	1	3	2	47
Automotive Glaziers	1	9	6	1	7	3	41	9	5	1	83
Retail & Automotive Accessories	3	19	15	10	12	17	209	9	28	11	333
Light Vehicle Repairers	9	56	70	27	54	81	977	31	95	69	1469
Radiator Specialists	0	3	4	2	2	3	40	0	11	3	68
Tyre Fitters	4	18	15	12	10	11	185	13	28	26	322
Vehicle Dismantlers	1	2	7	1	4	4	92	1	9	1	122
Vehicle Dealerships Light & Heavy	3	16	19	14	24	24	299	8	42	29	478

NOTE: Automotive Air Conditioning Services can be found in other sectors, ie Auto Electrical, Light Vehicle Repair etc

(Source: EATC Industry Database)

Skill Shortages

The light vehicle sector within WA continues to have some major issues post GFC with reported skills shortages in:

- Auto Electricians
- Diagnostic Technicians
- Automotive Technicians

Auto Electricians are in very high demand. The motor vehicle's reliance on complicated computer and electronic components has highlighted an area of motor vehicle repair that has, for some time, been ignored. This, coupled with the ever increasing speed of technological change within the industry, has created a lack of suitably qualified people within this sector.

Diagnostic Technicians also fall into this category. The pace at which manufacturers are using new and sophisticated technologies to comply with government legislation for more fuel efficient, safer and greener vehicles has created an issue whereby nearly all workshops need to have at least one person with highly developed diagnostic and fault finding abilities.

“Changing technology is a central skilling issue for automotive enterprises which need continual access to professional development and up-skilling opportunities.

Environmental and safety compliance and performance targets are major drivers of this change”.

(Source: MSA Environmental Scan 2011)

Automotive Technicians are constantly in demand, apprentice intake has remained fairly steady throughout 2011, but the apprentice intake will not fulfil the projected industry needs for future growth. A large portion of the industry have a reluctance to commit to taking apprentices this continues to have an adverse effect upon future employment needs.

The mining and resource sectors are now focusing on up-skilling Light Vehicle Mechanics to heavy vehicle qualifications, with several large companies implementing programs for 2011/2012. This will then create a further shortage of skilled Light Vehicle Mechanics who will be enticed into the mining and resource sectors.

Heavy Vehicle Road Transport and Mobile Equipment

The heavy vehicle sector incorporates a wide cross section of industries and is one of the main contributors to the efficient operation of the logistics, mining and resource sectors along with agriculture and forestry.

The industry encompasses a wide spectrum of businesses:

- **Sole Trader** - this business model is mainly in the form of a small independent workshop.
- **Small to medium enterprise** - this model mainly encompasses service centres that may be independent or part of a franchise chain

- **Corporate companies** - businesses within this area are mainly large dealerships or multi-franchise Pty companies

Occupations that work within the heavy vehicle sector, qualification structure (as commonly used in WA):

- **Trades Assistant** - Certificate II qualifications mainly
- **Tyre Fitter** - Certificate II qualifications
- **Windscreen Fitter** - Certificate II qualifications
- **Automotive Technician** - Certificate III qualifications
- **Automotive Electrician** - Certificate III qualifications
- **Automotive Vehicle Body** - Certificate II to Certificate III qualifications
- **Automotive Specialist** - Certificate III qualifications (brakes, driveline, engine reconditioning, diesel fitting, diesel fuel transmission, steering and suspension)
- **Automotive Parts Interpreter** - Certificate II to Certificate III
- **Automotive Administration** - Certificate II to Certificate III
- **Automotive Sales** - Certificate II and Certificate III
- **Automotive Management** - Certificate IV to Diploma

Businesses Currently Operating in Heavy Vehicle Road Transport and Mobile Equipment

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	TOTAL
Automotive Electrical	3	17	23	9	17	22	176	14	44	40	365
Automotive Air Conditioning	0	1	3	1	1	1	34	1	3	2	47
Automotive Glaziers	1	9	6	1	7	3	41	9	5	1	83
Retail & Automotive Accessories	3	19	15	10	12	17	209	9	28	11	333
Heavy Vehicle Mobile Equipment	1	28	12	0	26	2	144	37	8	10	268
Heavy Vehicle Road Transport	2	20	15	1	15	5	73	10	21	2	164
Motor Trimmers	0	6	3	2	6	5	63	2	6	2	95
Radiator Specialists	0	3	4	2	2	3	40	0	11	3	68
Tyre Fitters	4	18	15	12	10	11	185	13	28	26	322
Vehicle Dismantlers	1	2	7	1	4	4	92	1	9	1	122
Vehicle Dealerships Light & Heavy	3	16	19	14	24	24	299	8	42	29	478

NOTE: Automotive Air Conditioning Services can be found in other sectors, ie Auto Electrical, Light Vehicle Repair etc
(Source: EATC Industry Database)

Skill Shortages

The heavy vehicle sector within Western Australia continues to have some major issues post GFC with reported skills shortages in:

- Heavy Vehicle Mechanics
- Auto Electricians
- Diagnostic Technicians
- OTR Tyre Fitter

The ongoing demand for heavy vehicle and plant mechanics far outweighs the supply of qualified persons and people being trained in this occupation. This is mainly due to the demand from the various industry sectors employing these occupations such as mining, civil construction, transport and agriculture etc. This demand creates a further problem whereby companies are reluctant to train apprentices knowing that they may leave once their apprenticeship is completed, to gain employment in the mining and resource sectors that have the ability to offer attractive pay and work/life packages.

Auto Electricians are in very high demand within the heavy vehicle sector, as with light vehicles. The heavy vehicle manufactures are increasingly using complicated computer and electronic components within heavy vehicle construction. This, coupled with the ever-increasing speed of technological change within the industry, has created a lack of suitably qualified people within this sector. Aftermarket fitment of global positioning systems, additional lighting and data technology equipment has further highlighted this issue.

Diagnostic Technicians also fall into this category. The pace at which manufacturers are using new and sophisticated technologies to comply with government legislation for more fuel efficient, safer and greener vehicles, has created an issue whereby nearly all workshops need to have at least one person with highly developed diagnostic and fault finding abilities.

Off-The-Road (OTR) tyre fitters are also highly in demand. With the expected mining and resource surge, the OTR sector has been highlighted as a skill shortage area. Due to the nature of the work involved in OTR tyre applications, skilled fitters will need to be trained to a higher qualification than currently exists to fully cover the removal and fitting of these large wheel and tyre assemblies in a safe manner.

Vehicle Body Building

There are 1,490 establishments nationally that specialise in vehicle body building. In WA there are 20 major manufacturers and approximately 50 small-to-medium repairers; two significant manufacturers in Western Australia are Volgren, who are a major producer of buses throughout Australia and Howard Porter, who produce large trailers and large bulk carriers.

The Vehicle Body Building sector specialises in:

- Boat trailer manufacturing
- Caravan manufacturing
- Horse float manufacturing
- Motor vehicle conversion
- Stock crate manufacturing
- Trailer manufacturing
- Car, truck, bus body manufacturing

The vehicle body building sector mainly operates two types of business model:

- **Small to medium enterprise** - mainly workshops that may be independent or part of a franchise chain.
- **Corporate companies** - businesses within this area are mainly large workshops or multi franchise PTY companies.

Occupations that work within the vehicle body building sector's qualification structure (as commonly used in WA):

- **Trades Assistant** - Certificate II qualifications mainly
- **Windscreen Fitter** - Certificate II qualifications
- **Automotive Technician** - Certificate III
- **Automotive Electrician** - Certificate III
- **Automotive Vehicle Body** - Certificate II and Certificate III
- **Automotive Specialist** - Certificate III (brakes, driveline, engine reconditioning, diesel fitting, diesel fuel transmission, steering and suspension)
- **Automotive Parts Interpreter** - Certificate II to Certificate III
- **Automotive Administration** - Certificate II to Certificate III
- **Automotive Sales** - Certificate II and Certificate III
- **Automotive Management** - Certificate IV to Diploma

Businesses Currently Operating in Vehicle Body Building

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	TOTAL
Automotive Electrical	3	17	23	9	17	22	176	14	44	40	365
Heavy Vehicle Mobile Equipment	1	28	12	0	26	2	144	37	8	10	268
Heavy Vehicle Road Transport	2	20	15	1	15	5	73	10	21	2	164
Radiator Specialists	0	3	4	2	2	3	40	0	11	3	68
Recreational Vehicles	0	0	7	0	2	2	45	1	1	0	58
Vehicle Body Builders	0	1	4	0	5	1	95	1	4	6	117

NOTE: Automotive Air Conditioning Services can be found in other sectors, ie Auto Electrical, Light Vehicle Repair etc

(Source: EATC Industry Database)

Skill Shortages

The demand for Vehicle Body Builders is very high as the skill sets used by Vehicle Body Builders make these occupations attractive to the engineering fabrication sector within the mining and resource industry, creating a syphoning effect and skills shortage problems within regional and metropolitan enterprises.

Vehicle Body Repair (Panel and Paint)

The vehicle body repair sector deals mainly with accident repairs to light vehicles, ie cars, light trucks and vans.

The sector's main clients are the large insurance companies who subcontract the repair shops to repair accident damaged vehicles.

The vehicle body repair sector mainly operates two types of business models:

- **Small to medium enterprise** - mainly workshops that may be independent or part of a franchise chain.
- **Corporate companies** - businesses within this area are mainly large workshops owned by insurance companies.

Occupations that work within the vehicle body repair sector qualifications structure (as commonly used in WA):

- **Trades Assistant** - Certificate II qualifications mainly
- **Windscreen fitter** - Certificate II qualifications
- **Automotive Technician** - Certificate II to Certificate III
- **Automotive Electrician** - Certificate II to Certificate III
- **Automotive Vehicle Body** - Certificate II to Certificate III
- **Automotive Parts Interpreter** - Certificate II to Certificate III
- **Automotive Administration** - Certificate II to Certificate III
- **Loss Assessor** - Certificate IV
- **Automotive Management** - Certificate IV to Diploma

Businesses Currently Operating in Vehicle Body Repair (Panel and Paint)

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	TOTAL
Automotive Electrical	3	17	23	9	17	22	176	14	44	40	365
Automotive Glaziers	1	9	6	1	7	3	41	9	5	1	83
Motor Trimmers	0	6	3	2	6	5	63	2	6	2	95
Radiator Specialists	0	3	4	2	2	3	40	0	11	3	68
Vehicle Body Repairs	3	23	30	7	22	11	300	8	49	23	476

NOTE: Automotive Air Conditioning Services can be found in other sectors, ie Auto Electrical, Light Vehicle Repair etc

(Source: EATC Industry Database)

The panel and paint sectors are reporting a significant skills shortage in panel beating and spray painting. The panel beating area is suffering particularly badly, with companies increasingly looking overseas for skilled Panel Beaters.

Skill Shortages

- Panel Beaters
- Spray Painters

The lack of interest regarding a career within panel beating can be attributed to a few factors:

- The perception that the sector is dirty/dusty, noisy.
- Low pay rates and little or no career progression.
- The skills learned do not transfer easily to other industries, eg the mining and resource sectors.
- Lack of promotion/awareness.

Spray Painters are also in high demand and the lack of interest for this sector can be attributed to similar issues to panel beating.

On the whole, the vehicle body repair industry is not seen as being dynamic enough and the perceived lack of career progression further compounds the attraction issue.

With the ever-increasing use of new materials in the manufacture of motor vehicles such as high-strength steels, carbon composites, alloys and water-based paints, application of new materials will become law within the next few years throughout Australia. (This is already law throughout Europe and other parts of the world). Consequently, the demand for highly skilled Panel Beaters and Spray Painters will only increase.

“A key concern is the reluctance of young people to take up opportunities in the panel area of the trade. The current demographic of the industry has an aging workforce and very low numbers of young people taking on apprenticeships. It is not an exaggeration to state that unless this pattern can be turned around the industry will collapse and on that basis urgent action is required”.

(Source: MTAWA 2011)

The figures below show the declining numbers of Panel Beaters nationally:

Employment Level

('000)

1999	21.2
2000	18.3
2001	19
2002	14.4
2003	18.6
2004	19.3
2005	17
2006	17
2007	15.1
2008	15.7
2009	13.5
2010	15.3

(Source: Australian Government (Jobs Outlook) 2010-2011)

Motorcycles

The motorcycle sector continues to grow in Australia as a means of transport and a recreational pursuit.

“The overall market for motorcycles has continued to see a little growth during 2011 compared with car and light commercial sales, which are down 6.6% year-to-date . Growth in the Scooter and All-terrain Vehicle (ATV) segments was of particular importance.

Continued strong demand for ATVs in rural areas, and the increasing popularity of scooters in inner-city Australia has seen these segments grow 29% and 14% respectively over 2010 figures.

The growth of scooter sales and the resilience of overall road bike sales suggest commuters are finding motorcycles to be a practical solution to continuing high fuel prices and inner-city traffic congestion. Seven of the top-10 motorcycles remain off-road bikes: testament to the ongoing popularity of motorcycling as a recreational sport and pastime in Australia.

(Source: Federal Chamber of Automotive Industries (FCAI))

The motorcycle sector mainly operates two types of business model:

- **Sole Trader** - this business model can be in the form of a person operating a small independent workshop and retail outlet.
- **Small-to-medium enterprise** - this model mainly encompasses service and retail centres that may be independent or part of a franchise chain.

Occupations that work within the motorcycle sector’s qualification structure (as commonly used in WA):

- **Trades Assistant** - Certificate II qualifications mainly
- **Automotive Technician** - Certificate II to Certificate III
- **Automotive Parts Interpreter** - Certificate II to Certificate III
- **Automotive Administration** - Certificate II to Certificate III
- **Automotive Sales** - Certificate II and III
- **Automotive Management** - Certificate IV to Diploma

Businesses Currently Operating in Motorcycles

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										TOTAL
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	
Automotive Electrical	3	17	23	9	17	22	176	14	44	40	365
Motorcycle Repairers	1	6	6	4	9	5	97	3	15	4	150
Motor Trimmers	0	6	3	2	6	5	63	2	6	2	95
Tyre Fitters	4	18	15	12	10	11	185	13	28	26	322
Vehicle Dealerships Light & Heavy	3	16	19	14	24	24	299	8	42	29	478

(Source: EATC Industry Database)

Skill Shortages

Motorcycle dealers are reporting skill shortages in:

- Motorcycle Mechanics
- Sales Persons

Although the motorcycle sector is growing, the scooter and smaller commuter bike sales are very high but the take-up of apprenticeships is low.

A career in the motorcycle sector is not considered by students as an area of importance when choosing a career. The industry is viewed as a recreational hobby and not a long-term career option.

The motorcycle sector is increasingly using more high-tech components, such as light alloys, carbon composites and electronic management systems for brakes, suspension, engines and fuel systems. With the ever-increasing use of these technologies, the need for structured formal training will increase.

Motorcycles and scooters are increasingly purchased as a mode of transport to get to and from work because of high fuel costs and parking issues. This is evidenced by the 29% increase in scooter usage in inner city areas. If this growth continues, the need for more Motorcycle Mechanics will become evident.

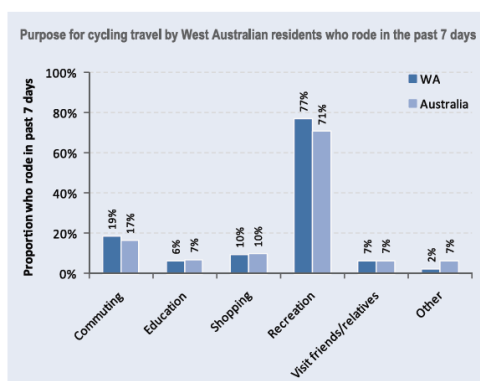
Bicycles

Cycling continues to grow across the country, particularly in WA. Bicycle Industries Australia Ltd report that WA has 10% of the population but over 14% of the market.

Australian bicycle sales have soared to record numbers in recent years. Australians have bought more bicycles than cars in recent years. WA has 189 retail outlets selling bicycles.

“Western Australia has cycling participation rates significantly higher than the national average. Around 22% of WA residents ride in a typical week, increasing to 30% over a month and 45% over a year. WA has a significantly higher rate of recreational riders than the national average - 77% of people who ride in a typical week do so for recreation. About 159,000 people make at least one trip for transport in a typical week. Transport trips include riding to work, education, shopping or visiting friends or family. Nearly two thirds of households in WA have access to a bicycle..

(Source: Australian Bicycle Council 2011 National Cycling Participation Survey)



The bicycle sector operates similar business models to the motorcycle sector.

- **Sole Trader** - this business model can be in the form of a person operating a small independent workshop and retail outlet.
- **Small-to-medium enterprise** - this model mainly encompasses service and retail centres that may be independent or part of a franchise chain.

Occupations that work within the bicycle sector, qualification structure (as commonly used in WA):

- **Bicycle Technician** - Certificate II to Certificate III

Businesses Currently Operating in Bicycles

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	TOTAL
Bicycle Mechanics	0	2	2	1	2	2	70	2	8	2	91

(Source: EATC Industry Database)

Skill Shortages

Bicycle repair shops are not reporting any significant shortages.

The bicycle service market has seen considerable growth in recent years due to the increase in cycling participation and considerable growth in cycling for transport. Despite the high number of outlets carrying out repairs and maintenance, there is almost no interest in formal institutional training and qualifications. Most training is done in-house at enterprise level.

Interest in formal training will gradually increase which will be driven by the ever-increasing complexity of bicycle manufacture (bicycles are now using high-tech construction materials for frames and wheels and the increasing use of electronic components for gear shifting and braking systems). This will be further driven by the mining and resource sectors interest in the use of bicycles as an environmentally friendly means of transport around mining camps, particularly on environmentally sensitive sites. Anyone contracted to carry out maintenance or repairs to bicycles on such sites will need a formal qualification.

The resource sectors are also looking at bicycles as a means of reducing their carbon emissions. This will, in future years, drive the need for formal bicycle maintenance training.

Marine (Light)

The marine (light) sector generally covers the leisure side of the industry, ie small day boats, jet skis, inflatable boats etc.

The marine sector post GFC has reported a decline in orders for small-to-medium marine craft. Factors that affect this are:

- The strong Australian dollar - potential purchasers are importing boats and equipment from overseas to save money.
- New fishing licensing laws in WA, which include restricted catches - each person fishing from a boat has to hold the relevant license. This has impacted negatively upon recreational boat purchases.
- The confidence has not returned to the market amid further global financial concerns.
- Shortage of suitable and affordable boat pens and storage facilities.

The marine sector mainly operates two types of business models in WA:

- **Sole Trader** - this business model can be in the form of a person operating a small independent workshop and retail outlet.
- **Small-to-medium enterprise** - this model mainly encompasses service and retail centres that may be independent or part of a franchise chain.

