ENGINEERING & AUTOMOTIVE
TRAINING COUNCIL INC.

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Industry Workforce Development Plan

2010

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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

INTRODUCTION

The Engineering and Automotive Training Council Inc. (EATC) is an independent Incorporated Association established pursuant to the *Associations Incorporation Act 1987*.

The objects of the Association include a requirement to provide advice on engineering and automotive industry workforce development plans as part of the overall Western Australian state training profile process.

The provision of advice requires the EATC to collect data and information relevant to industry workforce development needs from employers, training and education providers, community organisations and other interested parties from all parts of Western Australia.

The EATC applies a formal research methodology to all of its information and data collection. This introduction describes the general approach taken by the EATC in the collection of information and data related to the range of workforce development activities it undertakes.

The EATC has entered into a service agreement with the Western Australian Department of Training and Workforce Development. The service agreement requires the EATC to undertake a range of functions associated with workforce development and vocational training matters for the engineering and automotive sectors.

A key element of the service agreement functions is the collection and analysis of information and data. In particular, the EATC is required to undertake the following:

The creation of industry workforce development strategies and action plans to guide the development of a skilled workforce.

Research, development, implementation and monitoring of strategies to improve industry training.

Provision of advice on industry training reform, occupational skill shortages, new and improved programs and qualifications, training infrastructure requirements and the up-skilling of existing workers.

Provision of information on legislative and licensing requirements, industry training needs, emerging industry trends and the training implications associated with these trends and the development of training policy.

The EATC is required to provide data, information and advice to the Western Australian Department of Training and Workforce Development in a range of formats with the expectation that these formats will deliver evidence-based, high level strategic material on the workforce development and vocational training needs and priorities of the engineering and automotive sectors.

In the preparation of all reports, plans and other formal documentation required under its agreement with the Western Australian Department of Training and Workforce Development, the EATC applies a rigorous research methodology.

The EATC does not conduct its own quantitative research, but sources data and statistics from a broad range of other organisations. The EATC obtains detailed industry sector information and statistics from two key sources. The Australian Bureau of Statistics (ABS) provides information on the size, shape and extent of industry and occupations in Western Australia and EATC uses specific engineering and automotive information provided by the ABS. The ABS data is supported by more specific material sourced from IBISWorld. The material produced by IBIS World is the largest collection of independent industry market research reports available in Australia. The material contains key data and statistics that follow predetermined specification. The reports are regularly updated ensuring that similar content is available in every report. The EATC ensures that it is utilising the most up-to-date and relevant material.

Other 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 other organisations include:

- Skills Australia
- Manufacturing Skills Australia
- Chamber of Commerce and Industry of Western Australia
- Australian Industry Group
- Motor Trade Association of Western Australia

A formal desktop research approach is used to identify other data and information sources and to check and compare material and information for relevance and accuracy.

The quantitative information sourced by the EATC from the sources described is verified using a standard qualitative research approach.

The EATC uses a qualitative inquiry model to obtain information and advice directly from people involved in the engineering and automotive sectors.

Qualitative inquiry utilises three distinct data collection methods. These are the use of structured interviews, the observation of activity and the analysis of documentation.

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, using regional forums, through one-on-one interviews and by other direct contact with industry representatives.

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 that 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 that allows each interview to proceed in the same direction and to allow 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. Michael Quinn Patton (2002) describes the benefits of an interview guide as follows:

The guide is prepared in advance to ensure that the same type of information is obtained from each interview.

The guide provides topics and subject areas that allow the interviewers to explore, probe and ask additional questions to expand and illuminate particular areas of interest.

The guide allows for a conversational style to be used that ensures the interviewees feel relaxed and able to respond appropriately.

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 structure 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 ABS, IBISWorld 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.

Reference: Quinn-Patton, Michael (2002) *Qualitative Evaluation and Research Methods* – third edition, Sage Publications, London.

STRATEGIC ENVIRONMENT

The strategic environment identifies specific issues impacting on the Engineering and Automotive Industries, which will help to identify opportunities to address the workforce planning requirements of the industries. It focuses broadly on all sectors of Engineering and Automotive Industries covering:

Engineering

- 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.

Automotive

- Heavy Vehicle – Retail Service and Repair.
- Light Vehicle – Retail Service and Repair.
- Motorcycles – Retail Service and Repair.
- Automotive Vehicle Body Repair.
- Outdoor Power and Equipment.
- Bicycles.
- Marine (Recreational Boating).
- Vehicle Body Building.

The industry sectors identified above are specific sectors in which the Engineering and Automotive Industries primarily operate, but it should be noted that the occupational skills of workers are used in every industry sector in Australian society. This discussion of the strategic environment will be covered in two sections broadly reflecting the above sectors. The following points summarise the key messages raised in the research for the Manufacturing Skills Australia (MSA) Environmental Scan March 2010. EATC has a close and effective working relationship with MSA, the National Industry Skills Council for Engineering and Automotive.

- The impacts of the global financial crisis (GFC) are variable across MSA's sectors and progress out of the downturn will differ between and within sectors. A variety of supports and strategies will need to be applied accordingly.

- Reduced orders, reduced profit and reduced access to credit are key challenges to enterprise viability.
- The anticipated impacts of a Carbon Pollution Reduction Scheme (CPRS) are still a major concern for industry and most are still waiting on details before engaging strategic responses (currently on hold by Australian Government).
- The need for sustainability appears to be much more widely accepted across industry.
- The GFC has reduced the urgency of skill shortages but not the growing concern of industry that skill shortages will again be a key limitation to growth in the near future.
- Apprenticeship commencements have been severely affected by the GFC over 2009 and need to be reinvigorated to avoid long-term skill shortages.
- Poor and declining apprenticeship completion rates continue to be of concern.
- Australian manufacturing relies on its skill in design, product development, specialist expertise, technology, supply chain management and lean processes in order to compete internationally.
- Management skills have emerged as a critical component to enterprise success and Australian enterprises do not rate well against international benchmarks.
- Government stimulus initiatives and funding were instrumental and effective in supporting enterprises through the GFC.
- Enterprises, industry and the VET system must embrace a holistic, workforce development model to address broad skilling and employment challenges.
- VET programs and funding mechanisms must be flexible enough to respond to a variety of industry workforce development needs.
- Workforce development initiatives must be demand driven and be directed by skills analysis activity.
- Implementation needs more focus, and trainers need professional development support to ensure the VET system is able to meet the needs of industry, the community and the economy.

