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Inquiry into Skills Shortages in the Rail Industry

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Inquiry into Skills Shortages in the Rail Industry

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Chair's foreword

The Victorian rail service has a history dating back to 1854. As a vital part of Victoria's economic and social infrastructure, the metropolitan and regional rail networks provide substantial economic and social benefits and contribute to the overall living standards of all members of the community.

Over the last ten years, Victoria has seen significant growth in patronage on its train and tram services. This has coincided with large-scale investment in rail infrastructure and assets by the state and federal governments.

All of this has occurred at a time when the rail workforce itself has been facing significant challenges. The ageing rail workforce, accompanied by a decline in training and development in the traditional trades and engineering, has led to a range of skill shortages within the rail industry. While these issues are not unique to rail, as Chair of the Education and Training Committee, I feel that strong action is required to ensure that we have the required number of appropriately skilled and enthusiastic workers to meet the growing demand for rail services into the future.

This inquiry provided the first opportunity for Committee members to hear from an industry outside of the education and training community. The Committee welcomed this opportunity to hear from a range of stakeholders within the rail operations and rail manufacturing segments, together with stakeholders in the education and training sector. The Committee thanks representatives from all of these sectors for their valuable contributions to the inquiry's outcomes.

The Committee has recommended that a comprehensive audit of the rail workforce should be undertaken, and used to develop an industry-wide workforce development plan. The Committee has also recommended that a Victorian Centre of Excellence in Rail Skills be established to assist in this work, and to help to address skill shortages in safety critical roles, as well as the traditional trades and engineering fields. The Committee believes that these actions to address skill shortages in the rail industry will help to ensure that the benefits of government investment in rail infrastructure across the state will be fully realised.

I wish to thank my fellow Committee members for their participation in the investigations and their input during the deliberative phase of the inquiry. I would also like to thank the staff of the Committee secretariat for their hard work and support throughout the inquiry. In particular, I would like to acknowledge the senior research consultant, Mr Peter Thomson, whose expert knowledge of the rail industry was of great assistance to the Committee.

Geoff Howard MP
Chair

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Executive summary

Chapter 1
Introduction

A comprehensive and accessible transport system has obvious benefits to the community. Safe and reliable passenger services link communities and allow individuals to go about their daily lives. Freight operations help to deliver essential goods and services, and have clear benefits for the Victorian economy.

The Victorian rail industry is facing a range of challenges similar to those being faced by rail networks in other jurisdictions in Australia and overseas. A key task facing the rail industry is how to best structure and undertake its diverse operations in a way that balances industry goals with ever-increasing government and community expectations for rail to achieve a range of environmental, social and economic objectives. The rail industry faces the various challenges associated with addressing the competing objectives of carbon reduction, health and safety, security, social inclusion and sustainable growth. These factors, together with safety regulations and technological advancements, have obvious implications for training and skills development within the Victorian rail industry.

In December 2008, the Legislative Assembly referred to the Education and Training Committee an inquiry into skill shortages in the rail industry. Through this report, the Education and Training Committee aims to provide directions and recommendations for the Victorian rail industry to ensure its workforce has the knowledge and skills required to develop and sustain world-class passenger and freight operations.

Chapter 2
The Victorian rail industry

Victoria's metropolitan train network has 15 lines, 211 train stations, 400 kilometres of electrified track, and a workforce of around 3,500 employees in a wide range of occupations. The network's fleet of 149 six-carriage trains covers more than 30 million kilometres per year, servicing more than 200 million passenger journeys. The regional passenger train network comprises five major lines with 4,100 kilometres of track and 81 regional stations (plus 20 metropolitan stations). The regional passenger fleet includes 40 VLocity trains, 41 locomotives, 138 carriages and 21 sprinters. The passenger network intersects with Victoria's freight network, which services three discrete segments: bulk grains; containerised primary produce; and general industrial transport.

Melbourne's tram network includes 249 kilometres of double track, a fleet of 501 trams and around 1,900 employees. Trams travel more than 24.8 kilometres each year on timetabled services and, in 2007–08, there were 158.3 million trips taken.

Patronage of public transport is expected to grow strongly in coming decades, driven by population increases and expected gains in public transport's modal share due to increased congestion on roads, rising fuel prices and environmental concerns.

The Victorian rail industry operates within an evolving policy environment, with three key areas of regulation: safety regulation; market regulation; and network regulation. The

Department of Transport is the lead government agency responsible for the development and management of the public transport network in Victoria, while the Essential Services Commission is the economic regulator of train and tram access services.

As part of a nationally significant transport industry which moves freight and passengers on shared networks, the Victorian rail industry must ensure that economic, social and environmental considerations are reflected in long-term industry planning and integrated transport policy responses at the state and national level.

In 2009, the Department of Transport released the Victorian Transport Plan, which outlines the Victorian Government's vision for a modernised metro system and commitments to improving Victoria's regional rail network. Policies and initiatives associated with the freight network are outlined in the Victorian Freight Network Strategy, known as Freight Futures.

The rail industry is a 24-hour-per-day operation, encompassing a broad range of stakeholders involved in industry policy, service delivery and network maintenance. The three main rail operators and infrastructure managers are Metro Trains Melbourne, V/Line Passenger and Yarra Trams. Metlink provides a 'one-stop-shop' for information about services, fares and ticketing, while the Transport Ticketing Authority is responsible for the public transport ticketing system.

The Australasian Railway Association is the peak industry body representing the interests of all rail operators, track owners and managers, manufacturers of rolling stock and components, and other aspects of the rail industry in Australia and New Zealand. There are two key unions representing employees in the Victorian rail industry (the Rail, Tram and Bus Union and the Electrical Trades Union), while a range of professional bodies represent the industry's engineers. Of key relevance to the inquiry are the various national and state-based bodies responsible for advising on skill requirements. At the state level, there is the Transport and Distribution Industry Training Board and the EPIC Industry Training Board, as well as the Rail and Tram Infrastructure Industry Committee. At the national level, the Transport and Logistics Industry Skills Council, ElectroComms and Energy Utilities Industry Skills Council (trading as EE-Oz Training Standards) and Manufacturing Skills Australia represent the industry.

Chapter 3
Rail occupations and skill shortages

The Victorian rail workforce is made up of numerous and diverse roles, ranging from non-skilled work through to skilled trades, associate professionals and professional roles. Many of these roles are highly specialised and require long training periods and/or significant on-the-job experience to attain competency. There are a range of critical job roles, which sit within four critical job families in the industry: engineers; trades and trade equivalents; operations; and professionals. Critical job roles are those that require skills which organisations have found difficult to source, roles that require skills which require a long time to develop or grow within the organisation, roles that are critical to the core business of the organisation, and roles that constitute a 'critical mass' within an organisation.

An adequate supply of appropriately skilled and qualified labour is fundamental to the continued efficient operation of passenger and freight services. There is widespread agreement, however, that the Victorian rail industry is currently experiencing skill shortages and recruitment difficulties in a range of critical job roles. The Committee is particularly concerned about ongoing skill shortages in the engineering professions, especially in the roles of electrical and signalling engineers and project managers. The Committee is also concerned about ongoing shortages in the trades and trade equivalents, as well as emerging shortages in certain operational roles. Skill shortages identified by the Committee

reflect a nationwide shortage in the rail industry, the broader transport industry and, in some instances, the broader economy.

The Committee received evidence regarding a wide range of factors contributing to current and potential future skill shortages in the rail industry. These include the general economic climate, industry growth, the ageing workforce and associated large-scale pending retirements, health requirements within the industry, industry structure, industry image and culture, and education and training system factors. Unfortunately, it was not possible to quantify skill shortages due to the lack of a comprehensive, shared picture of occupations, qualifications and skills within the Victorian rail industry.

With the Victorian rail system experiencing unprecedented growth and planning large-scale infrastructure investments, workforce development is a critical issue facing the industry. Rail operations of the future will rely on retention of the skills needed to support legacy systems, as well as the ability to attract and further develop the more advanced skills that will enable the industry to respond to economic, social, environmental and technological challenges.

The Committee therefore believes that a comprehensive audit and analysis of the rail industry workforce should be undertaken. Without accurate, reliable data, policy makers and legislators will be unable to respond to persistent skill shortages in the industry. The Committee believes that the audit should identify all occupations and job roles, the location of work undertaken, employment status, relevant demographic indicators, formal qualifications, other relevant skills and experience, current and emerging skill shortages and skill gaps, and processes to continue monitoring skill needs within the industry. The Committee believes that the audit should cover all major segments of the industry, and should include input from both the major rail operators and small and medium sized enterprises.

Chapter 4
Skills planning and development

A profile of qualifications within the rail industry workforce shows that rail employees are generally less qualified than workers in many other industries. The Committee notes, however, that the proportion of workers with qualifications at certificate III level and above will increase in coming years in line with the general rise in the qualification profile of younger age groups. Nonetheless, the rapid growth in the industry will mean that there will continue to be large numbers of rail employees with qualifications at year 12 or below.

The Committee recognises that the relatively low levels of formal qualifications across the rail industry reflect traditional employment and training practices within the industry, rather than the level or type of skills required for rail-related occupations. Indeed, there are many roles within the industry that are highly specialised and require many years of training and experience to master. There are also legislative requirements which place certain expectations on rail operators to provide adequate training for rail workers, including ensuring that safety critical competencies are mastered and maintained throughout an employee's working life.

The Committee believes that one important strategy to assist in identifying skill shortages in the rail industry would be to better track the qualifications of existing employees. This could be achieved through the introduction of an accreditation and registration system for safety critical roles within the industry. The Committee believes that the registration system should identify appropriate levels of certification for these safety critical roles, and include processes for ongoing reaccreditation of worker qualifications. The Committee also believes that a single industry workforce advisory body which represents all sectors of the rail industry is required.

Within the VET sector, the most relevant qualifications for the rail industry are rail operations and rail infrastructure, which sit within the Transport and Logistics Training Package and the EE-Oz Training Package.

The Committee heard that there are a range of limitations associated with the current rail industry training packages. Some participants felt that the current qualifications are disjointed and fail to adequately cover the specific skills required by industry. Others noted the difficulties in creating a single national training package that can adequately respond to the needs of the different rail systems in various jurisdictions. The Committee also heard that the 'nesting' of qualifications conflicts with best practice in training package design. Given these gaps in training package design, the Committee supports a review of the existing rail industry qualifications and training packages. The review should: assess the adequacy of current enrolment levels in qualifications relevant to critical job roles; identify any existing, new or emerging skills which are not covered by the current industry training packages and qualifications; and make recommendations for improvements to the content and range of qualifications available to ensure they continue to meet the needs of the rail industry.

As the main training pathway for safety critical roles within the rail industry, the supply of and demand for apprenticeships were of key interest throughout the inquiry. The Committee believes that an increase in the number of apprentices will be one of the key strategies for addressing skill shortages in the Victorian rail industry. It was therefore concerned to find that there have been very few apprentices employed across the industry in recent years, and that the major operators do not have plans to substantially increase the intake over the next three years. The Committee believes that the industry needs to increase its commitment to training apprentices over the next three years. At the same time, the Committee believes that the Victorian Government has a leadership role in achieving increased commencement and completion rates for traditional trade-based apprenticeships in the industry.

The higher education qualifications of interest to the inquiry were mainly engineering qualifications. While rail engineering has typically been part of mechanical, civil and electrical engineering, the growth in electronic components within railway systems means that electronic engineering and computing are increasingly relevant. There are also a small number of rail-specific postgraduate programs offered through interstate universities. The Committee believes that the development of a range of rail-specific short courses targeted at recent graduates and experienced rail industry employees would complement the existing range of higher education programs.

The Committee is concerned to note the low number of enrolments in higher education courses in engineering and related technologies, as well as the high attrition rates from these courses. The Committee believes that the rail industry, through a workforce advisory body, could assist in increasing the transition of higher education students into the rail industry by promoting the range of interesting and challenging careers available, offering incentives for students to specialise in rail-related studies, and being involved in curriculum design and development of industry-related work experience opportunities or research projects. The Committee believes that the development of formal articulation pathways from VET courses into relevant higher education programs would also assist in addressing skill shortages in the Victorian rail industry.

The Committee found that when seeking to recruit new employees, rail operators may consider a range of strategies aimed at enhancing the attractiveness of the role, or they may re-assess and modify the scope of the role, or change their expectations of new recruits. Alternatively, rail operators may consider either skilled migration or outsourcing as ways to meet the skill needs within their organisation. The Committee recognises that each of these strategies provide useful options for rail operators seeking to address skill shortages or skill gaps within their organisation. The Committee notes, however, that the continued operation

of safe and reliable passenger and freight services depends on having a sufficient supply of highly skilled employees available to all organisations within the industry.

The Committee found that there is a broad consensus about the need for the Victorian rail industry to develop a coordinated approach to training, recruitment, employee retention and the utilisation of existing workforce skills. The Committee believes that the Victorian Government has a leadership role in this area. The Committee is therefore recommending that the Department of Transport develop an industry-wide workforce plan covering the period to 2020, and that a Victorian Centre of Excellence in Rail Skills be established at the Newport Rail Precinct. The Committee believes that Skills Victoria should support these initiatives by prioritising training places for key safety critical roles within the Victorian rail industry.

Chapter 5
Rail manufacturing and component supply

A critical part of the Committee's inquiry was its investigations around the rail manufacturing and component supply sectors. Capacity in these sectors has obvious benefits for the delivery of reliable passenger and freight rail services. Just as important, however, are the broader economic and employment benefits associated with rail manufacturing and supply. A skilled manufacturing workforce that is capable of responding flexibly and efficiently to emerging challenges and opportunities is fundamental to realising these benefits.

Victoria has had the capacity to build its own passenger rail rolling stock for over 100 years. Today, there are two major players in Victorian rail manufacturing: Bombardier Transportation and United Group Limited/Alstom Australia and New Zealand. Additionally, there are around 100 small to medium sized businesses in Victoria providing goods and services as diverse as airconditioning, aluminium and glass products, cabling, rail carriage interiors and train management systems, into the supply chain.

The Committee heard that the Victorian rail manufacturing sector is facing a range of challenges. These include the limited local market, lack of consistency in the type of rolling stock purchased for the Victorian and interstate rail networks, a lack of clarity around the number and type of trains to be purchased for the Victorian rail network in coming years, uncertainty around the level of local content, and the absence of a delivery timetable. The Committee heard that this unpredictability creates a fluctuating demand for workers and the loss of skilled employees when individual contracts have been completed. The Committee notes that the state and federal governments have developed various policies and programs aimed at addressing some of these issues over the past decade. These have been supplemented by various industry-related initiatives.

In terms of skills, the Committee found that the manufacturing sector is facing similar challenges as those associated with the broader rail industry workforce, including the ageing workforce, pending large-scale retirements, and the tendency for workforce development to be reactive, rather than proactive, where the industry is comprised of a large number of small and medium sized enterprises. Additionally, rail manufacturing is affected by skill shortages and skill gaps within the broader manufacturing sector. The Committee found that the most critical skill shortages are in a range of engineering and traditional trade roles. The Committee heard that the small number of apprentices being employed within the sector is a key concern for industry and other stakeholders.

Building Our Industries for the Future is a key document outlining the Victorian Government's action plans to meet its goals for industry and manufacturing in Victoria. A key platform of Building Our Industries for the Future is a strengthened Victorian Industry Participation Policy, which applies to all Victorian Government procurement projects with a value of $3 million or more in metropolitan areas and over $1 million in non-metropolitan areas. When two or more bids are comparable in terms of quality and whole-of-life pricing,

the government will continue to give preference to bids that maximise local industry benefits in areas such as skills development, capacity building and local research and development.

Under Building Our Industries for the Future, major projects that meet the stated criteria will be declared of strategic significance to the Victorian economy, and will be subject to additional requirements, including minimum local content requirements. Within the framework of strategic projects, rail rolling stock is one of the largest areas of government procurement, and is of particular importance to the manufacturing sector. The Committee heard much support for local content requirements as a means of supporting the rail manufacturing sector and providing the basis for local investment and skills development.

The Committee is aware that the quantity of labour and skills required within the local rail manufacturing sector will largely depend on the procurement decisions of current and future governments. The Committee believes that the Victorian Government could create greater certainty for the local industry by updating the rail manufacturing strategy in line with the expectations for manufacturing and procurement identified in the Victorian Transport Plan. The Committee also encourages the Victorian Government to work through the Council of Australian Governments and other relevant mechanisms, to advocate for the development of a national rail manufacturing and procurement strategy.

Recommendations

Chapter 3
Rail occupations and skill shortages

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3.1 That the Department of Transport, in consultation with the rail industry, undertake a comprehensive audit and analysis of the rail industry workforce. The audit should identify:

- all occupations and job roles;
- location of work undertaken;
- the number and duration of job vacancies;
- employment status, including the number of hours worked, the level of overtime and the current leave liabilities within the industry;
- tenure and workplace turnover;
- relevant demographic indicators such as age, gender and cultural or linguistic background;
- formal qualifications held;
- other relevant skills and industry experience attained through informal training and development and on-the-job experience;
- current and emerging skill shortages and skill gaps; and
- processes to continue monitoring skill needs within the industry.

The audit should cover all major segments of the industry, including operations, maintenance and manufacturing. It should involve the major rail operators and include input from the broader rail industry, including small and medium sized enterprises.

Chapter 4
Skills planning and development

Pages 81–82

4.1 That the Department of Transport, in consultation with Skills Victoria and the rail industry, develop a comprehensive industry-wide workforce development plan covering the period up to 2020. The plan should outline:

- current workforce skill needs, staffing levels and qualifications;
- current and emerging skill shortages and skill gaps and their impact on passenger and freight operations;
- required staffing levels in safety critical roles, including the number of apprentices to be included in operator franchising agreements;
- an industry-wide recruitment and retention strategy; and
- an industry-wide training and development plan.

4.2 That the Victorian Government, in consultation with Victorian rail operators, support the development of a single industry workforce advisory body representing all sectors of the rail industry.

4.3 That the Victorian Government, in consultation with the rail industry and relevant advisory bodies, support a review of existing rail industry training packages and qualifications. The review should:

- assess the adequacy of current enrolment levels in qualifications relevant to critical job roles within the rail industry;
- identify any existing, new or emerging skills which are not covered by current industry training packages and qualifications; and
- make recommendations for improvements to the content and range of qualifications available to ensure they continue to meet the needs of the rail industry.

4.4 That the Victorian Government, in consultation with the Victorian rail operators, support the development of a state-of-the-art centre of excellence in rail skills at the existing Newport Rail Precinct. Further, that funding for the centre be made available through the Department of Transport and Skills Victoria, together with direct and in-kind support from industry.

4.5 That the Department of Transport, in consultation with relevant industry stakeholders, undertake an evaluation of the potential to use simulators and other emerging technologies for training and retraining drivers, controllers and other safety critical personnel.

4.6 That Skills Victoria, in consultation with the rail industry and VET providers, investigate opportunities to increase the number of apprenticeships and traineeships in the rail industry, especially traditional trade-based apprenticeships. Options which should be investigated include:

- opportunities for new and sustained training within the industry;
- processes for allocating VET funding to ensure limited resources are targeted towards areas of skill shortages;
- improved incentives for potential students and employers to participate in apprenticeship training;
- measures to ensure that there are a sufficient number of appropriately qualified workplace trainers and assessors to support apprentices within the rail industry; and
- opportunities to increase the flexibility and improve the quality of training outcomes for apprentices.

4.7 That the Victorian Government, in consultation with the rail industry and higher education providers, investigate opportunities to improve the quality and range of rail-related content in higher education programs. Options which should be investigated include:

- bridging programs and other strategies to increase enrolments in engineering and related degree programs;
- opportunities to increase the amount of rail-specific content in engineering and related undergraduate courses;
- opportunities to incorporate high quality rail industry experiences or practical research projects into relevant undergraduate and postgraduate programs;
- opportunities to increase the accessibility of relevant higher education courses offered through interstate or overseas universities, and improve the quality of delivery of relevant distance education programs; and
- development of a range of rail-specific short courses targeted at recent graduates and experienced rail industry employees.

4.8 That the Victorian Government, in consultation with the rail industry, implement a registration system for safety critical roles within the rail industry.

Chapter 5
Rail manufacturing and component supply

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5.1 That the Victorian Government develop a rail industry manufacturing strategy which sets out:

- the Victorian Government's long-term procurement strategy for the passenger networks, including the type and volume of trains and trams to be purchased, and the schedule for their delivery; and
- a local content policy for rail manufacturing which includes life cycle considerations such as maintenance and training requirements.

5.2 That the Department of Transport, in consultation with the rail manufacturers and suppliers, specifically identify the rail manufacturing and component supply sectors when undertaking a comprehensive audit of the rail workforce (refer Recommendation 3.1), and preparing an industry-wide workforce development plan (refer Recommendation 4.1).

5.3 That the Victorian Government, through the Council of Australian Governments and other relevant mechanisms, advocate for the development of a national rail manufacturing and procurement strategy which seeks to consolidate rail manufacturing in key locations.