Occupations that work within the marine (light) sector's qualification structure (as commonly used in WA):

- **Trades Assistant** - Certificate II qualifications mainly
- **Marine Technician** - Certificate II to Certificate III
- **Parts Interpreter** - Certificate II to Certificate III
- **Administration** - Certificate II to Certificate III
- **Sales** - Certificate III
- **Management** - Certificate III to Diploma

Businesses Currently Operating in Marine (Light)

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	TOTAL
Automotive Electrical	3	17	23	9	17	22	176	14	44	40	365
Boat Maintenance & Service	2	0	9	5	8	4	57	6	7	0	98
Motor Trimmers	0	6	3	2	6	5	63	2	6	2	95

(Source: EATC Industry Database)

Skill Shortages

The marine sector has reported shortages of:

- Marine Technicians

The marine sector in WA has a market share of 13%. Post GFC, the demand for leisure craft has declined. Boating is mainly a recreational pastime and the purchase of marine craft in this sector is considered a luxury item, consequently in times of financial uncertainty the luxury items are not purchased. This lack of confidence within the marketplace leads to a reluctance to commit to employing apprentices on a four-year apprenticeship.

The marine sector does not effectively portray itself as a viable career choice. Lack of promotion by the sector can be attributed in part to the lack of interest for a career within the marine sector:

Marine retailing's key statistics:

- Revenue - \$2.7bn
- 6m Profit - \$168.

- Annual growth forecast 2011-2016 - 2.0%
- Businesses – 1,450
- Marine manufacturing - \$1.2bn revenue, \$62m profit
- Forecasted annual growth - 1.1% 2011-2016
- Marine retail - \$2.7bn, revenue \$168.6m, profit 2.0%
- Forecasted Annual Growth 2.0%, 2011-2016

Employment by Type in Western Australia (Number)

Industry Sector	Full-Time	Part-Time	Contractors	Apprentices	Migrant	Total
Boat Upgrade and Repair	266	73	206	23	2	570
Boat Service and Supply	316	36	21	11	7	391
Marinas	180	19	45	1	1	246
Components	140	12	1	11	7	171
Dealer/Importer	30	22	3	1	1	57
Total Employees	932	162	276	47	18	1435

Type of Employment by Percentage

Industry Sector	Full-Time	Part-Time	Contractors	Apprentices	Migrant
Boat Upgrade and Repair	46.7%	12.8%	36.1%	4.0%	0.4%
Boat Service and Supply	80.8%	9.2%	5.4%	2.8%	1.8%
Marinas	73.2%	7.7%	18.3%	0.4%	0.4%
Components	81.9%	7.0%	0.6%	6.4%	4.1%
Dealer/Importer	52.6%	38.6%	5.3%	1.8%	1.7%

(Source: BIA)

Recreational Vehicles

WA has one of Australia's largest recreational vehicle manufacturers, Coromal Caravans. They are part of the Fleetwood Corporation Group, which is a nationwide company. The recreational vehicle sector is the fastest growing sector within the automotive industry, with 96% of all vehicles produced being sold within Australia. (See MSA 10-02-2010 "Recreational Vehicles Project Report"). Skill requirements within this sector range from low skill (assembly of caravan structure) to high skill requirement (fit out) encompassing varied trades.

- Growth driven by grey nomads and retirees
- Top four dealers nationally only account for 5% of market
- Caravan manufacturing \$3.4bn revenue, \$203.7m profit
- Annual growth forecast 0.6% 2011-2016
- Caravan retail \$2bn revenue, \$146.5m profit
- Annual growth forecast, 4.4% 2011-2016

The recreational vehicle industry mainly operates these types of business model in WA:

- **Sole Trader** - this business model can be in the form of a person operating a small independent workshop and retail outlet.

- **Small-to-medium enterprise** - this model mainly encompasses service and retail centres that may be independent or part of a franchise chain.
- **Corporate companies** - businesses within this area are mainly large manufacturing companies.

Occupations that work within the recreational vehicle sector's qualification structure (as commonly used in WA):

- **Maintenance Technician** - Certificate II to Certificate III
- **Vehicle Upholsterer** - Certificate II to Certificate III
- **Parts Interpreter** - Certificate II to Certificate III
- **Administration** - Certificate II to Certificate III
- **Sales** - Certificate III
- **Management** - Certificate III to Diploma

Businesses Currently Operating in Recreational Vehicles

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										TOTAL
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	
Automotive Electrical	3	17	23	9	17	22	176	14	44	40	365
Automotive Air Conditioning	0	1	3	1	1	1	34	1	3	2	47
Automotive Glaziers	1	9	6	1	7	3	41	9	5	1	83
Retail & Automotive Accessories	3	19	15	10	12	17	209	9	28	11	333
Motor Trimmers	0	6	3	2	6	5	63	2	6	2	95
Recreational Vehicles	0	0	7	0	2	2	45	1	1	0	58
Tyre Fitters	4	18	15	12	10	11	185	13	28	26	322
Vehicle Body Builders	0	1	4	0	5	1	95	1	4	6	117

(Source: EATC Industry Database)

Skill Shortages

The continued popularity of caravanning and outdoor pursuits has highlighted the need for formal qualifications, particularly within the maintenance and repair sectors. Manufacturers such as Winnebago are requesting that their dealers employ formally qualified maintenance operatives. The need for new qualifications within this sector will emerge over the next few years.

As with the marine sector, the recreational vehicle sector does not effectively portray itself as a viable career option. More promotion of the industry is required.

Outdoor Power Equipment

The outdoor power equipment sector is often overlooked in the automotive industry, but it has an annual turnover of \$1.25 billion. It was considered a low skill level trade but with the advent of more technologically advanced mowers, cutters, chain saws and hire equipment, new skill requirements are beginning to emerge. The need for formally qualified specialists to maintain these machines will continue to grow.

The outdoor power equipment sector mainly operates two types of business model in WA:

- **Sole Trader** - this business model can be in the form of a person operating a small independent workshop and retail outlet.
- **Small-to-medium enterprise** - this model mainly encompasses service and retail centres that may be independent or part of a franchise chain.

Occupations that work within the outdoor power and equipment sector's qualification structure (as commonly used in WA):

- **Maintenance Technician** - Certificate II to Certificate III
- **Parts Interpreter** - Certificate II to Certificate III
- **Administration** - Certificate II to Certificate III
- **Sales** - Certificate III
- **Management** - Certificate III to Diploma

Businesses Currently Operating in Outdoor Power Equipment

EATC - AUTOMOTIVE DATABASE SUMMARY											
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT	TOTAL
Outdoor Power & Equipment	1	35	26	5	9	2	128	16	8	3	233
Radiator Specialists	0	3	4	2	2	3	40	0	11	3	68
Tyre Fitters	4	18	15	12	10	11	185	13	28	26	322

(Source: EATC Industry Database)

Skill Shortages

This sector has reported skill shortages in the area of Maintenance Technicians. As with the marine light and the recreational vehicle sectors, lack of promotion from within the sector and the perceived low skill levels required lead to a lack of interest with regard to employment within this sector.

Industries that Utilise Automotive Occupations

The automotive industry impacts upon almost all sectors in some form and comprises of a wide range of skilled trades people with varied skills from low skill requirements and qualifications to high skill requirements and qualifications. Each subsector, for example Light Vehicle, has its own set of requirements, but most of the base skill requirements of the Industry are transferable between subsectors enabling the workforce to diversify into the different subsectors with minimal retraining if the need arises.

Automotive occupations work in or around diversified industries such as:

- **Mining** - Plant Mechanic, light and heavy vehicle maintenance
- **Utilities Water/Power** – light and heavy vehicle maintenance, Plant Mechanic - outdoor power equipment
- **Health** - light and heavy vehicle maintenance
- **Transport** - light and heavy vehicle maintenance

- **Agriculture and Forestry** - Plant Mechanic, light and heavy vehicle maintenance, outdoor power equipment
- **Building and Construction** - Plant Mechanic, light and heavy vehicle maintenance, outdoor power equipment
- **Sport and Recreation** - Plant Mechanic, light and heavy vehicle maintenance, outdoor power equipment,
- **Emergency Services** - Plant Mechanic, light and heavy vehicle maintenance, outdoor power equipment

Licensing Requirements

Regulatory requirements within the automotive industry in WA involving retail service and repair businesses require that all businesses be licensed with the Department of Commerce. Further licensing requirements apply to individual business owners or persons involved in the application or supervision of vehicle repair work. Other regulatory requirements are based around Occupational Health and Safety (OH&S) and Environmental Regulations relative to the handling and disposal of waste products (oils, fluids, tyres, vehicle components, noxious emissions from smash repair shops). Licensing is also required for service and repair work on LPG (Liquid Petroleum Gas) equipped vehicles and vehicle air-conditioning systems, which require that the business and the person working with these systems be individually licensed. Some occupations within the recreational vehicle sector also have to be licensed for electrical work, eg electrical and gas installations.

Education and Training

The education and training sector is forecasted to require up to an additional 239,000 additional workers from 2010 to 2017 to cater for the demand for education and training throughout WA. As the state continues to grow, the automotive area will be a major recipient of additional workers.

“Employment in this industry is forecast to grow at 3.1 per cent per annum, resulting in the creation of 19,700 new jobs. Nationally, employment in this industry is expected to grow at 2.0 per cent per annum. According to Monash University, nearly 239,000 new jobs are predicted to be created in Western Australia in the seven year period to 2017. This is 21,000 more jobs than in the previous seven year period to 2010”.

(Source: ABS)

The next table shows apprentice commencements 2006-2011. As can be seen, the numbers are declining.

Occupation	June 2006	June 2007	April 2008	May 2009	May 2010	March 2011
Autobody Repair	57	36	64	58	65	37*
Autobody Refinisher	82	52	69	51	77	35*
Motor Mechanic (Light and Heavy Vehicle)	969	571	585	439	517	466*
Marine Mechanic	Included in Motor Mechanic	Included in Motor Mechanic	14	8	13	6*
Motorcycle	2	Included in Motor Mechanic	18	20	19	7*
Mechanics (Small Engine)	Included in Motor Mechanic (Awaiting verification by NCVER)	Included in Motor Mechanic	4	5	12	No data available

*Represents January to March 2011 commencements

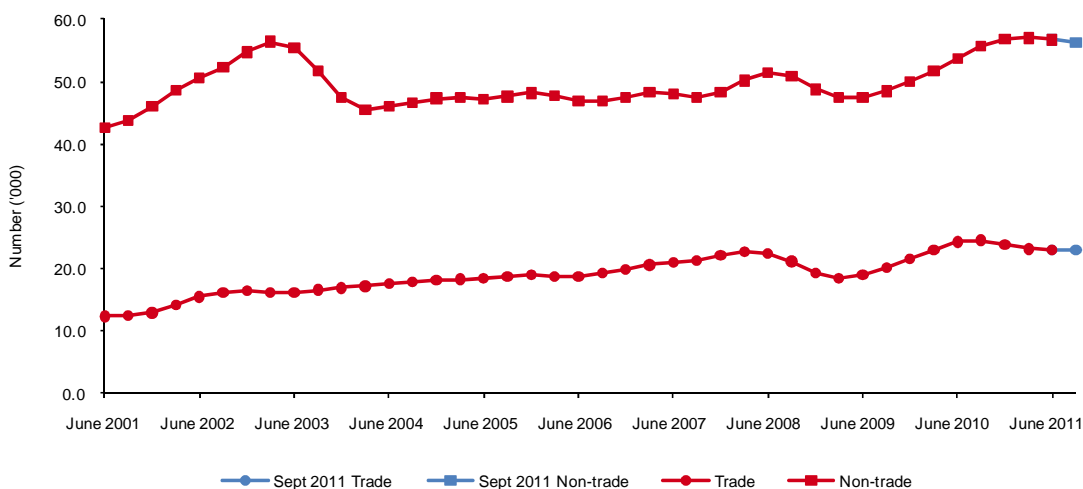
(Source: WA Department of Training and Workforce Development. TRS cube March 2011; extract June 2011)

Trade commencements experienced slight growth in the September quarter 2011, following three quarters of decline from the December 2010 quarter to the June 2011 quarter.

Non-trade commencements displayed a steady upward trend from June 2009 to March 2011, with commencements declining in the June and September quarters 2011.

The graph below shows that trade and non-trade commencements are not rising in line with demand and forecasted growth.

Figure 1 Trade and non-trade commencements, seasonally adjusted and smoothed, June 2001 – September 2011



(Source: NCVET)

Listed below are the current automotive occupations in demand:

State Priority Occupation List (SPOL) 2011

State Priority 1:

- *Motor Mechanic (General)*
- *Automotive Electrician*
- *Panel Beater*

State Priority 2:

- *Diesel Motor Mechanic*
- *Motorcycle Mechanic*
- *Small Engine Mechanic*
- *Vehicle Body Builder*
- *Vehicle Painter*
- *Vehicle Trimmer*

(Source: Department of Training and Workforce Development (DTWD))

Issues Confronting the Automotive Industry

The automotive industry has changed considerably over the last ten years with the ever-increasing use of sophisticated computer systems becoming more prevalent in the manufacture of motor vehicles. Also the use of new construction materials such as carbon composites, plastics, high strength steels and light alloys are now becoming commonplace within all vehicle manufacturing.

This places considerable emphasis upon the service and repair sector to select and train suitable employees for these new technologies, this can create problems for the aftermarket or independent operators who cannot gain access to the technical software information required to service or maintain the newer vehicles.

Further issues are arising, particularly with the use of gas only and hybrid electric vehicles relative to licensing of individuals and companies to perform maintenance on these vehicles.

Training is also becoming an issue with regard to these new technologies with the reluctance of the OEMs (Original Equipment Manufacturers) to release technical information.

Recruitment is also a major issue, the industry suffers from a preconceived view that it is the avenue for low end achievers.

The main barriers to recruitment within these sectors are:

- The perception of the automotive and associated industries as a dirty and greasy profession.
- The perception that the industry has no career pathway.
- The perception that only low academic achievers work in the automotive industry
- The industry is not seen as attractive enough, particularly by the young.
- Schools do not promote careers within the automotive industry.
- The image that some businesses portray to the public.
- Lack of promotion by the automotive industry.
- Aboriginal participation.
- Lack of training for mature-aged skilled workers.

The main and underlying perception of the automotive industry is that it is a dirty and greasy profession. This perception is fostered by the general public who view the industry as a “non-profession” and it is promoted by parents to their offspring in this manner, thus placing a permanent disenchantment for the industry within the minds of school age students.

“Arguably, more so than the other industries, automotive suffers from a poor image of long hours, dirty working conditions, low pay and an insecure future, with limited career options”.

(Source: MSA Environmental Scan Update 2009)

Another perception that needs to be addressed is the view that “the trades” are for under achievers or the “not so academically adept” students. This erroneous perception needs to change. The school system heavily promotes University as the only avenue for academically advanced students while ignoring modern trade-based professions. A change must take place or this practice will continue to flourish within the education system and will continue to place a major barrier to student career choices.

The perception that the industry is mainly staffed by academically low achievers is borne from the old image of the Automotive Mechanic working out of a dark and dirty workshop. This image is “out of tune” with the modern, clean and technically advanced workshops of today where the majority of work is conducted by highly skilled technicians using computer and diagnostic technology on a daily basis.

The perception that the industry has “no career pathways” is a complete misnomer given the automotive industry has ample career pathways, but it is simply not given enough promotion.

The industry has a major image problem relative to attracting and retaining workers. The historically low pay rates are a major issue, but in recent years due to the skill requirements wages are, in most cases, comparable with other industries.

Apprentice pay rates are still an issue with the first-year rate being so low that the apprentices are eligible for CentreLink payments because the wage is deemed below the poverty line. This is a major disincentive for a young person to consider a career within the industry, and is further compounded by the other industry perceptions to the point that a young person does not see the automotive industry as a viable career path.

The school and VET system also plays a part in discouraging students who are academically bright from looking at a career in the automotive or associated industries, with teachers perpetuating the perception that “the trades” are for the under achieving students. The automotive industry requires high levels of literacy and numeracy skills and employers are reporting that a very high percentage of school leavers are lacking these basic skills.

“This lack of interest from young applicants has raised the question as to whether the message is getting to school leavers about the changes in the sector and the plethora of new technologies and opportunities which are available”.

(Source: MSA Environmental Scan 2011)

The perceived image of the automotive industry being a dirty and greasy profession is further enhanced in people’s minds by the lack of presentation of some independent workshops and lack of a professional approach when dealing with customers. Thankfully, the majority of independent and franchised outlets are now adopting a more professional presentation of their respective businesses, but it will take a massive sea change to alter the long held view of the automotive industry.

The automotive industry does not effectively portray itself as a viable career option unlike, for example, the building and construction industry who successfully promote their trades as a career-path using the media.

Aboriginal participation is very low throughout the automotive sector.

There is a serious shortage of younger skilled trade's people entering the training sector as trainers; the issue of an ageing RTO Lecturer population is probably more serious than in the industry workforce. Unless there is constant renewal, we will have an even more serious shortage of skilled trainers. Lecturers who have been in the training system for a long period of time are often seen as being "out of touch" with their industry and not being aware of modern techniques. This issue is more evident in the automotive sector due to the rapid technological changes occurring within motor vehicles.

RTOs play a major part in shaping the way training is delivered to students and the delivery method has a marked effect upon student retention rates. The delivery of the underpinning knowledge (in line with the current AUR05 Automotive Training Package) is often cited by the industry as being "out of touch" with current automotive requirements which, in turn, leads to students becoming disinterested in the underpinning knowledge.

Concerns have also been raised by industry relative to the currency of lecturing staff's knowledge. Many lecturing staff delivering automotive subjects have, on average, had little or no industry experience for over five years and in an industry where technology is constantly evolving, this currency and understanding of new processes is soon lost, leaving the Lecturers and consequently students at a disadvantage.

Strategies to Overcome Priority Issues

Issue One

The automotive industry in Western Australia has expressed serious concern with respect to the poor "work readiness" of candidates seeking apprenticeships and employment in the industry. This issue directly impacts on the ability of enterprises to recruit suitable applicants to fulfil the skill requirement of the automotive industry sectors. This issue, in particular, relates to school leavers, immigrants, mature-aged workers and under-represented groups. Poor work readiness can be defined as:

- Poor language, literacy and numeracy skills
- Basic communication, language skills
- Non-exposure or understanding of the shop floor environment.

The lack of these basic skills lead to high attrition rates of apprentices, poor productivity, quality service problems and, most of all, skill shortage issues. Employers believe the primary and secondary school system has let them down in terms of providing school leavers with the necessary numeracy and literacy skills required by industry.

"The general view of literacy and numeracy skills of school leavers is poor. It would appear that the over reliance on computers to do things such as spell check has eroded the written ability of many students. The same argument applies to numeracy skills where there is significant improvement required".

(Source: MTAWA 2011)

“However, despite a steady increase in spending per student and falling class sizes, there is evidence that student literacy and numeracy has declined somewhat. And year 12 retention rates are little changed from the early 1990s.”

(Source: Productivity Commission – Draft Research Report – Schools Workforce November 2011)

(For further reference, see page 96).

Issue Two

The automotive and engineering industries are very much reliant on the education system to provide personnel for the industry sectors.

“The level of career advice in schools relative to the automotive industry and associated career paths is poor, inaccurate and conveys a negative image towards the industry”.

(Source: Auto Skills Australia (ASA 2011))

The general lack of structured career advisory training for personnel working in the education system is seen by industry as a barrier for employers trying to recruit new applicants from the schooling system.

A large cohort of VET coordinators/career advisers believe the automotive and engineering occupations are low paying, is dirty work and gives no opportunity for career advancement. This misconception of the occupations is far from the truth and in reality all automotive and engineering occupations are:

- Well paying career choices
- Clean, using state of the art systems
- Most have pathways to professional occupations, ie Managers, Engineers, Technicians and company owners.