ENGINEERING

Currently, all engineering industry is in a position of "cautious optimism" and the past few years have seen many companies reviewing the way they do business, and despite the global financial crisis there have not been the devastating mass redundancies seen in other parts of the world and some parts of Australia.

There is strong evidence that many projects are being ramped up in the Resources sector with the flow on effect of work for local industries. Despite much of the manufacturing work for some of the heavy engineering components for construction being awarded to overseas companies, there is an increase in engineering work for local industry.

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.

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 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, manufacturing and construction industries, tradespersons also work in other industries such as agriculture, health, food and hospitality as support and maintenance officers. The manufacturing industry is the third largest employing industry in the Australian economy, employing 1,008,200 people or 9.3% of the total workforce as at February 2009. (MSA Environmental Scan 2010).

Engineering services are being outsourced to other countries and work being sent online to the host companies. This is affecting employment of engineers and drafters in Australia and appears to be putting downward pressure on salaries offered to local engineers. However, this situation will probably change in the near future as there is a shortage of experienced engineers.

Competition from overseas companies is seen as a major threat to viability by engineering companies in WA. However, some companies are able to source components for their products overseas and integrate them into their locally made products and increasing profitability in the final product.

An increasing component of globalisation is the impact of skilled migration workers and their families here on temporary work visas. In areas such as the Pilbara, a large majority of the workforce is employed on a fly-in, fly-out basis. It is becoming more difficult to find skilled workers to fill the increasing number of vacancies. The fly-in, fly-out workers are flying from increasing distances with a significant number flying in from New Zealand. Workers in high demand may come from anywhere in the world. This often leads to more pressure being put on the government to let them bring their families and become permanent residents.

Technology is incremental in general terms, new processes are usually refinements of existing technology. Most production processes within the engineering industry are well established. There are an increasing number of production and jobbing enterprises turning to computer numerically controlled (CNC) machinery to manufacture products or, in many cases, upgrading their existing machines. Computer based technologies have two main benefits over traditional manual labour; they are much more accurate than manually controlled techniques and they reduce labour costs.

The biggest economic driver in the engineering sector is the oil and gas and mining industries. Whenever there is an upturn in construction in the resource sector anywhere in Australia, there is a ripple effect in the supply and demand of skilled labour.

The number of resource developments and construction projects competing for skilled labour will increase a skills shortage problem, as large projects draw the skilled labour force from the rest of the state's labour market by offering much higher wages. This trend has been cyclical over the past decades with some fairly sharp highs and lows. Currently the skilled labour shortage seems to be in balance. If a number of the proposed projects prove viable, this high level of activity and associated demand for labour will continue well beyond 2010.

The engineering industry is an occupational industry sector covering all industries in a service 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 polishers.

The manufacturing industry, in which engineering plays a major role, overall employs nearly a million people nationally (993,000 persons) and is the second largest employer in Australia and amongst the top twenty paying industries.

The industry has a male dominated workforce. The engineering sector has always been perceived as a physically demanding and dirty environment, with the tendency to attract more male and less female workers. This perception is slowly changing in modern workplaces, as the nature of the trades is becoming more technical with the use of computerised equipment and less physical.

In addition to a resistance to enter the engineering trades, there is also a high attrition rate from the industry. The nature of the work is generally of a physical nature that takes its toll on the body, which older workers find they cannot sustain. Even the lure of high wages on major projects does not encourage people to stay in the industry. The notion of an ageing workforce and staying longer in the industry is unrealistic.

The industry operates in a rapidly changing environment and uses new technology and modern work practices to maintain a competitive position in world markets. Engineering companies in WA are improving their production processes by modernising their equipment to more automated computer controlled systems to increase the quality and output of their products.

As a result of the increasing activity in the resources and construction sectors, there will need to be an increase in training delivery, particularly with apprenticeships in traditional trade areas and in para-professional studies related to mechanical engineering.

Whilst employment has slowed somewhat, the overall level of real output continues to increase. Measured on economic growth and productivity performance, the engineering industry supporting the mining and resources sectors is becoming increasingly more important to the national economy than ever before.

Career options for people entering the industry are also varied and can range from positions involved with research and development, marketing, robotics, quality control, hands-on production, product design and many more.

The main concentration of business operations and employment for the industry in this State is located in the metropolitan area (75%) with (25%) in the regional areas.

Engineering workers are employed in all industries throughout WA, however, most of the central offices and factories are located in the metropolitan area, supporting regional mining and resource projects.

Engineering trade persons support the mining and resources industries predominantly in the North West, but are also in the Goldfields, Peel and South West region. The major trades supporting these industries are electricians, fabricators, mechanical and mobile plant fitters, and welders. They are predominantly engaged in construction and maintenance services on fixed and mobile equipment.

There are a number of small, medium and large engineering works in the Midland, Welshpool, Kewdale, Maddington, Forrestfield, Bassendean and Bayswater districts, covering heavy engineering, rolling stock and railway manufacturing and service, heavy duty earthmoving, foundry and jobbing work.

The Kwinana area from Fremantle to Rockingham strip has a number of heavy engineering works including foundries, alumina and nickel refineries and pig iron production. This area has some of Australia's largest ship and boat building companies, as well as defence industries at Garden Island, Royal Australian Navy. There are also numerous smaller engineering and service companies who support and complement the larger companies.