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Acronyms and abbreviations

APESMA	Association of Professional Engineers, Scientists and Managers Australia
COAG	Council of Australian Governments
CCTV	Closed Circuit Television
CRC	Cooperative Research Centre
CPI	Consumer Price Index
EBIT	Earnings Before Interest and Taxes
EPIC	Electrotechnology, Printing, Information Technology and Communications
GDP	Gross Domestic Product
GRP	Glass Reinforced Plastic
GSP	Gross State Product
ICT	Information and Communications Technologies
ITTD	International Transport Training and Development
OECD	Organisation for Economic Co-operation and Development
SCOT	Standing Committee on Transport
TAFE	Technical and Further Education
UMTL	United Melbourne Transport Limited
UGL	United Group Limited
VET	Vocational Education and Training
VicTrack	Victorian Rail Track Corporation
VIPP	Victorian Industry Participation Policy

Chapter 1
Introduction

1.1. A comprehensive and accessible rail transport system is an important part of the Victorian transport chain which links communities and strengthens industry.

1.2. The Victorian rail industry is facing a range of challenges similar to those being faced by rail networks in other jurisdictions in Australia and overseas. There has been, and continues to be, rapid growth in patronage on passenger services. In turn, this creates a challenge regarding how to manage this growth on routes that are already at, or nearing capacity. Additionally, while freight rail has been in decline in recent decades, both state and federal governments have provided additional funding to support the expansion of the interstate and intrastate freight networks. These factors, together with the ever-increasing expectations among customers regarding service levels and value for money, are driving transport policy directions.

1.3. A key task facing the rail industry is how to best structure and undertake its diverse operations while meeting government and community expectations for rail to achieve a range of environmental, social and economic objectives. The rail industry is facing the challenging task of addressing the disparate and competing objectives of carbon reduction, health and safety, security, social inclusion and sustainable economic growth.

1.4. The rail industry is heavily reliant on a strong safety culture, which operates within a rigorous regulatory environment. New systems of safeworking have been introduced and expanded over many decades, with the aim of improving overall safety in the rail industry.

1.5. Technology presents both an opportunity and a challenge for the rail industry. The industry needs to innovate and harness new technologies and build its capability and competence to support change. Improved safety is a powerful driver of technological advancements within the rail industry.

1.6. In undertaking this inquiry, the Education and Training Committee aims to provide directions and recommendations for industry to ensure the Victorian rail industry has the knowledge and skills required to develop and sustain world class passenger and freight rail operations.

Functions of the Education and Training Committee

1.7. The Education and Training Committee is constituted under the *Parliamentary Committees Act 2003*. The Committee's specific function under the Act is to:

> Inquire into, consider and report to the Parliament on any proposal, matter or thing concerned with education or training if the Committee is required or permitted to do so by or under the Act.

1.8. The Education and Training Committee comprises seven members of Parliament, with five drawn from the Legislative Assembly and two from the Legislative Council. Mr Geoff Howard MP chairs the Committee.

Terms of reference

1.9. On Thursday 4 December 2008 the Legislative Assembly referred to the Education and Training Committee an inquiry into skill shortages in the rail industry.

To the Education and Training Committee — for inquiry, consideration and report no later than 31 December 2009 on skills shortages in the rail industry — and the Committee is to explore possible solutions and, in particular, is asked to consider:

a) factors influencing recruitment and retention;

b) demographic profile of the workforce and the outlook for future retirements and loss of skills;

c) implications of the Victorian Industry and Manufacturing Statement commitment in relation to local content; and

d) whether there is any need for increased training opportunities at university and trade levels and, if so, how industry can stimulate student/user demand.

1.10. On 24 November 2009, the Legislative Assembly agreed to extend the reporting date for the inquiry until 30 April 2010.

Inquiry methodology

1.11. The terms of reference were advertised in *The Age* and *Herald Sun* on 28 February 2009 and 'Mighty V' Network newspapers in regional Victoria during March 2009.

1.12. In February 2009, a mail-out of approximately 240 organisations and individuals was conducted, advising them of the terms of reference and inviting written submissions. The mail-out targeted government departments and agencies, rail operators, industry associations, education and training providers, unions and other stakeholders.

1.13. The Committee received 25 written submissions to the inquiry (refer Appendix A), along with a small body of supplementary written material. Submissions came from rail companies, industry bodies, unions, education and training providers, researchers, individuals employed in the rail industry, and governments.

1.14. In commencing its inquiry, the Committee was aware of a number of recent reports of relevance to skill shortages and workforce development in the rail industry. These include:

– *The Changing Face of Rail: A journey to the employer of choice,* published by the Australasian Rail Association in 2006;

– *A Rail Revolution: Future capability identification and skills development for the Australasian rail industry,* published by the Australasian Rail Association in 2008;

- The Transport and Logistics Industry Skills Council *Environmental Scan 2009*;
- *Workforce challenges in the transport industry,* published by the Australian Standing Committee on Employment, Workplace Relations and Education's report; and
- *Engineering for rail sector growth: A report of engineering rail skills shortages in Australia,* published by Engineers Australia in 1999.

1.15. In May 2009, three Committee members and two members of staff attended the Rail Careers Conference in Melbourne. The Rail Careers Conference provided an opportunity for the Committee to familiarise itself with a wide range of workforce planning and development issues relevant to the rail industry.

1.16. A series of formal hearings took place in July and August 2009 and March 2010, involving 39 witnesses (refer Appendix B). Participants included representatives of the main rail operators, government departments, industry associations and unions.

1.17. In August 2009, the Committee travelled to the Newport Rail Precinct to view the Downer EDI Rail Workshops and the Rail Skills Centre and to meet with representatives of these facilities. In November 2009, the Committee visited the Automotive Centre of Excellence, located at the Docklands. The participants involved in these site visits are listed in Appendix C.

1.18. In September 2009, the Committee travelled to Queensland to conduct investigations for the inquiry.[1] Queensland has a number of features that made it a useful location for investigations. In 2007, a Senate Committee inquiry identified Queensland as especially 'proactive and collaborative' in addressing skill shortages in the transport industry.[2] In 2006, a major report for the Australasian Railway Association also identified Queensland as a leader in recruitment and retention in the rail industry. Queensland has also been the site of two Australian Government Cooperative Research Centres (CRCs) for the rail industry. Finally, Queensland is an important site for the delivery of specialist rail postgraduate degrees.

1.19. In Brisbane, the Committee met with representatives of the Industry Leaders Group, Queensland University of Technology, the CRC for Rail Innovation, QR Limited and RailCom. The Committee also visited Rockhampton, where it met with representatives of the Centre for Railway Engineering, Central Queensland University and toured QR Limited's Rollingstock and Component Services Workshop. Individuals involved in these investigations are listed in Appendix D.

1.20. In September 2009, a staff member attended the Railways Technical Society of Australasia's inaugural Meet the Railway People Expo. Aimed at undergraduate students, the expo highlighted career opportunities in the rail industry, and provided a forum for networking. The expo further developed the Committee's understanding of rail industry careers.

[1] During these investigations, the Committee also conducted meetings in relation to its other inquiry, the inquiry into developing opportunities for schools to become a focus for healthy community living.

[2] Senate Standing Committee on Employment, Workplace Relations and Education, *Workforce challenges in the transport industry* (Canberra: Commonwealth of Australia, 2007), 27.

1.21. The Committee also met with representatives of KiwiRail and Competenz in New Zealand in October 2009 (refer Appendix E).[3]

The Australian rail industry

1.22. The rail industry is a significant contributor to Australia's metropolitan, regional, rural and remote economies, providing economic benefits worth around $7.7 billion each year.[4] The industry employs over 100,000 staff in 150 organisations in a wide range of occupations—from train drivers and station staff to apprentices and tradespeople, engineers and safety officers, and human resources, finance and management professionals.[5]

1.23. The Australian rail industry has $30 billion of future investment planned. It facilitates over 670 million train trips each year and moves over 660 million tonnes of freight across the country. The industry ensures that 41,000 kilometres of track, over 1,800 locomotives and 32,000 wagons and carriages are available and maintained in working order.[6]

1.24. The Australian Railway Industry Corporation has defined the industry in terms of five discrete segments: railway management, consulting and engineering services; all forms of rolling stock and their components; track construction and maintenance and specialised equipment; signalling, communications and electrification; and railway equipment, component repair and workshop services.[7] Thus, the rail sector is made up of the following diverse stakeholder groups: track owners; rail operators; rolling stock manufacture and maintenance organisations; signals and communications manufacture and maintenance organisations; general product and service suppliers; research (technical and non-technical) organisations; education and training organisations; industry, professional and employee associations; customers (freight and passengers); government departments and agencies; and other organisations.

1.25. Although this inquiry focuses on skill shortages in the Victorian rail industry, it is important to understand the broader context in which the industry operates. Nationally and internationally, the rail industry is in a period of expansion—patronage, revenues and investments in infrastructure have been increasing and are expected to continue to grow. Worldwide, the industry has experienced significant organisational change due to both privatisation and increased competition as part of competition reform undertaken by governments.[8]

[3] The Committee travelled to New Zealand in October 2009 primarily to conduct investigations associated with its inquiry into developing opportunities for schools to become a focus for healthy community living.
[4] Australasian Railway Association, 'Careers,' ARA, http://www.ara.net.au/site/careers.php (accessed 20 January 2010).
[5] ibid.
[6] ibid.
[7] Australian Railway Industry Corporation, 'ARIC's Mission,' ARIC, http://www.aric.com.au/site/misson.php (accessed 20 January 2010).
[8] Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 5.

1.26. Over many years, Australia's rail industry has developed specialised expertise and acquired extensive experience in all aspects of the design, development, construction, operation, maintenance and refurbishment of modern rail systems. The industry's engineers have a record of achievement, particularly in heavy haul networks in remote locations and hostile environments.[9]

1.27. Through its research and development activities, the Australian rail industry has achieved a range of collaborative breakthroughs. These include wheel–rail interface developments (particularly wheel grinding techniques trialled throughout Australia and Hong Kong), ultrasonic and stress testing in rails, computer simulations (particularly train path simulations), signalling for automatic train protection and control systems, and head hardened rail to lengthen the life of heavily loaded rails.[10] Australian technical innovations include the development and introduction of: high-speed bogie design for passenger and freight trains; computer information, technology for rail signalling, ticketing and training; cost control and planning systems; dry brake fuelling systems; pollution control environmental systems: carriage cleaning systems; simulators for driver training and train operating; and optical techniques for monitoring rail conditions and measuring rail head wear.[11]

1.28. Australia also has a range of consultancy skills specific to the rail industry. These include feasibility reviews, route surveys, planning, detailed design, project management, estimating, financial analysis of options, infrastructure reviews, passenger reservation systems and information technology. Australian railway consultants have utilised these skills on projects here and overseas. These include transport planning in Eastern Europe and Asia, benchmarking in Hong Kong and the United Kingdom, train simulation, signal planning and supervision, and various privatisation projects in Australia.[12]

1.29. Australia has a manufacturing base supporting the rail industry, including several rolling stock manufacturers experienced in the design of short and medium runs of customised locomotives, a full range of freight wagons, passenger coaches, and double and single-deck electric and diesel multiple units. The industry could be self-sufficient in the development and supply of a wide variety of components such as cast and fabricated bogies, wheels and axles.[13] The component range also includes track supplies, brake pads and blocks, pantographs, traction motors, specialised airconditioning units, centralised traffic control systems and electronic and solar powered remote area signalling.[14]

1.30. Competition from the international manufacturing market is increasing rapidly, with both China and India developing high volume, low cost passenger trains and freight wagons.

[9] Australian Railway Industry Corporation, 'International Visitors,' ARIC, http://www.aric.com.au/site/intvisitors.php (accessed 20 January 2010).
[10] ibid.
[11] ibid.
[12] ibid.
[13] ibid.
[14] ibid.

1.31. Worldwide, the rail industry is facing a broad range of economic, social and environmental challenges. At the same time, workforce development challenges are a particular policy focus of many employers, governments and other stakeholders in the industry.

1.32. The skilled labour market remains tight and specific areas critical to rail operations, especially engineering and technical skills, are in high demand. The Victorian rail industry is therefore competing both nationally and internationally to attract, develop and retain essential rail workers to ensure that it is able to continue to provide efficient passenger and freight services.

Chapter 2

The Victorian rail industry

2.1. The rail industry is an integral part of Victoria's economic and social infrastructure, providing Victorians with affordable, efficient and safe public transport and freight services. Rail provides the cleanest and most efficient alternative to cars or trucks on our roads and, as Australia enters into the low emission carbon economy, the value of rail will be realised. It has been reported that shifting bulk freight from road to rail could reduce carbon emissions and fuel use by 60 per cent, and that the emissions intensity of the average commute is more than six times less for rail than for passenger cars.[15]

2.2. The social benefits delivered by rail cannot be met by any other means. A safe and efficient public transport system provides people with the essential means to carry out their work and leisure activities. There are 3.4 million customer journeys per week into and across Melbourne, and 290,000 customer journeys per week into and out of regional centres across Victoria. Public transport will be increasingly important as Victoria's population continues to grow, and the service mix will need to be able to adapt to changing travel preferences and demographic trends. The efficient movement of freight around Victoria and to and from interstate and international market places is also a key component of the economic prosperity and liveability of Victoria.

The policy framework

2.3. The Victorian rail industry operates within an evolving policy environment. For many years, rail was viewed as an underperforming industry that was operating an outdated transportation system, with freight and passenger services acting as separate and competing businesses. The rail system operated within a fragmented state and national policy environment, with inconsistent legislation across jurisdictions and various unresolved cross-border operational issues. The industry typically responded to challenges in a short-term way and within an environment where all transport modes were operating independently. Today, however, the Victorian rail industry is considered as part of a nationally significant transport industry which moves freight and passengers on shared networks. The social and environmental considerations are as important as economic considerations, and are reflected in long-term planning and integrated transport policy responses at the state and national level.

2.4. As a key player within the national context, the Victorian rail industry must be able to respond to policy and regulatory changes from all levels of government. As a safety critical industry, regulation covering areas such as accident and incident investigation, regulation and certification, inspections and audits, and enforcement of

[15] Transport and Logistics Industry Skills Council, Written Submission, July 2009, 5.

health and safety legislation, is particularly important. Market regulation is aimed at ensuring efficient operations within passenger and freight rail. It covers issues such as access to rail infrastructure and facilities, operator licensing, competition and consumer issues, investment and sustainable development. Network regulation covers areas such as asset management, land-use policies, route utilisation strategies and performance monitoring.

The Victorian policy context

2.5. The Victorian Government has primary responsibility for Victorian rail services. As the lead agency responsible for the development and management of the public transport network in Victoria, the Department of Transport is the government department most relevant to this inquiry. The department, along with the Director of Public Transport, derives its functions and powers from the *Transport Act 1983* and the *Transport Integration Act 2010*.

2.6. The Department of Transport's policy framework underpinning the rail industry is outlined in two key documents: the Victorian Transport Plan and the Victorian Freight Network Strategy, known as Freight Futures.

2.7. The Victorian Government has proposed to allocate $25 billion under the Victorian Transport Plan, and is seeking additional Australian Government support for a number of significant road and rail initiatives.[16] There are six priorities for action outlined in the plan:

- shaping Victoria to make jobs and services more accessible;
- linking regional, rural and metropolitan Victoria so all parts of the state share in the benefits of population and economic growth;
- creating a modern metro system by improving the capacity, frequency, reliability and safety of public transport;
- linking Victorian communities by closing gaps, reducing congestion and improving safety on roads;
- lowering the carbon footprint from transport; and
- strengthening the Victorian and Australian economies by supporting freight, industrial growth and new jobs.[17]

2.8. Freight Futures aims to support the development of an efficient, sustainable freight network which balances the needs of the growing Victorian economy and its population.[18] The Victorian Government intends to work in partnership with industry and the federal and local governments to implement Freight Futures, to ensure that Victoria's strategies, initiatives and aims complement relevant national initiatives and programs.

[16] Department of Transport (Victoria), *Victorian Transport Plan* (Melbourne: DoT, 2009), 10.
[17] ibid., 7.
[18] Department of Transport (Victoria), *Freight Futures: Victorian Freight Network Strategy; for a more prosperous and liveable Victoria* (Melbourne: DoT, 2008), 4.

The national policy context

2.9. The Australian Government has provided valuable financial support to the rail industry through the Department of Infrastructure, Transport, Regional Development and Local Government. The Australian Government also plays an important role in promoting the safety and efficiency of Australian railways. Current departmental activities include: assisting the government to manage its Nation Building program rail investments; overseeing the Australian Rail Track Corporation; and working collaboratively with states and territories on an agreed national model for rail safety legislation and associated regulations.

2.10. The Australian Transport Council provides a forum for federal, state, territory and New Zealand Ministers to consult and provide advice to governments on the coordination and integration of all transport and road policy issues. It was established in June 1993, subsuming the functions of the Australian Transport Advisory Council. The Australian Transport Council seeks to achieve a transport system that is efficient, safe, sustainable, accessible and competitive.[19]

2.11. The Australian Transport Council is supported by the Standing Committee on Transport (SCOT), which comprises a nominee of each minister, generally at head of department or agency level. The standing committee is supported by a formal committee structure which provides advice on a range of policy and technical matters.[20] The National Transport Commission was established in 2004 as an independent statutory body to provide advice to the Australian Transport Council.[21]

2.12. In May 2008, the Australian Transport Council agreed to begin a program of national reform to address significant national challenges across all passenger and freight transport. These challenges include climate change, safety, efficiency, congestion and skill shortages. The reform program is aimed at modernising Australia's road, rail, air and sea transport systems to deliver safe and efficient outcomes and encourage future growth in a carbon constrained economy.

Rail safety

2.13. Rail is one of the safest modes of transport. However, there have typically been inconsistencies in the provisions and interpretation of rail safety regulations between jurisdictions. These inconsistencies have restricted the development and efficiency of the national industry.

2.14. The legislative requirements governing rail safety in Victoria are primarily contained in the *Rail Safety Act 2006* and the *Rail Safety Regulations 2006*. The objectives of the Rail Safety Act are to promote the safety of rail operations, the effective management of safety risks in rail operations, continuous improvement in rail safety management, public confidence in the safety of rail transport, and the involvement of relevant stakeholders in rail safety.

2.15. Two key statutory positions have been established: the Director, Public Transport Safety; and the Chief Investigator, Transport and Marine Safety Investigations.

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[19] Australian Transport Council, 'Welcome to the ATC Website,' ATC, http://www.atcouncil.gov.au (accessed 20 January 2010).

[20] Australian Transport Council, 'About the Australian Transport Council,' ATC, http://www.atcouncil.gov.au/about_us/about_us.aspx (accessed 20 January 2010).

[21] The National Road Transport Commission was formed by inter-governmental agreement in 1991 to develop and coordinate regulatory reform for nationally consistent road transport policies and laws. This was extended into rail and inter-modal transport in 2004 when it became the National Transport Commission.

2.16. Under the *Rail Safety Act 2006*, all Victorian rail infrastructure managers and rolling stock operators must at all times have in place a safety management system to ensure the safe management of their rail operations. The safety management system must be documented, provide a comprehensive and integrated management system for all aspects of control measure adopted, and be readily accessible and comprehensible to those who use it. The safety management system of accredited rail operators must incorporate 26 specified elements. The elements that are most relevant to this inquiry include rail safety worker competence, personnel management and information, instruction and training.

2.17. The *Rail Safety Regulations 2006* prescribe requirements for the accreditation of rail infrastructure managers and rolling stock operators, emergency plans, safety management systems, alcohol and drug controls for rail safety workers, the health, fitness and competence of rail safety workers, reporting of accidents, incidents and inquiries, and fees for service.

2.18. The Council of Australian Governments (COAG) has agreed to regulation reforms which will result in the implementation of national rail safety legislation and a nationally consistent rail safety regulatory framework. A new National Safety Regulator is due to be established by the end of 2012. It will administer a single national rail safety Act, which will encompass all aspects of rail safety, including operations, equipment standards, hours of work, fatigue and worker health.[22] It is intended that the national regulator will provide 'best practice' safety regulation, along with operational synergies resulting in a more uniform system and set of processes.[23] The National Transport Commission expects that the safety and efficiency gains to be delivered through a single national rail safety regulator will improve incentives to invest and grow Australia's rail operations.[24]

2.19. The Commonwealth *Transport Safety Investigation Act 2003* supports the safety culture in the Australian rail industry. The Act and its associated regulations cover: the conduct of independent transport safety investigations by the Australian Transport Safety Bureau; reporting of transport safety matters; making of safety action statements including safety recommendations to address safety deficiencies identified by investigations; publication of investigations results; and the protection of sensitive safety information.[25]

Industry stakeholders

2.20. The rail industry is a 24-hour-per-day operation, encompassing a broad range of stakeholders involved in industry policy, service delivery and network maintenance. Key industry stakeholders include state and federal government departments and agencies, infrastructure managers, public transport operators, the companies that own and lease rolling stock, rail industry associations, unions, passenger support companies, local councils, the manufacturing and construction sectors, suppliers and education and training providers.

[22] National Transport Commission, 'Background – National Rail Safety Regulator,' NTC, http://www.ntc.gov.au/viewpage.aspx?documentid=1926 (accessed 11 February 2010).
[23] National Transport Commission, 'National Rail Safety Regulation and Investigation,' NTC, http://www.ntc.gov.au/viewpage.aspx?documentid=1758 (accessed 11 February 2010).
[24] ibid
[25] Australian Transport Safety Bureau, 'Transport Safety Investigations Act 2003,' ATSB, http://www.atsb.gov.au/about_atsb/corporate/trans_safety/tsi_qa.aspx (accessed 11 February 2010).