(For further reference, see page 96).

Issue Three

The automotive industry in Western Australia is currently experiencing difficulties in attracting suitable applicants to undertake automotive apprenticeships.

The problems associated with recruitment are due mainly to the misconceived images of the industry by career advisers and parents of the students.

As previously stated, the industry is not a low paying, dirty industry with no career-path opportunities; this is the main reason behind the lack of attraction.

There is also a significant problem retaining qualified technicians, which is mainly due to the syphoning effect of skilled labour from the automotive industry to the resources sector.

“The first is that there is no certainty that the apprentice will stay with the employer upon completion and in fact many employers are stating that their apprentices have simply used them to get the qualification and then head straight into the mining sector. The second

factor, and this is particularly relevant to smaller workshops is with the continued economic uncertainty, employers simply don't want to take the risk of committing to a four year term. They are managing their businesses on a much shorter timeframe".

(Source: MTAWA 2011)

The main automotive occupations being recruited to the resources sector are:

- Light Vehicle Technicians
- Automotive Electrical Technicians
- Heavy Vehicle Road Transport Technicians

The automotive industry does not effectively portray itself as a viable career option to school leavers and other cohorts.

This "attraction and retention" issue will become more critical when demand for skilled labour in the resources sector increases in 2012.

Strategy

The automotive industry in Western Australia is recognised as being one of the largest economic drivers in the State. For the industry to lack sufficient skilled labour to operate effectively will have a detrimental effect on the economy of WA.

Career promotion of the automotive industry is of paramount importance for the viability of the industry. A targeted marketing campaign throughout the secondary school system is urgently needed.

The requirement to effectively compete for the right applicants in an increasingly diverse job market has been identified by the industry as a priority issue.

The industry believes skilled migration will also play a vital role in alleviating critical skill shortages. The industry has serious concerns relative to the backlog of applications with Trades Recognition Australia (TRA).

Wednesday, 2 November 2011: "Western Australian Training and Workforce Development Minister Peter Collier says federal government red tape is stopping overseas skilled workers from coming to Australia and exacerbating the skills shortage".

(Source: Mining News.net 3rd November 2011)

The Department of Education, Employment and Workplace Relations (DEEWR) needs to review the assessment structure of TRA to ensure a more streamlined system is achieved to cope with the volume of applications.

Actions

There is an urgent need to establish an automotive working group to address the "attraction/ retention" and migration issues confronting the industry in WA.

The working group should be made up of peak industry stakeholders, the EATC, plus several representatives from State and Federal Governments.

Issues for the working group to address are:

- Attraction/retention
- Migration issues
- Career promotional campaign

Who Is Responsible?

EATC, DTWD, STB, DEEWR, DET

Issue Four

Apprentice rates of pay and conditions in both the automotive and engineering industries are too low to attract quality applicants to the industries.

The low rate of pay is seen as a major disincentive by school leavers to undertake an apprenticeship. The first-year apprentice rate is so low that, in some cases, an apprentice qualifies for Centrelink payments as they are deemed to be paid under the poverty line.

The high attrition rate of apprentices leaving apprenticeships can be, in part, attributed to the low income paid to people in VET training.

The rates and conditions of apprenticeships are governed by industrial awards, both Federal and State jurisdictions. Obtaining agreement from the industrial parties to lift apprentice/trainees rates substantially is not a viable option. This issue can be categorised as being in the “too hard” basket.

A public interest argument could be mounted to declare that if we continue to do nothing to address this problem, then skill shortage issues will continue in the trade areas in the future.

Strategy

Acknowledging the difficulties, the industrial parties will have to change the current problems associated with low apprenticeship wages. The following strategy is proposed:

The Council of Australian Governments (COAG) is currently reviewing the whole VET system. Part of this process is to harmonise the apprenticeship arrangements across Australia and legislate to remove inconsistencies within the VET Acts in each State.

A proposal that should be considered is to develop a “Training Wage” schedule for insertion in all VET Acts. This will identify apprentice wages as a VET issue along with other matters contained in the “Training Contract” and not as an industrial matter.

A Federal training summit should be convened to identify other initiatives with a view to reaching a consensus on such an important issue.

Actions

That a meeting of all interested parties be convened to explore this initiative and other alternative proposals.

This can then be presented to the Federal and State Governments.

Who Is Responsible?

Training Councils, DTWD, STB, Unions, DEEWR

Issue Five

The vehicle body repair (panel and paint) sector of the automotive industry is confronted with chronic skill shortages and a significant image problem relative to attracting people into the industry sector.

The image of the panel and paint sector is one of being dirty and dusty, low paying with no career pathways available to applicants. School leavers are discouraged from entering the industry due to this perception.

In reality, the vehicle body repair sector has undergone a transformation over the past few years and is now a high tech, clean, well-paying career option with pathways into advanced occupations such as:

- Vehicle Insurance Assessor
- Managers
- Owner operator

With the volume of motor vehicles increasing on the roads every year, it is essential that the industry sector grows to keep pace with demand. Unfortunately, with chronic skill shortage issues now confronting the sector, the industry is on the brink of contracting in size resulting in industries inability to meet customer demands.

Strategy

The occupations of Panel Beater and, to a lesser degree, Spray Painter must be recognised as occupations in crisis demand.

Special attention is urgently required to attract new applicants into apprenticeships in these occupations.

A special promotional campaign is required to increase the 2012 intake of apprentices, and to attract existing workers into the industry through special retraining programs.

The promotional campaign and retraining initiatives need to attract special government funding.

The vehicle insurance industry, in collaboration with other automotive stakeholders, can play a proactive role in the development of post-trade career-path options.

Actions

The EATC, in conjunction with peak industry bodies, needs to develop promotional material necessary for the campaign.

An industry delegation to meet with the Minister for Training and Workforce Development seeking government involvement with the initiatives is urgently required.

Who Is Responsible?

EATC, Peak Industry Bodies, DTWD, STB.

Issue Six

There are still labour shortages in a number of trades, particularly Panel Beaters, Spray Painters, Auto Electricians, Automotive Air Conditioning Specialists, Light and Heavy Vehicle Mechanics and Windscreen Fitters.

Technicians are constantly in demand. Apprentice intake has remained fairly steady throughout 2011, but the apprentice intake will not fulfil the projected industry needs for future growth. A large portion of the industry have a reluctance to commit to employing apprentices and this continues to have an adverse effect upon future employment needs.

The mining and resource sectors in particular are now focusing on up-skilling Light Vehicle Mechanics to heavy vehicle qualifications, with several large companies implementing programs for 2011/12. This will then create a further shortage of skilled Light Vehicle Mechanics who will be enticed into the mining and resource sectors.

Auto Electricians are in very high demand. The motor vehicles reliance on complicated computer and electronic components has highlighted an area of motor vehicle repair that has for some time been ignored. This, coupled with the ever-increasing speed of technological change within the industry, has created a lack of suitably qualified people within this sector.

Diagnostic Technicians also fall into this category. The pace at which manufacturers are using new and sophisticated technologies to comply with government legislation for more fuel efficient, safer and greener vehicles, has created an issue whereby nearly all workshops need to have at least one person with highly developed diagnostic and fault finding abilities.

Mature skilled workers are often overlooked and find it difficult to access training to up-skill or to learn new technologies and techniques. This, in turn, leads to disenchantment and this valuable skill base end up leaving the industry.

“Changing technology is a central skilling issue for automotive enterprises which need continual access to professional development and upskilling opportunities. Environmental and safety compliance and performance targets are major drivers of this change”.

(Source: MSA Environmental Scan 2011)

Strategy

Up-skilling existing workers or retraining mature-aged workers, needs to be a major consideration. Mature aged-workers looking for a change of career find it difficult to get employment with automotive companies because of the skilled nature of the work involved. A person new to the industry would have to complete a Certificate II or III qualification because automotive trade licensing precludes non-qualified people from participating in the industry.

Industry is calling for a possible higher qualification in both light and heavy vehicle encompassing an automotive electrical qualification to counter the increased usage of electrical and electronic components fitted to vehicles.

Skilled migration can provide a valuable and work ready workforce.

Actions

Provide the skills that industry wants by creating new and innovative training programs.

Provide incentives for people wishing to change career and/or retrain.

Skilled migration for priority skill shortage areas needs to be fast tracked. The current migration and trades recognition processes are too long and complicated with the current process discouraging potential skilled applicants from applying.

Who Is Responsible?

Government - both State and Federal; RTOs; DTWD with the assistance of Training Councils.

Issue Seven

There is a serious shortage of younger skilled trade's people entering the training sector as trainers. The issue of an ageing RTO Lecturer population is probably more serious than in the industry workforce. Unless there is constant renewal, we will have an even more serious shortage of skilled trainers. Concerns have also been raised by industry relative to the currency of lecturing staff's knowledge. Many lecturing staff delivering automotive subjects have, on average, had little or no industry experience for over five years and, in an industry where technology is constantly evolving, this currency and understanding of new processes is soon lost leaving the lecturers and consequently students at a disadvantage.

This issue is more evident in the light and heavy automotive sector due to the rapid technological changes within motor vehicles.

RTOs play a major part in shaping the way training is delivered to students and the delivery method has a marked effect upon student retention rates. The delivery of the underpinning knowledge (in line with the current AUR05 Automotive Training Package) is often cited by the industry as being "out of touch" with current automotive requirements which, in turn, leads to students becoming disinterested in the underpinning knowledge.

"The VET system must be adaptive to ensure its products and services are current, relevant and effective in order to effectively equip the automotive workforce. Trainers must continually up skill and training organisations upgrade equipment to maintain their currency".

(Source: MSA Environmental Scan Update 2009)

Strategy

Develop strategies to encourage younger experienced trades' people to enter the training system as a career choice. A training career should not be seen as a job you take up in readiness for retirement, which is sadly more than often the case.

Trainer's salary packages should be increased as this will encourage younger people to take up a career within the training framework. The current pay structure does not support someone trying to raise a family and this creates a barrier to employing younger trainers.

Additional training should be made available for Lecturers to obtain newer skills and understanding of current automotive methods and more cooperation should take place between the industry and the RTO network to facilitate the continual development of lecturing staff:

Vehicle manufacturers and their dealership networks need to liaise more closely with the RTO networks to make available resource material and vehicle components to the RTO network. This, in turn, will make the learning outcome more relevant and interesting to the student.

Actions

Establish a working group to highlight the issues regarding the ageing lecturing population and the attraction of younger trainers. The working group should be made up of peak industry stakeholders, the EATC, plus several representatives from State and Federal Governments. The findings of this working group can then be presented to the Federal and State Governments.

Who Is Responsible?

Government - both State and Federal, RTOs, DTWD with the assistance of Training Councils.

Issue Eight

There is a large cohort of potential workers who are not well represented within the automotive industry that could be trained for various automotive sectors.

The groups that make up this cohort are:

- Aboriginal participation within the automotive and associated industries is low throughout WA. School programs currently in place rarely translate to real employment outcomes; other industries also experience this same effect.
- Female participation within the automotive sector is very low, the industry is still perceived as male dominated.
“Around 1.3% of workers in this occupation are female (compared to 45.6% for all occupations)”.
(Source: Australian Government (Jobs Outlook))
- Participation of people with disabilities is low within the automotive industry.
- Discouraged job seekers comprises of a large cross section of potential workers.

In September 2010, there were 1.3 million Australians who were not in the labour force but wanted to work according to figures by the Australian Bureau of Statistics (ABS). This group makes up more than one-in-five (22%) of all people who were not in the labour force.

Amongst them were 102,100 discouraged job seekers. These are people who wanted to work and were also available to start work in the next four weeks, but were not actively looking for a job because they believed they would not find one.

The most common reason discouraged job seekers gave for not actively looking for work was because they believed they were considered too old by employers (38%). Over half of all discouraged job seekers were aged 55 years and over. Over half the discouraged job seekers said that they intend to, or might, enter the labour force in the next year.

In September 2010, there were almost 5.9 million people aged 15 years and over who were not in the labour force. This represented 33% of the civilian population aged 15 years and over. Since September 2007, people aged 15 years and over who were not in the labour force comprised approximately one-third of the civilian population.

Of those people not in the labour force:

- 61% were women
- 22% wanted to work (23% of women not in the labour force and 21% of men not in the labour force)
- 30% were aged 70 years and over and a further 17% were aged 15-24 years

(Source: DEEWR. Media release March 2011)

Strategy

Encouraging aboriginal people into the job market would produce a ready workforce and could possibly reduce the reliance upon migrant workers.

To overcome barriers to Aboriginal participation in engineering and automotive training in WA, the EATC has commissioned a comprehensive study of the issues relating to Aboriginal employment entitled Aboriginal Employment Strategy document for implementation by the EATC.

To provide employment pathways for unrepresented groups.

Actions

Establish a working group to identify ways to implement the strategies outlined in Aboriginal Employment Strategy document.

The working group should be made up of peak industry stakeholders, the EATC, plus several representatives from State and Federal Governments.

The working group can also identify the issues and formulate strategies to improve employment outcomes for women, people with disabilities and discouraged job seekers within the automotive sectors.

Who Is Responsible?

Government - both State and Federal EATC, RTOs, Peak Industry Bodies, DTWD, STB.

Issue Nine

The automotive industry continues to suffer a high attrition rate amongst apprentices.

Capturing students interest for the subject being delivered is one way to reduce the retention issues currently being faced by the automotive sector (attrition rate is currently at 42% across the various automotive apprenticeships). The attrition rate is caused by various factors such as, students losing interest in their chosen trade, poor pay, lack of perceived career structure, competition from other sectors.

The training and learning outcomes could be delivered in a project-based format whereby the students could, for example, rebuild a vehicle. Each component of the rebuild could be factored into the requirements of the training package, and at the end of the apprenticeship period a competition could take place where a student could win the completed vehicle. (The vehicle would be independently assessed prior to the competition taking place).

This would create a fun and stimulating learning environment (which is sadly lacking within most current delivery methods). The students would also take ownership of the project and the competition element would create a goal for the students to aim for.

Making the learning environment interesting and stimulating will go a long way to reducing the current attrition rate within automotive apprenticeships.

Strategy

To identify areas within the various delivery methods that can be improved to reduce the currently high attrition rate within automotive apprenticeships

Actions

Establish a working group to identify ways to deliver automotive subjects to students in an interesting and stimulating way.

The working group should be made up of RTOs, EATC, Industry Associations and DTWD

Who Is Responsible?

EATC, RTOs, Peak Industry Bodies, DTWD, STB.

ENGINEERING INDUSTRY OVERVIEW

There are a total of 2918 engineering companies in Western Australia (WA).

Currently the engineering industry in WA is in a relatively healthy position relative to the amount of activity in the state, but not well placed in the availability of enough workers with skills to service the industry. The engineering industry is an occupational industry sector covering all industries in WA in a maintenance services, manufacturing and engineering construction capacity.

Occupations within the engineering industry include Engineers, Shipwrights, Boat Builders, Welders, Marine Engineers, Aluminium Fabricators, Boilermakers, Mechanical Fitters, Machinists, Electricians, Drafters, Sheet Metal Workers, Locksmiths, Jewellers, Engravers, Materials Handlers, Blast Coaters, Metal Finishers, Foundry Moulders and Patternmakers.

The primary activities of the engineering industry in Western Australia (WA) can be broken down into the following sectors of coverage; Manufacturing – Metal and Non-metal, Aeroskills (aircraft maintenance), General Engineering/Fabrication, Transportation and Equipment Manufacture, Engineering Construction, Refrigeration and Airconditioning, Shipbuilding and Boatbuilding, Foundry, Mineral Processing (maintenance activities), Metal Machining, Surface Preparation and Surface Coating.

A significant component for WA is the water transport area (ship and boat building), accounting for over 70% of Australia's high-speed vessel exports. This industry has become very export oriented due to its ability to supply niche markets with competitive, high quality products.

The engineering industry in WA is involved in the manufacturing, installation, repair and maintenance of products. Engineering tradespersons are employed in a wide range of industries in assorted occupations that manufacture, install, repair and maintain plant equipment. For example, large numbers of Electricians, Mechanical Fitters and Metal Fabricators (Boilermakers) work in the mining, and engineering construction industries where machinery needs to be maintained or large metal structures need to be built. Though predominantly in the mining/resources, manufacturing and construction industries, engineering workers also work in other industries such as defence, power, water, health, retail, agriculture, building and construction, food and hospitality industries and the training sector.

The engineering industry in WA is comprised predominantly of small to medium enterprises, having less than twenty employees. Approximately 15% are businesses with more than fifty employees. A diverse range of enterprises ensure that the career options for the industry are varied and can range from positions involved with manufacturing, servicing, research and development, marketing, robotics, quality control, hands-on production, product design and many more.

The outlook for the engineering industry over the next five years will be affected by:

- The global economic downturn and the ongoing financial crisis in the USA and the Euro zone.
- The value of the Australian dollar against other currencies.
- The introduction of the carbon tax and the possibility of a mining tax.
- Environmental legislation/ regulation.
- The development of infrastructure, particularly to support the mining and resource industries.

The engineering industry operates in a steadily changing environment and uses new technologies and modern work practices to maintain a competitive position in world markets. This requires employees to constantly develop and maintain a high level of skills.

The engineering industry has an ageing workforce. In comparison to the number of new entrants, the majority of workers fall within the older age groups. Contributing factors to non-entry into the engineering workforce may include the image of the industry, traditionally perceived as being hot, dirty and physically demanding, being non-inviting to new entrants, as well as a decrease in major training sources for apprentices due to the privatisation of many government engineering and utility enterprises.

The engineering industry has been active in reshaping itself over the last decade and has embraced new technologies and innovation, with more efficient production practices and becoming increasingly export focused.

The engineering industry in general is experiencing an increase in activity and continues to be vibrant and innovative. Its success is heavily dependent on current and upcoming activity in resource developments and construction projects. Future demands on the industry's labour market in the engineering trades will depend to a large extent on whether new resource, infrastructure and commercial engineering and building construction projects continue to come on-stream after current projects are completed and what proportion of the associated work flows through to the local manufacturing industry.

The engineering industry in WA can be volatile. The industry is cyclical in nature and is strongly influenced by national and international economic factors including:

- Economic conditions with Australia's major trading partners, who are mostly in the Asia Pacific region, particularly China.
- Demand for domestically produced consumer goods such as cars and appliances are mainly driven by prices which are sensitive to input prices and exchange rates affecting prices of competing imports.
- Demand for services and domestically produced industrial products, such as fabricated metal products, is determined primarily by the level of activity in the mining, construction and resources sector, which is influenced by economic conditions nationally and internationally.
- Tariffs, export markets, exchange rates.

The global uncertainty with financial markets is not affecting WA as much as other states with significant declines in the manufacturing industries. WA and Queensland are experiencing the same issues of skilled labour shortages with a strong fly-in fly-out labour

force. There seems to be reluctance from redundant skilled workers from other states to move closer to the two states with the skills shortage.