Canning Vale has heavy and light engineering and service companies including South Guildford domestic and international airports, Jandakot Airport and regional airfields are all supported by aircraft maintenance engineers. Major airlines such as Qantas and Virgin employ aerospace engineers and there are numerous small aircraft maintenance engineering companies in the Jandakot area.

The Peel region is home to Alcoa bauxite mines at Willowdale and Huntley and alumina smelters at Pinjarra and Wagerup supported by many maintenance and service contractors.

The South West, particularly Bunbury, Collie and Boddington have bauxite mines, coal mines, alumina refinery, wood chipping, dairy production, timber products, port facilities, power generation and related service contractors who support these industries. Companies include Alcoa, BHP Billiton Worsley Alumina, Premier and Griffin Coal and Verve Energy.

The Goldfields district has one of Australia's most important gold and nickel mining industries with a large number of mine support industries covering mechanical, plant, earthmoving, electrical and fabrication companies.

The Geraldton/Central West district mainly supports the farming industry and has a substantial port facility. Industries include talcum, mineral sands and iron ore mining, synthetic rutile production. The area requires the usual service industry trades, such as electricians, metal fabricators, air conditioning service people and mechanical trades people. There are skills shortages in all of these trades. Proposed steel production plants in this region have not materialised.

The Pilbara is the source of most of WA iron ore exports. The major mining and oil and gas industries are supported by engineering industry trades people. During construction phases of new and upgraded resource projects, there are requirements for metal fabricators, coded welders and pipe fitters, mechanical and heavy duty fitters and licensed electricians. Post construction requires lesser numbers, but the same trades are needed for maintenance and production. During the last five years, dominant production costs (primarily iron ore) have increased in line with the rising price of commodities brought about by strong global demand.

Changing Conditions

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. Attributing factors 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 trading 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 focussed.

The engineering industry in general, is beginning 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 demand 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 Western Australia 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, which are mostly in the Asia Pacific area, 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.
- 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 mainly to the Pilbara. This has a number of facets:
  - 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 and little opportunity to pursue hobbies.

    - 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 fly in fly out environment.
- Labour shortages tending to increase immigration and the consequential strain on the government to increase services.

In the twelve months to June last year, there was a big drop in new apprentice enrolments. Nationally, apprentice numbers have dropped by 27%.

In Western Australia in December 2009, there was a 43% drop in enrolments in fabrication apprenticeships from 2008, 28% drop in mechanical and a 22% drop in electrical.

Interviews with the relevant departments in TAFE colleges indicate anecdotal information that there is an increase in enrolments in the above trades compared to the same time last year but, at this time, there are no complete figures to verify this.

Aeroskills mechanical trades, there was a 100% increase in the same period. However, our research indicates that this increase will not continue in 2010.

The post trade Certificate IV in Engineering increased by 6% and the new Diploma of Engineering Advanced Trade had an initial enrolment of 21 students.

The Diploma of Engineering - Technical showed a significant drop of 49%.

MSA in the 2010 Environmental Scan quote Australian Industry Group and Deloitte, National CEO Survey October 2009, Skilling Business in Tough Times who identify key growth areas:
- Advanced manufacturing
- Advanced fabrication techniques
- Welding
- International technical standards and trading requirements
- Integrated systems
- Alternative energy
- Green products
- Nanotechnology
- Defence
- Online technology
- Project management
- International benchmarking
- Equipment/technology
- Automatic machining
- Robot programming

MSA also identify that "There is an increasing need for skills across areas such as mechanics, electrics, fitting, machining, welding and heavy fabrication (boiler making). Higher level skills across the board are also in high demand to work with increasing sophistication of materials, processes technologies and compliance issues, and there is growing interest in post-trade training to meet this need. Further long-term effects of globalisation and enterprise specialisation are expected to result in more job losses and intensify labour challenges".

There does not seem to be an easy way to remedy these shortages as there is a very long period of training for trades people, a three and a half year apprenticeship is considered the industry standard.

The major occupational coverage is in the "Declared Trades" areas. However, there is a strong push from industry to declare a new trade of Engineering Tradesperson – Electrical/ Instrumentation. EATC is currently in negotiations with all interested parties to bring this to fruition.

Trade occupations in a number of areas are requiring a higher level of skill but are not new occupations:

- Coded welders
- Fitters with fluid power skill
- Machinists with CNC and higher level "traditional" skills such as screw cutting and gear cutting

AUTOMOTIVE

The automotive industry within Western Australia (WA) plays a major part in the economy of the State and is part of an Australia wide industry employing more than 320,000 people, with an annual turnover in excess of $6.0 billion.

The industry is made up of approximately nine thousand small to medium-sized enterprises (SME) within Western Australia (WA).

The automotive sector is a constantly changing landscape and due to the constant demands on vehicle manufacturers to conform to ever-changing emission, safety regulations and fashion trends, the automotive sector has now become a hot bed of new technologies such as, dual fuel vehicles, the use of carbon composite construction technologies, water-based paint systems and a heavy emphasis upon computer-based diagnostic technologies.

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

The demand for training within WA is currently well catered for, but as the demand for more technological and eco friendly training increases, then RTOs will need to become more active in developing the delivery of training in newer technologies. Areas of particular growth will be with electrical fault diagnosis, water based paint application, composite vehicle panel repairs, high strength steel repair techniques, hybrid vehicle systems and alternative fuel systems.

Higher level training and qualifications will be in demand within the near future as skill requirements rise within the industry.

The automotive sector within WA has approximately nine thousand SME with a market share of 11.5% throughout the state specialising in the Retail Service and Repair sectors. A major issue that faces workshops throughout WA is parts supply. Due to the isolated nature of WA, spare parts have to be transported from mainly the Eastern States, this adds time and cost implications to even the simplest of tasks.