2.21. Perhaps the most widely known companies in the Victorian rail industry are the three major passenger operators: Metro Trains Melbourne, which recently took over the operation of Melbourne's metropolitan trains from Connex Melbourne; Keolis Downer EDI which recently took over the operation of Yarra Trams from Transdev TSL; and V/Line Passenger which operates train and coach services in regional Victoria. There are also two interstate passenger rail services: the Overland (Adelaide to Melbourne) which is owned and operated by Great Southern Railways; and the XPT (Sydney to Melbourne) which is owned and operated by the State of New South Wales, trading as CountryLink.

2.22. The Victorian rail network (below rail) is managed by four principal rail infrastructure managers: Metro Trains Melbourne, V/Line Passenger, Australian Rail Track Corporation and Victorian Rail Track Corporation (VicTrack). Each rail infrastructure manager has direct responsibility to provide and maintain the infrastructure, and to ensure the safety of rail infrastructure. As the access provider, they must also put in place a process for freight and passenger rail operators to gain access to the network.

2.23. VicTrack owns the majority of Victoria's rail land and infrastructure, including infrastructure with a heritage classification. VicTrack's assets include land and interests in the land (this includes air space above the land), track, signals, buildings and structures, overhead wiring, power substations, communications networks and communications base stations. VicTrack also owns the majority of trains and trams that operate on the Melbourne metropolitan system. The only significant exclusions from VicTrack's ownership of Victoria's rail infrastructure are the Southern Cross Station precinct, privately owned sidings and certain tourist lines.

2.24. Under the *Transport Act 1983*, the majority of VicTrack's assets are transferred to the Director of Public Transport who then leases them to various rail infrastructure managers and rolling stock operators. VicTrack retains responsibility for a small number of active rail sidings and yards and for rail infrastructure not in use.

2.25. VicTrack's charter is to operate commercially in adding value to Victoria's public transport (primarily rail) assets and to support the delivery of public transport services in a safe and efficient manner.[26] VicTrack undertakes a range of commercial activities including: telecommunications services; property leasing and licensing; delivery of civil projects; outdoor advertising; and commercial property development. VicTrack manages more than $100 million worth of capital investment projects each year, on behalf of the Victorian community.[27]

2.26. Under the *Rail Safety Act 2006*, rail infrastructure managers and rolling stock operators in Victoria must be accredited by Public Transport Safety Victoria. There are currently 24 commercial accredited rail operators in Victoria.[28] In addition to the organisations noted above, the following companies are accredited rolling stock operators: Pacific National, Patrick Portlink, SCT Logistics, El Zorro Transport, Genesee and Wyoming Australia, Southern Shorthaul Railroad, Interail Australia and

[26] VicTrack, 'Welcome to VicTrack,' VicTrack, http://www.victrack.com.au/ (accessed 11 February 2010).

[27] VicTrack, 'About VicTrack,' VicTrack, http://www.victrack.com.au/?action=AboutVicTrack/Default (accessed 11 February 2010).

[28] There are also 17 tourist and heritage accredited rail operators in Victoria, such as those operating Puffing Billy in the Dandenong Ranges. While the Committee acknowledges the valuable role of these operators within the community, the focus and intent of this inquiry is to examine skill shortages associated with commercial rail operations.

South Spur Rail Services. The other accredited infrastructure managers include Downer EDI, Patrick Portlink and Southern Shorthaul Railroad. Additionally, there are five accredited companies that operate work trains and track machines: Downer EDI Works, Speno Rail Maintenance Australia, Mainco Melbourne, John Holland (Rail Division) and QR Limited.

2.27. Metlink is a partnership of Melbourne's train, tram and bus operators. Metlink provides customers with a 'one-stop-shop' for information about services, fares and ticketing. Metlink is also responsible for receiving customer feedback, tracking lost property, providing advice on new ticketing initiatives, instigating research, collecting data, collecting revenue and managing a public transport think tank.

2.28. Another relevant body is the Transport Ticketing Authority, which has the dual role of overseeing Victoria's current public transport ticketing system contract (Metcard) as well as procuring and managing the new ticketing system (myki) for Victoria.

2.29. Under the *Rail Corporations Act 1996*, the Essential Services Commission is the economic regulator of train and tram track access services in Victoria. The objectives of the commission are to ensure access seekers have a fair and reasonable opportunity to be provided declared rail transport services, and to promote competition in rail transport services to achieve an increase in the use of, and efficient investment in, rail and tram infrastructure. Under the Act, passenger services are given priority over freight and other services.

2.30. The Australasian Railway Association is the peak industry body representing the interests of all rail operators, track owners and managers, manufacturers of rolling stock and components and other aspects of the rail industry in Australia and New Zealand. The association's seven key objectives for the rail industry over the period 2008 to 2017 are to:

- achieve a single regulatory framework for the rail industry;
- ensure rail is positively advantaged by the emissions trading regime relative to competitors;
- influence policy settings so governments provide sufficient incentives and investments in rail (above and below rail);
- achieve industry collaboration to improve efficiency, productivity and safety;
- campaign to reduce level crossing collisions by working with all stakeholders;
- promote long-term strategic planning and policy to ensure rail's contribution to the economy and society is maximised; and
- facilitate collaboration to define emerging skills and technology needs to ensure efficient supply to support rail industry growth.[29]

2.31. There are two key unions representing employees in the Victorian rail industry. The Rail, Tram and Bus Union represents members across all rail and tram operations in Victoria. The union comprises six divisions: rail operations; tram and bus;

[29] Australasian Railway Association, 'Strategic Plan,' ARA, http://www.ara.net.au/site/Strategic%20Plan.php (accessed 20 January 2010).

infrastructure; locomotive; workshops (fleet manufacture, overhaul, maintenance and service); and administration, supervisory, technical and professional. The Electrical Trades Union represents workers in a variety of industries relevant to rail. These include traction power distribution, data cabling and communication, substations and signalling. Additionally, the Australian Manufacturing Workers' Union represents employees working in rail manufacturing.

2.32. There are a number of professional bodies representing engineers in the rail industry. Engineers Australia is the peak body for engineering practitioners in Australia, and represents all disciplines and branches of engineering with over 88,000 members Australia wide. Engineers working in the rail industry represent a wide range of engineering disciplines, including civil, electronic, electrical, mechanical, industrial and production engineering. The skills of many other engineers and engineering sub-disciplines are also called upon. There are also two professional bodies specifically for railway engineers, the Institute of Railway Signal Engineers Australasia and the Railway Technical Society of Australasia. Additionally, the Association of Professional Engineers, Scientists and Managers, Australia (APESMA) represents a range of professionals, including engineers, scientists, managers, IT professionals, architects and surveyors.

2.33. The Cooperative Research Centre (CRC) for Rail Innovation was established in 2007 as part of the Australian Government's CRC Program.[30] It will invest around $100 million in rail industry research by 2014 ($40 million in cash funding from the Australian Government and $60 million in-kind contribution from participating rail organisations), making it the largest research program in the history of Australian railways.[31] The CRC for Rail Innovation is a collaborative venture between six leading organisations in the rail industry (including the Australasian Railway Association) and seven Australian universities, with another four organisations participating in a supporting role. Victorian participants include the Department of Transport and Monash University. Over 50 research projects are either underway or have been completed

2.34. Of key relevance to this inquiry, there are various national and state-based bodies responsible for advising on skill requirements in the rail industry. The three national advisory bodies are the Transport and Logistics Industry Skills Council; Manufacturing Skills Australia; and the ElectroComms and Energy Utilities Industry Skills Council (trading as EE-Oz Training Standards). The two state-based industry training boards are the Transport and Distribution Industry Training Board and the EPIC Industry Training Board.

2.35. The Rail and Tram Infrastructure Industry Committee provides a state-based forum to represent the local industry on training and development requirements across rail and tram infrastructure. It oversees the development and maintenance of industry competencies to ensure that they meet industry needs, and oversees and facilitates industry-specific training to ensure that industry competencies are maintained. The Rail and Tram Infrastructure Industry Committee is also the advisory body for the Rail Skills Centre at Newport.

[30] The CRC Program links researchers with industry to realise innovation in Australian industry and focus research and development efforts towards adoption and commercialisation.
[31] CRC for Rail Innovation, 'What we do,' CRC for Rail Innovation, http://www.railcrc.net.au (accessed 20 January 2010).

The Victorian passenger rail network

2.36. Victoria has a hub-and-spoke system of roads and public transport which centres on Melbourne. There are few transport links around outer and middle Melbourne, and across regional Victoria. Melbourne itself is a city dominated by one centre, with strong population growth on the fringe.

2.37. Through the Victorian Transport Plan, the Victorian Government aims to integrate transport and land development so that more people will live closer to jobs and other opportunities. While Melbourne's central business district will remain the economic centre of the city, there is a recognised need to improve access to and around six 'central activities districts' being developed at Box Hill, Broadmeadows, Dandenong, Frankston, Footscray and Ringwood.

A snapshot of the passenger rail network

2.38. Victoria's metropolitan train network operates 149 six-carriage trains across 400 kilometres of electrified broad gauge track. The metropolitan network has 15 lines, 211 train stations and a workforce of around 3,500 employees in a wide range of occupations, including train drivers, mechanical and electrical engineers, network operations specialists and customer service officers. The train fleet covers more than 30 million kilometres per year, servicing more than 200 million customer journeys.[32]

2.39. The regional passenger train network runs on 4,100 kilometres of broad gauge track. There are five major lines (and two additional branches) with 20 metropolitan stations and 81 regional stations. The regional passenger train fleet comprises 40 VLocity trains, 41 locomotives, 138 carriages and 21 sprinters. A small amount of the V/Line network is being transferred to the Australian Rail Track Corporation and being converted to standard gauge.

2.40. Melbourne has one of the largest tram networks in the world, with 249 kilometres of double track, a fleet of 501 trams and around 1,900 employees. Trams travel more than 24.8 million kilometres each year on timetabled services and, in 2007–08, there were 158.3 million trips taken. The tram network includes 27 tram routes (plus the City Circle tourist route) with more than 1,770 tram stops. Around 80 per cent of Melbourne's tram network shares road space with other vehicles.

Passenger numbers

2.41. Patronage of public transport is expected to grow strongly in Victoria in coming decades, driven by population increases and expected gains in public transport's modal share. The Victorian Government's goal is for 20 per cent mode share for public transport trips by 2020.[33]

2.42. Melbourne's public transport mode share has increased from nine per cent in 1999 to 13 per cent in 2008, with mode share in central Melbourne increasing from 52 per cent to 65 per cent.[34] The public transport network carries about 450 million passengers each year, with more than 200 million of these trips occurring on trains.

[32] Metro, 'About Us,' Metro Trains Melbourne, http://www.metrotrains.com.au/About-us/Overview.html (accessed 20 January 2010).
[33] Department of Transport (Victoria), *Victorian Transport Plan* (Melbourne: DoT, 2009), 63.
[34] ibid.

The Victorian Government forecasts that by 2012 more than 600 million public transport trips will be made each year, with about 300 million trips on trains, nearly 200 million tram trips and 100 million bus trips.[35] Daily patronage is expected to grow to about 1.5 million by 2036.

2.43. Given such growth, pressure on the network (particularly during morning and afternoon peaks) is expected to continue, even with additional train services and the introduction of new rolling stock.

Privatisation of passenger services

2.44. Victoria's train and tram networks were government owned and operated until 1999. The decision to privatise Victorian rail operations was announced in April 1997. The objectives of privatisation were to secure progressive improvements in the quality of services, increase patronage, minimise the long-term costs of public transport to the taxpayer, transfer risk to the private sector, and to ensure that the highest standards of safety were maintained at all times.

2.45. The model of privatisation implemented was one of franchising by means of fixed-term, re-tenderable contracts. This model enabled the government to test the market to ensure that it was receiving the most competitive possible deal, and to regularly re-test to ensure that remained the case.[36] The model also provided incentives for operators to grow patronage. Modelling indicated that the creation of two metropolitan train and tram businesses was possible, without any significant loss of economies of scale or administrative efficiency.[37]

2.46. This decision was announced in October 1997 and the four new corporatised train and tram businesses (Bayside Trains, Hillside Trains, Swanston Trams and Yarra Trams) replaced the Public Transport Corporation's train and tram divisions on 1 July 1998. It was decided not to split V/Line Passenger as it was deemed too small to allow further disaggregation, especially given there were already private companies operating services to Warrnambool and Shepparton.[38]

2.47. Having decided on the basic model for privatisation, a number of other key decisions were taken about how to structure the franchise. These included:

- Passenger service requirements: Operators would be required to provide at least the same level of service (measured in train and tram kilometres) as that provided at the beginning of the franchise, but with some flexibility to adjust service levels to match changes in demand.

- Performance incentives/penalties: While commercial pressure to grow revenue would be the main incentive to improve service quality, it was decided to benchmark performance outcomes against targets and pay incentives to operators who exceeded targets and penalise operators who failed to meet them.

[35] ibid., 62.
[36] Richard Allsop, 'Victoria's public transport: Assessing the result of privatisation,' *IPA Backgrounder* 19, no. 1 (April 2007): 8.
[37] ibid.
[38] ibid.

- Regulated fares: Multi-modal ticketing was retained and increases in these regulated fares were capped in line with the Consumer Price Index (CPI). Operators could also issue their own tickets.
- Safety: Operators were required to gain safety accreditation from the Director of Public Transport Safety.
- Vertical integration: Franchisees would have infrastructure lease agreements for track, signalling and other infrastructure that would make them responsible for improving infrastructure to cater for growing patronage.
- Rolling stock control: Franchisees were to have control of trains and trams to give them responsibility for their operating environment.[39]

2.48. In August 1999, this landmark reform was implemented and three private operators commenced running five franchises for Victoria's metropolitan rail, metropolitan tram and regional rail networks. As part of the process, the Victorian Government also took the opportunity to sell a number of the rail workshops to private sector engineering concerns. This gave them the opportunity to improve their long-term viability through diversification and gave rail companies the opportunity to purchase services from the most competitive supplier.[40]

2.49. Hillside Trains was subsequently re-branded as Connex, while the two metropolitan National Express franchises, Bayside Trains and Swanston Trams, were re-branded M-Train and M-Tram, respectively.

2.50. National Express walked away from its contracts in December 2002. This resulted in the Victorian Government resuming control of the regional rail network, while the remaining two operators, Connex Melbourne and Yarra Trams, gained full control of the metropolitan train and tram systems, respectively, with some modified conditions.

2.51. The main change related to risk: the Victorian Government took back some of the revenue risks by agreeing to top revenue up if it fell below a threshold, and requiring a sharing of profit above an upper threshold. The change also removed the revenue allocation risk that operators had faced by setting fixed percentages, a more important issue for them than overall revenue risk. Some other risk allocations were also modified. It can be argued that these and other changes help reduce the overall risk to government, as it is not in the community interest for rail operators to fail.[41]

2.52. The initial train and tram franchises operated by Connex Melbourne and Transdev TSL were re-tendered in 2009 and the new operators, Metro Trains Melbourne and Keolis Downer EDI, commenced operations in November 2009. These franchises will run until 2017, with the option to extend the contracts until 2025. The regional passenger network may go out to public tender in 2014.

Rail assets and infrastructure

2.53. Delivery of a safe, reliable and cost-effective rail service requires significant investment in rolling stock and rail infrastructure, together with efficient maintenance

[39] ibid.
[40] ibid., 9.
[41] Robert Williams, David Greig and Ian Wallis, *Results of Railway Privatization in Australia and New Zealand*, Transport Paper TP–7 (Washington D.C.: The International Bank for Reconstruction and Development/The World Bank, 2005), 38.

services. The Victorian rail infrastructure assets are estimated to be $17.6 billion (fair value), with additional value in V/Line locomotives and Southern Cross Station.[42]

2.54. The assets which make up the rail infrastructure are diverse, complex and range in age from less than a year to more than 50 years old. Rail infrastructure includes: the track, sleepers and the foundation forming the track bed; the structures that create a pathway for the track, such as tunnels, bridges, cuttings, earthworks and drainage works; the train and passenger communications systems; structures that provide access to services and provide customer amenity such as station buildings and platforms; the electrical power supply system; the train communications system; buildings associated with the operation and maintenance of the track, such as stations, depots and yards; and plant, machinery and other equipment used for maintenance and renewal tasks. Additionally, there is a vast quantity of associated rail infrastructure which supports rail operations.

2.55. The type of rolling stock currently in service is also diverse, representing different procurement decisions made over time. For example, the metropolitan train fleet comprises four types of trains: 14 Hitachi trains which came into service between 1973 and 1981; 186 Comeng trains which were introduced between 1981 and 1990; 58 X'Trapolis trains which were introduced between 2002 and 2005; and 36 Siemens trains which came into service during 2003 and 2004. An additional 38 X'Trapolis trains will be introduced onto the metropolitan network by 2014. On the regional network, there are three main types of trains: four locomotive types introduced to the network between 1965 and 1987 which can haul four different carriage classes; 20 sprinters which came into operation between 1993 and 1995; and 39 VLocity trains (18 two-car sets and 21 three-car sets) which have been introduced to the network since 2005. Under the Victorian Transport Plan it is anticipated that the procurement of up to 20 additional carriages will be announced in 2010.[43]

2.56. Failure of any rail assets or infrastructure can cause train delays, cancellations and/or safety-related incidents. Some of the major causes of infrastructure incidents include problems with the track or signalling infrastructure (including track circuits, points, signals and track and signalling power), overhead faults, track maintenance, problems with the monitors which provide vision of platforms to train drivers, and vandalism. The main types of train faults likely to result in service disruption tend to be problems with the brakes, doors or train overheads.

Infrastructure maintenance and renewal

2.57. The lifespan of rail assets and infrastructure varies considerably. Rolling stock typically lasts around 30 years (with a mid-life refurbishment) while rail infrastructure has a life of anything from 15 to 60 years or more. For example, wooden sleepers have a relatively short lifespan, electrical overhead has a medium lifespan and bridges and other structures have a longer lifespan.[44]

2.58. Maintenance and renewal activities include regular inspections and routine maintenance to check the condition and functioning of infrastructure, the planned renewal of worn parts, and the unplanned work required if infrastructure or assets fail

[42] Supplementary information provided by VicTrack, March 2010.
[43] Department of Transport (Victoria), *Victorian Transport Plan* (Melbourne: DoT, 2009), 71.
[44] David Greig, 'Rail privatisation in Victoria,' *Agenda* 9, no. 3 (2002): 241.

without warning. Investment in timely and appropriate maintenance lowers the risk of poor performance and safety-related incidents and avoids the need for more costly remedies where problems have grown unchecked.[45] Considerable savings can be made by extending the life of assets, although this should be balanced with the need to upgrade systems for the future, especially where technology has advanced considerably.

2.59. At the same time as industry privatisation, responsibility for maintaining the metropolitan, intrastate and interstate rail infrastructure was contracted to private companies through leasing arrangements. This process required careful consideration of incentives for ensuring infrastructure is properly maintained.

2.60. The Department of Transport is responsible for managing maintenance arrangements on behalf of the Victorian Government. The department must ensure lease arrangements work effectively to deliver the type and quality of services expected by the community. Infrastructure should not be allowed to deteriorate to the point that the government ends up paying for a shortfall in maintenance during the lease period after the infrastructure is returned. Similarly, the department is responsible for ensuring cost-effective outcomes when the government contributes to the cost of maintenance and renewals.[46]

2.61. The Victorian Government communicated its objectives for asset maintenance and renewal as part of the 2003 re-franchising negotiations. These require infrastructure managers to ensure that over the 5-year lease period:

- the infrastructure remains fit-for-purpose in terms of its ability to deliver train services safely and reliably;
- maintenance and renewal activities are consistent with a longer-term whole-of-life approach with 'no reduction in the average remaining effective life of the pool of assets';
- they provide clear evidence to the Department of Transport that they have achieved these objectives; and
- they maintain an adequate knowledge of the rail assets and the costs associated with maintenance and renewal.[47]

2.62. In 2007, the Victorian Auditor-General reported on how well Victoria's metropolitan, regional and interstate rail infrastructure had been maintained under the current lease arrangements. In summary, the audit found:

- The condition of the track, electrical and signalling infrastructure on the metropolitan train network was observed to be fit-for-purpose, although parts of the signalling infrastructure required improved maintenance regimes and further, targeted renewals.[48]

[45] Victorian Auditor-General's Office, *Maintaining Victoria's Rail Infrastructure Assets*, Victorian Auditor-General's Report (Melbourne: VAGO, 2007), 1.
[46] ibid., 14.
[47] ibid., 23.
[48] ibid., 21.

- The condition of the intrastate rail infrastructure had deteriorated and the level of maintenance and renewal activity was insufficient to sustain the levels of service found in 1999. This was evidenced by increasing numbers of infrastructure-related safety incidents and temporary speed restrictions.[49]

- The condition of the interstate rail infrastructure was observed as fit-for-purpose, although the results of the condition survey required by the lease were inconclusive about whether the infrastructure condition had deteriorated or improved. Furthermore, Public Transport Safety Victoria expressed concern over isolated sections of the interstate network identified as requiring urgent risk assessment and repair.[50]

2.63. The metropolitan and regional rail infrastructure, as well as a large part of the rolling stock, has reached a point where substantial works need to be carried out to ensure the continued safe and efficient operation of rail services. Therefore, considerable investment and trained, fully competent workers will be the keys to the success of the rail network over the coming decade.