There has been an expectation that with the many projects being ramped up in the resources sector, there would be a flow-on effect of work for local industries. Much of the manufacturing work for construction of some of the heavy engineering components is being awarded to overseas companies; there is an increased pressure on the WA Government to ensure that there is a larger “local content” in engineering work for local industry. A local campaign by the Australian Steel Institute, APSMA and Unions WA in their “WA Jobs from WA Resources” campaign report that some contracts have started to flow to local businesses from Gorgon and other major resource projects. Gorgon has awarded roughly \$100 million in local fabrication contracts since June this year. These contracts have resulted in some local workshops becoming busier, with this activity flowing to other parts of the steel supply chain. In the short to medium term, these contracts have averted the likely closure of some businesses and the severe contraction of Western Australia’s fabrication industry.

(Source: WA Jobs from WA Resources, Campaign Update August 2011)

The Australian Steel Institute reports, *“There are approximately 980,000 people employed in manufacturing in Australia (excluding food, tobacco and some others). There are approximately 200,000 employed in mining (oil and gas operations is not specifically defined). Since 2008, manufacturing has decreased by over 300,000 and construction has grown by about the same amount. The skills shortage in construction is reported in a range between 160,000 and 250,000 people, depending on the report. Let’s assume manufacturing is reduced by one third, 326,000 people would need jobs. Up to 250,000 could be absorbed into construction for the next decade, leaving 126,000 needing jobs right away. After the project period is over you could reasonably say that 300,000 (from 2008) + 250,000 – whatever jobs mining and resources need to maintain operations will need work. This could be 400,000 people requiring work in ten years time.”*

(Source: Australian Steel Institute)

There are still labour shortages for a number of trades, particularly experienced and highly-skilled Machinists, Electricians with instrumentation skills and Mechanical Fitters with hydraulic skills and Heavy Fabricators.

A recent report by The Australia Institute states, *“While the mining industry claims to be responsible for creating 750,000 jobs, it admits to placing just 1,000 people into new apprenticeships and traineeships in 2010. In the meantime, while approximately 33 per cent of workers (around 72,000 people out of 217,000) move into the mining industry each year, 26 per cent of employees (around 52,000 people) will leave.”*

The small numbers in training and the large movement of people out of the industry each year suggests that the mining industry, rather than Australian governments, should take most of the responsibility for the skills shortages from which it claims to suffer.

Australians believe that the mining sector:

- Employs nine times more workers than it actually does.
- Accounts for three times as much economic activity as it actually does.
- Is 30 per cent more Australian-owned than it actually is.

(Source: Mining the truth. The rhetoric and reality of the commodities boom. Institute Paper No. 7 September 2011)

The increase in resource projects in the North West continue. A consortium of companies led by Chevron has received final approval to build the Wheatstone liquefied natural gas project at Onslow, valued at \$29 billion. With \$20 billion expected to flow to governments in taxes, \$17 billion is expected to be spent on Australian goods and services. The project will create 6500 direct and indirect jobs and 300 once it is online. Construction is due to commence in November and be completed by 2016.

Chevron Vice-Chairman, George Kirkland, warned, "*The industry expects it will be 150,000 workers short by 2020 unless government plans to increase skilled migration and domestic training come to fruition*". However, there is concern by a number of industry sources relative to the amount of work being carried out overseas, despite Chevron promising 50% local content.

(Source: SMH 27/09/2011)

The healthy state of the engineering industry in general is reflected in the high wages paid to employees in the resources and construction industries. A recent article in the Australian newspaper reported that a barge welder earns more than the Prime Minister, whose annual salary is \$355,000.

The most recent wage agreement registered for offshore construction workers contains maximum annual pay packages for a four-week-on, two-week-off rostered employee of \$498,000 for a barge welder. This means working a minimum 84 hours a week, away from home and family and friends, for a minimum of 36 weeks a year, weekends and holidays away and often working in dangerous conditions. The barge welder needs highly specialised underwater welding skills, advanced diving skills and all the related support skills to work long hours underwater and in decompression chambers. It takes many years of training to reach such a level of competence. It is very difficult to maintain this regime over many years; the perception of "easy money" belies the reality that the industry needs a very highly skilled workforce. This rate also includes superannuation.

The AMWU Construction Agreement for 2011 shows a special class tradesperson with less skills than the barge welder, living at home, working 36 hours a week gets paid around \$2,000 a week. This includes allowances and superannuation is in addition to this rate. This works out at just over \$55 an hour, which is still a very healthy wage reflecting the high skill level of the workers. A tradesperson, living at home and working the same hours on the flat rate would get \$168,000 per annum.

Overview of Specific Factors Affecting the Engineering Industry

- 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 engineering industry. This is one of the major impediments to engagement with prospective candidates in the Industry.
- The VET in Schools program is placing a greater emphasis on the trade areas, but there still appears to be some resistance by parents and, consequently, students to pursue a trade career. Much more needs to be achieved in the way of promoting the benefits of a trade career and to abolish the negative image of trades in general. There is a need to expand the VET in Schools program to ensure a meaningful mix of school-based VET programmes with suitable structured workplace learning.

- Poor reading and numeracy skills are a major barrier to employment, particularly school leavers. The biggest complaint from employers is the lack of basic literacy and numeracy skills in school leavers who apply for apprenticeships. The perception that trades are a low achievers destination for school leavers is one that seems to be perpetuated by many in the teaching profession. Engineering is a profession that requires very high applied numeracy skills and all engineering tasks require, to some extent, measurement and computations. Being able to read and understand complex instructions is fundamental to productivity.
- As a result of the increasing activity in the resources sector, there will be a need for an increase in training delivery, particularly with apprenticeships in traditional trade areas and in post trade para-professional studies related to Mechanical Engineering. These increases are likely to take place over the next two to three years. The difficulty of the training providers in the Pilbara and the Kimberley regions to attract suitable teaching staff is a huge barrier to effective training of apprentices and post-trade programs.
- Historically, the engineering and mining industries have had a commitment and preference for employment-based training through apprenticeships, as both industries require “skilled” people and considers a three and a half or four year training period through apprenticeships allows sufficient time for skills development. This lengthy period of training is often a disincentive for smaller employers who cannot guarantee continuity of work over the whole training period. This is a particular problem when there is a downturn in business activity.
- Enterprises often need to be able to source fully skilled workers when they win contracts. With “boom” conditions the pool of skilled workers is not available and the training time is too long for the instant labour requirement.
- Demand for skills is very much dependent on project-type development of the states’ natural resources, with a lesser emphasis on upgrading skills for those people employed in maintenance activities. This factor in itself presents a problem in identifying training priorities and issues for the stakeholders. Knowing what skills and skill levels are required to work on projects is usually not determined until the supply is tested in the workforce market place, presenting a dilemma for the Industry.
- Companies who require the skilled labour often consider personnel in their workforce as possibly benefiting from up-skilling training. These workers are usually working long hours, which restrict their ability to attend structured training courses. This is a major barrier to increasing the higher level skills in the workforce. Cost is also a prohibitive factor and a consideration for many training providers in delivering flexible and appropriate training to meet the requirements of industry to personnel working on remote work sites.
- The businesses most affected by skill shortages are not the large construction or engineering companies, but the small to medium sized organisations. These businesses are down the line as far as their ability to attract large-scale work and therefore experience difficulty competing with the higher salaries offered to the more highly skilled people of the larger companies. The smaller employers are often loath to spend money on training as they believe that when the level of skill of their employees rises, the employees will be “poached” by larger companies who may be able to pay higher wages or offer better career pathways.

- There is a serious shortage of younger people entering the Vocational Education and Training (VET) sector as trainers; the issue of an ageing VET lecturer population is probably more serious than in the industry workforce. Unless these soon to retire trainers and teachers are replaced, we will have no-one to teach the few that we are attracting into the industry.
- Employers are seeking more flexible and responsive solutions to their training needs. An improvement in lean and agile manufacturing concepts has led to a focus on skills and modes of training that improve the viability and economic prospects of the firm. Registered Training Organisations need to recruit new staff to replace an ageing workforce in the engineering training delivery area. Without this constant renewal of training staff, they will be even less able to deliver to the needs of the industry.
- There are many experienced engineering workers in various positions and enterprises who have no formal qualifications. In many cases, attention to minor skills gaps by way of skills assessment could bring these workers up to trade level. There is a need for the continued promotion of the FastTrack Apprenticeship system for experienced mature-aged workers.
- The cyclical nature of the engineering industry in Western Australia has been a feature for many years and does not look as if it will change in the foreseeable future. Every time there is a higher world demand for minerals or resources, there is surge in activity in Australia. The resources industry in the North West is the major contributor to Australia's wealth. It is also one of the major users of skilled engineering labour. New mining enterprises in Queensland will also put pressure on the market for skilled labour. It is becoming more difficult to find skilled workers to fill the increasing number of vacancies. The fly-in fly-out workers have significant pressures put on their family life with the constant disruption due to work demands. Workers are expected to work long hours in very trying and difficult conditions, particularly on construction work. This not only puts a strain on their health, but also may have an impact on the effective working life of workers. This, in the long term, is a significant barrier to employment in the engineering industry.
- Employers have difficulty in maintaining a stable set of employees due to the highly competitive "bidding" in wages. This situation is worse in times of skilled labour shortages.

Engineering Industry Sectors

The following information is provided by the Clarius Group who commissioned KPMG Econtech to analyse, index and forecast labour demand against labour supply across 20 occupation categories as defined by the Department of Education, Employment and Workplace Relations, using Australian Bureau of Statistics labour force data. The Clarius Skills Index is the only index that examines the shortage or oversupply of skilled labour compared to demand.

The index is based on the premise that where skilled labour demand (employment plus vacancies) equals supply (employment plus unemployment), the index is equal to 100. During times of labour market tightness, when employers experience difficulty finding appropriately skilled employees, the index is greater than 100. Conversely, at times when skilled employees are easier to find (in a loose labour market), the index is less than 100. The Index has also been interpreted into a skills shortage barometer to highlight the levels of risks to employers in relation to the availability of skilled labour. The barometer has five readings that are based on the following ranges for the index.

Low – index is less than 95

Moderate – index is between 95 and 98

Balanced – index is between 99 and 101

High – index is between 102 and 105

Extreme – index is greater than 105

*“Metal Tradespersons: **Extreme***

Metals Tradespersons is the occupation with the highest degree of skills shortages according to September; quarter Clarius Skills Index.

*The index is **112.7**, growing from 108.9 previously.*

There is a shortage of 14,500 persons in this occupation, the largest shortage since December 2008.

The skills shortage in this occupation has been extreme since the first quarter of 2010.

Labour demand dropped by around 200 jobs, but labour supply dropped even more.

The supply for Metal Tradespersons was 118,800 persons, dropping by 3,700 persons or 3 per cent.

This occupation is vital in the engineering sectors, and we expect it to remain in high demand in the near term, in sync with a firmer domestic economy and continued expansion in the mining sector.”

(Source: Clarius Skills Index September Quarter 2011)

General Engineering

The engineering industry in WA, including ship and boat building, is a diverse sector comprising enterprises and workers who conceive, design, manufacture, assemble, install, commission, repair, package and sell manufactured products, and maintain a wide range of infrastructure, equipment and machinery. The metal and engineering workforce contributes approximately \$98 billion to the Australian economy. People with metal and engineering skills work in many industry sectors, including manufacturing, engineering, building and construction, mining and resource engineering, defence engineering and shipbuilding, boating, health, food and hospitality. MSA’s coverage extends to well over 500,000 workers who apply these skills. The Australian defence engineering, boating and shipbuilding and repair sectors, for example, contribute \$3.5 billion, a significant and strategically important niche sector which employs approximately 14,000 people.

(Source: MSA Environmental Scan 2011)

The sectors covered by EATC in the engineering industry are:

- Metal Product Manufacturing.
- Heavy Engineering.
- Iron and Steel.
- Machinery and Equipment and other Manufacturing sectors:
 - motor vehicles and parts
 - ship and boat construction and repair
 - railway rolling stock
 - aircraft production, repairs and servicing
- Engineering Maintenance and Services.
- Refrigeration and Airconditioning service and manufacturing.
- Foundry.
- Aerospace

EATC has coverage of the aerospace industry which, across Australia, contributes approximately \$3.98 billion to the Australian economy and employs nearly 14,000 people.

Apprentices in Training

Despite skills shortages, the evidence is that there is not a significant increase in apprenticeships in WA in the engineering field. Electricians have increased but many of those are domestic electricians without the complementary engineering skills required for the resource and engineering construction sectors.

Apprenticeships classified under Metals, Manufacturing & Services Apprenticeships include Fitters, Fabricators, Plant Mechanics, Machinists and Welders have declined over the past three years. Traineeships under the same sectors are small but show an increase over the past three years.

Electrical Apprenticeships (combined Engineering and Utilities & Electrotechnology)

As at 31March 2009	3446
As at 31March 2010	3539
As at 31March 2011	3797

Increase of 351 apprentices in training over three years

Metals, Manufacturing & Services Apprenticeships

As at 31March 2009	5473
As at 31March 2010	4796
As at 31March 2011	4708

Decrease of 765 apprentices in training over three years

Metals, Manufacturing & Services Traineeships

As at 31March 2009	230
As at 31March 2010	257
As at 31March 2011	285

Increase of 55 trainees in training over three years

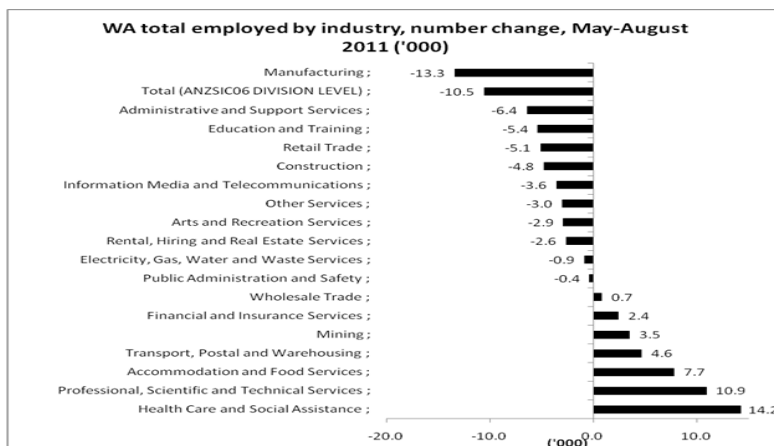
Skills Shortages

Manufacturing Skills Australia (MSA) report - shortage of skills is one of the biggest hurdles affecting productivity in Australia and now directly affects almost one in three Australian companies, according to latest research conducted by Bankwest. Skill shortages are back on the urgent list for Australian manufacturing and automotive enterprises, with Western Australia and Queensland being hit especially hard with competition from the resources sector. MSA research findings concur with the Bankwest estimation, with enterprises naming salary competition from more attractive opportunities, such as the resources sector, as one of the primary culprits. While the Critical Skills Investment Fund includes a brief to address skills gaps in sectors impacted by a loss of workers to major projects, there is concern that this initiative's focus on the resources sector skill needs will further leave manufacturing and automotive needs behind on the agenda.

Some MSA stakeholder's stress that the resources sector and infrastructure projects already have the advantage by being able to offer highly competitive salaries. Respondents to MSA's Environmental Scan survey identified workers qualified at the Certificate III (trade) and Certificate IV levels to be hardest to find (65%), followed by Certificate II level production skills (42%). While higher level and specialised skills are required in fewer numbers, these roles provide critical intelligence and leadership for enterprises and, as such, are still one of the highest priorities for industry.

(Source: MSA Environmental Scan 2011)

The following table from ABS shows significant reduction in the manufacturing industries in WA along with a reduction in construction. These figures may be deceiving with regard to engineering as the engineering construction in the North West has increased and is continuing to increase. Domestic construction has decreased over the period. There is an increase in mining employment which would involve engineering workers, particularly Plant Mechanics, Fabricators, Fitters and Electricians.



(Source: ABS employment figures for WA, total employed, by industry)

MSA's 2011 Environmental Scan identifies the following skill shortages:

- Fabrication trades including Boilermakers, Sheetmetal Workers and Welders at base and advanced trades levels
- Foundry operatives, including Casting Dressers and Induction Furnace Operators
- Industrial Metallurgists
- Mechanical tradespersons at base and advanced trades levels, including :
 - Maintenance Fitters

- Mechanical Fitters
- Advanced trades in hydraulics and pneumatics
- Plant and Heavy Transport Mechanics
- Machinists
- Locksmiths
- Refrigeration and Airconditioning
- Instrument Technicians
- Electrical tradespersons at base and advanced trades levels, including:
 - HV/DC Motor controllers
 - Industrial Electricians
- Operators, Setters and Programmers for advanced manufacturing systems
- Process Control Specialists
- Engineering Designers, including 3D modelling specialists
- Drafters
- Engineering Technical Officers
- Architectural hardware specifiers
- Engineering Managers
- Toolmakers
- Project mangers
- Schedulers
- Non Destructive Testing (NDT) Technicians

Demographics of the Industry

EATC - ENGINEERING DATABASE SUMMARY												
INDUSTRY SECTOR	WEST AUSTRALIAN REGIONS										TOTAL	
	GASCOYNE	GOLDFIELDS	GREAT SOUTHERN	KIMBERLEY	MID-WEST	PEEL	PERTH METRO	PILBARA	SOUTH WEST	WHEATBELT		
Aerospace Engineering	1	3	1	3	3	0	35	3	2	0	51	
Air Conditioning & Refrigeration	4	14	12	15	20	24	347	25	23	4	488	
Engineering Electrical	0	4	2	0	7	3	47	1	3	0	67	
Engineering General	4	66	25	16	24	13	311	50	45	17	571	
Engineering Marine	1	0	0	2	21	8	133	7	2	1	175	
Engineering Fabrication	3	59	51	15	19	14	538	25	41	27	792	
Engineering Professional	0	16	1	4	10	2	163	21	18	0	235	
Engineering Drafters	0	0	0	0	2	0	24	6	3	0	35	
Jewellers	1	13	11	19	9	6	295	9	32	4	399	
Locksmiths	0	3	2	4	3	5	79	3	5	1	105	
											TOTAL	2918

Qualifications Profile of the Workforce

The majority of qualifications in the engineering industry are in the Certificate III and Certificate IV Trades areas:

- Certificate I in Engineering – suitable for VET in schools and pre-vocational programs
- Certificate II in Engineering – suitable for pre-apprentice programs and areas that need skills but not to full trade level

- Certificate III in Engineering - Production Systems – this is a non-trade qualification
- Certificate III in Engineering - Mechanical Trade
- Certificate III in Engineering - Fabrication Trade
- Certificate III in Engineering - Electrical/Electronic Trade
- Certificate III in Marine Craft Construction
- Certificate III in Locksmithing
- Certificate III Jewellery Manufacture
- Certificate III in Watch and Clock Services and Repair
- Certificate IV in Aeroskills (Avionics)
- Certificate IV in Aeroskills (Mechanical)
- Certificate IV in Engineering – post trade qualification
- Certificate IV in Advanced Jewellery Manufacture
- Diploma of Engineering – Advanced Trade– post trade qualification
- Diploma of Engineering – Technical
- Advanced Diploma of Engineering

There are a number of social issues in the engineering industry that impact on workers in the industry and general society:

- The common practice of fly-in fly-out (FIFO) mainly to the Pilbara cause a number of problems and social issues:
 - Disruption of family life, workers not having contact with their children, many of them in their formative years.
 - Living conditions that are not conducive to a healthy lifestyle, such as working long hours with little opportunity to pursue outside interests.
 - Family break-up due to spouses finding other pursuits and partners.
- The high wages paid to many construction and resource industry workers causes an imbalance in the workforce in general causing a division of the “haves and have nots”.
- Pressure put on smaller employers to pay higher wages to keep staff.
- Difficulty for industry to employ apprentices in the FIFO environment.
- Labour shortages tending to increase immigration and the consequential strain on the government to increase services.