Licensing
Regulatory requirements within the automotive sector 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 and also requires certification. Other regulatory requirements are based around Occupational Health and Safety (OH&S) and Environmental Regulations with regard 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 airconditioning, which require that the business and the person working with these systems be individually licensed.

The recreational vehicle sector also has to be licensed for electrical work (disconnect/reconnect) for both the business and the individual working on these systems.

Industry Sectors

Automotive Manufacturing consists of mainly large manufacturing plants that produce vehicles or vehicle components and the majority of the work is engineering based. WA does not play a major role within this sector and has only a handful of companies that are small to medium enterprises.

Automotive Retail Service and Repair is the largest sector within this group and accounts for 80% of the automotive sector within WA. It comprises of more than nine 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.

This sector comprises of varied skill requirements within the workplace ranging 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.

With the application of more electronic components across the sectors, more emphasis will be placed upon highly skilled diagnostic technicians and automotive training packages will need to be regularly updated to meet industry needs.

With the impending resource surge, the light, heavy and agricultural sectors are bracing themselves for a potential skills shortage. Historically, the resource sector targets the light, heavy and agricultural workforce when looking for employees because of the easily transferable skills they posses. The metropolitan and regional based businesses cannot match the pay incentives the resource sector can offer which, in turn, leads to a major syphoning of skilled workers.

Automotive Vehicle Body Repair, the Automotive Vehicle Body Repair sector mainly comprises of approximately 320 small to medium enterprises in Western Australia. Nationally there are 9,143 establishments that specialise in vehicle body repair. Most of the work is generated by the major vehicle insurance companies. The skill requirements within this sector are very high and the technologies used are constantly changing. Currently there is a severe shortage of skilled workers to service the thousands of vehicles damaged in the recent hail storms. The industry has indicated there will be long waiting lists for customers to get their cars assessed and repaired. Vehicle Body Repair companies are importing workers from regional areas and interstate to cope with the work load, many workers are working overtime to cut the back log of repairs.

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 requirement (assembly of caravan structure) to high skill requirement (fit out) encompassing varied trades.

The EATC was instrumental in registering a Certificate II and a Certificate III Traineeship for Coromal Caravans, the first of its kind within the recreational vehicle industry to recognise the skill sets involved within recreational vehicle construction.

Outdoor Power Equipment is an often overlooked sector of the automotive industry but with the advent of more technologically advanced mowers, cutters and chain saws, new skill requirements are beginning to emerge and the need for specialists within this sector will become more prevalent.

Vehicle Body Building, this sector specialises in:
- Boat trailer manufacturing
- Caravan manufacturing
- Horse float manufacturing
- Motor vehicle conversion
- Stock crate manufacturing

- Trailer manufacturing
- Car, truck, bus body manufacturing

There are 1,490 establishments nationally that specialise in Vehicle Body Building. In Western Australia 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 skill sets within this sector are varied and range from low skill levels to high skill levels. There is a crossover of skills with heavy and light fabricators, (boilermakers and sheet metal workers). As well as manufacturing there are a number of large and small companies that carry out repairs and maintenance on buses, trucks and associated vehicles.

Marine Light mechanics and technicians specialise in inboard and outboard motors and engines for the boating industry. This is mainly in the recreational boating industry but commercial boats such as fishing vessels and tourist vessels are serviced and repaired by marine light mechanics. This sector of the automotive industry is currently experiencing a surge in demand for marine repair mechanics/technicians.

Motor Cycles, motorcycle popularity in Australia continued to grow at a faster rate than any other vehicle type in the 12 months to March 2009, with registrations up by 10.0 per cent, according to figures released today by the Australian Bureau of Statistics (ABS). The latest motor vehicle census (ABS 9309.0, 31 Mar 2009) shows that registrations are up by 10 per cent during that period, while registrations (including scooter) have increased by 57.5 per cent over the five years to 2009.

This continuing increase in motorcycles, including scooters will mean an increased need for more motor cycle service and repair trades people.

Most retailers specialise in the repair and maintenance of the products they sell. There are a number of smaller repair shops that are run by motorcycle enthusiasts with little or no formal training. However as with the motor vehicle sector there are more sophisticated diagnostic requirements needed for service and repair. Dealers will conduct in house product specific training that tends to preclude the small generalist workshops from carrying out those repairs. There is not a big take up of formal institutional training and qualifications.

Bicycles, cycling are a growing pastime across the country, particularly in Western Australia, Bicycle Industries Australia Ltd report that Western Australia has 10% of the population but over 14% of the market, again reflecting recent investment and encouragement by the WA government.

Australian bicycle sales have soared to record numbers in recent years. Figures from the Australian Bureau of Statistics show that Australians purchased 1.2 million bicycles in 2008. This is the ninth consecutive year in which Australians have bought more bicycles than cars.

WA has 189 retail outlets selling bicycles. ABS reports that independent specialist bicycle retailers sell the vast majority of parts and accessories and hold virtually

100% of the bicycle service market. The bicycle service market has seen considerable growth in recent years due to the increase in cycling participation and the considerable growth in cycling for transport, particularly in urban centres around Australia.

Despite the 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.

External Impacts

The impact of globalisation upon the automotive industry within WA has created two very different effects. The first being the recent Global Financial Crisis (GFC) which created a fear of uncertainty amongst employers and a general downturn in trade demand which quickly spread across all the associated automotive industries. The GFC generally halted employment demands and stalled any urgent requirement for training, which will have a knock-on effect when the economy starts to recover and may create skills shortages. Further damaging effects of the GFC were tempered by the Government's stimulus spending and tax incentives which helped the automotive industry remain buoyant.

With the advent of the GFC, the mining and resource sectors scaled down or completely closed down some of their operations within WA. This had the adverse effect of returning many skilled people back into the job market and creating an oversupply of skilled labour within the automotive sector.