2.64. The Victorian rail network is expected to benefit from continued government investment over coming years, through projects such as the proposed new rail tunnels, regional rail link and procurement of new trains and trams. These projects are outlined in the Victorian Transport Plan.[51]

A modernised metro system

2.65. The Victorian Transport Plan outlines a plan to create a mass-transit, metro-style public transport system aimed at overcoming some of the key challenges facing the metropolitan rail system, such as overcrowding and reliability problems on the train and tram lines.

2.66. The plan proposes a system with underground extensions, expansions to growth areas, new and upgraded railway stations, improved accessibility for passengers, more frequent train services, and almost double the capacity of the current network.[52] It also proposes the procurement of up to 70 new six-car trains, implementation of a smartcard ticketing system, construction of a rail tunnel, elimination of level crossings in critical locations, and the employment of extra police and station staff to the network.[53] The modernised system also proposes additional trams, and giving higher priority to trams on shared roads.[54] Operational changes to improve efficiencies across the train network are also planned, and there will be continued integration of bus timetables with train services.[55]

2.67. To support the new metro system, signalling is being upgraded, stabling and maintenance facilities are being improved, and a new train control system will soon be commissioned with improved passenger information systems. A new timetable will also be progressively implemented from early 2010.[56]

[49] ibid., 68.
[50] ibid., 86, 89.
[51] Department of Transport (Victoria), *Victorian Transport Plan* (Melbourne: DoT, 2009).
[52] ibid., 14.
[53] ibid., 71–72
[54] ibid., 70.
[55] ibid., 72.
[56] ibid., 71.

2.68. Rail projects already underway in the metropolitan area include:

- Laverton Rail Upgrade, which will result in additional track being built between Laverton and the Altona Loop junction so that services can start and finish at Laverton Station;
- Westall Rail Upgrade, which is aimed at alleviating problems on the Pakenham and Cranbourne lines;
- Clifton Hill Rail Project, which will duplicate the Hurstbridge line between Clifton Hill and Westgarth;
- Craigieburn Track Upgrade, which will increase stabling facilities and provide for extra track at Craigieburn Station; and
- North Melbourne Station Upgrade.[57]

2.69. The Victorian Transport Plan suggests that planning for the development of future rail lines is underway to develop and preserve options for a range of future rail lines. These include the new growth areas of Clyde, Mernda, Aurora and North Epping, Donnybrook/Beveridge, Upfield/Roxburgh Park and electrification of the line to Baxter.[58] While an Airport Rail Link is not currently considered to be viable, the Victorian Government has reserved a corridor identified during an earlier planning study for such a link, and intends to reconsider the market demand in the middle of this decade.[59] Other long-term proposed projects include: an additional rail line from Blackburn to Ringwood; the second stage of the Melbourne Metro Tunnel connecting St Kilda (Domain) to Caulfield and additional tracks from Caulfield to Westall; stabling on the Werribee corridor; a new station at Southland; an upgrade of Richmond Station; and a new tram link along Dynon Road.[60]

Regional rail projects

2.70. In September 2000, the Victorian Government announced a commitment to improving Victoria's regional rail network. The Regional Fast Rail project involved a substantial upgrade of Victoria's four main regional lines: Ballarat, Bendigo, Geelong and Latrobe Valley. Works included the upgrade of 500 kilometres of track, installation of 400 new and upgraded railway signals, installation of more than 460,000 concrete sleepers, the upgrade of 170 level crossings, introduction of new rail safety systems, and new fibre optic signalling that provides broadband opportunities in regional areas. The project also included delivery of 38 new VLocity trains which travel at speeds up to 160km/h. The track and signalling works were completed and trains on the upgraded lines returned to service between December 2005 and August 2006. The Regional Fast Rail project also facilitated the introduction of a new V/Line timetable across the Victorian regional rail network, resulting in 400 more services per week for major regional centres.

2.71. Under the Victorian Transport Plan there is a proposed doubling of capacity on regional rail services, with more tracks, new and refurbished trains, and improved stabling and maintenance workshops. The current order of 54 locally built new V/Line

[57] ibid., 66–67.
[58] ibid., 83.
[59] ibid.
[60] ibid.

train carriages will be increased by up to 20, with the first 54 carriages due to be in service by 2012. The new carriages will add 1,500 seats to the regional rail fleet.[61] Another 56 carriages will be refurbished.[62]

2.72. Passenger services to Maryborough are expected to commence in mid 2010. The Victorian Government also intends to assess the feasibility of returning passenger services on the Mildura corridor once a current upgrade of the freight line is complete.[63]

2.73. The Victorian Government's current phase of investment in the regional rail network is the Regional Rail Link, which will separate the regional and metropolitan train services. The project includes a new 40 kilometre twin-track from West Werribee to Southern Cross Station via Tarneit and Sunshine, the rebuilding of Sunshine Station with extra platforms, the construction of a new rail bridge over the Maribyrnong River, and new platforms at Southern Cross Station.[64]

2.74. Investment in rolling stock and rail infrastructure by the Victorian Government will be supported by additional funding from the Australian Government. The Australian Rail Track Corporation has funded 17 projects to improve the efficiency on the nation's railways. The projects (including four in Victoria) will underpin continued demand for a skilled workforce across a number of industries, including the rail transport sector.[65]

2.75. The construction phase of three of the four Victorian projects has been completed and these projects are now awaiting commissioning. These include: two additional passing lanes on the Melbourne–Junee corridor; the completion of concrete sleepers along the Melbourne to Sydney corridor; and the construction of the Wodonga Bypass as double track.[66] The fourth project, the Western Victoria Track Upgrade (New South Wales/Victoria) is yet to commence. This project will upgrade sections of track in Western Victoria, including re-railing, increasing ballast depth, and providing for the completion of concrete sleepers between Melbourne and Adelaide. Funding has also been allocated for the installation of around 59 new boom gates and other safety measures at rail crossings.[67]

The Victorian freight rail network

2.76. Victoria's metropolitan and regional freight tasks are carried on an extensive system of freight infrastructure that links Australia to the rest of the world. This system includes roads, rail lines, commercial sea ports, freight airports and intermodal terminals. Victoria's freight transport and logistics activities contribute an estimated 14.7 per cent to Gross State Product and 334,000 jobs in freight and logistics activities across all industry sectors. Around 20.4 billion tonne kilometres of freight are moved into and out of Victoria, and to and from the Port of Melbourne and regional Victoria each year. The freight and logistics industry is not only a major part

[61] ibid., 53.
[62] ibid., 45.
[63] ibid., 54.
[64] ibid., 52.
[65] Australian Government, *Nation Building Economic Stimulus Plan: Commonwealth Coordinator-General's Progress Report to December 2009* (Barton: Commonwealth of Australia, 2010), 37.
[66] Department of Education, Employment and Workplace Relations, Written Submission, April 2009, 9.
[67] ibid.

of the Victorian economy, it also supports other industries critical to the national economy, including manufacturing, services and agriculture.[68]

2.77. An effective freight network has a range of benefits for businesses and individuals. Transport costs flow directly to the costs of everyday goods and services, and affect the competitiveness of industry exports. The economic cost of congestion in metropolitan Melbourne to all network users is estimated to be between $1.3 billion and $2.6 billion per annum. It is estimated that without substantial intervention, the cost of congestion will have doubled to at least $2.6 billion to $5.2 billion annually, by 2020.[69] The location of freight activity areas and the way we move goods between them, including the modes, types of vehicles, the routes and the times of day, can also have a significant impact on the amenity of particular communities and the liveability of our state generally.[70]

2.78. To remain competitive, the freight and logistics industry must be responsive to change, whether this is change in patterns of supply and demand, change in the Victorian and Australian economies, change in the local and global trading landscapes, or change in equipment and technology. Some of the key drivers of change identified in the industry are: significant growth in the freight task; the impact of increasing congestion on freight costs; climate change; increased public awareness of sustainability and liveability issues; higher security and safety standards; the changing economy; increasing oil prices; labour and skill shortages; and changes to industry structure and technology.[71]

2.79. The freight rail task in regional Victoria consists of three discrete segments: bulk grains, primarily for export through Victorian commercial ports; containerised primary produce (dairy, fruit, meat and wine) movements to and from the Port of Melbourne; and general industrial transport including logs, quarry materials, cement and, potentially, mineral sands.[72] Intrastate freight rail in Victoria is subject to significant volatility due to the agricultural commodities carried, which can be affected by factors such as drought.

Overview of the freight rail network

2.80. Victoria's freight rail system comprises 825 kilometres of standard gauge interstate network leased to the Australian Rail Track Corporation, and the 3,670 kilometre intrastate, non-urban rail network leased to V/Line Passenger (including 1,400 kilometres of combined passenger and freight network and 2,270 kilometres of freight-only network). There is an established network of intermodal terminals on Victoria's freight rail network, located at Horsham, Mildura, Wodonga, Warrnambool, Ballarat, Shepparton, Morwell, Donald, Boort, Bairnsdale, Laverton, Altona and Somerton. These terminals allow freight to be moved by rail and then transported a relatively short distance by road to its destination. These intermodal terminals typically handle grain and containerised freight.

2.81. Freight rail was government owned and operated until 1999, when V/Line Freight (later known as Freight Australia) was sold to Rail America for $163 million. At the

[68] Department of Transport (Victoria), *Freight Futures: Victorian Freight Network Strategy; for a more prosperous and liveable Victoria* (Melbourne: DoT, 2008), 3.
[69] ibid., 93.
[70] ibid., i.
[71] ibid., 9–11.
[72] ibid., 55.

same time, the track (3,764 route kilometres plus 454 kilometres of lines not in use) was leased to the new owner for three consecutive periods of 15 years, with a presumption of renewals beyond that.[73] At the time of sale, V/Line Freight revenue was around $118 million on a freight task of 6 million tonnes. The business employed around 750 staff and earnings before interest and taxes (EBIT) was around a $5 million loss.[74]

2.82. The privatised freight railway made improved and increasing profits for the first three years. It then suffered losses as its strong reliance on grain was exposed by a sustained drought. Rail America sold the track and rolling stock to Pacific National in 2004 for $285 million.[75] In May 2007, the Victorian Government 'bought back' the lease of the regional rail network for $133.8 million.

2.83. Over recent years, the length of interstate freight trains has increased from 1,500 metres to 1,800 metres, while the permissible axle load has increased to 21 tonnes (and in some cases, up to 23 tonnes). These changes have resulted in an increase in the productivity of interstate trains.[76] On the other hand, the standards for Victorian intrastate regional freight trains have not improved since the 1970s. Regional freight trains are typically less than 1,000 metres long and operate at only 19 tonne axle loads. This restricts their productivity and viability compared with road transport, which has advanced considerably over the past three decades.[77] Although handling longer, heavier freight trains presents various challenges to rail and terminal infrastructure, these challenges will need to be addressed to achieve productivity improvements on the intrastate network.[78]

2.84. It is recognised that the freight-only rail network has deteriorated over recent decades. However, the freight network has benefited from substantial investment in recent years, resulting from the 'buy back' of the Victorian intrastate rail network lease, the commencement of key rail projects by the Victorian Government (in cooperation with the Australian Government and the Australian Rail Track Corporation) and the implementation of the Victorian Rail Freight Network Review recommendations.

Freight volumes and growth

2.85. Since 1995, the freight handled by the Victorian freight and logistics industry has grown at around 5 per cent per year.[79] Victoria's total freight task has reached 560 million tonnes across all modes, with over 12 billion tonne kilometres of freight moving within metropolitan Melbourne each year. Currently, road trucks carry 89 per cent of the freight in Victoria by volume. Sea and rail represent 9 per cent and 2 per cent, respectively, while air freight moves only 0.1 per cent of the task in tonnes.[80]

[73] Satisfactory adherence to the access regime is the main criterion to be met for each 15-year renewal. There are no obligations on track maintenance other than for certain lines used by country passenger trains.
[74] Robert Williams, David Greig and Ian Wallis, *Results of Railway Privatization in Australia and New Zealand*, Transport Paper TP–7 (Washington D.C.: The International Bank for Reconstruction and Development/The World Bank, 2005), 27.
[75] ibid., xi.
[76] Department of Transport (Victoria), *Freight Futures: Victorian Freight Network Strategy; for a more prosperous and liveable Victoria* (Melbourne: DoT, 2008), 12.
[77] ibid., 12.
[78] ibid.
[79] ibid., 13.
[80] ibid.

2.86. Intrastate rail freight remains a less favoured option for a number of reasons: it is not cost competitive with road; it lacks the distribution networks to allow for point to point delivery; and it has low turn-around times. Interstate movements account for 93 per cent of rail freight, with intrastate rail freight making up the remaining 7 per cent.

2.87. The Victorian Freight Network Strategy predicts that by 2020, freight volume across all transport modes will increase by 47 per cent. By 2030, the freight task will almost double, with the Port of Melbourne handling nearly seven million containers each year, with a 57 per cent increase in the number of ships visiting the port.[81]

2.88. Victoria's interstate rail freight task has been growing at 2.3 per cent per year since 1972. As improvements are made to Australian rail corridors, interstate rail will continue to be a viable alternative to interstate road transport.[82] The Melbourne to Sydney freight corridor is the most significant inter-capital freight corridor in the nation, and significantly larger than any other corridor to and from Melbourne. The efficiency of this corridor is crucial to the Victorian economy. Currently, rail's average share of freight traffic in this corridor is around 7 to 8 per cent. Annually, 11 million tonnes of freight are handled on the corridor, and the future freight task is expected to grow to more than 18 million tonnes per year by 2020.[83]

The Victorian Freight Network Strategy

2.89. The Victorian Government commissioned a review of the Victorian freight network in 2007. The review provided a plan for the revival of rail freight, with recommendations to address access pricing, infrastructure investment and a number of regulatory and institutional issues. It recommended that access fees be reduced in order to improve the viability of above rail operations and to provide an incentive for industry to commit to rail.[84] It also recommended major investment in rehabilitation of the network, based on a hierarchy of 'platinum', 'gold', 'silver' and 'bronze' lines.

2.90. The Victorian Government's response to the Victorian Freight Network Review was outlined in Freight Futures. The key goals of Freight Futures are to: maintain and improve the efficiency of the freight network; ensure the availability of sufficient capacity in the freight network to handle the growing freight task; and enhance the sustainability of the freight network.[85] Rehabilitation of lines will occur as follows:

- Platinum (the base network): This track will be maintained by virtue of being part of the V/Line passenger network, the Australian Rail Track Corporation interstate network or the declared AusLink network (which includes the Mildura line).
- Gold: These line sections are the first priority for rehabilitation and restoration to original track standard. In addition, the Australian Rail Track Corporation will restore the Maroona to Portland line, which it has leased from the Victorian Government.

[81] ibid., 15.
[82] ibid., 89.
[83] ibid., 54.
[84] ibid., 55.
[85] ibid., 7.

- Silver: Based on undertakings from the grain industry to secure train capacity and improve silo loading facilities, the Victorian Government will upgrade silver lines including standardisation of the Benalla to Oaklands line.
- Bronze: As part of the Green Triangle Freight Action Plan, selected bronze lines will be rehabilitated.[86]

Conclusion

2.91. The rail industry supports social connectedness and the competitiveness of local, state and national economies by providing urban, inter-urban, regional and interstate freight and passenger services. The industry's future development is of strategic significance to Victoria and is, in turn, connected to and supported by a number of related industries. [87]

2.92. It is therefore essential that Victoria has a highly skilled rail workforce that is ready to respond to continued growth and other challenges within the industry. The first step in achieving this is to define the skill needs in the industry and identify any current or potential shortages in these skills. Governments and industry must respond to this information with detailed workforce planning strategies that will ensure the necessary knowledge and skills are available to the industry now and in the future.

[86] ibid., 55.
[87] Victorian Government, Written Submission, July 2009, 3.

Chapter 3

Rail occupations and skill shortages

3.1. The Victorian rail system is experiencing unprecedented growth in patronage, while at the same time planning large-scale investments in infrastructure projects that will significantly improve the operation of the overall system. An adequate supply of appropriately skilled and qualified labour will be fundamental to meeting the challenges of these developments. Rail in the future will rely on the retention of skills to support the existing systems, as well as the skills of the next generation of employees who will be responding to the economic, social, environmental and technological challenges of a modern rail system.

The rail industry workforce

3.2. To understand the potential skill shortages in the rail industry, it is necessary to first have knowledge of the various occupations and job roles involved in rail, and the range of skills and qualifications required to undertake these roles successfully. It is also necessary to understand the characteristics of the existing workforce, including its composition by age and gender, and the skills and qualifications currently held. These factors can influence the extent of current and future skill shortages, and the success or otherwise of any workforce strategies devised to respond to them.

Size of the industry

3.3. The Australian Bureau of Statistics estimated that there were approximately 5,150 people employed in the Victorian rail sector in 2006.[88] However, as noted by the Victorian Government, this data adopts a relatively narrow definition of the rail industry.[89] For example, data for tram drivers, perway workers and people operating rail freight terminals has been included in other transport or building and construction industry data, rather than under the rail industry classifications.

3.4. The Committee's analysis of websites and other information published by major rail organisations reveals at least 8,500 people directly employed in the Victorian rail industry. Metro Trains Melbourne has 3,562 employees,[90] Yarra Trams has 1,987[91] employees and V/Line Passenger has 1,300 employees.[92] Annual reports show that the Department of Transport, VicTrack and the two regulators (Essential Services

[88] Victorian Government, Written Submission, July 2009, 5.
[89] ibid.
[90] Supplementary information provided by Metro Trains Melbourne, March 2010.
[91] Supplementary information provided by Yarra Trams, March 2010.
[92] Supplementary information provided by V/Line Passenger Pty Ltd, July 2009.

Commission and Public Transport Safety Victoria) employ at least 900 people who are directly working in and supporting rail activities. According to the Australasian Railway Association, 1,000 people are employed in rolling stock manufacturing and maintenance in Victoria and another 5,000 to 10,000 are employed in their supply chain.[93] The Committee notes that there are also a significant number of service industry workers supporting the rail industry.

3.5. According to the Australasian Railway Association, over 40,000 people are directly employed in diverse occupations in over 150 rail organisations nationally. In its submission to the inquiry, the association suggested that with the inclusion of people employed in the supply chain and service industries, the number of employees in the rail industry could be as high as 100,000.[94] Therefore, while the rail industry has not been classified as a large employer, it is clearly an important contributor to the Australian economy.

3.6. The Department of Education, Employment and Workplace Relations has reported expected growth in rail industry employment nationally, of 2.1 per cent per annum to 2012–13, or the equivalent of 5,600 new jobs over that period, with continued growth beyond that time. [95]

Job categories and occupations

3.7. The Victorian rail workforce is made up of numerous diverse roles, ranging from non-skilled work through to skilled trades, associate professionals and professional roles.

3.8. The rail industry has classified certain job roles based on their criticality to rail operations. Although many jobs are considered important, the criteria for assessing whether a job is critical include: roles that require skills that organisations have found difficult to source; roles that require skills that require a long time to develop or grow within the organisation; roles that are critical to the core business of the organisation; and roles that constitute a 'critical mass' within the organisation. The Committee notes that many of these roles are essential to ensure the safety of the network. These critical job roles are then categorised into four broad job families: engineers; trades and trade equivalents; operations; and professionals (refer Table 3.1).

[93] Australasian Railway Association, Appendix A to Written Submission, April 2009, 3.
[94] Australasian Railway Association, Written Submission, April 2009, 1.
[95] Department of Education, Employment and Workplace Relations, Written Submission, April 2009, 4.

Table 3.1 Critical job families and job roles within the rail industry

Critical job family	Critical job roles
Engineers	• Electrical and signalling engineers • Mechanical engineers • Civil engineers • Project managers
Trades or trade equivalents	• Electricians • Signalling • Civil/Perway • Mechanical
Operations	• Drivers • Train / network controllers or operators • Network planners • Transit operators
Professionals	• Surveyors • Commercial contract managers • Business and policy analysts

Source: Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 23.

3.9. The 2006 Census of Population and Housing reported that train and tram drivers accounted for 27.9 per cent of rail industry employment in Victoria.[96] Other readily identifiable roles within the industry include customer service staff, authorised officers and track workers. The remaining workforce comprises a broad range of occupations including plant operators, metal fitters and machinists, transport services managers, electricians, structural steel and welding trades workers, supply and distribution managers, contract, program and project administrators, transport and despatch clerks, engineering professionals and accountants.

3.10. Evidence suggests that the occupational mix in the rail industry is changing. A recent study of the Australian rail industry workforce used Census data to investigate changes in employment shares by occupation between 1996 and 2006.[97] The study found that in absolute terms, the greatest falls in employment in the industry were among labourers and related workers. The Committee notes, however, that this apparent decline may be at least partially attributable to the outsourcing of work, as contract workers may not be identified as rail-specific employees within the data.

3.11. The same study also reported a large decrease in the number of middle level production and transport workers, as well as trade professionals, including people in mechanical and fabrication engineering, electrical and electronics engineering and construction. The decline in some trade professionals could be at least partly attributed to the sourcing of rolling stock overseas. Additionally, there was a considerable decrease in employment among middle level service workers. During the same period, the largest increase in employment was among the professional

[96] ibid., 11.