Engineering Industry Sectors in Western Australia

There are 571 General Engineering companies in WA.

The general engineering sectors are competitive and technically sophisticated suppliers to both domestic and international markets across a wide range of activities.

These activities include:

- Manufacture of iron or steel and ferroalloys, hot and cold rolling of steel into primary shapes and the galvanising, pre-painting and tinning of sheet and strip steel
- Iron and/or steel casting and forging
- Manufacture of steel pipe and tubes
- Hot or cold rolling, drawing or extruding of aluminium
- Manufacture of copper tubing and wire
- Non-ferrous metals or alloy casting or forging

- Structural steel fabrication
- Manufacture of architectural aluminium products such as doors, window frames, etc
- Manufacture of metal cans, drums, tubes, etc
- Manufacture of wire, cable, wire netting, nails and rolled steel fence posts
- Manufacture of fabricated metal products such as boilers, water heaters, door handles, etc
- Manufacture or repair of railway equipment such as rolling stock, locomotives, etc
- Boat and shipbuilding and repair
- Service and maintenance engineering

Western Australia is a minor location for businesses within the general engineering industries with approximately 10% of metal, engineering and boating business in Australia.

ANZSIC subdivision: 21 Primary Metal and Metal Product Manufacturing

Sector size by business locations	WA percentage of sector
Iron and steel casting and forging	10.0%
Steel pipe and tube manufacturing	13.9%
Aluminium sheet and rod manufacturing	5.0%
Copper tubes and wire manufacturing	6.4%
Non-ferrous metal casting	7.0%

ANZSIC subdivision: 22 Fabricated Metal Product Manufacturing

Sector size by business locations	WA percentage of sector
Structural steel fabricating	15.6%
Architectural aluminium product manufacturing	8.6%
Metal doors and other structural metal product manufacturing	10.4%
Metal container manufacturing	8.4%
Sanitary ware and other sheet metal product manufacturing	10.9%
Tool and hardware manufacturing	13.3%
Spring and wire product manufacturing	9.3%
Nut, bolt, screw and rivet manufacturing	13.6%
Metal coating and finishing	12.5%
Non-ferrous pipe fitting manufacturing	18.8%
Fabricated metal product manufacturing	13.9%

ANZSIC subdivision: 23 Transport Equipment Manufacturing

Sector size by business locations	WA percentage of sector
Shipbuilding	27.0%
Boatbuilding	18.4%
Railway equipment manufacturing	11.4%

ANZSIC subdivision: 24 Machinery and Equipment Manufacturing

Sector size by business locations	WA percentage of sector
Photographic and optical good manufacturing	12.6%
Medical and surgical equipment manufacturing	10.6%
Measurement and other scientific equipment manufacturing	13.2%
Computer and related equipment manufacturing	9.7%
Telecommunication, broadcasting and transceiving equipment manufacturing	9.6%
Electronic component manufacturing	7.0%
Household appliance manufacturing	10.0%
Motors, generators and other electrical equipment manufacturing	10.3%
Agricultural machinery manufacturing	12.6%

Mining and construction machinery manufacturing	26.3%
Food processing equipment manufacturing	3.6%
Machine tool and part manufacturing	9.2%
Conveyor and crane manufacturing	8.8%
Pump and compressor manufacturing	12.0%
Heating and cooling (commercial equipment) manufacturing	18.3%
Gaming and vending machine manufacturing	5.0%
Other industrial machinery and equipment manufacturing	11.8%

ANZSIC subdivision: 25 Furniture and Other Manufacturing

Sector size by business locations	WA percentage of sector
Sign manufacturing	11.2%
Jewellery manufacturing	9.2%

Other sectors covered by MSA Training Packages

Sector size by business locations	WA percentage of sector
Household equipment repair services	9.0%
Structural steel services	16.5%

(Source: Manufacturing Skills Australia: Metal, engineering and boating industries statistics for Western Australia as at July 2011)

May 2010 figures showed that an estimated 40,000 people in Western Australia were employed in the metal, engineering and boating industries. The majority of employees were males employed full-time. Women made up 13% of employment, with nearly a third of women employed part-time.

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).

In 2008-09 there were 3,970 businesses operating in Western Australia within the metal, engineering and boating industries. This included businesses that manufactured boats or jewellery. The majority of businesses were either non-employers (that is, they hadn't submitted an Income Tax Withholding (ITW) statement to the Australian Tax Office (ATO) for five consecutive years) or small businesses employing between 1 – 19 people.

The largest numbers of businesses were in the other fabricated metal product manufacturing sector (406). A further 1,724 businesses in Western Australia supplied maintenance and repair services.

(Source: Manufacturing Skills Australia – Metal, engineering and boating industries statistics for Western Australia as at July 2011)

Engineering workers are employed in every industry sector in some capacity, often in a support or maintenance capacity. By far the biggest sector is manufacturing, which have all of the engineering trades engaged either directly or in a service role.

MANUFACTURING

Manufacturing in Australia

- 982,300 persons (all sectors) as at May 2010 were employed in manufacturing in Australia
 - 5% of the working age population of Australia
 - Males full-time 73% (415,000)
 - Females full-time 15% (85,000)
 - As at 30 June 2009, under MSA's coverage, there were 60,949 manufacturing businesses operating in Australia
 - Manufacturing contributed \$107,720 million in Total Factor Income to the Australian economy in 2008–2009
 - This constituted 9.3% of Total Factor Income for Australia
 - Manufacturing was the second largest contributor to the Australian economy in 2009
- (Source: Manufacturing Skills Australia –Manufacturing industry statistics as at June 2011)*

Manufacturing in Western Australia

- 62,000 persons in manufacturing as at May 2010
- 5% of the employed population of Western Australia
- 11% of Australian manufacturing employment
- Males full-time 80% (50,000)
- Females full-time 19% (6,000)
- As at 30 June 2009, there were 7,033 manufacturing businesses under MSA's coverage operating in Western Australia
- 45% of working age people (15 – 64) in Western Australia had no post-school qualifications (above national average)
- 3.9% held a qualification at Certificate I or II level (on par with the national average)
- 7,479 people were undertaking an apprenticeship or traineeship from an MSA Training Package (Oct – Dec 2009). Of these:
- 91% were males (6,834)
- 9% were females (645)
- 13,568 people were enrolled in a qualification from an MSA Training Package at a publicly funded institution in 2009. Of these:
- 88% were males (11,913)
- 12% were females (1,654)
- Manufacturing contributed \$12,296 million in Total Factor Income to the Western Australian economy in 2008–09
- This constituted 7% of Total Factor Income for Western Australian
- Manufacturing was the third largest contributor to the Western Australian economy in 2009

(Source: Manufacturing Skills Australia - Industry statistics for manufacturing in Western Australia as at June 2011)

Aerospace Industry

There are 51 aerospace/aviation engineering companies in WA.

Aircraft manufacturing and maintenance and repair have been an integral part of the development of the Australian aerospace industry, beginning in the 1920s with the

development of the first military aircraft. However, by the 1990s Australia had ceased to manufacture large passenger aircraft. Small aircraft manufacturing still continues with Gippsland Aeronautics and Delta Corporation leading the way.

Today the Australian aerospace industry competes in the world market as a niche manufacturer and supplier of components for international aircraft manufacturers such as Boeing and Airbus. Approximately 20% of the industry's output is exported.

The Australian aerospace industry consists of four segments:

- Commercial aircraft and parts
- Military aircraft (including UAVs), parts and guided missiles
- Maintenance, repair and overhaul
- Light aircraft and parts.

Light aircraft and parts make up less than 1.7% of the industry. Commercial aircraft parts manufacture accounts for 34% of the market with the manufacture of military aircraft, parts and guided missiles accounting for 33.5%.

The manufacturing industry is dominated by four major players who account for 53% of the industry:

- Australian Aerospace
- Boeing Australia Holdings
- BAE Systems Australia Holdings Limited
- Hawker Pacific Pty Ltd

In Western Australia, the aerospace industry is concentrated within close proximity to any airports, supplying maintenance, repair and overhaul services. 12.8% of Australia's aircraft manufacturing and MRO business are located in Western Australia.

ABS May 2010 figures showed that an estimated 5,000 people in Western Australia were employed in Group 239 Other Transport Equipment Manufacturing. All employees were males working full-time. From these figures it is difficult to generalise employment for the aerospace industry in Western Australia with any accuracy.

In 2008–2009 there were 78 businesses operating in Western Australia within the aircraft manufacturing and repair services industry. This data includes the maintenance, repair and overhaul sector. The majority of businesses were either non-employers (that is, they hadn't submitted an Income Tax Withholding (ITW) statement to the Australian Tax Office (ATO) for five consecutive years) or small businesses employing between 1 – 19 people.

(Source: MSA April 2011)

The Aerospace maintenance, repair and overhaul sector is covered by the MEA11 Aeroskills Training Package. The new Training Package was endorsed in November 2011 as an upgrade from MEA07.

The aircraft maintenance qualifications support comprehensive skills development needs for aerospace industry personnel involved in the maintenance, repair and overhaul of aircraft and aircraft components. Specifically designed qualifications meet the competency

requirements identified by the Civil Aviation Safety Authority (CASA) for people to become Licensed Aircraft Maintenance Engineers (LAME).

There is no Certificate I level qualification in the Aeroskills Training Package. Re-endorsement as MEA11 ensures that the package remains current and coherent, and will assist implementation by removing confusion concerning which versions of existing qualifications are current. This is of particular concern to the regulator and RTOs delivering licensed/regulated outcomes.

In mid-June 2011, the new Civil Aviation Safety Regulations covering aircraft maintenance, licensing and training for licence came into effect, thus clearing the way for the inclusion of aircraft welding and non-destructive testing of aircraft structure and components in MEA11v1.

While the new regulations do not apply to General Aviation until mid-2015, by working closely with the Civil Aviation Safety Authority (CASA), it has become possible to also include in MEA11v1 qualifications for the maintenance of small aircraft that are tailored to the needs of General Aviation.

Skill sets that relate to CASA licensing or regulatory requirements and, in some cases, also relating to ADF regulatory requirements are under development and will be included in MEA11 as ISC upgrades. The new CASA regulations to which the Skill Sets relate were implemented in late June 2011 and MSA is working closely with CASA to ensure that the Skill Sets are meeting their intended purpose and they will become a component of MEA11 as soon as possible.

(Source: MSA October 2011)

Marine Industry in Western Australia

There are 175 marine engineering companies in WA.

The latest research available on the WA marine industry is a 2010 report by Dr Helen Cripps entitled "*Report on the Western Australian Marine Industry*". This research was commissioned by the Department of Commerce to ascertain the size, structure and economic impact of the marine industry in Western Australia (WA). Previously, the Australian Bureau of Statistics (ABS) provided state-by-state measures of the economic value of ship and boat building activities, which provided some indication of the status of at least part of the marine industry. There is currently no reliable data on which to base future development strategies for the industry as the ABS no longer publishes this data at the state level and the last shipbuilding sector survey in WA was undertaken in 2002. Previous research has failed to account for the diversity of the marine industry that includes:

- Boatbuilding and repairing
- Marina operations/yacht clubs
- Marine equipment and components manufacturing
- Marine equipment retailing and repairing
- Marine services
- Shipbuilding and repairing
- Superyacht building, refit and services
- Tourism (Austrade, 2007)

The value of the total marine industry to the Western Australian economy is \$3,576,466,548.

(Source: Report on the Western Australian Marine Industry Dr Helen Cripps, Edith Cowan University 2010)

The marine sector is made up of a number of industries including defence, commercial fishing, transport (ferries), tourism and recreation. The diversity of products is highlighted by the recreational sector, which ranges from aluminium 'tinnies' to 70-metre luxury motor yachts (superyachts) (Austrade, 2007).

In recent years, the defence sector of the marine industry in WA has been well supported with investment made by the Western Australian State Government in support of a strategy to develop a "world-class defence shipbuilding hub in Western Australia"

Dr Cripps noted that capital investment increased between 2006 and 2008 in all industry sectors except boat service and supply. The 2005/2006 and 2006/2007 capital investment figures for the boat service and supply sector was due to significant investment in both years by a single respondent. The total capital investment grew by 25% in 2006/2007 and 47% in 2007/2008, which represents an 83% increase in two years. This significant level of investment highlighted the confidence of the industry at the time.

(Source: Report on the Western Australian Marine Industry, Edith Cowan University 2010)

The global financial crisis brought an end to this increase in capital investment with a consequential decrease in apprentices.

Jewellery, Locksmiths and Watch and Clock Makers

The Jewellery, Locksmiths and Watch and Clock Makers are small industry sectors. There are currently (November 2011) 38 Jewellery apprentices, 52 Locksmith apprentices and three Watch and Clock Maker apprentices in training.

There are 399 Jewellery businesses and 105 Locksmiths in WA. There are watch and clock makers employed within the jewellery industry with a very small number of watch and clock makers working independently, many not registered as businesses. (See table on page 66).

Jewellery Design and Manufacture Industry

The jewellery design and manufacture industry in Australia generates approximately \$889.5 million in revenue, contributing an estimated \$227.1 million to the Australian GDP while employing about 4,191 people.

Employees within the industry, design and manufacture a range of jewellery and object products, including custom-made, one-off designs, mass produced designs, costume jewellery, mint coins, badges, medals and church ware. Typically, workers work with silverware, precious or semi-precious metal and gem stones. Industry operators may also be involved with designing, manufacturing, engraving, chasing or etching jewellery or precious metal, and selling these products to wholesalers or in certain instances, directly to retailers.

(Source: Manufacturing Skills Australia MEM05v6 Draft Case for Endorsement – October 2011)

MSA have developed a new post-trade qualification - MEM40311- Certificate IV in Advanced Jewellery Manufacture, specifically developed to be delivered to people who are existing jewellery tradespersons or delivered to apprentices in a jewellery-related trade who choose to study at a higher level during their apprenticeship.

Current coverage within the MEM05 Metal and Engineering Training Package targets the Certificate III trade level outcome, which provides the essential technical skills for jewellery manufacturers. This new Certificate IV qualification addresses industry's need for more extensive and specialised skills in areas such as engraving and gem setting, and covers skills required to work with a greater range of materials and more complex items. It builds upon trade level skills and encompasses some design units to support a well-rounded outcome for those providing custom-made items.

New high-level qualifications for Jewellery and Object Design have been developed for inclusion in MEM05v5. The new Diploma and Advanced Diploma of Jewellery and Object Design target people who require specialist design and technical skills. Employees within the industry design and manufacture a range of jewellery and objects (including custom-made, one-off designs, mass produced designs, costume jewellery, mint coins, medals, etc.). These two new qualifications have been endorsed by the National Quality Council (NQC) on 24 June, 2011.

In 2010, Central Institute of Technology's **Advanced Diploma of Jewellery Design** was endorsed in WA as an Accredited Course for three years, which Central Institute of Technology intends to continue to deliver with the support of the WA jewellery design industry.

Watch and Clock Industry

The watch and clock industry in Australia is a small but important industry servicing the needs of the general public as well as the many industries and occupations that depend on accurate timekeeping. Timepieces vary from everyday mechanical and quartz clocks and watches to complex professional instruments. Watch and clock training was being delivered at the beginning of this project at RMIT in Melbourne and Sydney Institute of Technology, with some part-time delivery in Brisbane.

Availability of nationally recognised training in watch and clock repair has been a priority for the industry especially the national association, the Watch and Clock Association of Australia (WCA). The WCA currently has a membership of 255 across Australia. The industry has identified that the need for nationally recognised training was needed to both support the entry-level training mechanisms of apprenticeships and traineeships and to provide a career path to the more complex field of horology.

It has been identified that the industry in Australia had changed significantly and was no longer a manufacturing sector but a sector primarily engaged in supplying service and repair to retail and business customers. The development of the units of competency and the new Certificate III qualification recognises the more recent nature of the industry.

The industry has experienced difficulties in attracting new entrants. The establishment of a Training Package Certificate III qualification will provide a national qualification to complement apprenticeship training, while the addition of new units to the MEM20205 Certificate II in Engineering qualification will support traineeships. The addition of new units to MEM40105 Certificate IV in Engineering qualification will provide the basis for post-trade training and a career path for tradespersons.

The industry has also been concerned to ensure that skills recognition for watch and clock repair and service skills is maximised. As part of this strategy, the inclusion of currently endorsed units of competency was maximised.

Central Institute of Technology has agreed to keep Watch and Clock making qualifications on scope. There are very few apprentices taken on in WA and the main entry into the trade is via hobby classes. Central has formed an alliance with the industry and has recognised a trade expert to conduct skills recognition when it is needed, either for future participants from the watch and clock making classes, or new apprentices that will need competency assessment.

Central will recognise the “hobby” class in watch and clock service and repair being run at Sevenoaks College as a potential feeder of trades people in the future and that the course can be marketed as a pathway into the trade and also consider the possible future use of the Central facilities in Perth for future courses in watch and clock service and repair.

Locksmiths

The locksmithing sector is not large but it is significant. Even though there are shortages of skilled locksmiths in some areas, the opportunity to gain entry through an apprenticeship is still limited. Job growth is predicted to be slight and job turnover, which provides the majority of job opportunities, remains low.

Locksmiths are professional tradespeople who evaluate security requirements for a wide range of clients and make, maintain and install the security devices. Locksmiths assess their client's security needs by initially doing security surveys, whether for residential, commercial, government premises or automotive security. This would include issues such as working out master key systems, creating restricted areas at office premises, checking the security of all entrances and exit points or assessing car security.

Locksmiths are employed by locksmith businesses and, in most cases, end up owning their own business. As overheads are low and margins high, there is potential to profit from these business opportunities.

Another important area is the growing use of computer programs to generate codes for specialist keys, use computer software to set specifications for keys, and service and install digital and electronic locking systems.

Locksmiths can either work in a shop, or be mobile working from vehicles to install and repair security hardware in the field, to open door locks or service safes and vault doors.

Safe and vault technicians undertake additional training in safe, vault servicing and trouble shooting. They open, rebuild, paint, move and install safes.

Locksmiths who service bank equipment work with mechanical and electronic time locks, time delay devices, night deposit units and combination, electronic and key locks for vaults and safes.

Locksmiths must obtain police clearance before being accepted as an apprentice. Once qualified, all locksmiths must be licensed and are required to be fingerprinted.

Locksmiths work under strict legislation, such as the Security and Related Activities Act and the Residential Tenancy Act. A locksmith must be aware of his or her legal rights to change a lock in a complicated situation, such as evictions.

Strict confidentiality is necessary, as the locksmith keeps all details of a client's security systems and key specifications. It is also vital that a locksmith be diplomatic and understanding when dealing with their clients.

(Source: Locksmiths Guild of Australia)

Refrigeration and Air Conditioning

There are 488 Refrigeration and Air Conditioning companies in WA.