The second effect of globalisation on the automotive industry within WA will take place when the projected mining and resource surge re-emerges during middle to late 2010. The mining and resource surge will produce a syphoning effect of skilled workers from other industries based in the Perth metropolitan and regional areas which will, in turn, lead to a skills shortage similar to the one experienced during 2005-2008.

The automotive industry will need to address new government policy with initiatives such as "New Car Plan for a Greener Future**"** and the proposed implementation of Euro 5 (from 2012) and Euro 6 (from 2016) emission standards**:**

The Green Car Plan will feature an expanded $1.3 billion which will provide Australian car companies with the opportunity to receive Government funding to design and sell environmentally friendly cars.

In order to limit pollution caused by road vehicles, this Regulation introduces new common requirements for emissions from motor vehicles and their specific replacement parts (Euro 5 and Euro 6 standards). It also lays down measures improving access to information on vehicle repairs and promoting the rapid production of vehicles in compliance with the provisions of the Regulation.

These proposals and the advent of local government policy decisions with regard to waste management and business emissions and the use of less toxic paint technologies, particularly within the automotive smash repair sector, will have an impact upon how businesses operate in the future, with tighter legislation forcing companies to invest in newer and greener technologies.

The automotive industry has changed considerably over the last ten years with the application of sophisticated computer systems becoming more prevalent in the manufacture of motor vehicles, trucks and heavy mobile equipment, also the use of new construction materials such as carbon composites, plastics, high tensile 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 new technologies with the reluctance of the OEM (Original Equipment Manufacturers) to release information.

Government and environmental policies are the main factors that drive the automotive industry's use of new technologies. The reliance on fossil fuels as a means of propulsion cannot be maintained indefinitely and the production of alternative fuel and propulsion systems, such as hybrid vehicles (mechanical/electric), totally electric vehicles and hydrogen vehicles, will become more commonplace in the near future.

With the cost of fuel increasing, more fuel efficient and smaller vehicles will become the choice of the consumer. The sale of diesel powered vehicles will also increase along with gas powered vehicles (Holden and Ford are now producing a gas-only vehicle).

The automotive industry will constantly evolve over the foreseeable future, changing to meet the needs of environmental demands and Government policy decisions. New technologies will play a major role in the future development of the automotive industry with a major emphasis upon green technologies such as electric cars.

The automotive sector will face further challenges with the increasing use of hybrid vehicles and fuel cell technology. The same issues and technologies will also impact upon the heavy vehicle, marine, motorcycle and outdoor power equipment sectors as manufacturers strive to meet stringent green targets and produce vehicles and systems that comply with legislation and the consumer.

The automotive industry was historically a male dominated industry, but with the advent of new technologies this situation has now changed and the industry has started to attract more female employees.

The automotive industry occupations (including motorcycles, outdoor power equipment and bicycles) consist of mainly trade related occupations, with the bulk of employment within the light vehicle, heavy vehicle and smash repair sectors.

With the changing nature of the industry due to technological advancement key areas of growth within the Industry are:

- Hybrid and Electric Vehicles
- Alternative Fuels
- High Strength Steels
- Composites
- Electronic Vehicle Controls and Fuel Management
- Analytical and Diagnostic Skills
- Technological Upgrades
- Gas Technology
- Dual fuel Technology
- Heavy vehicle Maintenance

The automotive industry will need to adapt to the training and employment needs of these new technologies and systems, to create a workforce ready for these new emerging technologies.

Current and Emerging Skill/Labour Gaps

As we emerge from the GFC, WA is moving towards a new mining and resource surge. *The Weekend Australian, January 16-17 2010,* reported that the "*Chamber of Commerce and Industry is now predicting growth to be a strong 4.5% this financial year. A survey of its members showed that more than half expected their businesses to be harmed by labour shortages within the year".* This will have a major impact upon the labour force within the automotive industry. A large proportion of skilled labour will be attracted by the large pay incentives that the mining and resource industry can offer, which will, in turn, create large skill and labour gaps not only within the city but also within regional communities.

The skill shortages that will follow will not only put a strain on businesses ability to perform and compete, it will also create a wage and salary war within the automotive sector as businesses compete for a diminishing skill pool (as witnessed in the last mining and resource boom of 2004-2008).

The trades that will be affected mostly will be:

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

Emerging Occupations

With the ever-increasing complexity of motor vehicles, trucks and buses, new occupations are emerging such as diagnostic technicians (workers with the skills necessary to read and interpret diagnostic computer data). Another area that will experience growth in the future will be workers with the ability to work on hybrid vehicles (this may lead to a dual trade outcome - mechanical/electrical).

Declining Occupations

- Carburettor Specialists
- Light Vehicle Engine Reconditioning

LABOUR AND SKILLS NEEDS

This summary report is based on information and data gathered through a variety of sources which include questionnaires, interviews with industry associations and through an extensive on-site visit campaign undertaken by the Engineering and Automotive Training Council (EATC).

The information contained in this report is derived from the EATC “Industry Critical Occupations Report”, which is evidence-based and is not anecdotal information from other industry sources. The EATC believes the report’s content reflects the current position relative to the Engineering and Automotive Industry skill priority requirements.

The EATC has ranked each occupation in the Engineering and the Automotive Industries and is consistent with the same methodology used by the Department of Training and Workforce Development in determining the State Priority Occupation List (SPOL). The validation process is further defined in the methodology section of this report.

The EATC findings are that a majority of the occupations in this report are currently in high priority category or in very high priority category. The level of priority is dependent on which sector of industry their skills are required, for example mining, service maintenance, engineering construction and certain specific sectors of the automotive industry such as vehicle body repair. A more detailed development of our findings is clarified further in this report.