[97] Anusha Mahendran and Alfred Michael Dockery, 'Skills Shortages – Will they derail the Australian Rail Transport Industry (ARTI)?' (paper presented at the Path to Full Employment Conference, Newcastle, 4 December 2008), 4.

occupational groups, with increases also recorded for managerial staff and associate professionals.[98]

Rail industry qualifications

3.12. Within the vocational education and training (VET) sector, the main training package relevant to the industry is the Transport and Logistics Training Package. Specific qualifications which sit within this package include rail operations and rail infrastructure. The EE-Oz Training Package also has a range of qualifications relevant to rail infrastructure, including signalling and overhead.

3.13. The higher education qualifications of most interest to the inquiry are mainly engineering qualifications. All Victorian universities currently offer undergraduate degree courses in a range of engineering disciplines. While rail engineering has traditionally been a part of mechanical, civil and electrical engineering, the growth of electronic components within railway systems means that electronic engineering and computing are increasingly relevant.

3.14. There are a small number of rail-specific postgraduate programs available for engineers. Central Queensland University offers rail operations management and railway signalling and telecommunications, the University of Wollongong offers rolling stock engineering, and Queensland University of Technology offers railway infrastructure.

Worker characteristics

3.15. The Victorian rail workforce remains predominantly male, with females comprising only 11 per cent of the workforce. An even lower proportion of women are employed in trade and technical roles across the industry.[99]

3.16. Data from Skills Victoria shows that nearly half of rail sector employees in Victoria (excluding tram workers and rail-related manufacturing employees) have no formal qualifications beyond year 12. Around 28 per cent have certificate I, II or III qualifications and a further 23 per cent hold qualifications at diploma or above levels.[100] A recent report on skill shortages in the Australian rail transport industry showed a similar qualification profile for the national industry.[101]

3.17. The Committee acknowledges that the formal qualification profile does not represent the full picture relating to training and skills development in the rail industry. Historically, much training for the rail industry was completed in-house. This was especially the case for occupations such as signallers, schedulers and stationmasters. Therefore, while a large proportion of the industry holds relatively low levels of formal qualifications, this does not suggest that they are necessarily working in unskilled or low skilled roles.

3.18. The Committee heard that, on average, the rail industry workforce is older than workforces in comparable industries, such as manufacturing and building and construction.

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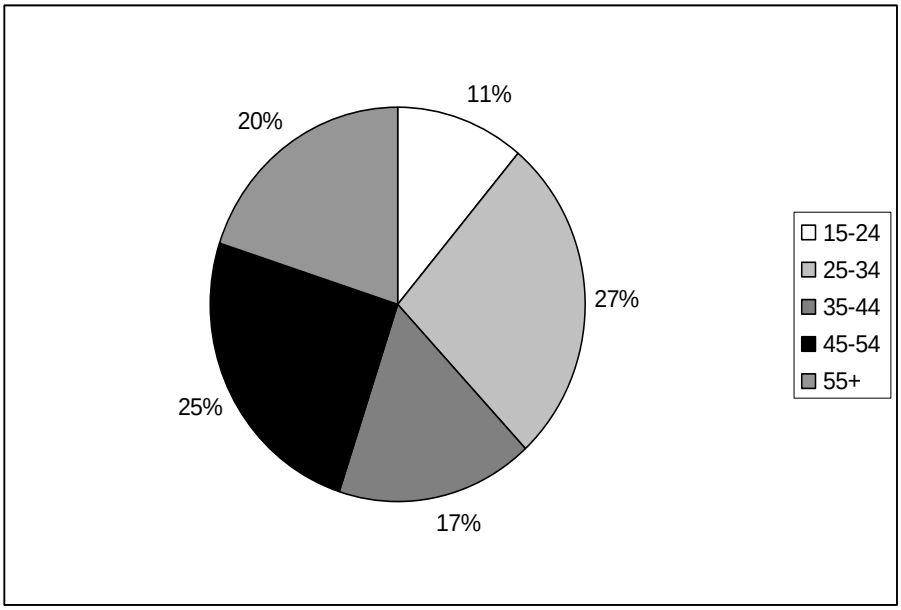
[98] ibid., 5.
[99] Victorian Government, Written Submission, July 2009, 10.
[100] ibid., 12.
[101] Anusha Mahendran and Alfred Michael Dockery, 'Skills Shortages – Will they derail the Australian Rail Transport Industry (ARTI)?' (paper presented at the Path to Full Employment Conference, Newcastle, 4 December 2008), 5.

3.19. Figure 3.1 shows the age profile of the Victorian rail industry workforce in 2008.

Figure 3.1: Victorian rail industry workforce by age group (%) (2008)



Source: Victorian Government, Written Submission, July 2009, 11.

3.20. Skills Victoria reports that the average age of rail industry workers increased from 42.8 years in 2001, to 46 years in 2008.[102] Approximately half of the rail industry workforce is now close to 50 years of age. Based on current trends, the share of the 15 to 19 year-old group is expected to decrease over the next five years, while the proportion of 55 to 59 year-olds will increase significantly.[103]

3.21. Victoria's rail industry workforce is concentrated in metropolitan Melbourne, where almost 80 per cent of all rail workers are located. The geographical breakdown is similar across the various segments of the industry. The majority of regionally-based rail industry employees work in rail freight transport, however, the number of regionally-based employees in both passenger and freight services is declining.

Workforce turnover

3.22. In general, turnover of employees in the rail industry is low.[104] The Committee heard that V/Line Passenger has a turnover rate of around 4.8 per cent,[105] while Connex Melbourne had a turnover rate of around 6 per cent.[106] This compares to an average turnover rate for all industries of 14 per cent.[107] However, the Australasian Railway Association reports that turnover amongst new recruits in the industry is up to five times higher than for any other group of workers in the industry.[108]

[102] Victorian Government, Written Submission, July 2009, 11.
[103] ibid.
[104] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 2.
[105] Supplementary information provided by V/Line Passenger Pty Ltd, July 2009.
[106] Supplementary information provided by Connex Melbourne, July 2009.
[107] ibid.
[108] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 2.

3.23. Data provided to the Committee indicates that the majority of the Victorian rail workforce has 10 or more years tenure, with many approaching 30 or more years in the industry. The V/Line workforce profile shows 4.2 per cent of its workforce with 10 to 14 years tenure and 23.2 per cent with 30 or more years in the industry.[109] QR Limited provided the Committee with similar data, with 33 per cent of its employees having less than four years of service, 36 per cent with 5 to 24 years of service and 31 per cent with 25 years or more.[110]

Skill shortages

3.24. While accurate, comprehensive data is not widely available, there is widespread agreement that the rail industry is currently experiencing various skill shortages and recruitment difficulties.

3.25. A submission from the Victorian Government outlined how skill shortages in the rail industry have moved with overall economic conditions. Thus, skill shortages occurred in rail in Victoria during the period of strong economic growth, with the pressure on the availability of labour subsequently easing in line with recent weaker domestic economic conditions. However, the Victorian Government emphasised that while the economic downturn was likely to have a temporary effect on skill and labour shortages, there are underlying systemic factors that have or will have an impact on the availability of labour and skills into the future.[111] These factors, including the ageing workforce and increasing competition for talent, are expected to affect a number of industries.

Definition of skill shortage

3.26. A skill shortage occurs when the demand for workers for a particular occupation is greater than the supply of workers who are qualified, available and willing to work under existing market conditions. Thus, skill shortages exist when employers are unable to fill or have considerable difficulty in filling vacancies for an occupation at current levels of remuneration and conditions of employment, and a reasonably accessible location.[112]

3.27. Skill shortages exist typically for specialised and experienced workers, and can therefore coexist despite relatively high overall unemployment within the occupation. An occupation may be assessed as in shortage even though not all specialisations of the occupation are in shortage, and occupations may be in shortage in some regions and not in others.[113] Skill shortages are different to recruitment difficulties and skill gaps.

3.28. Recruitment difficulties occur when employers have some difficulty filling vacancies for an occupation. There may be an adequate overall supply of workers, but certain employers are still unable to attract and recruit sufficient employees with the required skill set. The recruitment difficulties may be due to characteristics of the industry,

[109] Supplementary information provided by V/Line Passenger Pty Ltd, July 2009.
[110] Supplementary information provided by QR Limited, September 2009.
[111] Victorian Government, Written Submission, July 2009, 9.
[112] SkillsInfo, 'Skill shortages,' SkillsInfo, http://www.skillsinfo.gov.au/skills/SkillsIssues/SkillShortages/ (accessed 25 February 2010).
[113] ibid.

occupation or employer, such as relatively low remuneration, poor working conditions or image, unsatisfactory working hours, location, ineffective recruitment processes, or organisation-specific and highly-specialised skill needs.[114]

3.29. Skill gaps exist where an organisation's existing employees lack the required qualifications, experience and/or specialised skills to meet its skill needs. Skill gaps may occur even after recent recruitment efforts, particularly where there is not a large pool of quality applicants, thereby causing an employer to recruit workers who need further training and/or experience.[115]

3.30. A recent paper published by the National Centre for Vocational Education Research provides a useful typology for classifying skill shortages and associated recruitment difficulties:

- Level 1 shortage: there are few people who have the essential technical skills who are not already using them and there is a long training time to develop the skills.
- Level 2 shortage: there are few people who have the essential technical skills who are not already using them but there is a short training time to develop the skills.
- Skills mismatch: there are sufficient people who have the essential technical skills who are not already using them, but they are not willing to apply for the vacancies under current conditions.
- Quality gap: there are sufficient people with the essential technical skills who are not already using them and who are willing to apply for the vacancies, but they lack some qualities that employers consider important.[116]

3.31. Evidence to the inquiry generally used the term 'skill shortage' in a generalised sense and it was therefore difficult for the Committee to distinguish between genuine (level one and level two) skill shortages and other difficulties experienced by rail organisations in attracting and retaining appropriately skilled employees. Genuine skill shortages, especially where identified as critical to the safety and efficiency of the industry, were of greatest interest to the Committee. Nonetheless, the Committee believes that evidence to the inquiry also provides useful information for addressing associated recruitment and retention difficulties. Therefore, recommendations contained in this report aim to assist the Victorian rail industry to address each of the four types of skill shortages and skill gaps.

[114] SkillsInfo, 'Understanding skill shortages,' SkillsInfo, http://www.skillsinfo.gov.au/skills/SkillsIssues/UnderstandingSkillShortages/ (accessed 25 February 2010).
[115] ibid.
[116] Sue Richardson, *What is a skill shortage?* (Adelaide: National Centre for Vocational Education Research, 2007), 7.

Measuring skill shortages

3.32. The mapping of skill shortages in Australia largely occurs at a national level. The Department of Education, Employment and Workplace Relations compiles lists of occupations that are considered to have skill shortages, used for advice to job seekers, skilled migration policies and assistance for apprenticeships and traineeships. Occupations are identified for inclusion in this list through monitoring of job advertisements, with organisations contacted to establish how long vacancies take to be filled. In compiling skill shortage data, the department concentrates on those occupations considered 'highly skilled'—that is, occupations generally requiring three or more years of post-school education and training.[117]

3.33. Skills identified on the Victorian skill shortage list that are relevant to the rail industry primarily relate to engineering and various trades. Specifically, the list identifies civil engineers, structural engineers, electrical engineers, mechanical engineers, civil engineering associates, electrical engineering associates and mechanical engineering associates as in shortage.[118] Other rail-related occupations identified as in shortage include: fitter (general); metal fabricator; sheet metal worker; diesel motor mechanic; lift mechanic; airconditioning mechanic; electrical linesworker; cabler (data and telecommunications); airconditioning and mechanical services plumber; and furniture upholsterer.[119]

3.34. Employer surveys or consultations are another tool used by industry associations, governments, researchers and others to identify skill shortages. Much of the information about skill shortages in the rail industry derives from such surveys. For example, the Transport and Logistics Industry Skills Council identifies shortages as part of an annual Environmental Scan, using data from a survey of industry.[120] A recent Australasian Railway Association report also identified shortages on the basis of the occupational areas in which rail operators reported that they were experiencing, and expected to experience, difficulty in filling vacancies.[121] Engineers Australia also conducts a regular survey of engineering companies, which includes questions pertaining to skill shortages in the various engineering disciplines.

3.35. Nonetheless, the Committee notes that it is difficult to quantify skill shortages in any particular industry. Information provided by employers is not always reliable because employers may have an incentive to overstate skill shortages, while others may interpret or respond to skill shortages in different ways.[122]

3.36. It is also important to recognise that skill shortages may not appear in the form of vacancies, nor as an observed gap between supply and demand for a particular skill. Instead, organisations may adopt less-than-efficient technologies because they judge that they will not be able to find the skills needed for a newer technology. In this case, job vacancies will not be observed, however, the outcome may be a lower

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[117] Department of Education, Employment and Workplace Relations, Written Submission, April 2009, 6.

[118] Department of Education, Employment and Workplace Relations, *State and Territory Skill Shortage List – Victoria* (Canberra: DEEWR, n.d.), 2, 5–9. Available on Australian Government website http://www.workplace.gov.au/workplace/Publications/LabourMarketAnalysis/SkillShortages/StateandTerritorySkillShortagelists/ (accessed 25 February 2010).

[119] ibid.

[120] Transport and Logistics Industry Skills Council, *Environmental Scan 2009* (Melbourne: TLISC, 2009), 26.

[121] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 35.

[122] Sue Richardson, *What is a skill shortage?* (Adelaide: National Centre for Vocational Education Research, 2007), 27.

standard than what would otherwise be achievable.[123] Alternatively, an organisation may find that skill shortages result in the promotion of employees beyond their current level of skills and experience. This practice may also result in unsatisfactory outcomes, where workers feel they are unsupported or they experience a frustration of never being on top of the workload or possessing the required skills.

3.37. The Committee also heard that employers may simply 'poach' a worker from another company (either in Australia or overseas) thereby masking the extent of skill shortages in the industry. However, the Committee heard that this is becoming increasingly difficult given the global shortage of some occupations, including railway signalling engineers. As noted by the Australasian Railway Association, it is evident that rail and other industries from across the globe are poaching Australian and New Zealand resources to help rectify their own skills deficit.[124]

3.38. Given the difficulties associated with measuring skill shortages, it is usual for a range of stakeholders to be involved in monitoring the availability of skills, as well as a range of other factors that may provide an early indication of emerging skills shortages. Some of these indicators include: rising wages; low unemployment; persistent vacancies; increasing use of paid or unpaid overtime; increasing use of temporary workers; employment of people with lower levels of formal qualifications and/or experience; and changes to work practices.

Skill shortages in the rail industry

3.39. Despite the difficulties in identifying and measuring skill shortages, inquiry participants agreed that the Victorian rail industry is facing skill shortages in a range of occupations. These skill shortages reflect a nationwide shortage in the rail industry, the broader transport industry and, in some instances, the broader economy.

3.40. According to the Australasian Railway Association, approximately 40 per cent of rail industry employees working in roles identified as critical to the industry are predicted to leave the industry over the next five years. As a result, significant shortages across most job families are anticipated.[125]

3.41. Inquiry participants identified a number of general areas and specific rail occupations in which shortages already exist, or are expected to develop. These include: project managers, engineers (including railway signalling and infrastructure engineers), train or network controllers, technical workers, track workers and maintenance trades. An environmental scan undertaken by the Transport and Logistics Industry Skills Council in 2009 identified shortages for a similar range of rail-related occupations, but also identified a current shortage of train and tram drivers,[126] although this does not currently appear to be a problem in Victoria.

3.42. Qualitative analysis undertaken by the Department of Transport indicates that growth in rail services over the medium term is likely to further increase demand for labour

[123] ibid., 19.
[124] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 31.
[125] Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 23.
[126] Transport and Logistics Industry Skills Council, *Environmental Scan 2009* (Melbourne: TLISC, 2009), 2.

across a range of rail occupations, particularly engineers, drivers, diesel mechanics, infrastructure managers, signalling technicians, safety inspectors and network controllers.[127]

3.43. Using the typology of skill shortages outlined earlier in the chapter, the Committee observes that the shortage of drivers, engineers, project managers, technicians and trades workers are classified as level one shortages. Level two shortages include signallers, safeworking and track workers.

Engineering

3.44. Professional bodies, researchers and industry and government representatives highlighted engineering professionals as a key area of skill shortage in the Victorian rail industry. Engineers in the rail industry work in a wide range of disciplines, including civil, electrical, mechanical and industrial engineering. These professionals are critical for the effective design, project management and delivery of railway infrastructure projects, and the ongoing maintenance of infrastructure and rolling stock.

3.45. The Victorian Government noted in its submission that the shortage of engineers represents a long-term concern for the economy.[128] Engineers Australia reported that based on a conservative estimate, up to 70,000 retirements may have occurred from the engineering profession by the time of the 2011 Census of Population and Housing. Over the same time, only 45,000 Australians will have graduated from engineering studies.[129] In a recent Engineers Australia survey, 82 per cent of engineering companies reported moderate to severe consequences due to a shortage of engineers, from moderate or severe monetary consequences, to project delays and even cancellation of projects.[130]

3.46. The CRC for Rail Innovation told the Committee that generalised skill shortages in the engineering profession present a particular challenge for the rail industry, which faces both a dwindling supply of skilled labour and strong competition from other industries for these highly sought-after skill sets.[131] The Victorian Government identified engineering shortages of greatest concern within the rail industry as being track and civil engineers, project managers and railway signalling engineers.[132]

3.47. Rail operators and other companies also provided anecdotal evidence regarding a shortage of professional engineers. In one example, V/Line Passenger described taking three years to recruit a qualified structural engineer, eventually attracting a suitable candidate from interstate.[133] Coffey Rail, a specialist rail engineering consulting firm, stated that difficulty recruiting experienced engineers and technicians is likely to mean that an increasing number of specialist engineering positions within the company will be filled through overseas appointments.[134] V/Line Passenger told

[127] Victorian Government, Written Submission, July 2009, 9.
[128] ibid., 10.
[129] Engineers Australia, Victorian Division, Written Submission, May 2009, 5.
[130] ibid., 6–7.
[131] CRC for Rail Innovation, Written Submission, April 2009, 4.
[132] Victorian Government, Written Submission, July 2009, 9–10.
[133] V/Line Passenger Pty Ltd, Written Submission, July 2009, 8.
[134] Coffey Rail Pty Ltd, Written Submission, April 2009, 6.

the Committee that the shortage of engineers is exacerbated by the long lead times from initial training through to full on-the-job competency.[135]

3.48. Published research reveals that the shortage of engineers in the rail industry has existed for some time. A 1999 Engineers Australia study concluded that Australia was experiencing a shortage of railway engineers in several specialisations, with 34 per cent of surveyed organisations reporting difficulty in recruiting professional engineers, and more anticipating recruitment difficulties.[136] The report found that the most acute shortages of railway engineering specialisations were in signalling and communications, rolling stock, and track and structures. Localised shortages were also occurring in the areas of train control, data handling and on-board electronics, noise and vibration, overhead line design, and rail logistics.[137]

3.49. In 2006, the Australasian Railway Association sought feedback from rail operators about the areas in which vacancies were most difficult to fill, and where difficulties were expected for 2010. The study found that professional engineers were 'undoubtedly the occupational group that are currently most difficult to attract and retain in rail workforces'.[138] Within this broad category, shortages were reported as being most acute for railway signalling engineers.[139] A 2008 Australasian Railway Association report identified that nationwide, the rail industry will need to recruit between 250 and 340 engineers every year for the next five years.[140]

3.50. Although there is no reliable data reporting the number of engineers entering the rail industry, it is clear that the number of new entrants is below the recruitment targets suggested by the Australasian Railway Association.

3.51. The Committee notes that without successful intervention, the shortage of engineers within the Victorian rail industry is set to worsen over coming years. Information provided by the Australasian Railway Association suggests that across the engineering job family (incorporating four job roles), growth of 22 to 33 per cent in workforce demand is forecast by rail organisations over the period 2008 to 2012.[141]

Trades and trade equivalents

3.52. The trades and trade equivalents job family incorporates four job roles critical to the maintenance and ongoing operation of the rail industry: electricians; signalling; civil/perway; and mechanical.

3.53. Skilled tradespeople were identified by a range of participants as a key area of shortage in the rail industry. For example, three inquiry participants identified track workers as an area of skill shortage.[142] A submission from the Department of

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[135] V/Line Passenger Pty Ltd, Written Submission, July 2009, 8.

[136] Athol Yates, *Engineering for rail sector growth: A report on engineering rail skills shortages in Australa* (Barton: Institution of Engineers, Australia, 1999), 1.

[137] Athol Yates, *Engineering for rail sector growth: A report on engineering rail skills shortages in Australia.* (Barton: Institution of Engineers, Australia, 1999), 1.

[138] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 35.

[139] ibid., 36.

[140] Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 9.

[141] Supplementary information provided by Australasian Railway Association, December 2009.