A survey funded by the Australian Department of Environment and Water Resources and Refrigerants of all available published data, combined with extensive interviews with industry, has resulted in a range of robust metrics on the Refrigeration and Air Conditioning industry in Australia.

A significant database was compiled to facilitate the collation, analysis and testing of data.

The main results from the study indicate that the Refrigeration and Air Conditioning industry:

- Involved direct spending of at least \$15.96 billion in 2006, slightly more than 1.7% of GDP.
- Involves machinery that consumed possibly 45,000 GWh, or 21.9% of all electricity sent out in Australia in 2006.
- Resulted in as much as 7% of all greenhouse gas emission in Australia in that year, or 40Mt of Carbon Dioxide emissions¹.
- Employs at least 163,000 people.

In the process of arriving at these values, the research concluded that:

- \$3.87 billion was spent buying and installing domestic and small commercial air conditioning equipment in Australia in calendar 2006.
- There were at least 5.63 million installed air conditioners in 2006 – about 0.7 units per household.
- There is 9.46 million cubic metres of cold room storage capacity in Australia with possibly 70% of that space using ammonia as refrigerant.
- 1438 chiller units were sold in 2006 and there is an installed base of 22,450 of these large devices.

It is felt that, while the major areas of employment and expenditure are captured previously, there are significant specialist areas for which insufficient data is presently available and which could add materially to these conclusions.

Major specialist areas for employment, sales of technology, engineering services and economic activity for which we presently have little accurate data include:

- Sales, service and installation of small cool rooms - not in the cold chain and supermarkets.
- Commercial aviation – domestic and international flights serviced here.

- Mining and in mine machinery.
- Marine systems – domestic, international, commercial and private vessels equipped and serviced here.
- Ancillary sales and service for control systems, sensors, filters, chemicals, specialist cleaning.
- Military vehicles, equipment and systems.

There are also lower skilled jobs that are not easily accounted for, such as labourers and builders, engaged in the construction of new cool rooms, repair and sales of second-hand reconditioned fridges etc.

To capture some of these jobs, a conservative adjustment figure has been added to the employment numbers equivalent to 10% of all jobs identified but not including employment in HVAC for non-residential buildings.

(Source: Energy Strategies, The Cold Hard Facts, June 2007)

The main issues affecting this sector in WA are:

- Rapidly changing technology and increased number of commercial refrigeration/airconditioning units installed.
- Upskilling for existing workers within the refrigeration and airconditioning sector to reflect changes to electrical and environmental licensing requirements.
- Training delivery needs to be spread to more than one college, particularly to regional areas. This will encourage employers to increase apprentice intake.
- Job prospects for Airconditioning and Refrigeration Mechanics are good.
- Employment for Airconditioning and Refrigeration Mechanics to 2015-16 is expected to grow strongly. Employment in this large occupation (23 600 in November 2010) rose strongly in the past five years and rose slightly in the long-term (ten years).
- Airconditioning and Refrigeration Mechanics have a high proportion of full-time jobs (90.9 per cent). For Airconditioning and Refrigeration Mechanics working full-time, average weekly hours are 41.2 (compared to 41.3 for all occupations) and earnings are average - in the sixth decile. Unemployment for Airconditioning and Refrigeration Mechanics is average.
- Airconditioning and Refrigeration Mechanics are employed across several industries including: other services; construction; retail trade; and manufacturing.
- The (internet) vacancy level for Airconditioning and Refrigeration Mechanics is moderate. The proportion of workers leaving the occupation (and needing to be replaced) is 10.1 per cent (annually) compared to the average for all occupations of 13.1 per cent.
- The mix of industries employing Airconditioning and Refrigeration Mechanics is very favourable for employment growth prospects.

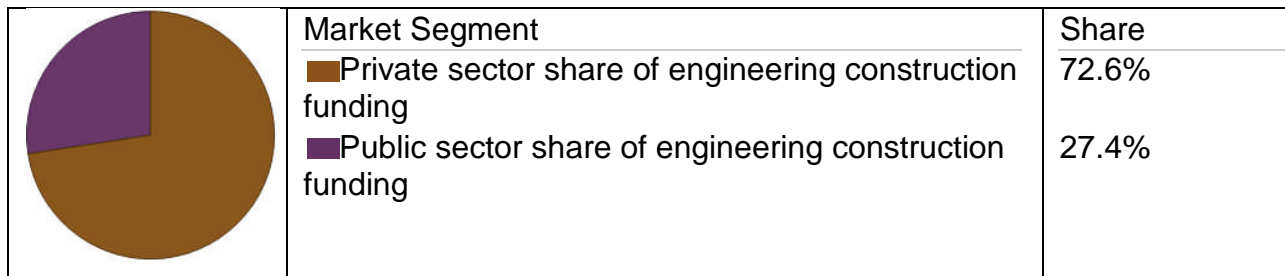
Engineering Construction

Occupations within the engineering construction sector represent the majority of those covered by EATC, either directly or indirectly. They include Engineers, Engineering Technologists and Technicians, Metal Fabricators, Welders, Mechanical Fitters, Heavy Duty Fitters, Aircraft Maintenance Engineers, Machinists, Electricians, Drafters, Locksmiths, Materials Handlers, Blast Coaters etc.

A large part of engineering construction is taken up with the fabrication sector and there are 792 fabrication companies in WA.

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.

Major Market Segments



Activity in the engineering construction market is funded by both the public sector and the private sector depending largely on the end use of the infrastructure and government policy on public sector ownership. The public sector's share of total funding of the engineering construction market has steadily trended downwards since the early 1990s, reflecting the impact of greater private sector ownership in public utilities (e.g. water, gas, electricity etc.) through privatization and the corporatization of public authorities, along with the upsurge in recent years in private investment into mineral and energy infrastructure.

(Source: IBISWorld 2011)

Activities (Products and Services)

The primary activities of this industry are:

- Boiler, furnace and kiln construction (on-site assembly from prefabricated components)
- Transmission lines construction and cable laying (electricity or telecommunication).
- Electrical machinery, heavy, installation (on-site assembly)
- Harbour works, dredging, canal and jetty or wharf construction (except buildings)
- Water supply, dams, lakes, treatment plants and irrigation systems construction.
- Mineral and energy infrastructure (e.g., mine sites, oil refineries, smelter construction etc.)
- Pipelines construction
- Railway construction
- Sewerage treatment plants construction
- Recreational infrastructure construction (sports arena, golf course, swimming pool etc.)

The major products and services in this industry are:

- Heavy industry - mine construction
- Electricity generation and distribution facilities
- Heavy industry - oil refineries and chemical plant construction
- Other

- Water supply and storage infrastructure including treatment plants
- Telecommunication facilities - cable laying, switching stations etc.
- Railway infrastructure - track laying, embarkation facilities
- Sewerage and drainage

This segment includes the construction of infrastructure projects such as roads, airports, dams, etc. Such construction may be carried out by either the public or the private sector. Examples include Spencer Street Station, Tullamarine/Calder Freeway interchange, Geelong bypass, etc. Data indicates that the engineering construction segment has posted solid growth over the current performance period due to continued investment into developing key regional growth areas.

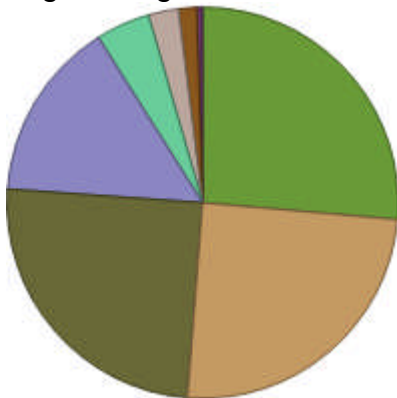
The value of work done in the total engineering infrastructure market is estimated to contract by 10.4% during the current year to total \$48.60 billion. This partly reflects the scaling back of investment into water supply, harbour and railway construction projects (from recent record levels), but principally represents to 22.8% contraction in the value of mineral and energy infrastructure developments (falling to around \$17.16 billion in 2009-2010 but remaining well above its long term average). Investment remains strong in the electrical power market, with construction proceeding on several alternate energy developments including thermal solar power plants, wind farms, a geothermal test plant. The industry continues to derive substantial impetus from the robust investment into the electric power, pipeline and telecommunications infrastructure markets (growth of greater than 10%), and the heightened activity in the aligned road construction market.

(Source: IBISWorld 2011)

Geographic Spread

Year: 2010

Engineering Construction



Region	Percentage
QLD	26.5
NSW	25.0
WA	25.0
VIC	15.0
SA	4.5
NT	2.5
TAS	1.5
ACT	0.5

The distribution of industry activity is generally influenced by patterns of population distribution and growth, but there is a notable skew in activity towards regions with a high level of private sector investment into mining and manufacturing activity. The distribution of industry activity by state and territory is based on the annual value of work done and the 2006 Counts of Australian Businesses.

Western Australia currently accounts for around 25% of national engineering construction work done, down from close to one-third in the late 2000s and greatly exceeded WA's share of the national population and economy (around 10% to 11.5% annually). This high

representation in WA reflects the high levels of investment into mineral and energy resource infrastructure market (eg North West Shelf, Kalgoorlie gas pipeline etc), along with investment into mass transit infrastructure in Perth, and water and sewerage infrastructure. In the June 2006 counts of Australian businesses, WA accounted for 11.9% of all industry establishments, and 11.3% of establishments with employees.

(Source: IBISWorld 2011)

Major projects in this market over the outlook period include the Hope Downs iron ore project in Newman WA (valued at \$1.5 billion), the Alumina Australia upgrade to stage 3 of the Wagerup alumina refinery in Western Australia (valued at \$1.5 billion), a proposed methanol plant in Dampier WA (valued at \$630 million) which is awaiting financing and development approval from state government, the Fortescue Metal Group mining and processing facility in Pilbara WA (valued at \$550 million) which was originally planned to begin early 2005 but stalled due to financing difficulties associated with Chinese buyers, and the Swanbank Paper Mill in Queensland (valued at \$800 million) which is currently in the feasibility stage.

Activity in this market will also be subject to the advancement of planned projects such as, the \$5 billion Austeel iron and steel project at Karratha WA using hot briquetted iron and producing steel pellets (delayed since 2001) and the \$5 billion North Rankin Gas Compression project to deliver high-value gas supply from the North West Shelf for another 25 years.

(Source: IBISWorld 2011)

Foundry Industry

There are thirteen foundries in WA, most in the metropolitan area.

The mining, resource and rail sectors are booming, which has led to a larger need for foundry workers, particularly moulders. The foundry industry in WA mainly supports the mining and resources industries by providing wear products and hard face material. The two major foundries in the state are reporting record business and difficulty in getting suitable labour to service the growth. The industry is currently experiencing a skill shortage and no coherent strategies in place to address them.

The major foundry occupations are Foundry Pattern Makers, Foundry Moulders, Foundry dressers and Furnace Operators.

The Australian Foundry Institute has expressed concerns about training in the industry, however, the industry does not seem to be able to work cooperatively to overcome attraction, retention and training issues. Initiatives have been attempted for a fast track program for foundry trades and minimal training in this area has been carried out for several years. These initiatives have met with little success. Existing non-trade employees in the industry should be given the opportunity to upgrade their skills to tradesperson status.

Foundry trades need to be promoted as a means of attracting more people in the industry and involving more employers to participate in training. There is one training provider that delivers training in this area.

Engineering Post-Trade Occupations

There are 399 professional engineering companies in WA, these include mechanical and general engineers.

There are 68 electrical engineering companies in WA.

There are 35 engineering drafting companies in WA.

The EATC has wide coverage of industry occupations from VET in schools up to qualified engineers. We realised that we were predominantly concentrating on trades issues and did not have an industry perspective on post-trades and higher level engineering issues.

In August 2011, the EATC completed a research project into the demand for and use of higher level engineering qualifications by industry in Western Australia. Specifically, the research project was required to establish the level of industry need and demand for higher level engineering qualifications at the diploma, advanced diploma and associate degree level.

The primary focus of the project was to identify the industry's understanding and usage of higher level Vocational Education and Training (VET) qualifications in areas within the EATC coverage.

A key component of this focus was for the project to comprehend the occupational classification associated with higher level engineering positions and to identify how these classifications are used within industry.

It is clear that there is a 'blurring of the lines' within the VET system with regard to the classifications.

There appears to be an assumption within some of the public VET institutes that the introduction of Associate Degrees in Engineering will allow for the delivery of training programs in support of Engineering Technologist positions. This is not the case. The formal occupation classification system and the professional body categorisation both specify that the expected qualification level for an Engineering Technologist role is a full Bachelor Degree.

The current Diplomas and Advanced Diplomas of Engineering offered by the VET system satisfy the indicative skill levels for Engineering Technician roles. The introduction of Associate Degrees in Engineering will simply extend the learning within the same indicative skill level for an Engineering Technician.

Within the companies and organisations examined by the project, there is little usage of the formal classification titles for either technologist or technician.

The research found that, with the exception of the two government agencies, there was virtually no industry recognition of higher level vocational education and training (VET) engineering qualifications and, consequently, no need or demand factors were identified.

The project had two phases, with phase one using a sample approach of fifteen companies and organisations followed by a second sample of twenty companies with similar characteristics, different from the fifteen respondents involved in the initial research activity.

The initial research activity identified a significant gap in the industry knowledge and understanding of higher level VET engineering qualifications. As a consequence of the project findings, advice was sought from the Central Institute of Technology and Polytechnic West on the career and job destinations and prospects for higher level engineering course graduates.

The two public training providers advised the EATC that graduates use the higher level qualifications to assist with alternative entry to university and as an entry level employment point for occupations such as draftspersons and laboratory technicians.

The second phase used a short survey instrument that identified nine typical positions above the base trade level. These positions were:

- Drafter/Draftsman
- Planner
- Workshop or Shift Supervisor
- Maintenance Supervisor
- Scheduler
- Estimator
- Process or Laboratory Technician
- Engineering Associate
- Engineer

A total of thirty-five Western Australian companies with a direct requirement for all levels of engineering skills have responded to the research requests. The thirty-five companies are representative of the Western Australian engineering manufacturing, engineering maintenance and the mining and resource sectors that utilise all levels of engineering skills.

In addition, during both phases of the project, the following organisations representing various engineering disciplines and professions were consulted:

- Engineers Australia
- Australian Steel Institute
- Marine WA
- Australian Institute of Air-conditioning, Refrigeration and Heating

The combined projects have identified a lack of knowledge and understanding of higher level VET engineering qualifications in industry and an almost total lack of demand for these qualifications in relation to typical positions above the base trade level.

The combined projects have also identified a high level of regard and recognition within industry for trade level qualifications and the use of these qualifications as the base for further skills development and progression into above trade engineering positions.

The research shows that there is almost no industry use of higher level VET engineering qualifications for the nine identified typical positions. The survey did not identify any other positions different from the nine identified typical positions that require higher level VET engineering qualifications.

With the exception of positions classified as Engineers and requiring a Bachelor Degree qualification, the acceptable entry level qualification for all other positions is the trade level Certificate III program. Most of the respondents employ workshop, shift and maintenance supervisors with a requirement that people in these positions progress from a trade background.

Some of the respondents employ Planners, Schedulers and Estimators with a requirement that people in these positions progress from a trade background.

Those respondents that employ Drafters/Draftsmen expect a qualification at the Certificate IV level or above, with most preferring a progression to these qualifications from a trade background.

There is a minimal requirement for diploma level qualifications for any of the eight typical positions below the Engineer level. There is almost no opportunity for direct entry to the eight typical positions below the Engineer level for graduates from full-time higher level VET engineering programs.

In almost all cases and for all nine typical positions, the respondents expect applicants for these positions to have developed their skills through on-the-job experience.

Engagement of Aboriginal Workers in the Engineering Industries

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 DTWD'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.

Skills Demand Issues Across all Engineering Sectors

The following is a reflection of the skills demands of engineering occupations as of March 2010:

Engineering Tradesperson (Fabrication)

There is an ongoing high demand for skilled labour in all the fabrication trades, particularly for experienced workers:

- **Fabricator Heavy** (commonly known as Boilermaker and Boilermaker/Welder). This occupation is classified at a **Very High Priority** level in all industry sectors.
- **Fabricator Light** (commonly known as Sheet Metal Workers). This occupation is in **Very High Priority** in all industry sectors.

Welders

The demand for ferrous and non-ferrous welders is static; ranked at **Priority**, however, the demand for steel welders appears to have increased at this particular time. Good first-class welders are ranked at a **Very High Priority**. Aluminium welders in the shipbuilding industry are still in continuing short supply and are ranked at a **High Priority** level.

Shipwright and Boatbuilding

The nature of the ship and boat building industry has changed in recent years. The traditional shipwright training is not being renewed as training is dropping off due to a fall in demand for new boats. This will cause a shortage in the future of multi-skilled trades' people. The ship building industry has changed to a production model that tends to compartmentalise skills rather than multi-skill workers, with a high emphasis on welding skills. The EATC would rate this occupation at **Very High Priority**.

Engineering Tradesperson (Mechanical)

- **Mechanical Fitter** (all types except heavy duty). The demand for mechanical fitters across all aspects of industry is continuing and has remained consistently high over the last few years, which includes marine fitters. The increasing demand would rank this occupation at a **Very High Priority** level.
- **Plant Mechanic/Heavy Duty Fitter**. This occupation in the engineering industry is identical to that of the automotive technician heavy mobile equipment trade. Different RTOs deliver training from either the MEM05 Training Package in Engineering or AUR05 Automotive Training Package. The trade skill set has the same occupational outcome with different qualification titles. The demand for this occupation justifies a ranking of **Very High Priority** status.

- **Refrigeration and Air Conditioning Mechanic.** Increased electrical skills are reflected in this sector and demand for skilled labour in both refrigeration and air-conditioning is high rated at **Very High Priority** level.
- **First-Class Machinist.** This occupation is currently in steady demand, particularly those with Computer Numerically Controlled (CNC) skills. The demand is for machinists who have a high skill level; many machinists do not have the skills levels necessary for industry requirements. Training should be made available to individuals or enterprises to up skill machinists to a higher proficiency level; this would help address some of the skill shortage issues from industry. Ranked **Very High Priority**.

Aeroskills

Aeroskills trades people in the various occupations of this industry sector in Western Australia are in steady demand, especially in the mechanical and avionics fields of the aerospace industry. The aerospace industry in WA is relatively small with very few employers able to employ apprentices, this restricts the availability for apprenticeships positions in WA.

- **Aircraft Maintenance Engineers (Mechanical).** Ranked **Very High Priority**.
- **Aircraft Maintenance Engineers (Avionics).** Ranked **Very High Priority**.

Trades Assistant

This non-trade occupation is also in steady demand, particularly experienced workers. In the last few years many experienced trades assistants have taken advantage of skills recognition and FastTrack programs to gain trade qualifications via RPL processes.

Engineering Tradesperson (Electrical)

- **Electrician.** This occupation is in the **Very High Priority** category and there is an insatiable appetite for electricians across all industry sectors. In the oil and gas and resource sectors, the demand for electricians with instrumentation skills and qualifications is growing.

Engineering Drafters

This professional occupation is in **Very High Priority** across all sectors of the industry.