Further, there is little evidence that the expected mining and resource surge has commenced to any significant degree. This could be as a result of the current European financial instability and the uncertainty surrounding the question of mining royalties. At this time there is very little syphoning effect of skilled trades from the Engineering and Automotive Industry sectors to the resources sectors.

Subject to global economic stability, this position will change within the next twelve month period, which could result in many of the occupations contained in this report shifting to a higher category ranking.

Methodology

A comprehensive and structured process was applied to the gathering of evidence outlined in this report, including:

In addition to the process outlined in the introduction to this report, the EATC has adopted a similar range of indicators to rank engineering and automotive occupations, as that used by the Department of Training and Workforce Development, to establish the Western Australia State Priority Occupation List (SPOL) and the Western Australia Skilled Migration Occupation List (WASMOL).

This was to ensure consistency would apply across various organisations involved with developing Industry Workforce Development Plans. The indicators used to rank occupations contained in this report are:

- Employment levels of numbers working in the occupation.
- Predicted employment growth - annual average.
- Net replacement rate - annual average.
- Training enrolment levels - apprenticeships/traineeships.
- DEEWR – skill shortage list.
- Average age of each occupation in Engineering and Automotive Industries.
- Wage growth - per annum.

Categories
Occupations ranked 1 or 2 are categorised as **Very High Priority** occupations:
- Large employment size, forecast growth and evident wage pressure.
- High skill level, longer training lead times and large training element.
- Classified as skill shortages.

Occupations ranked 3 or 4 are categorised as **High Priority** occupations:
- Notable employment size and growth.
- May be higher skill requirement but classified as emerging skill shortage due to industry issues.

Occupations ranked 5 are categorised as **Priority** occupations:
- Smaller employment size and low or negative growth.
- No evidence of increase demand, but steady requirement for an occupation.
- No increase in training requirement.

ENGINEERING

Engineering Occupations
The engineering industry in Western Australia is predominantly male gender based and 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.

Occupations within the engineering industry include: engineers, shipwrights, boat and ship builders, welders, fabricators (heavy and light), mechanical fitters, machinists, electricians, drafters, locksmiths and jewellers.

Certain sectors of the engineering industry are highly regulated, these include; electricians, aircraft maintenance engineers and workers in the industry using ozone depleting gases.

Eighty-five percent (85%) of the metals, manufacturing and engineering industry is mainly comprised of small to medium businesses, having less than twenty employees; fifteen percent (15%) are businesses with more than fifty employees.

Employment growth within the industry is predicted to expand in the near future due to the large number of anticipated resource projects in the expanding resources industry.

Most of the occupations in this industry are “traditional trades” that have historically been full-time based. The work patterns for the Engineering and Services Industries support full-time workers.

Local press employment advertisements have shown a very high number of vacancies for metal fabricators, welders, electricians and mechanical fitters over the past year and there is no sign of abatement.

Major Issues

There are very high wages being paid in the mining and in the engineering construction 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 pressure on availability of skilled labour across the State.

The increasing number of developments and construction projects competing for skilled labour is exacerbating the skills shortage problem, as large projects are drawing the skilled labour force from the rest of the State’s labour market by offering much higher wages. This trend has been cyclical over the past decades with some fairly sharp highs and lows. Up until early 2008 at the beginning of the global financial crisis, skilled labour shortages were critical. Currently, the skilled labour availability seems to still be satisfactory. However, as previously stated, there is a strong possibility of skilled labour shortages occurring again in the near future.

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

The majority of employment in this industry is located in the metropolitan area (78%), with (22%) in regional areas. Metal tradespersons work in all industries throughout the State, however, most of the central offices and factories are located in the metropolitan area, supporting regional mining and resource projects.

There has been a significant increase in interest and awareness in the engineering trades over the past few years, which has resulted in more indentured apprentices across all trades, particularly metal fabricators, welders, electricians and mechanical fitters.

Technological change in the industry is incremental rather than dramatic. The traditional skills base in all trades is required with specific applications depending upon the industry sector. Specialist welding technology applications build upon existing skills of trades people. There is a shortage of metal machinists with high levels of skill, particularly those with CNC experience.

Manufacturing companies are improving their production processes by modernising their equipment to a more automated computer controlled system to increase the quality and output of their products. The increasing use of computers and numerically controlled equipment is creating a requirement for people to acquire and continually improve their skills in this area. As technology is rapidly changing, general skills, like communication, analytical and computer (IT) skills, are increasingly important.

The expected resources industry surge is essentially a continuation of an existing heavy construction schedule in the North West. Consequentially, as one project finishes the workers from that project move to another project. It is expected that in the next twelve months the supply will be exceeded by the demand, particularly by the following skilled workers. As previously stated they do not meet the definition of Industry Critical Occupations, but as soon as any imbalance in supply and demand occurs they all become critical.

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) trade. Different RTOs deliver training from either the MEM05 Training Package in Engineering or AUR05 Automotive Training Package. The

trade skill set is the same outcomes 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, electricians with instrumentation skills and qualifications is growing.

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

AUTOMOTIVE

Automotive Occupations

Automotive Mechanical

- **Light Vehicle Technicians (Mechanics)**
  The current demand for light vehicle technicians (mechanics) has been rated as **Very High Priority**. Registered Training Organisations (RTOs) report a steady take-up of automotive light vehicle apprenticeships; however the take up rate is far below the demand requirements.

  Attrition rates within this occupation remain very high, future industry skills shortages will only compound. Longer training lead times is an issue for this occupation.

  With the onset of a mining and resource surge, skilled light vehicle mechanics will be drawn by the large pay incentives the mining and resources sectors can offer, thus creating a large exodus of skilled light vehicle mechanics away from regional and metropolitan areas, potentially creating an underperforming economic sector.

- **Heavy Duty Technicians (Mechanics)**
  This occupation is rated as **Very High Priority**; the ongoing demand far outweighs the supply of qualified persons 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.