[142] Victorian Government, Written Submission, July 2009, 9; Ms J. Kelman, General Manager, Human Resources, V/Line Passenger Pty Ltd, Transcript of Evidence, Public Hearing, Melbourne, 27 July 2009, 20; Mr R. Fossard, Training Package

Education, Employment and Workplace Relations also reported that there has been a persistent national shortage of a number of trades occupations significant to the rail industry, including metal fitter and machinist, electrician, and structural steel worker and welder.[143] The Committee heard that one of the factors contributing to the shortage of tradespeople in the rail industry is the relative attractiveness of employment in alternative industries.[144]

3.54. Shortages of skilled tradespeople have also been identified in a number of recent industry and research reports. A 2006 report found that tradespeople were the occupational group for which shortages were most commonly reported, with 45 per cent of the surveyed operators experiencing shortfalls of tradespeople, particularly electrical tradespeople. Some operators also identified recruitment difficulties in other trade areas, including boilermakers and mechanical tradespeople.[145]

3.55. The Committee notes that the shortage of tradespeople is widespread across the Australian economy. In 2004, the Australian Industry Group reported that 170,000 tradespeople were predicted to leave the industry over the following five years, with only 40,000 predicted to enter the industry over the same period.[146]

3.56. The Australasian Railway Association has forecast that by 2012 there will be a national shortage of trades and trade equivalents of between 2,741, assuming trades workers do not retire until age 68, and 4,000 should they retire at age 60.[147] It has also reported that the industry will require an additional 500 to 700 trades workers each year for the next five years.[148]

Operational roles

3.57. Jobs in the operations family are key to the delivery of safe and efficient rail services. The Australasian Railway Association reports that over the five years to 2012, 20 per cent of the existing operations workforce is expected to leave the industry.[149] Another 20 per cent are expected to retire.[150]

3.58. While participants in the inquiry identified skill shortages in a range of operational roles (including train or network controllers, traffic controllers, authorised officers, stationmasters and safeworking personnel), these shortages were of less immediate concern to industry representatives when compared with engineering and trades shortages.

3.59. The operations role to attract most comment was train drivers, which is frequently mentioned as an area of skill shortage within the industry. In 2006, it was reported

Specialist (Rail), Transport and Logistics Industry Skills Council, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 22.

143 Department of Education, Employment and Workplace Relations, Written Submission, April 2009, 6.

144 Supplementary information provided by the Australasian Railway Association, December 2009.

145 Anusha Mahendran and Alfred Michael Dockery, 'Skills Shortages – Will they derail the Australian Rail Transport Industry (ARTI)?' (paper presented at the Path to Full Employment Conference, Newcastle, 4 December 2008), 14.

146 Australian Industry Group, cited in supplementary information provided by the Australasian Railway Association, December 2009.

147 Supplementary information provided by the Australasian Railway Association, December 2009.

148 Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 9.

149 Supplementary information provided by the Australasian Railway Association, December 2009.

150 ibid.

that 27 per cent of operators have difficulties in recruiting or retaining train drivers.[151] Similarly, an environmental scan undertaken by the Transport and Logistics Industry Skills Council in 2009 highlighted train drivers and tram drivers as among occupations in skill demand within the rail industry.[152] A submission from the Western Australian Department of Education and Training also identified train drivers as an occupation in shortage in that state.[153]

3.60. Some participants in the inquiry told the Committee that Victoria is not currently experiencing a shortage of train drivers.[154] However, it was emphasised that labour supply for this critical role must be continually monitored. It takes 73 weeks to train a driver for the metropolitan passenger network and any emerging shortages must therefore be quickly identified and addressed to avoid any disruption to services.

3.61. Some participants also identified management and supervision skills as an area of concern.[155] An Essential Services Commission environmental scan suggested an insufficient supply of operational managers.[156] A shortage of management expertise was also highlighted by V/Line Passenger, which noted that the company struggles to attract middle managers who possess appropriate 'experience and judgement'.[157] V/Line Passenger stated that the difficulty attracting experienced managers is at least partly attributable to the 'outdated image of rail' making the industry less attractive for potential applicants.[158] It also noted that the limited availability of experienced management and supervisory staff has flow-on effects, in terms of the amount of mentoring and support available to less experienced staff.[159]

Causes of skill shortages

3.62. The Committee received evidence regarding a wide range of factors contributing to current and potential future skill shortages in the rail industry. These include: prevailing economic conditions in the economy; industry-specific growth; the structure and image of the rail industry; the ageing workforce; health requirements; and education and training factors.

Economic climate

3.63. The prevailing economic climate is a key influence on skill shortages in any industry. In times of strong economic growth, a large number of industries and occupations compete for the finite skills available within the labour market. Conversely, as the economic climate begins to deteriorate, there is a slowing in employment growth and more potential workers become available.

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[151] Anusha Mahendran and Alfred Michael Dockery, 'Skills Shortages – Will they derail the Australian Rail Transport Industry (ARTI)?' (paper presented at the Path to Full Employment Conference, Newcastle, 4 December 2008), 15.
[152] Transport and Logistics Industry Skills Council, Written Submission, July 2009, 5.
[153] Department of Education and Training, Western Australia, Written Submission, May 2009, 2.
[154] For example, Mr W. O'Carroll, Manager, HR Services, Connex Melbourne, Transcript of Evidence, Public Hearing, Melbourne, 27 July 2009, 8; Ms N. Sullivan, Head, Learning and Development, Metro Trains Melbourne, Transcript of Evidence, Public Hearing, Melbourne, 3 March 2010, 13.
[155] For example, Essential Services Commission, Written Submission, May 2009, 7; V/Line Passenger Pty Ltd, Written Submission, July 2009, 10; Department of Education and Training, Western Australia, Written Submission, May 2009, 2; Victorian Government, Written Submission, July 2009, 9.
[156] Essential Services Commission, Written Submission, May 2009, 7.
[157] V/Line Passenger Pty Ltd, Written Submission, July 2009, 10.
[158] ibid.
[159] ibid.

3.64. A number of participants observed that recent economic events in Australia and internationally had helped to ease the immediate skill shortages in the rail industry. With reduced opportunities in other industries that compete for similar skill sets, the increased attractiveness of secure employment within the rail industry was seen as a stabilising factor.

3.65. The Department of Education, Employment and Workplace Relations noted that there were 'substantial increases' in both the number of applicants for advertised vacancies for skilled occupations relevant to the rail industry during 2009, and in the number of suitable applicants per vacancy. The department suggested that the relaxation of demand nationally was also likely to have occurred within Victoria.[160] However, the Australasian Railway Association argued that while the global economic environment had caused an easing of skill shortages, improvements in the rail industry were limited. It suggested that although some skilled workers had been displaced from industries such as mining and automotive manufacturing, they were likely to lack the rail-specific skills needed for work in the rail industry.[161] A representative of the Group Training Association of Victoria also argued that skill shortages are likely to become more acute once economic recovery has occurred.[162]

Industry growth

3.66. Recent growth in the Victorian rail industry is expected to continue in coming years. One factor contributing to this growth is the rapid increase in demand for public transport in Melbourne, driven by congestion on the roads, rising fuel prices and environmental concerns. The Australasian Railway Association also highlighted growth in the demand for freight services, although the Committee notes that the potential for growth in the freight sector is more limited than for passenger rail.

3.67. In response to growing demand for rail services, state and federal governments nationwide are making substantial investments in rail infrastructure and rolling stock, resulting in growth in employment in the rail industry. According to the Department of Education, Employment and Workplace Relations, more than 1,000 jobs were added to the Victorian industry over the five years to 2009, representing an increase in employment of 28 per cent.[163] Modelling commissioned by the Victorian Government accords with national projections for employment growth, suggesting a 12 per cent increase in rail industry employment in Victoria over the next six years,[164] or two per cent per annum.[165]

3.68. Qualitative analysis by the Department of Transport suggests that the growth in demand for labour is likely to be across a range of rail industry occupations, with engineers among those occupations likely to see the greatest increase in demand.[166] Engineers Australia agreed that renewal in the rail industry would 'without doubt'

[160] Department of Education, Employment and Workplace Relations, Written Submission, April 2009, 6.
[161] Australasian Railway Association, Written Submission, April 2009, 6.
[162] Mr J. Glover, Chief Executive Officer, Group Training Association of Victoria, Transcript of Evidence, Public Hearing, Melbourne, 10 August 2009, 12.
[163] Department of Education, Employment and Workplace Relations, Written Submission, April 2009, 4.
[164] Victorian Government, Written Submission, July 2009, 12.
[165] Mr H. Ronaldson, Secretary, Department of Innovation, Industry and Regional Development, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 2–3.
[166] Victorian Government, Written Submission, July 2009, 9–10.

require additional engineering skills.[167] At the same time, higher customer expectations and technological changes are also likely to influence the type and level of skills and knowledge required in the rail industry workforce.[168]

The ageing workforce

3.69. One of the strongest themes to emerge during the inquiry was the impact of the ageing workforce on skill shortages in the rail industry, both in Victoria and nationwide. Corporate knowledge and industry experience are projected to disappear as a large group of long-term employees reach retirement over a short timeframe.

3.70. The Committee heard that this will be exacerbated by the industry's difficulties in attracting and retaining young people. A representative of the Australian Manufacturing Workers' Union told the Committee that even where new staff are recruited into a trade area, they are often of the same age as existing employees.[169] The Victorian Government further noted that even if a greater number of young people can be attracted into the industry, there is a likelihood of greater turnover in the workforce in future, as people are now changing careers more often than in the past.[170]

3.71. The Australasian Railway Association has estimated that approximately 40 per cent of the rail industry workforce will leave the industry or retire within the next five years.[171] V/Line Passenger told the Committee that it was already experiencing some of these effects, with increasing attrition over recent years driven largely by retirements.[172] It noted that while the retirement levels were not currently problematic, they had the potential to become a problem over the next ten years.[173] The Victorian Government also anticipated that without intervention, the ageing of the workforce will lead to greater skill shortages in the next five to ten years.[174]

3.72. The Australasian Railway Association has reported that the effects of the ageing workforce will be felt most keenly in some of the core rail occupations, including train drivers, track workers and signalling engineers.[175]

3.73. Engineers Australia believes that the future Australian skills base will not cover retirements, let alone increased demand for engineering expertise driven by growth in the Australian economy, and the transition to a climate friendly, knowledge-based economy.[176] The Australasian Railway Association predicted that by 2012, the shortage of engineers in the rail industry nationwide could be between 1,260 (assuming current engineers do not retire until 68 years of age) and 1,700 (assuming all retire by 60 years of age).[177]

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[167] Engineers Australia, Victorian Division, Written Submission, May 2009, 5.
[168] Australasian Railway Association, Written Submission, April 2009, 4.
[169] Mr P. Candy, Delegate, Rail Industry, Australian Manufacturing Workers' Union, Victorian Branch, Transcript of Evidence, Public Hearing, Melbourne, 23 July 2009, 8.
[170] Victorian Government, Written Submission, July 2009, 12.
[171] Australasian Railway Association, Written Submission, April 2009, 5.
[172] V/Line Passenger Pty Ltd, Written Submission, July 2009, 5.
[173] ibid., 4.
[174] Victorian Government, Written Submission, July 2009, 11.
[175] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 30.
[176] Engineers Australia, Victorian Division, Written Submission, May 2009, 5.
[177] Supplementary information provided by the Australasian Railway Association, December 2009.

3.74. Taking into account both projected rail industry growth and increasing retirements, the Australasian Railway Association estimates that the industry will need to recruit an additional 1,450 people year-on-year for the next five years, including 250 to 340 engineers, 500 to 700 tradespeople and 420 to 700 operations staff.[178] Assuming Victoria accounts for 25 per cent of national employment in rail, these estimates translate to a potential requirement for an additional 72 engineers, 150 tradespeople and 140 operational staff in the Victorian rail industry each year.

Health requirements

3.75. Various submissions highlighted the potential for health requirements to influence the nature and extent of skill shortages in the rail industry. Under the *Rail Safety Act 2006,* all workers in safety critical roles are required to undertake regular health assessments. The Electrical Trades Union of Australia (Victorian Branch) described the consequences of this for some workers:

> Failing hearing and eyesight has resulted in staff undertaking different duties. Many are unable to perform their trade and are moved into roles where they are 'off the tools'.[179]

3.76. The health monitoring system is based on a risk management approach in which the requirements of a job are matched to the health requirements. Two main risk categories have been defined, and then further sub-divided to create four risk categories overall.

3.77. Safety Critical Workers are those whose actions or inactions may cause a serious incident affecting the safety of the public or the rail network. Aspects of employee health relating to on-the-job attentiveness and vigilance are critical. Safety Critical Workers require a comprehensive physical and psychological assessment to detect conditions that may affect safeworking ability, such as heart disease, diabetes, epilepsy, sleep disorders, alcohol and drug dependence, psychiatric disorders and eye and ear problems. A High Level Safety Critical Worker is also required to have a Cardiac Risk Score assessment, which identifies risk of cardiovascular disease and collapse from heart attack or stroke.

3.78. Non-Safety Critical Workers are those whose health and fitness are unlikely to impact directly on the safety of the public or the rail network. However, these workers must be able to protect their own safety and that of fellow workers. Their risk category and their health assessment requirements depend on their likely exposure to moving rolling stock. Employees who operate in an Uncontrolled Environment are required to have a Track Safety Health Assessment, which involves assessment of hearing, vision and mobility, while those who operate in a Controlled Environment are not required to have an assessment for rail safety work, but may be required to have Occupational Health and Safety assessments.

Industry structure

3.79. The Victorian rail industry has experienced a number of significant structural changes over recent decades. In the 1980s, the railways commenced a long process of downsizing and an increasing focus on improvements to industry cost control,

[178] Australasian Railway Association, Written Submission, April 2009, 5.
[179] Electrical Trades Union of Australia, Victorian Branch, Written Submission, April 2009, 6.

productivity and consequent short-term operational goals. Engineers Australia noted that the key adjustment within the rail sector linked to skill shortages, recruitment and retention 'was the movement of the industry from a government sector, where adequate engineers were trained as public employees, to a commercial and corporate sector where an environment geared towards graduate training and continuing professional development did not exist':

> Training opportunities in niche rail specialisations disappeared as well as graduate training positions in the public sector. These were not replaced by the private sector.[180]

3.80. Rail organisations made similar observations. For example, Coffey Rail noted that during the period of government ownership, 'the view of the Victorian Railways was necessarily long-term, and included ensuring the future availability of a skilled workforce'.[181] Similarly, V/Line Passenger stated that 'decades of under-investment in the industry and endemic staff rationalisations in the 1980s and 1990s has led to a missing generation of rail expertise, an ageing rail workforce and an unattractive image of a seemingly outdated industry'.[182]

3.81. The Committee notes that although the reduced focus on training and development may have arisen due to competitive pressures and the need for rail organisations to remain viable in a re-structured industry, this will become increasingly unsustainable as the existing rail workforce reaches retirement age.[183] The Committee also recognises that the loss of training in government operated businesses occurred across the economy and was not specific to the rail sector:

> As government agencies and utilities have been privatised or have been outsourced, there has been a fundamental shift in the employment of engineers. Cadetships are virtually non-existent and engineers are now, on the whole, private sector employees and the major responsibility for training engineering graduates has been transferred with them.[184]

3.82. This issue was also documented in a recent paper published by the National Centre for Vocational Education Research:

> Australia has a history of providing apprenticeships and informal vocational training through government business enterprises, including the public utilities (electricity, gas and water), the railways, transport and communications, and local government. These enterprises, free of the pressures of intense competition, had a culture of training at the vocational level and made a major contribution to the supply of vocational skills. Many of the people who were trained by these government enterprises subsequently moved into private sector jobs. It has been one of the unintended side effects of the privatisation of these enterprises (and corporatisation of those that remain in public hands) that the new private owners have substantially reduced their commitment to training.[185]

3.83. In particular, many submissions and witnesses throughout the inquiry suggested that a key cause of skill shortages in the rail industry is the reduction in apprenticeships following restructuring in the industry. Coffey Rail described how throughout their training with the Victorian Railways, graduate engineers and apprentices would rotate through a series of work locations where they would be systematically

[180] Engineers Australia, Victorian Division, Written Submission, May 2009, 3.
[181] Coffey Rail Pty Ltd, Written Submission, April 2009, 4.
[182] V/Line Passenger Pty Ltd, Written Submission, July 2009, 6.
[183] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 73.
[184] Engineers Australia, Victorian Division, Written Submission, May 2009, 3.
[185] Sue Richardson, *What is a skill shortage?* (Adelaide: National Centre for Vocational Education Research, 2007), 19.

exposed to the full range of work associated with the development, operation and maintenance of the railway network.[186] Through this exposure, the necessary knowledge and skills were developed. In contrast, it is difficult for rail operators to provide a comprehensive training and development experience under modern franchising arrangements.

3.84. The Australian Manufacturing Workers' Union stated that 'the privatisation process has resulted in a 95 per cent drop in rail industry apprentices' and suggested that this was due to the cost of training apprentices not being incorporated into the contract tendering process:

> Whilst training apprentices is mentioned generally in tendering criteria, it does not seem to be apparent that it is mandatory to train any apprentices when fulfilling the contract.[187]

3.85. The Australian Manufacturing Workers' Union further stated that 'it is also clear that companies operating in the rail industry have not budgeted for the training of apprentices'.[188] It suggested that the employers believe that they do not get a return on training apprentices until their third year.[189] The Electrical Trades Union of Australia (Victorian Branch) made similar comments in its submission:

> Employers often say that they do not get a return on their investment of apprentices until they reach their third year. As such, companies have had to turn to government for specific additional funding to provide for the employment of apprentices. One such situation occurred when MainCo recognised that it had a problem with staffing and sought government funding for 12 apprentices in the signalling section. These 12 apprentices were employed but funding from government fell through.[190]

3.86. The Committee recognises that the length of franchise contracts has the potential to influence how organisations invest. Therefore, the Committee believes that the current franchise term of seven years, plus the option to extend for a further eight years, provides a better opportunity for the rail operators to develop and maintain their workforce.

3.87. It is apparent that the current number of apprenticeships on offer in the Victorian rail industry is low, and that the consequences are starting to impact on current infrastructure and investment projects. However, as noted by the Australasian Railway Association, there are a number of factors contributing to the small number of apprenticeships being offered. They include: a lack of suitable supervisors; concern that qualified apprentices will leave the organisation after a considerable investment has been made in them; and a lack of appropriate interface with educational institutions to provide a pool of potential apprentices.[191]

3.88. The Committee identified the outsourcing of activities such as rolling stock and infrastructure maintenance as another structural factor contributing to the skill shortages within the Victorian rail industry. This issue has also been identified by the Australasian Railway Association:

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[186] Coffey Rail Pty Ltd, Written Submission, April 2009, 4.
[187] Australian Manufacturing Workers' Union, Metals Division, Victorian Branch, Written Submission, April 2009, 2.
[188] ibid.
[189] ibid., 3.
[190] Electrical Trades Union of Australia, Victorian Branch, Written Submission, April 2009, 3.
[191] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 48.

> In the recession of the 1990s as operators downsized or outsourced aspects of the operations, many skilled employees left the operator and joined consultancies. This resulted in significant loss of skills from the operators, and causes a reliance on outsourcing or use of contractors when skills are required.[192]

3.89. The Committee recognises the commercial benefits of outsourcing, although it is concerned about an over-reliance on skills provided by contractors and consultancies. Outsourcing and contracting activities can limit the opportunities for sharing of knowledge and expertise between permanent and short-term workers. For example, the existing rail workforce may not have sufficient time to learn from those coming into the industry on short-term contracts, or to apply new skills or develop new work practices. Equally, the contracted employees may not have sufficient time to fully experience or develop an understanding of the rail industry. Additionally, the Committee notes that contracting and consulting firms may take a short-term perspective, meaning that they may have little incentive to develop or maintain rail-specific skills within their business.

Industry image and culture

3.90. While not necessarily a primary cause of skill shortages in the rail industry, the Committee heard that the strong workforce culture, together with external perceptions of the industry, are affecting the ability of the industry to attract and retain sufficient skilled workers. Therefore, industry image and culture were identified as a key factor inhibiting the industry's ability to address current skill shortages through attraction and retention strategies. These issues have been covered extensively in recent reports published by the Australasian Railway Association. They were also explored in depth at the Rail Careers Conference attended by representatives of the Committee in May 2009.

3.91. 'Life-time' rail workers comprise a significant proportion of the workforce in the majority of rail organisations. Whilst the skills that these workers provide are essential to the safety and efficiency of the rail industry, the industry has identified that the extended tenure of groups of employees 'creates blockages to innovation and to the ability of aspiring new starters to progress their careers'.[193]

3.92. Focus group discussions and interviews with rail employees conducted for the Australasian Railway Association have found that internal perceptions of the rail industry consist of both positive and negative sentiment. The most frequently reported positive descriptors of the industry include: growing/changing; exciting/challenging; opportunity/revival; community service; fundamental service for the economy; moving forward; renewed enthusiasm; and loyal workforce.[194] However, there are also a wide range of less positive descriptors of the industry, including: under-funded; fragmented; inwardly focused; old/antiquated; highly regulated; slow moving; short-term focused; identity crisis; and not modern.[195]

3.93. In contrast to their internal perceptions, rail employees believed that the rail industry had a poor public image and that it received frequent negative publicity that

[192] ibid., 31.
[193] ibid., 34.
[194] ibid., 45.
[195] ibid., 46.

perpetuated the poor image. Employees believed that the general public perceive the industry in terms of traditional stereotypes, including: blue collar industry; bureaucratic; public sector; unionised; not 'sexy'; and male dominated.[196]

3.94. Evidence to the inquiry suggests that industry representatives believe that a combination of negative perceptions and a lack of awareness of the industry as a potential employer are affecting the rail industry's ability to recruit. According to the Australasian Railway Association, the effect of media coverage and the extrapolation of consumer experiences to anticipated employment experience are seen as key drivers of these perceptions.[197] The industry has reported that organisations that consistently receive poor media coverage find it harder to attract people into professional roles, although these same organisations have reasonable success in retaining employees once they have been in the industry for a couple of years.[198]

3.95. It is also apparent that industry regulation, lack of clear progression opportunities, and perceptions regarding out-dated infrastructure and technology are seen by many in the Victorian rail industry as possible detractors to aspiring young professionals.[199]

3.96. The Committee notes, however, that the presence of major international companies in the Victorian market provides an opportunity for the local industry to develop and promote exciting and progressive international career opportunities. This should assist in improving the industry's image and could increase the number of young graduates attracted into the industry.