Priority Issues and Strategic Actions for Engineering Industry Sectors

Issue One

Poor work readiness of job applicants, which includes reading and numeracy skills, are a major barrier to employment and training, particularly with school leavers, migrants, and Aboriginal people.

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, all tasks require, to some extent, measurement and computations. Being able to read and understand complex instructions is fundamental to productivity.

Strategy

There are numerous reports around that 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. The Australian Government's initiative of testing all students in these areas will shine the spotlight on the issue and may help to impress on the education system how important it is.

One post school opportunity for employers to address this problem with both existing and new workers is to access the Workplace English Language and Literacy – WELL program. This has been very effective over many years, but our research has shown that the service is not as widely known as it should be. A more concerted effort to promote this service is required.

Actions

Reintroduction of trade maths classes available outside of work times, such as evenings and weekends.

Introduce dedicated communication and literacy classes for first year apprentices rather than embed these subjects into the trade specific classes. These classes to be delivered by communication specialists not trade lecturers.

Promotion of the new Foundation Skills Training Package.

Who Is Responsible?

Government, both State and Federal; Registered Training Organisations; DTWD with the assistance of Training Councils.

Issue Two

Local content in the Engineering industry is an issue requiring urgent attention to ensure that local labour and local companies are used in the resources boom. It is reported that Australian engineering capability is diminishing as engineering design work goes overseas. There is also concern that training of new trade workers is under threat due to the use of overseas workers in Australia on working visas. Particularly, there is major concern among WA engineering metal fabrication companies over low levels of local content on major resource projects. It is widely believed that WA's skilled engineering and fabrication jobs are in danger of collapse. This view is supported by the Australian Steel Institute, UnionsWA and the Association of Professional Engineers, Scientists & Managers, Australia.

Strategy

In February 2011, it was reported in that Unions are calling for specific legislation to ensure jobs for local workers on Western Australian projects. Industry employers have joined Unions in their campaign, calling for specific legislation to ensure jobs for local workers on Western Australian projects to ensure multinational companies give jobs to local workers on WA projects.

(Source: Perthnow Feb 17, 2011)

It reported Australian Steel Institute (ASI) State Manager, James England, saying “*the use of offshore workers for some of WA’s resource projects was having a devastating impact on the local fabrication industry. People might be surprised to learn that, despite a large number of huge resources projects being under construction up north, most of our fabrication workshops are almost empty and some businesses are close to collapse,*” (Ibid)

Actions

Support the campaign for local content in the engineering fabrication sector. Ensure that flexible delivery of training for apprentices and trades people is made available for companies who have low work orders.

Who Is Responsible?

Western Australian industry employer associations, Unions, DTWD with the assistance of Training Councils.

Issue Three

From 1 July 2012, national licensing will commence for electrical trades, state and territory licences will be transferred across to the new system at this time. The Electrical Regulators Advisory Committee (ERAC) made a decision not to recognise the MEM30405 qualification for licensing as a trade Electrician (Mechanic).

The national Skills Council Manufacturing Skills Australia (MSA) has written six new assessment units of competency, which MSA proposed to insert into the MEM30405 qualification. These assessment units are to meet ERAC requirements for the Capstone testing and a revised form of the qualification showing the proposed new units. ERAC rejected these proposed changes.

ERAC also advised that from 30 September 2015 the MEM30405 qualification will not be recognised as eligible for an Electrician’s Licence. Only the EEOZ qualification will be recognised.

ERAC will accept the MEM30405 qualification to be recognised as eligible for an Electrical Fitters licence. This does not require a Capstone test or installation experience. After 2015, an Electrical Fitter wishing to upgrade to a full Electrician’s Licence, will need to apply to the Electrical Licensing Board for a permit to carry out electrical installing work under supervision. They will be issued with a logbook to record their on-the-job electrical installing experience. After attaining at least twelve months installing experience, applicants will sit the Electrical Licensing Board’s examination. (Capstone) If successful, they will be issued an Electrician’s Licence upon payment of the prescribed fee.

Strategy

Industry need to decide if they want or need Electrical Mechanics or if Fitters are sufficient. However, they should not be forced by a regulator or government decision to take a person with a licence that does not meet their needs.

All Electrical apprentices currently need to do the Capstone test as it is part of the training footprint. The Capstone rules and content will be re-written by Curriculum Department in DTWD.

DTWD made an offer to the Electrical Licensing Board (ELB) that additional installation units be added to the MEM footprint and be funded up to 1240 hours, essentially to give a dual trade status. An installation logbook would be completed during the four year MEM apprenticeship and, after successful completion of a Capstone test, all the evidence is presented to the ELB at the time they apply for a licence at the end of the apprenticeship. Where there is no installation evidence, then an Electrical Fitter's licence will be issued. This offer was refused, no valid reason was given other than the ELB was bound by the ERAC decision.

Actions

- Pursue the proposal that an installation logbook be completed during the four year MEM apprenticeship and, after successful completion of a Capstone test, all the evidence is presented to the ELB at the time they apply for a licence at the end of the apprenticeship.
- Bridging provisions need to be put in place up to September 2015.
- An option is to sign apprentices up in both qualifications and present the one that leads to the full licence to the ELB.
- MSA to continue to lobby all relevant government ministers to address this issue.

Who Is Responsible?

Western Australian industry employer associations, Unions, MSA, DTWD with the assistance of Training Councils.

Issue Four

Skills shortages in engineering trades are at critical levels. There are skill and labour shortages in a number of trades, particularly experienced and highly skilled Machinists, Electricians with instrumentation skills and Mechanical Fitters with hydraulic skills, Heavy Fabricators and Welders with high level code skills. Intensive specialised training may be carried out in a post-trade capacity.

Fitters, Fabricators and Electricians may be employed in any industry sector outside of engineering specific enterprises in a service, construction or maintenance capacity. As a training issue, the emphasis on core skills within all of the trades is paramount, particularly in the engineering Industry. The application of core skills in a variety of situations is the key to a good engineering tradesperson. It is the duty of the RTO to provide these skills for apprentices that can then be applied in the particular workplace in which the apprentice or trainee is employed.

Companies who require the skilled labour often consider personnel in their workforce as possibly benefiting from up-skilling training. These workers are usually working long hours, which restricts their ability to attend structured training courses. This is a major barrier to increasing the higher level skills in the workforce. Cost is also a prohibitive factor and consideration for many training providers in delivering flexible and appropriate training to meet the requirements of industry to personnel working on remote work sites.

Strategy

Flexible delivery is the key to this issue and the willingness of the employer to allow sufficient time during working hours for the up-skilling to take place.

It is government policy to encourage the attainment of higher level qualifications, the MEM40105 Certificate IV in Engineering is a qualification designed to provide an industry recognised skills profile related to trade work as a Higher Engineering Tradesperson or a Special Class Engineering Tradesperson. Skills development would be undertaken through post-apprenticeship training or as part of an Australian Apprenticeship arrangement where the mix of on and off-the-job training would be specified in the Training Plan associated with the Contract of Training between the employer and apprentice.

This qualification may be accessed by direct entry provided the applicant can provide evidence of relevant trade qualifications or demonstrate equivalence through a skills recognition process.

Actions

RTOs need to provide support material and on-the-job mentoring and assessment services.

Ensure that flexible delivery of training for apprentices and trades people is made available for companies who have particular skills shortages.

Who Is Responsible?

Registered Training Organisations, DTWD with the assistance of Training Councils.

Issue Five

Viability of the long-term strategy of using fly-in fly-out workers in the resources and mining industries. The fly-in fly-out workers, particularly in the North West, have significant pressures put on their family life with the constant disruption due to work demands. Workers are expected to work long hours in very trying and difficult conditions, particularly on construction work. This not only puts a strain on their health, but also may have an impact on the effective working life of workers. This, in the long term, is a significant barrier to employment in the engineering industry.

Strategy

The cyclical nature of the engineering industry in Western Australia has been a feature for many years and does not look as if it will change in the foreseeable future. Every time there is a higher world demand for minerals or resources there is surge in activity in Australia. The resources industry in the North West is a major contributor to Australia's wealth. It is also one of the major users of skilled engineering labour. New mining enterprises in Queensland will also put pressure on the market for skilled labour. It is becoming more difficult to find skilled workers to fill the increasing number of vacancies.

Significant infrastructure such as building of accommodation for families to extend the town for permanent workforce needs. This should be carried out by the State Government, funded by the Australian Government and supported and facilitated by the mining and resource companies. The building of a planned, self-sustaining major hub city in the Pilbara will ensure the ongoing prosperity of the region and the whole country.

Change training arrangements so interstate apprentices can access local training.

Actions

Provide more infrastructure to support permanent local workforce.

Support training and engagement programs for local Aboriginal people for future skilled employment.

Who Is Responsible?

Government of Western Australia; resources and mining companies using skilled labour.

Issue Six

In August 2011, the EATC completed a research project into the demand for and use of higher level engineering qualifications by industry in Western Australia. Specifically, the research project was required to establish the level of industry need and demand for higher level engineering qualifications at the diploma, advanced diploma and associate degree level.

The research found that, with the exception of the two government agencies, there was virtually no industry recognition of higher level Vocational Education and Training (VET) engineering qualifications and, consequently, no need or demand factors were identified.

The project had two phases, with phase one using a sample approach of fifteen companies and organisations followed by a second sample of twenty companies with similar characteristics, different from the fifteen respondents involved in the initial research activity.

The initial research activity identified a significant gap in the industry knowledge and understanding of higher level VET engineering qualifications. As a consequence of the project findings, advice was sought from the Central Institute of Technology and Polytechnic West on the career and job destinations and prospects for higher level engineering course graduates.

The two public training providers advised the EATC that graduates use the higher level qualifications to assist with alternative entry to university and as an entry level employment point for occupations such as Draftspersons and Laboratory Technicians.

The second phase used a short survey instrument that identified nine typical positions above the base trade level. These positions were:

- Drafter/Draftsman
- Planner
- Workshop or Shift Supervisor
- Maintenance Supervisor
- Scheduler
- Estimator
- Process or Laboratory Technician
- Engineering Associate
- Engineer

A total of thirty-five Western Australian companies, with a direct requirement for all levels of engineering skills, have responded to the research requests. The thirty-five companies are representative of the Western Australian engineering manufacturing, engineering maintenance and the mining and resource sectors that utilise all levels of engineering skills.

In addition during both phases of the project, the following organisations representing various engineering disciplines and professions were consulted:

- Engineers Australia
- Australian Steel Institute
- Marine WA
- Australian Institute of Air-conditioning, Refrigeration and Heating

The combined projects have identified a lack of knowledge and understanding of higher level VET engineering qualifications in industry and an almost total lack of demand for these qualifications in relation to typical positions above the base trade level.

The combined projects have also identified a high level of regard and recognition within industry for trade level qualifications and the use of these qualifications as the base for further skills development and progression into above trade engineering positions.

The research shows that there is almost no industry use of higher level VET engineering qualifications for the nine identified typical positions. The survey did not identify any other positions different from the nine identified typical positions that require higher level VET engineering qualifications.

With the exception of positions classified as Engineers and requiring a Bachelor Degree qualification, the acceptable entry level qualification for all other positions is the trade level Certificate III program. Most of the respondents employ workshop, shift and maintenance supervisors with a requirement that people in these positions progress from a trade background.

Some of the respondents employ Planners, Schedulers and Estimators with a requirement that people in these positions progress from a trade background.

Those respondents that employ Drafters/Draftsmen expect a qualification at the Certificate IV level or above, with most preferring a progression to these qualifications from a trade background.

There is a minimal requirement for Diploma level qualifications for any of the eight typical positions below the Engineer level. There is almost no opportunity for direct entry to the eight typical positions below the Engineer level for graduates from full-time higher level VET engineering programs.

In almost all cases and for all nine typical positions, the respondents expect applicants for these positions to have developed their skills through on-the-job experience.

Strategy

- Support and encourage public VET institutes to actively market and promote higher level engineering courses to industry, particularly private sector employers.
- Consider in detail the experiences of the Water Corporation in the establishment of Engineering Technician and Engineering Associate positions and identify practices and process from the Water Corporation training arrangements that may be applied more broadly across industry.

Actions

- Examine the industry concerns in relation to the inflexibility of the current MEM05 Training Package rules for higher level qualifications and identify a process to improve the flexibility and responsiveness of these qualifications.
- Support the development of Western Australian specific higher level engineering accredited courses where it can be shown there is a direct industry demand and the MEM05 Training Package qualifications are inappropriate.
- Encourage public VET institutes to develop formal processes to track and record employment destinations for VET higher level engineering graduates.
- Consider further work to identify and define employment pathways for VET higher level engineering graduates.
- Seek specific advice from public VET institutes on the industry demand for Associate Degrees in Engineering before supporting the development and establishment of these courses.

Who Is Responsible?

RTOs delivering higher level engineering qualifications at the diploma, advanced diploma and associate degree level, DTWD with the assistance of EATC.

ISSUES AFFECTING AUTOMOTIVE AND ENGINEERING INDUSTRIES

The following issues are relevant to both engineering and automotive industries. Some of the issues may have been raised previously in this document but in an industry specific setting.

The Issue

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 need 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 DTWD'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.

The EATC believes that local level partnerships involving Registered Training Organisations (RTOs), Group Training Organisations (GTOs), Job Service Australia (JSA) employment service providers and other local community groups and agencies offer the best solution for increasing Aboriginal employment participation.

The EATC will facilitate the development of these local level partnerships and will encourage the establishment of formal preparation for employment programs that lead directly into apprenticeship and traineeship positions.

Employers in the engineering and automotive industries have a clear expectation that applicants for apprenticeship and traineeship positions have the necessary entry level skills and behaviours and the capacity to develop the broader technical knowledge and skills required to operate effectively in the workplace.

Most employers in the engineering and automotive industries in Western Australia are small and medium enterprises without the internal capacity to develop and sustain specific Aboriginal employment arrangements.

The engineering and automotive sectors do not provide jobs of 'last resort'. Employment in the two sectors is not low skilled, easy to obtain and the option to choose when other avenues are closed.

Work in the engineering and automotive sectors is highly skilled, complex and multifaceted. The employment-based training pathways used by the two sectors are well developed, formal and highly structured.

A strong focus on practical, project-based delivery is an important factor for all pre-vocational and pre-employment training for the two sectors, but it is particularly important for preparation of employment programs for Aboriginal people.

The evidence shows that Aboriginal people achieve positive outcomes from vocational training programs when there is interactive and participatory learning activity, the use of innovative and integrated assessment strategies, embedded literacy and numeracy support, additional mentoring support is provided as a formal part of the program and RTO teachers and trainers are receptive to Aboriginal ways of learning.

While the ideal situation in a mentoring program designed to support Aboriginal employees is to have an Aboriginal mentor, it is possible to achieve successful mentoring outcomes with non-Aboriginal mentors providing these mentors have been trained, have respect for and an understanding of Aboriginal culture and recognise issues that are likely to influence the success of the individual receiving the mentoring support.

Engineering and automotive work is complex and technical and the work requires appropriate workplace literacy and numeracy levels.

The EATC has been advised by many engineering and automotive enterprises that there are apprenticeships and traineeships available for Aboriginal people who have the interest, enthusiasm and motivation to take up an employment-based training place.

Aboriginal people need access to support services and training to equip them with the knowledge and skills to compete for apprenticeship and traineeship positions.

The actions associated with the four strategic directions that follow will allow the EATC to work in a structured and formal way to improve Aboriginal employment outcomes in the engineering and automotive industries.

The EATC will undertake the work associated with the four strategic directions during the period covered by the Council's current Strategic Plan 2011-2013.

Strategic Direction One

Promote Aboriginal Employment in the Engineering and Automotive Industries

Actions
<p>The EATC will:</p> <p>Promote and market the engineering and automotive industries as a career destination for Aboriginal people.</p> <p>Encourage engineering and automotive enterprises, particularly in the small and medium enterprise sector, to employ Aboriginal people.</p> <p>Work with employment and training service providers such as Registered Training Organisations (RTOs), Group Training Organisations (GTOs) and Job Services Australia (JSA) employment service providers, to improve workforce participation for Aboriginal people in the engineering and automotive industries.</p> <p>Identify and highlight industry best practice examples of Aboriginal employment in the engineering and automotive industries, particularly in the small and medium enterprise sector.</p>

Strategic Direction Two

Improve Preparation for Work Arrangements for Aboriginal People Seeking Employment in the Engineering and Automotive Industries

Actions
<p>The EATC will:</p> <p>Facilitate the establishment of local level partnerships between RTOs, GTOs and JSA providers for the development of preparation for work programs.</p> <p>Endorse the efforts of local level partnerships, promote partnership activities and support funding applications.</p> <p>Support local level partnerships in the development of innovative training delivery and relevant assessment practices for preparation for work programs.</p> <p>Encourage the use of a career pathway approach that establishes preparation for work programs as the first step in the development of a career in the engineering and automotive industries.</p>

Strategic Direction Three

Increase the Number of Aboriginal People Employed as Apprentices and Trainees in the Engineering and Automotive Industries

Actions
<p>The EATC will:</p> <p>Encourage small and medium enterprises in the engineering and automotive industries to offer apprenticeship and traineeship positions for Aboriginal people.</p> <p>Work with GTOs servicing the engineering and automotive industries to improve apprenticeship and traineeship outcomes for Aboriginal people in the engineering and automotive industries.</p> <p>Support local level partnerships in the development of innovative pre-vocational pathways that lead to engineering and automotive apprenticeships and traineeships.</p> <p>Identify best practice examples and Aboriginal apprenticeship and traineeship success stories to encourage greater take up of employment based training places.</p>

Strategic Direction Four

Improve the Workplace Support Available for Engineering and Automotive Enterprises Employing Aboriginal People

Actions
<p>The EATC will:</p> <p>Work with local level partnerships to develop cost-effective workplace mentoring programs.</p> <p>Encourage small and medium enterprises in the engineering and automotive industries to train existing employees in coaching and mentoring skills.</p> <p>Encourage small and medium enterprises in the engineering and automotive industries to train employees in cross-cultural awareness.</p>

The Issue

The general lack of understanding by many in the teaching profession on what trades skills are and what career opportunities exist, particularly knowledge of the engineering and automotive industries. This is one of the major impediments to engagement with prospective candidates in the Industry.

“Arguably, more so than the other industries, automotive suffers from a poor image of long hours, dirty working conditions, low pay and an insecure future, with limited career options.”

(Source: MSA Environmental Scan Update 2009)

Another perception that needs to be continually addressed is the view that “the trades” are for under achievers or the “not so academically adept” students. This erroneous perception needs to change. Many in the schools system promote university as the only avenue for academically advanced students and ignore modern trade-based professions. A change must take place or this practice will continue to flourish within the education system and will continue to place a major barrier to student career option choices.

Suggested Strategy

The approach to this issue has been mainly to target students with expositions, industry presentations to students, VET programs and a variety of videos and pamphlets to promote various occupations and industries. However, teachers to a large extent are not well informed about career options for students, even career advisers if they exist are not familiar with trades and non-university pathways for students.

Teachers in general have a specific expertise in a chosen subject or subjects and are given teaching training to transfer that expertise effectively to students. Many teachers have not had work experience outside of their own disciplines and are not aware of the realities of working in a trade or profession in the engineering and automotive industries. Academic teachers need training in giving career advice to students.