  Longer training lead times is a significant issue; RTO capacity to increase training delivery is limited due mainly to the small number of RTOs in WA with +scope to deliver this qualification.

  Some employers in the above industry sectors are reluctant to employ apprentices, rather leaving the obligation to train to the Original Equipment Manufacturers (OEM's) and contractors to fill the void. The interest shown from school leavers to enter this occupation is very high, however, the reluctance of these employers is a major barrier in achieving the desired employment numbers.

Automotive Electrician

Current demand for automotive electricians rates this occupation as being **Very High Priority**. This is an occupation that is required in the following industry sectors: mining, civil and earthmoving construction, transport, automotive manufacturing, agriculture and light and heavy vehicle repairs etc.

With the onset of hybrid and other electrical vehicle technology, the demand for this occupation will increase dramatically. This occupation in the future will possibly be reclassified to very high priority status.

Training delivery is currently an issue, due mainly to the fact that only one RTO is scoped to deliver training in this qualification. The EATC is encouraging other RTOs to deliver the automotive electrical qualification.

Automotive Panel Beater
The EATC classifies the automotive panel beating trade as **Very High Priority**, the vehicle body repair sector in Western Australia is not coping with the volume of repairs. With a huge increase in the number of motor vehicles in WA, the vehicle body repair industry has not grown sufficiently in size to meet this demand. The recent hail storm that hit Perth suburbs in March 2010 only escalated an already existing problem.

Currently, the number of panel beater apprentices under training contracts in Western Australia is far too low to meet the industry requirements for the immediate future. The panel beating trade is not a popular career choice with school leavers who perceive the industry sector as being a dirty and low paying career option. To overcome the critical skill shortage problems confronting this industry sector, a major promotional campaign is required to dispel the incorrect perception placed on the vehicle body repair sector.

Automotive Spray Painters
The current demand for automotive spray painters is **Very High Priority;** Employers report difficulties in employing skilled tradespersons within this sector. RTOs also report declining class numbers for training and if this situation is not reversed in the immediate future it will cause a more severe critical skill shortage than what currently exists.

Vehicle Body Builder
The demand for vehicle body builders is rated as **Very High Priority**, the skill sets used by vehicle body builders makes 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.

As with many other trade training qualifications, there is only one single RTO that delivers this trade qualification in Western Australia. This, in some cases, is the cause or assists with the skill shortage as only a set number of enrolments can be trained at any one time. An additional RTO delivering the trade would help overcome any bottleneck that may exist or have an effect on numbers being trained.

Vehicle Trimmers
This sector of the automotive industry is very small in comparison to other sectors. Vehicle trimmers may cross over and utilise their skills for upholstery work in the furniture industry.

The demand for vehicle trimmers will remain relatively small in this discrete part of the industry, ranked as **Priority** only.

Automotive Technician - Outdoor Power Equipment

This sector of the automotive industry is small in comparison to other sectors; however, it is vital in maintaining crucial machinery and plant that is required both in the domestic market and in many industrial sectors, especially civil and building construction.

A steady demand currently exists for trade skills in this sector. The EATC believes this will increase to a **High Priority** category within the next twelve months.

Automotive Technician – Marine

The marine sector has been experiencing significant growth within the pleasure craft industry, with demand for technicians who maintain inboard and outboard motors rising dramatically.

Industry training of apprentices is insufficient to cater for the demand from the public. This sector is currently experiencing steady demand for the skills of this trade, ranked as **High Priority**.

SUMMARY

Skilled labour shortages are predicted for Western Australia in the next several years as infra-structure development continues. This will have the effect of maintaining relatively high wages across all sectors.

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 is essential.

Organisations should proactively seek to attract and retain mature-aged workers, increase female and aboriginal participation to help overcome some of the skill shortage issues.

STRATEGIES TO ADDRESS BARRIERS TO EMPLOYMENT AND TRAINING

The barriers to employment and training are defined in this section as "the issues" and the opportunities to address the barriers to employment and training are defined as the "suggested strategy".

In order to identify the issues and suggested strategies to address barriers to employment and training, a comprehensive and structured process was applied to ensure all issues were identified. The process included:

- **An extensive on-site visit campaign by EATC staff, which involved face-to-face interviews with key enterprise stakeholders;**
- **Analysis of industry-based reports such as AIG "Skilling Business in Tough Times";**
- **Review of published and web-based information and data;**
- **Comprehensive analysis of data supplied by the Australian Bureau of Statistics, Manufacturing Skills Australia (MSA), IBISWorld, Australian Industry Group (AIG), CCIWA and other similar organisations;**
- **Consultation with industry representatives of the various sectors for validation, this involved structured interviews with a standard questionnaire developed by the EATC.**

EATC has developed this section on the premise that workforce development initiatives must be demand-driven and empirically based. This section should be read in conjunction with the Environmental Scan of the Engineering and Automotive Industries 2010 developed by the Engineering and Automotive Training Council Inc.

The Issue
Trade certificates will no longer be issued for apprentices who sign training contracts from 10 June 2009.

This is a serious issue for applicants who wish to work on many mining and resource projects as many companies insist on seeing the trade papers rather than the qualification. It is the trade papers that are the document that all employers in the engineering and automotive industries need to see, many are not interested in the qualification at all. There is no good reason to not issue trade papers; it is a severe impediment to employment and training.

Suggested Strategy
A review of this aspect of the Amendments to the Vocational Education and Training Act 1996 that came into effect on 10 June 2009. With a view to reinstalling the issuing of trade papers to apprentices who have successfully completed their training

contract. All training councils who have trades within their scope should be involved in this review.

The Issue

The teaching profession in general have not been given the opportunity to access trade skill information and what career opportunities exist, particularly knowledge of the Engineering and Automotive Industries. This is one of the major industry impediments relative to recruitment within our industry sectors.