Education and training system factors

3.97. The Committee heard that demand and supply factors within the education and training system do not allow skill shortages in many rail occupations to be quickly or easily solved. Rail-specific training options within the VET and higher education sectors are relatively limited, while student demand for entry into engineering and other courses associated with critical roles is typically low. Even with such qualifications, new entrants to the industry require substantial lead times to attain a full understanding of their role. Issues associated with the supply and demand for rail industry qualifications are covered in chapter 4.

3.98. It was also noted throughout the inquiry that the current in-house approach to training, together with various aspects of state-based, rail-related legislation, mean that skilled rail personnel often have difficulty relocating and/or transferring their skills and qualifications.

3.99. The Victorian Government also made the observation that ageing in the workforce may influence the number of available trainers, which may also impact on the availability of teachers in the TAFE system.[200] Competenz also commented on the lack of availability of suitable trainers during the Committee's investigations in New Zealand.

[196] ibid.
[197] ibid., 4.
[198] ibid., 34.
[199] Discussions during Rail Careers Conference, Melbourne, May 2009.
[200] Victorian Government, Written Submission, July 2009, 12.

Industry skills audit

3.100. The Committee was disappointed to find that there is no comprehensive or shared picture of occupations, qualifications and skills in the rail industry. It is therefore difficult to determine the extent of any gaps between the level and types of skills currently held and those required in the future.

3.101. The Committee believes that a comprehensive audit of the rail industry workforce, covering the franchisee workforce and other rail operators and maintenance providers, relevant government departments and agencies and the manufacturing and component supply sectors, should be undertaken. Without accurate, reliable data, policy makers and legislators will be unable to respond to persistent skill shortages in the industry. The Committee therefore believes that the Department of Transport should undertake this audit as a matter of priority. The Committee believes that the industry skills audit should cover two key types of data:

- demographic data such as occupations, age, tenure, gender and location dimensions; and
- attraction and retention data such as number of vacancies, areas of critical shortage, new entrants to the industry and turnover rates.

3.102. The Committee recognises that undertaking the industry skills audit will require the cooperation of industry operators in collecting and sharing workforce data. The Committee believes that this data should be collected on an ongoing basis, and published as a rolling three-yearly data set. The Committee also believes that this information should be made available to the Australasian Railway Association to assist in developing a nationwide response to skill shortages.

Conclusion and recommendation

3.103. There are a wide range of occupations and job roles within the rail industry. Many of these roles are highly specialised and require long training periods and/or significant on-the-job experience to attain competency. However, the level of formal qualifications among workers in the industry is relatively low. The workforce is characterised as predominantly male and ageing and the industry experiences a low level of employee turnover.

3.104. While the Committee was unable to quantify existing or projected future skill shortages, anecdotal evidence suggests that there are longstanding shortages in a range of rail occupations in Victoria. Similar skill shortages are experienced by the rail industry nationally and internationally. Competition for highly skilled labour from other industries, especially mining and construction, is said to exacerbate skill shortages in the rail industry.

3.105. The Committee heard that around 40 per cent of the rail workforce was predicted to leave the industry over the five years from 2008 to 2012. The Committee is particularly concerned about ongoing skill shortages in the engineering professions, especially in the critical roles of electrical and signalling engineers and project managers. The Committee is also concerned about ongoing shortages in the trades and trade equivalents, as well as emerging shortages in certain operational roles.

3.106. The Committee believes that a long-term view will be required to effectively address current and emerging skill shortages in the rail industry. Unless the causes of shortages are addressed, there is likely to be an ongoing detrimental impact on the quality and reliability of rail services in Victoria. The Committee therefore believes that a comprehensive, industry-wide workforce development plan covering the period 2010 to 2020 is required. The Committee recognises, however, that strategies aimed at addressing skill shortages are likely to be ineffective, unless the extent of specific skill shortages and skill gaps can be measured, and their causes fully understood. Therefore, the Committee believes that the first step in achieving an effective industry-wide workforce development strategy is the completion of a comprehensive audit of the existing rail workforce.

Recommendation

3.1 That the Department of Transport, in consultation with the rail industry, undertake a comprehensive audit and analysis of the rail industry workforce. The audit should identify:

- all occupations and job roles;
- location of work undertaken;
- the number and duration of job vacancies;
- employment status, including the number of hours worked, the level of overtime and the current leave liabilities within the industry;
- tenure and workplace turnover;
- relevant demographic indicators such as age, gender and cultural or linguistic background;
- formal qualifications held;
- other relevant skills and industry experience attained through informal training and development and on-the-job experience;
- current and emerging skill shortages and skill gaps; and
- processes to continue monitoring skill needs within the industry.

The audit should cover all major segments of the industry, including operations, maintenance and manufacturing. It should involve the major rail operators and include input from the broader rail industry, including small and medium sized enterprises.

Chapter 4

Skills planning and development

4.1. Rail is a complex industry that requires a wide range of skills that are often highly specialised and unique to the rail context. The Victorian rail industry is currently experiencing skill shortages in a range of occupations that are critical to rail operations. Without effective intervention to address these shortages, the reliability and safety of the network are likely to deteriorate. Further, Victoria will not be well placed to address the economic and environmental challenges facing the industry, including sustainable growth in freight services.

Education and training in the Victorian rail industry

4.2. Education and training takes many forms, reflecting the variety of skills required across the workforce. Training includes both formal and informal learning: formal learning is a structured program that includes assessment by a registered training organisation or university, and leads to a recognised qualification; informal learning does not have a recognised qualification outcome, although it may involve structured learning activities and/or some form of assessment. Formal education and training must be conducted or overseen by either a registered training organisation or a higher education provider.

Qualification levels of the rail industry workforce

4.3. Historically, new railway employees often did not have access to formal training, unless it was deemed part of their advancement or career path. For example, a junior employed within the Traffic Branch of the Victorian Railways would undertake a Safeworking Certificate, while a rolling stock junior would undertake a Firemen's Ticket. Training was available through either the Victorian Railways Institute or the Public Transport Corporation, and was one of the only means (other than on-the-job training) by which rail workers gained the necessary skills.

4.4. The development of state and national qualifications has led to the rail industry adopting more generic qualifications. For example, signalling technicians now undertake general trade qualifications before specialising in rail signalling. However, some trades with small intakes and/or outmoded work practices have been rationalised without being translated into formal qualifications.

4.5. In recent years, the rail industry has shifted its focus away from training for the long term, to training for specific needs or short-term outcomes. For example, rail operators have tended to focus on customer service training in an attempt to achieve the service delivery standards required under the terms of their franchise contracts.

At the same time, there has been little emphasis placed on training in the traditional trades. The Committee found that this practice has contributed to the current skill shortages in areas critical to rail.

4.6. A profile of qualifications within the rail industry workforce shows rail employees are generally less qualified than workers in many other industries. In 2008, less than half of the rail industry workforce held a qualification at certificate III or higher, while only 23 per cent had a qualification at the level of diploma or above (refer Table 4.1).

Table 4.1: Highest level of qualification for rail industry workers in Victoria (2008)

Education sector	Highest qualification	% of workforce
Secondary	Year 12 or below	49
VET	Certificate I and Certificate II	6
	Certificate III and Certificate IV	22
	Diploma	8
	Advanced Diploma	-
Higher Education	Degree	12
	Graduate Certificate	-
	Graduate Diploma	1
	Masters	2
	Doctorate	-

Source: Victorian Government, Written Submission, July 2009, 13.

4.7. The Victorian Government's submission noted that in coming years, the proportion of rail workers with qualifications at certificate III level and above will increase in line with the general rise in the qualification profile of younger age groups. It also noted, however, that the rapid growth in the industry will mean that there will continue to be large numbers of rail employees with qualifications at year 12 or below.[201]

4.8. Most rail industry training undertaken in Victoria over the period 2002 to 2008 was at the certificate III level (mostly for the roles of customer service or authorised officer). Although certificate IV level enrolments have increased in recent years, they only represent around 10 per cent of rail industry training, and are mostly attributable to an increase in the number of train drivers being trained.[202]

4.9. The Committee recognises that the relatively low levels of formal qualifications across the rail industry reflect traditional employment and training practices in the industry, rather than the level of skill required for rail-related occupations. Indeed, there are many roles within the industry that are highly specialised and require many years of training and experience to master.

4.10. The Committee believes that one important strategy to assist in identifying skill shortages in the rail industry would be to better track the qualifications of existing employees. This could be achieved through the introduction of an accreditation and registration system for safety critical roles within the industry. The Committee believes that this would also help to raise the qualification levels of rail industry

[201] Victorian Government, Written Submission, July 2009, 13.
[202] ibid., 14.

workers more generally, by ensuring that all safety critical workers are appropriately qualified. The Committee notes that accreditation and/or registration systems have been successful in other parts of the transport industry (for example, the taxi and heavy vehicle sectors) where they have helped to raise professionalism, standards and safety.

4.11. In particular, the Committee believes that the registration system should cover roles such as train drivers, signallers, train controllers, train examiners, overhead lineworkers, substation technicians, signal maintenance technicians, track inspectors and verifiers, electrical and mechanical fitters, and engineers and project personnel. The Committee believes that the registration system should identify appropriate levels of certification for these safety critical roles and include processes for ongoing reaccreditation of worker qualifications.

Legislative requirements for training and development in the rail industry

4.12. The *Rail Safety Act 2006* places certain expectations on rail operators to provide adequate training for rail workers, including ensuring safety critical competencies are undertaken and maintained throughout an employee's working life. It also stipulates that the Governor in Council can make regulations in respect to certificates of competence for rail safety workers, including the duration, variation, suspension and cancellation of those certificates.

4.13. The rail safety regulations prohibit rail safety work from being undertaken if an employee does not hold an appropriate certificate of competence or qualification, or does not have adequate industry training and experience. 'Experience' in this context translates to substantial rail experience and is therefore only relevant to existing workers, rather than to employees who are new to the industry.

4.14. The rail safety regulations outline the appropriate mechanisms for rail operators to ensure that each rail safety worker undertakes applicable units of competence or other appropriate qualification. These may include, for example, a qualification under the Australian Qualifications Framework, a competence specified by the Safety Director and published in the Government Gazette, or the demonstration of skills, knowledge and experience required for the specific rail safety work to be undertaken.

4.15. Rail operators must maintain records detailing the training undertaken by employees. Records must include the units of competence completed, the level of the qualification, the date and, where relevant, when any retraining was due to be undertaken and when it was completed. In addition, rail operators must record the name of the training organisation, the result of any assessment, and the name and qualification of the person assessing a worker's competence.

Rail industry training packages

4.16. Vocational qualifications in Australia are structured as national industry training packages, which are sets of nationally-endorsed standards and qualifications for recognising and assessing skills, including the recognition of current competency. Training packages are developed by industry skills councils and endorsed by the National Quality Council. Only registered training organisations are permitted to issue training package qualifications or statements of attainment. Training and assessment may be conducted through a range of on-the-job and off-the-job activities.

4.17. Training packages generally include qualifications spanning certificate I through to advanced diploma. Each qualification comprises individual units of competence that identify a discrete workplace requirement for the relevant industry. Units of competence include the knowledge and skills that underpin the competency, as well as language, literacy and numeracy, and occupational health and safety requirements.[203]

4.18. Table 4.2 shows the main rail-specific VET qualifications available to students in Victoria in 2009, by training provider.

Table 4.2: Main rail-specific VET qualifications delivered in Victoria, by training provider (2009)

Training provider	Qualification
Victoria University (TAFE Division)	• Certificate II in Transport and Logistics (Rail Operations) • Certificate III in Transport and Logistics (Rail Operations) • Certificate IV in Transport and Logistics (Rail Operations) • Certificate III in Public Transport Customer Service and Compliance
Rail Training International Pty Ltd	• Certificate IV in Transport and Logistics (Rail Operations) • Certificate IV in Rail and Tram Signalling Systems • Certificate III in Public Transport Customer Service and Compliance
University of Ballarat (TAFE Division)	• Certificate II in Transport and Logistics (Rail Infrastructure) • Certificate III in Transport and Logistics (Rail Infrastructure) • Certificate III in Public Transport Customer Service and Compliance
GippsTAFE	• Certificate III in ESI – Rail Traction

Source: Compiled by the Education and Training Committee, April 2010.

4.19. The key industry skills councils involved in the development of the above qualifications are the Transport and Logistics Industry Skills Council and EE-Oz Training Standards.

Training providers

4.20. A key factor in the success of rail industry training is the availability of sufficient training organisations that are both capable and willing to deliver training.

4.21. The Victorian Government's submission identified six main organisations which provided training for the rail industry over the period 2001 to 2008. Table 4.3 shows the number of enrolments in rail-related courses in Victoria over this time.

[203] Government Skills Australia, 'About Training Packages,' Government Skills Australia, http://www.governmentskills.com.au/content/view/640/700/ (accessed 30 March 2010).

Table 4.3: Number of enrolments in rail-specific VET courses in Victoria, by training provider (2001 to 2008)

Training provider	2001	2002	2003	2004	2005	2006	2007	2008	Total
Ashley Institute of Training			11	11	11				33
Box Hill Institute					15	37			52
GippsTAFE	13		9	6	6	15	11	14	74
International Transport Training and Development (ITTD)			108	118	129	121	89	111	676
University of Ballarat (TAFE Division)			1,807	202	8	7		61	2,085
Victoria University (TAFE Division)	106	386	826	493	516	472	369	676	3,844
Total	119	386	2,761	830	685	652	469	862	6,764

Source: Victorian Government, Written Submission, July 2009, 14.

4.22. Victoria University was the largest provider of rail industry training in Victoria over the period 2001 to 2008, accounting for 56 per cent of the 6,764 enrolments over this time. The Committee notes, however, that the majority of Victoria University's training was in above rail activities, including customer service and authorised officers, rather than in the critical below rail trade and engineering roles which continue to experience the most severe skill shortages in the industry.

4.23. The University of Ballarat was the second largest provider of rail-specific training over the same period, although this was largely attributable to a Recognition of Current Competency process undertaken for track maintainers in 2003. Since then, the university has delivered very little training to the rail industry, other than to authorised officers. Metro Trains Melbourne has indicated that the University of Ballarat will provide training in 2010 as part of its induction, authorised officer and driver training programs.[204]

4.24. International Transport Training and Development saw a relatively stable number of enrolments in its two key courses, driver training and signalling, over the period 2003 to 2008. GippsTAFE and Box Hill Institute were involved in the delivery of a small number of electrical and electrotechnology places for rail workers in the overhead and signal maintenance areas. The Committee notes that a number of small specialist training providers deliver training into specialist or niche markets.

4.25. The Committee recognises that the data presented above does not represent the full picture regarding rail industry training. For example, the data does not include a small number of trainees who may have enrolled in engineering and general maintenance courses offered by these providers. Further, while all government-funded training places are included in the data, fee-for-service activity is only partially reported. In addition, a number of rail operators (including V/Line Passenger and Yarra Trams) undertake a substantial amount of in-house training.

[204] Ms N. Sullivan, Head, Learning and Development, Metro Trains Melbourne, Transcript of Evidence, Public Hearing, Melbourne, 3 March 2010, 10.

Limitations of rail industry training packages

4.26. A strong theme in evidence to the inquiry was the perceived weaknesses associated with the current rail industry training packages. It was apparent throughout the inquiry that much of the rail-related training currently undertaken is not held in high regard by many in the industry. Consequently, there has been a continued reliance on in-house training in many rail organisations. The Committee notes that this has increased the level of fragmentation in industry training and resulted in a further reduction in an already thin education and training market, potentially limiting the commercial attractiveness to training providers of developing and delivering rail-related courses.

4.27. A 2007 Senate committee inquiry identified similar concerns about the quality of industry training, with data from the National Council for Vocational Education Research showing that only 69 per cent of employers in the transport industry were satisfied with vocational education and training (VET), which was 10 percentage points lower than for employers across all industries.[205] In 2006, the Australasian Railway Association reported a lack of consistency in rail-related training, including variation across Australia in the types of training available, the duration of various courses, and the recognition given to training completed in other states.[206] It also noted that not all rail operators or regulators recognise the industry training package.[207]

4.28. In particular, the Transport and Logistics Training Package received much criticism throughout the inquiry. The Transport and Logistics Industry Skills Council has itself recognised certain limitations with industry training packages, which make it difficult for training providers to meet industry needs. For example, the council's rail training package specialist, Mr Rae Fossard, explained that the varying characteristics of different state rail systems make it difficult to respond to industry needs within a national training package:

> The most obvious outcome of this are the different gauges across the nation … we also have the issue of different signalling systems. … If the train driver in Victoria sees a particular signal and drives on a piece of track in New South Wales, the same signal can give the opposite information, which causes issues to say the least.[208]

4.29. Mr Fossard further suggested that the package does not require the demonstration of essential technical skills. For example:

> We have a glaring example of Certificate II in Signalling which is made up of 14 units from the training package, and not one of them actually relates to signalling.[209]

4.30. Mr Frank Feldman, director of Railcom, commented that the training package is disjointed and misleading and does not cover certain industry tasks that are required under legislation. He suggested that a new trade-based program in rail infrastructure be developed, to sit above the current Transport and Logistics qualification.[210]

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[205] Senate Standing Committee on Employment, Workplace Relations and Education, *Workforce challenges in the transport industry* (Canberra: Commonwealth of Australia, 2007), 30.
[206] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 14.
[207] ibid., 48.
[208] Mr R. Fossard, Training Package Specialist (Rail), Transport and Logistics Industry Skills Council, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 22–23.
[209] ibid., 23.
[210] Mr F. Feldman, Director, RailCom Pty Ltd, Written Submission, May 2009, 2.

4.31. V/Line Passenger supported this view, indicating that track workers have never been recognised as a trade, despite having requirements and standards of work that are equally as exacting as those required for recognised trades.[211]

4.32. The Committee heard that a further limitation of the Transport and Logistics Training Package is the 'nesting' of qualifications, meaning that lower level qualifications form prerequisites for the more advanced qualifications within the package. Consequently, the training package design assumes that all skills develop from the same entry point, rather than allowing those with relevant knowledge and experience to undertake qualifications at more advanced levels.

4.33. The Committee notes that the 'nesting' of qualifications conflicts with best practice in training package design. It is therefore pleased to note that the Transport and Logistics Industry Skills Council is working towards a new training package that will more accurately reflect job roles within the rail industry, whilst recognising workers' current competencies.[212]

4.34. A 2008 report for the Australasian Railway Association supported the view that the Transport and Logistics Training Package is too broad, and the import rules too restrictive.[213] It stated that consideration should be given to repackaging the qualification on the basis of core and elective units of competence, and with greater flexibility to allow units to be imported from complementary qualifications.[214]

4.35. The Committee was informed that the Transport and Logistics Industry Skills Council would have new qualifications in track infrastructure, tram driving and train driving by the end of 2009, with plans to review the remaining rail operations and network roles in 2010.[215] One of the aims of the repackaging is to identify the consistent parts of each qualification and each role to ensure that the qualification is transferable across and within different jurisdictions. The Committee notes, however, that as at December 2009, the Transport and Logistics Industry Skills Council had only submitted the tram driver qualification and part of the infrastructure qualification for reaccreditation.

4.36. The Committee also received comments about the EE-Oz Training Standards' training packages. The availability of training providers and the suitability of some units of competency were raised. A submission from the Western Australian Department of Education and Training commented that training for signal maintenance technicians is conducted in-house due to the lack of suitable local training providers.[216] Further, an employee of Downer EDI commented that electrical workers are required to complete competencies that are associated with domestic electrical work, even though they do not need these competencies for their roles within the rail industry. He suggested that if current or potential rail workers are exposed to the domestic electrical industry during their training, they may be attracted away from the rail industry if offered more lucrative employment

[211] Supplementary information provided by V/Line Passenger Pty Ltd, July 2009.
[212] Transport and Logistics Industry Skills Council, Written Submission, July 2009, 9.
[213] Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 29.
[214] ibid.
[215] Transport and Logistics Industry Skills Council, Written Submission, July 2009, 11.
[216] Department of Education and Training, Western Australia, Written Submission, May 2009.

opportunities, particularly in times of a housing boom.[217] The Committee notes this issue but believes that a broad-based qualification is still warranted at this level.

4.37. The Committee is disappointed to note that despite longstanding skill shortages in the rail industry, the relevant industry training packages have not kept pace with changes in the industry, or the needs of individual organisations. The Committee therefore supports an urgent review of rail-specific training packages, especially in areas of critical skill needs and current and emerging skill shortages. The Committee believes that this should occur through close collaboration and cooperation between rail operators, industry bodies, relevant government departments and agencies and training providers.