Funding could be made available to train and educate current career advisors in this function, meeting the needs and requirements of all the individual industries.

This would lead to clear, current and factual advice being presented to students.

A more workable approach to career advice within the school network could be to create a dedicated career adviser (covering all industries) solely trained in delivering current and factual career advice to students on a one-to-one basis. (The current system is based upon an individual school’s drive and appetite for career development ,which varies widely across the state).

A dedicated and fully trained career advisor or network of advisors could be suburb or regional based and visit local schools on a regular basis.

The benefits this approach would give are:

- State-wide conformity.
- Students would have a dedicated contact person.
- The career adviser would fully understand the workplace requirements and functions.
- Meaningful and intelligent career advice.
- Fully informed career advice would enable students to choose the appropriate subjects in their final years of schooling.
- More parent/guardian contact.

Career development advice should be embedded in the teaching curriculum, not added on at the end of the students' time at school. In order for this to happen, the teachers must know what they are talking about to be able to apply industry relevant exercises into teaching. For example, applied mathematics that involves engineering principles or other principles related to work life. English that is not just taken from classical texts but again, for example, reading, understanding and explaining a trade instruction manual.

The Issue

There is a need to expand the VET in Schools program to ensure a meaningful mix of school based VET programmes with suitable structured workplace learning.

Suggested Strategy

The VET in schools program is placing a greater emphasis on the trade areas, but there still appears to be some resistance by parents and, consequently, students to pursue a trade career. Much more needs to be achieved in the way of promotion of the benefits of a trade career and to abolish the negative image of trades in general. The most successful program addressing this issue is the School Apprenticeship Link (SAL) which is a school-based transition from school to an apprenticeship. This program in its current form should be continued as it is universally praised by students, teachers and employers. It should not be changed in name or format just for the sake of change. The brand name of SAL is well known as a quality program and should not fall to the constant government interference just to give the impression that they are improving something that does not need improving.

All parties must assist in making the trades more attractive to today's youth by increasing the opportunities for young people to enter apprenticeships through a number of different pathways.

RTOs need to form working partnerships with schools and colleges to promote the engineering and automotive industries (the building trades already carry this out very successfully). The need for a regular promotional campaign is paramount in maintaining a presence within the school network and will encourage teachers and students to focus on the career opportunities offered by the engineering and automotive industries.

The Issue

As a result of the increasing activity in the resources sector, there will be a need for an increase in training delivery, particularly with apprenticeships in traditional trade areas and in para-professional studies related to mechanical engineering. These increases are likely to take place over the next two to three years. The difficulty being experienced by the training providers in the Pilbara and the Kimberley region to attract suitable teaching staff is a huge barrier to effective training of apprentices and post-trade programs.

Suggested Strategy

Apart from the relative isolation in the North West and distance from major population centres, the matter of costs is a major issue with training. Salary scales for lecturers need to be substantially increased to attract suitable teaching staff to compensate for the high wages being paid to the workers in the local mining and resource industries.

Apprentices often have to fly to the Perth metropolitan area for their training as it is not available locally. The training provider will pay for flights, where appropriate, and apprentices can claim \$35 a day for accommodation. As this is clearly inadequate the employer, more often than not, picks up the bulk of these costs as the allowances from government are totally inadequate.

The Issue

Enterprises often need to source fully skilled workers when they win contracts. During “boom” conditions the pool of skilled workers is not available and training time is too long for the instant labour requirement.

Suggested Strategy

Historically, the engineering and automotive industries have had a commitment and preference for employment based training through apprenticeships, as both industries require “skilled” people and considers that a three and a half or four year training period through apprenticeships allows sufficient time for skills development. This lengthy period of training is often a disincentive for smaller employers who cannot guarantee continuity of work over the whole training period. This is a particular problem when there is a downturn in business activity.

The skills necessary for competent trades’ people cannot be taught over a short period of time and there have been initiatives in other industry sectors where apprenticeship terms have been severely cut. This has not been successful.

The engineering and automotive industries are particularly susceptible to skills shortages in times of high activity. This is often addressed by increasing skilled migration but this quick fix strategy is not sustainable in the long term and actually discourages employers from training apprentices.

One proposal is for the Government to solely employ and train apprentices with the on-the-job component of the apprenticeship being completed at carefully selected host workshops.

Public RTOs would play a major role in the off-the-job training as part of the profile training. Private RTOs could also be engaged as they are frequently more flexible.

Group Training Organisations (GTO) could be utilised in the same manner using the GTOs on a contracted basis to oversee and administer a large proportion of the program thus negating the need, as previously stated, for costly infrastructure and process planning.

This would allow for a work ready workforce to be developed without relying upon the non-structured approach that industry currently applies to apprentice intake.

The main benefits of this proposal are:

- Guaranteed apprentice intake providing a constant stream of potential work ready candidates.
- Address future skills shortages by reducing the reliance upon industry and the reluctance to take on apprentices in downturn situations.

- The reduction of incentives paid to employers as reducing the incentives paid to employers would offset the set up and running costs of the project.
- The set up costs would be minimal by using the existing infrastructure, through the RTO and GTO network.
- This proposal can be applied across all trade training and would not solely apply to engineering and automotive applications.
- The project could provide a career pathway direct from school to an apprenticeship, thus reducing the unemployment ratio and the associated costs with regard to unemployment payments.
- Host workshops can be closely regulated and would provide uniform on-the-job training.
- Overcoming the issue of the reluctance of many employers to take on apprentices during times of uncertainty within the current system then adds to the skills shortage when the economy starts to recover.

This proposal would mean that apprentices are trained no matter what the situation is relative to the economy and the apprentices would be work ready when the economy recovers. Without some creative measures a future skill crisis will prevail, not a skills shortage.

The Issue

Companies who require the skilled labour often consider personnel in their workforce as possibly benefiting from up-skilling training.

Suggested Strategy

These workers are usually working long hours, which restricts their ability to attend structured training courses. This is a major barrier to increasing the higher level skills in the workforce. Cost is also a prohibitive factor and consideration for many training providers in delivering flexible and appropriate training to meet the requirements of industry to personnel working on remote work sites.

Flexible delivery is the key to this issue and the willingness of the employer to allow sufficient time during working hours for the up-skilling to take place.

RTOs need to provide support material and on-the-job mentoring and assessment services.

The Issue

The businesses most affected by skill shortages are not the large companies, but the small to medium sized enterprises. These businesses are down the line as far as their ability to attract large scale work and therefore experience difficulty competing with the higher salaries offered to the more highly skilled people of the larger companies. The smaller employers are often loath to spend money on training as they believe that when the level of skill of their employees rises the employees will be “poached” by larger companies who may be able to pay higher wages or offer better career pathways.

Suggested Strategy

Engineering and automotive trades' people are represented in all industries in a service capacity, though not actually of the industry sectors. For example, in transport and storage, workers may not be actual transport workers, but may work on the maintenance of facilities to support the industry, such as electrical and mechanical componentry. Automotive Technicians, Metal Fabricators, mechanical and electrical tradespeople are very highly represented in mining, construction industry, electricity, gas and water supply and in defence.

A skills shortage across all the trades has meant the escalation of wages to attract workers particularly in construction, for resource development. There are very high wages being paid in the mining and in the shipbuilding industry. Both industries are going from strength-to-strength but are encountering difficulty in attracting skilled workers. The upsurge in defence spending with government contracts across Australia to build a number of navy vessels is adding to the manpower and skill shortage across the country.

Western Australia, in the next few years, is forecast to be on a high cycle of employment, particularly in the engineering Industry. This will have the effect of maintaining relatively high wages across all sectors.

There does not seem to be an obvious strategy to overcome this issue as market forces set the wage rates in times of both high and low employment.

The Issue

There is a serious shortage of younger skilled trades' people entering the training sector as trainers, the issue of an ageing RTO lecturer population is probably more serious than in the industry workforce. Unless there is constant renewal, we will have an even more serious shortage of skilled trainers. Lecturers who have been in the training system for a long period of time are often seen as being "out of touch" with their industries and not being exposed to modern techniques. This issue is more evident in the automotive sector due to the rapid technological changes in motor vehicles.

RTOs play a major part in shaping the way training is delivered to students and the delivery method has a marked effect upon student retention rates. The delivery of the underpinning knowledge (in line with the current AUR05 Automotive Training Package) is often cited by the industry as being "out of touch" with current automotive requirements which, in turn, leads to students becoming disinterested in the underpinning knowledge.

Concerns have also been raised by industry relative to the currency of lecturing staff's knowledge. Many lecturing staff delivering automotive subjects have, on average, had little or no industry experience for over five years and in an industry where technology is constantly evolving, this currency and understanding of new processes is soon lost, leaving the lecturers and consequently students at a disadvantage.

Suggested Strategy

Develop strategies to encourage younger experienced trades' people to enter the training system as a career choice.

Capturing students interest for the subject being delivered is one way to reduce the retention issues currently being faced by the automotive sector (attrition rate is currently at 42% across the various automotive apprenticeships). The attrition rate is caused by various factors, ie students losing interest in their chosen trade, poor wages, lack of perceived career structure, competition from other sectors.

To overcome this situation, particularly in the automotive sector, vehicle manufacturers and their dealership networks need to liaise more closely with the RTO networks to make available resource material and vehicle components to the RTO network. This, in turn, will ensure that the learning outcome is more relevant and interesting to the student.

More training should be made available for lecturers update their skills and understanding of current automotive methods and more cooperation should take place between the industry and the RTO network to facilitate the continual development of lecturing staff.

“The VET system must be adaptive to ensure its products and services are current, relevant and effective in order to effectively equip the automotive workforce. Trainers must continually up skill and training organisations upgrade equipment to maintain their currency”.

(Source: MSA Environmental Scan Update 2010)

Training should be provided for senior training staff to bridge the culture gap that currently exists. This approach would then provide a learning environment that is more “in tune” with the “Generation Y” student. Further, more emphasis should be placed upon actively recruiting younger training staff; a training career should not be seen as a job you take up in readiness for retirement, which is sadly more often the case.

Trainer’s salary packages should be increased as this will encourage young people to take up a career within the training framework. The current pay structure does not support a person trying to raise a family and this creates a barrier to employing younger trainers.

The Issue

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.

Suggested Strategy

There are many experienced workers in various positions and enterprises who have no formal qualifications. In many cases attention to minor skills gaps by way of skills assessment could bring these workers up to trade level.

There is a need for the continued promotion of the FastTrack Apprenticeship or similar system for experienced mature-aged workers. Skills recognition should be well resourced, easily accessible and conducted by well trained and experienced assessors.

The need to develop a more responsive education and training system to enhance the skills of older workers is a priority for the engineering and automotive industries.

Currently, there are few strategies to target existing mature-aged workers to enhance their skills and productivity with the exception of the FastTrack program. The program is aimed at up-skilling industrially experienced, generally mature-aged trades assistants to tradespersons status.

The engineering and particularly automotive industry operates in a rapidly changing environment and uses new technology and modern work practises to maintain a competitive position in world markets. This requires employees to constantly develop and maintain a high level of skills and the need to be multi-skilled.

The major conclusion is that there will always be attrition from the industry for a variety of reasons, including workers considering they are too old to continue working as a tradesperson.

- There are a number of factors contributing to the generally higher wastage of engineering tradespersons with the most important probably being the physical demands of the work, the cyclical nature of the industry and the short-term nature of many of the contracts. The higher earnings available in some trades during periods of high demand and skill shortages may, however, retain tradespersons and induce others to return.
- The skills shortage issue is cyclical but the issue of attrition of ageing workers is ongoing.
- The pool of prospective trades' apprentices and trainees seems to be drying up. Employers are repeatedly advising that the quality of applicants for positions and apprenticeships is poor.
- The Building and Construction Industry through the BCITF enjoy a good output of apprentice numbers partly due to a levy utilised to address the training needs of its industry.
- Some favour the view that government legislation is required to impose a levy from industry in a similar way and create a tripartite board to oversee the employment and training of the engineering and automotive apprentices. This could also cover mature-aged apprentices and engineering and automotive workers returning to the trades.
- Given the inevitable high attrition rate, it is vital that the industry is constantly primed with new workers through the apprentice and traineeship system.
- Employers need to develop strategies to attract suitable young employees and to retain older workers with enhanced skills.
- No company, to the knowledge of the EATC, has any policy of not employing workers over a certain age. All will take workers of any age provided they have the skills and are physically fit to do the job. Organisations not wanting to employ mature-aged workers in the trades do not seem to be an issue. However, in management positions there is evidence that mature-aged workers are not as well regarded as they could be.
- The provision and high profile promotion of a mature-aged fast track system for trades people for mature-aged apprenticeships.
- Creating flexible work arrangements for mature staff such as the provision of part-time employment and creating roles that retain their status and value within the organisation.
- Organisations should proactively seek to attract and retain mature-aged workers.

- Early retirement has become more common in recent years. Flexible hours and part-time work should be encouraged.

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

The Issue

Delivery of automotive and engineering related subjects from an early age within the schooling system.

Suggested Strategy

Schools to actively participate in educational programs that promote interest in automotive or engineering subject matter through projects such as the F1 in Schools program. This project is run through participating schools and encourages students to formulate a team and design a small model race car, which is propelled by a small compressed air capsule. The students make the car with the help of a participating RTO (Polytechnic West in WA) and finally race the car against other participating schools. This project encompasses various skill sets, which include team building and team management skills, computer aided design work, manufacturing and construction and competing in a competitive environment (all skills relevant to employment).

“The F1 in Schools Technology Challenge is a positive example of collaborative partnerships between schools and local industry.

It is pleasing to hear that the students who have participated in the challenge are now considering possible career paths that include engineering, technology and science”.

(Source: Dr Elizabeth Constable MLA Minister for Education and Tourism)

Students interested in automotive subjects could be nurtured from an early age. This could take the form of lessons in solar technology, where the student builds a simple model car (widely available) that is powered by the sun. This would foster interest, not only in renewable energy, but also engineering and automotive subjects and could be used as a springboard for further work on these and/or associated subjects.

Another proposal to foster older students’ interest in automotive and engineering subjects would be to create a project for students to build. This could take the form of a Go-Kart, where the students formulate, design and build a suitable vehicle which would encompass various skills or learning outcomes encompassing automotive and engineering subject matter, for example:

- Team building - forming social networks.
- Design - the ability to use basic PC-based design tools to formulate working plans.
- Construction - the ability to construct the vehicle using produced plans which formulates an understanding of how components work.

This project could form the basis of a state-wide competition whereby the finished vehicle would take part in an interschool competition. This could also encompass some parent/guardian participation with weekend based events, thus growing a culture of participation and integration. The competition element could consist of various judging sections:

- Innovative design
- Quality of construction
- Team presentation
- Results of race competition

The competition element is a major component of this project and will create a culture of enthusiasm for the learning outcomes and generate a link between schools and parents/guardians with regard to student career choices.

The Issue

Students placed within host work placements for work experience or school-based programs are often placed within an unstructured work environment and are often given menial tasks to carry out. This occasionally leads to a student becoming disenchanted with the industry.

Suggested Strategy

An appropriate vetting system needs to be implemented to ensure that students are placed with host workshops that offer a real taste of the industry and work-based tasks in a structured and monitored format. Under current arrangements, students who are placed into a host workshop that has little or no structure or monitoring is counterproductive and this, in a large amount of cases, leads to the student becoming disenchanted.

The Issue

The engineering and automotive industries have a high attrition rate of apprentices, particularly in the automotive industry, which may be attributed to the workplace element of their training. A large proportion of automotive businesses in WA are owner operated which can lead to issues relative to people management. Some employers are very good at people management but others are sadly lacking in the required skills which can lead to issues with apprentices feeling alienated, to the point where they end up leaving the industry.

It serves no purpose at all for an apprentice to be given menial tasks for weeks on end as it leads to the apprentice becoming disinterested and can lead to the apprentice leaving the apprenticeship, the adage “this is what you did in my day” no longer applies.

Employers play a major role within the training process, but very little is done to gauge the ability of the employer to impart the on-the-job training element of the apprenticeship and very little is done to explain to the employer their obligations with regard to the training process. More often than not, the employers assume that the RTO carries out the training and the employer just gives the apprentice a job. This misunderstanding is commonplace throughout the engineering and automotive Industry.

Suggested Strategy

Strategies for assisting employers need to be put into place, which could include the following:

- Employers who take on apprentices need to be made more aware of their obligations with regard to training and should be given clear and concise guidelines.

- Subsidised training needs to be made available for employers to gain the necessary people and management skills. This could be a prerequisite for anyone wishing to employ apprentices.
- The apprentice should have someone (a “go to” person) that they can liaise with at work and who can impart clear and concise advice and instructions. This person should be clearly defined. This initiative should also be backed up by a government funded, dedicated support program for apprentices.
- More help should be made available from the Apprenticentre or the RTO with more workplace visits and monitoring which would serve two purposes:
 - It would form a more constructive link with the employer.
 - The on-the-job training could be monitored more closely.

The employer is an integral part of the apprenticeship program and they should be given every assistance to fulfil their commitment to the training of apprentices.

Failure to address this issue will lead to a diminishing interest for apprenticeships.

The Issue

The apprentice wage is currently a significant barrier to employment and training in the engineering and automotive industries. The current wages puts a first year apprentice below the poverty line and attracts a CentreLink card. This situation is a complete disincentive for anyone considering an apprenticeship and must be addressed as a matter of urgency.

Suggested Strategy

With apprentice wages often so low that they have to stay with parents or friends to survive plus having tuition and other training fees to pay, it would be far better for the Australian Government to pick up all of the training and travel costs for apprentice training. This, in addition to generous employer incentives, would assist in increasing the employment of more apprentices.

Apprentice wages need to be raised to a rate that the apprentice will have a reasonable quality of life. This will remove a major barrier to apprentice employment.

A further incentive that would be beneficial would be for the apprentice or trainee to be exempt for income tax during their training contract.

The Issue

Currently, apprentices have to pay for course fees and resource materials which places a financial strain upon the apprentice and, in some cases, is another reason not to consider a trade-related apprenticeship.

Suggested Strategy

Apprentices or trainees should not have to pay for course fees, books or resource materials and should be federally or state funded at source. Given the poor pay rates that apprentices are expected to survive on, paying for additional fees and learning materials places a financial burden upon that person and this creates another barrier to taking up an apprenticeship.

The Issue

Very low numbers of RTOs scoped for automotive electrical, vehicle body repair, heavy duty automotive/plant fitters and refrigeration and air-conditioning. This has the effect of restricting training as the RTO often does not have the capacity to train all the clients due to high numbers. The issue of travel for clients who live many kilometres away is also a disincentive to training.

It also restricts the take-up of VET in schools in these areas because, again, the RTO cannot cope with the numbers.

Suggested Strategy

Regional areas such as the South West and Goldfields also need to be serviced for these trades. RTOs, both public and private, need to be funded and equipped to deliver these trades.

The Issue

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 and community and personal service workers, while men are more likely to be technicians and trades workers, machinery operators and 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)).

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.

Suggested Strategy

This issue is strongly linked into the first issue identified in this report *“The general lack of understanding by many in the teaching profession on what trades skills are and career opportunities that exist, particularly knowledge of the engineering and automotive industries.”*

Career development advice should be embedded in the teaching curriculum not added on at the end of the students' time at school.