"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 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 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 when 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 advisor (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 advisor 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 the teaching. For example applied mathematics that involve 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 putting a greater emphasis on the trades areas but there still appears to be some resistance by parents and consequently students to pursue a trades career. Much more needs to be achieved in the way of promotion of the benefits of a trades 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 constant 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

Poor reading and numeracy skills are a major barrier to employment and training, particularly with school leavers.

Suggested Strategy
A major 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 and automotive are occupations that require very 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.

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 staff 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.

The Issue
Overseas qualified engineers need knowledge of Australian Engineering Standards.

Suggested Strategy
By enrolling in suitable courses to increase their knowledge would also be a vehicle to developing their English skills, particularly technical English. Overseas engineers are often lacking in Computer Assisted Drafting (CAD) skills, this is a barrier to them entering the industry.

The opportunity to take up Engineering Traineeships is also a strategy for mutual benefit for the employer to gain government incentives as well as the trainee to "learn and earn".

The Issue
Aboriginal participation in the Engineering and Automotive Industries.

Suggested 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, EATC has commissioned a comprehensive study of the issues and will be preparing a strategy document for implementation by the EATC.

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 of

the training providers in the Pilbara and the Kimberley 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 issue of costs is a major issue with training. Salary scales for lecturers need to be substantially higher to attract suitable teaching staff to compensate for the high wages 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 the government are totally inadequate.

The Issue

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.

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 down turn in business activity.

The skills necessary for competent trades’ people cannot be taught in a short time, there have been initiatives in other industry sectors by severely cutting apprenticeship terms. 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. This quick fix strategy is not sustainable in the long term and actually discourages employers from training apprentices.

One proposal is that the apprentice is solely employed by the Government and trained by the Government with the on-the-job component of the apprenticeship being completed at carefully chosen 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 or 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.
- 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 with regard 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

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.

Suggested Strategy

Fitters, fabricators and electricians may be employed in any industry sector outside of engineering specific enterprises in a service 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.

Intensive specialised training may be done in a post trade capacity.

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 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 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 construction or engineering 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 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. 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.

WA, 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 aware of modern techniques. This issue is more evident in the automotive sector due to the rapid technological changes with 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 such as, students losing interest in their chosen trade, poor pay, 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 make the learning outcome more relevant and interesting to the student.

More 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:
"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.

Training should be provided for older 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 someone trying to raise a family and this creates a barrier to employing younger trainers.

The training and learning outcomes could be delivered in a project-based format whereby the students could, for example, re-build a vehicle. Each component of the re-build 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 would 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 alleviating the current attrition rate within automotive apprenticeships.

The Issue

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 tends to shorten the effective working life of workers. This, in the long term, is a significant barrier to employment in the engineering industry.

Suggested 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 needs to be done 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.

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 Fast Track Apprenticeship or similar system for experienced mature age 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 Fast Track 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 trades' person.

- 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 aging 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 age 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 does 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 age fast track system for trades people for mature age 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 school.

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 and 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 and 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 procedure needs be in place 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

A contributor to the attrition rate of apprentices particularly in the automotive industry can 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 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 continued lack of appetite for automotive apprenticeships.

The Issue
The apprentice wage is currently a significant barrier to employment and training. The current wages puts a first year apprentice below the poverty line and attracts a Centre Link 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 tuition and other training fees to pay it would be far better for the Australian Government to pick up all 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 that the apprentice or trainee does not pay income tax for the period of their training contract.

The Issue
Currently, apprentices have to pay for course fees and resource material 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 material 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
The automotive sector's lack of success to promote itself as a career pathway.

Suggested Strategy
Consideration should be made for a training and promotion levy.

Businesses and skilled individuals operating within the automotive sector would pay a levy, or a dollar could be added to every vehicle registration within the State (a similar system already operates successfully within the Building and Construction Industries).

The main benefits would be:
- Guaranteed and regular funding would enable constant and targeted promotional activities to be undertaken.
- Funding for training or training related matters, this funding would be used to purchase current training and training resource material and to assist with funding for RTOs or schools with innovative projects.

- Raised profile of the industry, by introducing a levy the industry will be taking ownership and making a clear commitment to long term employment strategies.

The Training Levy could be administered by a statutory authority to ensure the funding is administered in an organised and unbiased manner. The levy (if implemented) could be controversial but the benefits would be substantial. As previously stated, the Building and Construction Industry already operates a levy system that works very well and there is no reason why this system cannot be applied to the automotive sector.

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
More RTOs to be scoped to deliver the trades, at the very minimum another RTO to be scoped for the northern suburbs as this training is only available south of the river.

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 of females in the trades. Females are not well represented in the engineering and automotive industries in a trades 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 trades 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.

THE WAY FORWARD

The EATC will use the content of the Industry Workforce Development Plan as a foundation to establish strategies which will assist our industries in Western Australia overcome workforce development issues.

The Industry Workforce Development Plan (IWDP) endeavours to capture the current issues and the barriers and opportunities that are confronting the Engineering and Automotive Industries in Western Australia.

It is the intention of the EATC to work with all industry stakeholders and government agencies to further develop and refine this IWDP. Readers should consider this report as a "work in progress "document. The EATC invites all industry stakeholders, government agencies and the broader community to comment, provide advice and constructive feedback relative to this document.

With the establishment of this IWDP, it is the EATCs responsibility to take a leadership role and actively engage all interested parties to further identify, develop and implement opportunities to overcome issues, barriers to employment and training in the Engineering and Automotive Industries.

The initial action required by the EATC is to present this document to the Engineering and Automotive Industries for endorsement. It is our intention to then seek industry's commitment to implement the opportunities and strategies contained in this report.

The EATC will coordinate the implementation of any strategy to enable the parties to measure any outcome that maybe achieved.

To ensure a positive way forward is achieved the total commitment and involvement of all industry stakeholders is essential.