Apprenticeships

4.38. As the main training pathway for critical roles within the rail industry, the supply of and demand for apprenticeships were of key interest throughout the inquiry.

Current supply and demand for rail industry apprenticeships

4.39. The Committee requested information from the main Victorian rail operators about projected apprenticeship commencements and completions over the period 2010 to 2012.

4.40. Metro Trains Melbourne told the Committee that it will employ 12 first-year apprentices in 2010, but did not plan any additional apprenticeship commencements in the following two years.[218] V/Line Passenger indicated that it would employ five apprentice signal maintenance technicians in 2011, and another four in 2012.[219] Yarra Trams planned to employ four apprentice electrical and mechanical fitters for each of the next three years, and two apprentice lineworkers in 2010 and 2011. It is delaying the employment of any new apprentice signal maintenance technicians or substation technicians until 2012.[220]

4.41. The Committee notes that in the manufacturing and maintenance areas, Alstom and United Melbourne Transport Ltd (UMTL) have had a total of only 13 apprentices since 2000, and of these, only five remain rail employees.[221] United Group Ltd provided information to the Committee showing that since 2006, it has recruited seven apprentice electrical and mechanical fitters, with the intention to take on five additional apprentices in 2011.[222] Bombardier Transportation advised the Committee that it currently has four electrical/mechanical apprentice fitters, and that it intends to employ four apprentice diesel mechanics in 2011–12.[223] Given the size and disparate nature of activities within the component supply sector, the Committee was unable to obtain accurate apprenticeship data for businesses involved in the supply of rail-related components.

4.42. The Committee believes that the apprenticeship commencements planned over the next three years are likely to be insufficient in the context of current and emerging skill shortages, predicted growth within passenger and freight operations, and the

[217] Mr R. Pink, Rolling Stock Manager, EDI Rail, Written Submission, March 2009, 1.
[218] Supplementary information provided by Metro Trains Melbourne, March 2010.
[219] Supplementary information provided by V/Line Passenger Pty Ltd, April 2010.
[220] Supplementary information provided by Yarra Trams, March 2010.
[221] Electrical Trades Union of Australia, Victorian Branch, Written Submission, April 2009, 5.
[222] Supplementary information provided by United Group Limited, February 2010.
[223] Supplementary information provided by Bombardier Transportation, April 2010.

increasing national and international competitiveness of the rail industry. The number of apprenticeship commencements is negligible, especially when compared with those in New South Wales and Queensland, where apprenticeships are offered across a wide range of occupations (refer Table 4.4).

Table 4.4: Number of rail industry apprenticeship commencements in New South Wales and Queensland (2009 and 2010)

Apprenticeship	New South Wales		Queensland	
	2009	2010	2009	2010
Blacksmith	-	-	2	1
Boilermaker	-	-	10	2
Cable Joiner	2	2	4	5
Diesel Mechanic	2	2	5	1
Electronics	-	-	6	7
Fitter	2	2	34	21
Lifts and Escalators	1	-	-	-
Rail Traction (Lineworker)	30	9	1	6
Rolling Stock Body Building / Trimmer	5	-	1	4
Rolling Stock Electrical	10	-	-	-
Rolling Stock Fitter	8	-	-	-
Signal Fitter	-	2	-	-
Signal Maintenance Technician (SMT)	16	32	-	-
Substation Technician (ST)	16	25	-	-
Systems Electricians (SMT and ST)	-	-	42	36
Telecommunications	7	14	-	-
Miscellaneous	-	-	4	8
Total	99	88	109	91

Source: New South Wales data provided by D. Catterall, Team Leader, Workforce Planning, Human Resources, Railcorp, 16 February 2010; Queensland data provided by C. Stewart, Manager Stakeholder Relations, Corporate Affairs and Stakeholder Relations, QR Limited, February 2010.

4.43. The Committee heard a number of explanations for the low number of apprenticeships undertaken in Victoria. For example, the Electrical Trades Union told the Committee that many employers do not see apprentices as being financially viable until their third year.[224] As a consequence, employers are likely to take on later year apprentices, or even to recruit fully qualified workers rather than invest in the longer-term process of training apprentices who may opt to leave the industry for more lucrative opportunities on completion of their apprenticeship. Downer EDI told the Committee that of 22 apprentices employed across its various depots, only 10 per cent remain with the organisation two years after completing their trade training, with most of the others leaving the industry to obtain better pay and conditions.[225]

[224] Electrical Trades Union of Australia, Victorian Branch, Written Submission, April 2009, 3.
[225] Supplementary information provided by Downer EDI, July 2009.

4.44. Additionally, the Committee heard that restructuring within the industry makes it more difficult for employers to train in all competencies required within a qualification:

> Throughout their training with the Victorian Railways, graduate engineers and apprentices would rotate through a series of work locations where they would be systematically exposed to the full range of work associated with the development, operation and maintenance of the railway network. Through this exposure the necessary knowledge and skills were developed.[226]

4.45. The Committee notes that small training groups can also present a cost barrier to training providers wishing to deliver apprenticeship training.

4.46. Further, the Committee received evidence regarding the lack of suitable trainers and workplace assessors, especially in critical job roles. For example:

> Despite numbers in training, consultation suggests there is still some disorganisation in parts of the industry. This shows up as a shortage of trainers on the first hand, and a shortage of mentors on the other. Finding good trainers with the necessary technical knowledge is seen as particularly difficult. Compounding this, once hired, there are significant problems retaining staff in training roles which are seen as stressful. Many trainers end up moving back into technical roles which are better paid and less demanding. This is compounded by rail being highly specialised and people are not easily recruited from other industries.[227]

4.47. The Committee recognises this as a key issue, given the age profile of the rail industry workforce and the expected retirements of the most highly skilled rail workers. It therefore believes that the Victorian Government should investigate the number and availability of appropriately qualified workplace trainers and assessors, and work with the operators to address any gaps between the supply and demand for these roles.

4.48. The Committee also acknowledges that there are a number of disincentives for young adults to undertake apprenticeship training. In particular, apprenticeship wages are very low, with electrical apprentices receiving around 65 per cent of the adult wage and metal trades apprentices receiving around 42 per cent of the adult wage in their first year. Further, training times can be lengthy from both the employee's and the employer's perspective.

Future supply and demand for rail industry apprentices

4.49. The Committee believes that an increase in the number of apprentices will be one of the key strategies for addressing skill shortages in the Victorian rail industry.

4.50. During its deliberations, the Committee attempted to quantify the number of apprenticeships required in key roles within the Victorian rail industry over coming years. The Committee has based its suggested apprenticeship intake on an analysis of evidence to the inquiry, industry literature and comparisons with other jurisdictions. In doing so, the Committee has considered the areas of greatest need, the potential risks to rail operations if existing skill shortages are not addressed, and the lead time associated with developing skills in the relevant job roles.

4.51. The Committee has identified a minimum projected need for 47 first-year apprentices to be employed in the Victorian rail industry, followed by a further 95 first-year

[226] Coffey Rail Pty Ltd, Written Submission, April 2009, 4.
[227] Meeting with representatives of Competenz, Auckland, 22 October 2009.

apprentices to be employed over the following three years. These apprentices would be spread across a range of occupations and industry operators (refer Table 4.5).

4.52. In particular, the Committee would like to see a significant and sustained increase in the number of apprenticeships in signalling, overhead, maintenance and manufacturing. This is consistent with apprenticeship numbers in Queensland and New South Wales.

Table 4.5: Suggested number of first-year apprenticeship commencements within the Victorian rail industry (2011 to 2014)

Apprenticeship	Annual intake of first-year apprentices				
	2011	2012	2013	2014	Total
Rail operators					
Signal Maintenance Technician	12	12	12	12	48
Lineworker (Rail Traction)	5	5	5	5	20
Substation Technician	3	3	3	3	12
Fitter – Electrical	4		4		8
Fitter – Mechanical	1				1
Service providers					
Signal Maintenance Technician	2	2	2	2	8
Diesel Mechanic/Fitter	1				1
Rolling stock manufacturers/maintainers					
Fitter	5		5		10
Body Building and Repairs	4		4		8
Diesel Mechanic	2		2		4
Rail projects/construction					
Signal Maintenance Technician (Installer)	4	4	4	4	16
Boilermaker/Welder	2		2		4
Fitter – Mechanical	2				2
Total	47	26	43	26	142

Source: Education and Training Committee estimate of the required number of apprenticeships within the Victorian rail industry over the next four years, April 2010.

4.53. The Committee believes that the above figures are relatively conservative, but realistic, considering the following factors: the existing age profile and projected retirements in the Victorian rail workforce; the long lead time in establishing replacement workers; the cost of hiring; and the availability of workplace trainers to supervise and assess apprentices during their training. Final apprenticeship intakes will need to be determined following an industry skills audit (refer Recommendation 3.1).

4.54. The Committee believes that the Victorian Government should take a lead role in ensuring an increased uptake of traditional trade-based apprenticeships in the Victorian rail industry. One means of achieving this is to specify training requirements, including staff numbers and qualifications, as part of the contracts for operating rail services in Victoria. This view was put forward by a number of participants in the inquiry. For example, the Australian Manufacturing Workers' Union commented:

> The Victorian Government should ensure through its contracts that a minimum ration of apprentices is supported for the entire length of a four year apprenticeship.[228]

4.55. The Committee notes, however, that even if this position is adopted by the Victorian Government in future, there will be a significant lag time in addressing skill shortages given the long-term nature of contracts within the industry.

4.56. The Committee notes that the introduction of an accreditation and registration system for safety critical roles (refer Recommendation 4.8) would also provide the impetus for increased apprenticeships within the rail industry.

Apprenticeship completion rates

4.57. The Committee notes that many apprenticeships, especially within the traditional trade-based areas, also have relatively low completion rates. The Committee believes that this issue needs to be addressed as a means of helping to address skill shortages in the Victorian rail industry.

4.58. A 2009 report produced for the Council of Australian Governments noted that there are a range of factors which contribute to the successful completion of apprenticeships. Some of these relate to the characteristics of the apprentice, which an industry or employer may or may not be able to influence. These include, for example, the level of personal commitment to the training contract, the apprentice's personal support network, access to reliable transport, and their level of satisfaction with prior experiences of the vocational or occupational area.[229]

4.59. Other factors which influence apprenticeship completion rates relate to workplace characteristics which can be more readily influenced by the employer. These include the provision of supportive workplace cultures, supervisors and managers, and an initial work placement that provides the individual with what they need to start and continue in the apprenticeship. Apprentices are also more likely to successfully complete their qualification where they have opportunities to participate in structured training activities and where there are a range of identifiable and attractive career paths.[230]

4.60. The Committee recognises that the federal and state governments have implemented various strategies aimed at improving completion rates of apprenticeships and traineeships. Some of these provide financial incentives for apprentices and/or their employer, which are paid at the commencement, continuation and/or completion of an apprenticeship. The Victorian Government is also funding a range of other initiatives designed to increase apprenticeship commencements and completion rates, including an 'out of trade' database and a review of current pre-apprenticeship arrangements. The 'out of trade' database identifies people who have withdrawn from their apprenticeship in any industry, thereby representing an opportunity for employers to attract a partly qualified tradesperson into their organisation.

[228] Australian Manufacturing Workers' Union, Metals Division, Victorian Branch, Written Submission, April 2009, 3.
[229] Richard Harris and others, cited in the Australian Apprentices Taskforce, for the Council of Australian Governments, *Australian Apprentices Taskforce – Final Report, December 2009* (Barton: COAG,2009).
[230] ibid., 12–13.

4.61. The Committee believes that another key way of increasing the completion rate for traditional trade-based apprenticeships is to improve the quality of the training experience through the introduction of more flexibility into apprenticeship delivery models. The Committee notes that many trades are already examining methods of delivery and assessment strategies that could change the fixed, lock step, time served apprenticeship.

4.62. The Committee also notes that the Council of Australian Governments has recently endorsed the recommendations of the Australian Apprentices Taskforce to improve apprenticeship commencement and completion rates. These recommendations are aimed at developing and implementing a seamless apprenticeship access, re-entry, deferral and support system, and developing and implementing nationally-consistent standards for training plans. The pre-apprenticeship system will be reinforced to facilitate increased opportunities to engage the 2010 senior student and early school leaver cohort, current incentives aimed at increasing the commencement and retention of trade apprentices will be reviewed, mentoring and support for 'out of trade' apprentices and those at risk of losing their apprenticeship will be strengthened, and arrangements for effective implementation of competency-based progression and completion for apprentices will be facilitated.[231] The Committee supports these actions and encourages the Victorian Government, in consultation with the rail operators, to ensure the rail industry benefits from these reforms.

Higher education courses

4.63. The main higher education qualifications of interest to the inquiry are rail-specific courses and qualifications from the engineering disciplines.

4.64. There is no Victorian university currently delivering a rail-specific undergraduate course, however, all Victorian universities offer undergraduate degrees in a range of engineering disciplines. While rail engineering has traditionally been a part of mechanical, civil and electrical engineering, the growth of electronic components within railway systems means that electronic engineering and communication systems are becoming increasingly relevant.

Courses in engineering and related technologies

4.65. There were 2,588 students who completed a higher education qualification in engineering and related technologies in Victoria in 2008 (refer Table 4.6). The three main providers of these qualifications were Monash University, RMIT University and the University of Melbourne.

[231] Council of Australian Governments (COAG), 'Council of Australian Governments' Meeting 7 December 2009,' COAG, http://www.coag.gov.au/coag_meeting_outcomes/2009-1207/index.cfm#voc_ed_train (accessed 4 March 2010).

Table 4.6: Number of students who completed higher education courses in engineering and related technologies in Victoria, by higher education provider (2008)

Higher education provider	Number of students
Deakin University	88
La Trobe University	64
Monash College Group	5
Monash University	734
RMIT University	594
Swinburne University of Technology	416
The University of Melbourne	520
University of Ballarat	56
Victoria University	111
Total	2,588

Source: Department of Education, Employment and Workplace Relations, *Higher Education Statistics*, 2008.

4.66. Despite Victoria having the highest number of completions in engineering and related technologies courses (accounting for nearly one third of students in these courses Australia wide), many stakeholders raised concerns about the low number of graduate engineers entering the rail workforce. Further, it was suggested that the recovery time from a skill shortage may well extend 10 to 15 years, as this will be the timeframe for current graduates to gain the necessary experience to perform at advanced levels.[232]

4.67. The Committee heard that the key factor inhibiting enrolments in engineering and related technologies is the low number of secondary school students studying advanced mathematics and science subjects in their senior years. Students who are not proficient in physics and advanced mathematics will struggle to complete tertiary engineering courses.

4.68. The Committee notes that participation rates in mathematics and sciences in year 12 have been an issue of concern throughout Australia for many years. Engineers Australia highlighted this issue in its written submission, noting that the numbers of students studying advanced mathematics and physics in their senior secondary schooling has been gradually declining in all states over the last ten years.[233] The Education and Training Committee reported to the Victorian Parliament on this issue in 2006 and made a range of recommendations relating to the promotion of mathematics and science in Victorian education.[234]

4.69. Attrition rates from engineering and related higher education courses have also been raised as an issue of concern. In March 2010, the Victorian Government released the Tertiary Education Plan, which included a recommendation that the government investigate the reasons behind high attrition rates in priority fields of study.[235] The Committee supports this recommendation and believes that commencement and completion rates in engineering should be included in the investigation.

[232] Engineers Australia, Victorian Division, Written Submission, May 2009, 8–9.

[233] ibid., 7–8.

[234] Education and Training Committee, Parliament of Victoria, *Inquiry into the promotion of mathematics and science education* (Melbourne: Parliament of Victoria, 2006).

[235] Expert Panel on Tertiary Education, commissioned by the Victorian Government, *Report advising on the development of the Victorian Tertiary Education Plan* (Melbourne: Department of Innovation, Industry and Regional Development (Victoria), 2010), 76.

4.70. The Committee believes that the rail industry could assist in increasing the number of students completing engineering and other relevant higher education courses by promoting the range of interesting and challenging careers available, and offering incentives for students to specialise in rail-related studies. This can be achieved through industry involvement in curriculum design, development of industry-related work experience opportunities or related projects, and offering incentives such as scholarships.

Rail industry content

4.71. As part of its investigations, the Committee examined undergraduate engineering courses in Victoria. The Committee found that exposure to skills and knowledge relevant to rail operations within undergraduate engineering courses is limited, although there are some units which reference transport. In most cases, such units focus on traffic and road systems, although some cover other modes of transport, including railways. The Committee believes that the rail industry should review the quality and availability of these units, as well as the levels of student participation and their levels of satisfaction with the content of the units.

4.72. A number of submissions and witnesses suggested that skill shortages in the Victorian rail industry could be at least partially addressed by increasing the amount of rail-related content in undergraduate programs. Rail Innovation Australia argued that major rail companies should work with higher education providers to establish rail-specific undergraduate courses or elective units that would expose students to career options in the industry.[236] The Essential Services Commission also suggested that there may be scope for universities to increase opportunities for rail specialisation in undergraduate engineering degrees.[237] A similar finding was made in 2005 by the Australasian Railway Association, which reported that the number of graduates with an interest in rail careers could be increased, and the amount of time taken to achieve competency within a rail-related occupation could be reduced, if there was an increase in the rail-related component of undergraduate engineering courses.[238]

4.73. While a range of submissions argued that rail industry content could and should be more prominent within undergraduate courses, there was little support for the development of a rail-specific undergraduate engineering degree in Victoria. As Rail Innovation Australia noted, the rail education market in Australia is small, and universities are unlikely to be able to support the development of new undergraduate programs in rail engineering.[239] The Committee notes that due to budgetary constraints, universities are unlikely to put forward programs unless there is healthy student demand or significant financial support available.

4.74. The Committee heard that there are also important educational reasons against early specialisation within an engineering degree course. Dr Martin Murray, Senior Lecturer in Civil Engineering at Queensland University of Technology, argued that specialisation at the undergraduate level would hinder the development of generic skills, and potentially reduce the future employment opportunities available to

[236] Rail Innovation Australia Pty Ltd, Written Submission, April 2009, 3.
[237] Essential Services Commission, Written Submission, May 2009, 11–12.
[238] Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 17.
[239] Rail Innovation Australia Pty Ltd, Written Submission, April 2009, 3.

graduates.[240] This view was supported by the Faculty of Engineering, Monash University, which argued that it is more advantageous and attractive for students to undertake a broader, less specialised first degree.[241]

4.75. The Committee supports the view that the introduction of a rail-specific higher education engineering course into Victoria is unnecessary. The Committee believes, however, that there is considerable scope for increasing the extent of rail industry content in existing engineering courses. The Committee notes that this can be achieved through a range of strategies, such as elective units of study, research projects and work experience opportunities. Representatives of Engineers Australia noted that such approaches have been successful for other industries.[242]

4.76. Representatives of Engineers Australia discussed industry placements as an effective way to open up opportunities for higher education students to experience the rail industry.[243] As a condition of accrediting university engineering courses, Engineers Australia imposes a requirement that all engineering undergraduates in Australia complete 12 weeks of work experience during their course, and provide a report on that experience. Work experience is usually undertaken during university holidays, and Engineers Australia provides services to assist students and employers with organising industry placements.

4.77. Alternatively, a number of universities offer student cadetships, which combine paid industry experience with study requirements. The Committee supports any strategic and innovative approaches to increase these kinds of student–industry interactions.

4.78. Submissions and witnesses also suggested that research project work could present opportunities for engineering students to experience the rail industry. Engineers Australia argued that there is scope for rail-specific design projects and industry linkages with university programs.[244] Monash University also suggested that through industry involvement, it would be possible to increase the number of 'railway focused' final year mechanical engineering projects.[245] The Committee believes that development of these types of opportunities is essential, if students are to remain engaged in their engineering studies and develop an interest in pursuing a career within the rail industry.

Pathways from VET into higher education

4.79. The Committee believes that the development of formal articulation pathways from VET courses into relevant higher education courses would also help to raise participation in education and training programs that would assist in addressing skill shortages in the Victorian rail industry.

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[240] Meeting with Dr M. Murray, Senior Lecturer in Civil Engineering, Faculty of Built Environment and Engineering, School of Urban Development, Queensland University of Technology, Brisbane, 7 September 2009.

[241] Engineering Faculty, Monash University, Written Submission, April 2009, 4.

[242] Ms G. Graham, Executive Director, Engineers Australia, Victorian Division, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 13; Ms M. McManus, State President, Engineers Australia, Victorian Division, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 13.

[243] Ms M. McManus, State President, Engineers Australia, Victorian Division, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 12–13.

[244] ibid.

[245] Engineering Faculty, Monash University, Written Submission, April 2009, 4.

4.80. The Committee notes that pre-defined articulation pathways have been successful in other disciplines and industries. For example, Holmesglen Institute and Monash University have collaborated to develop a formal articulation pathway from the Diploma of Built Environment into the Bachelor of Technology (Infrastructure – Design, Construction and Management), through a common first year. After completing the first year, students may continue with the Diploma of Built Environment at Holmesglen Institute, or apply to enter the second year of the Bachelor of Technology at Monash University, which itself is a pathway into the Bachelor of Engineering (Civil Engineering).[246]

4.81. The Committee believes that the Victorian rail industry should work closely with the VET and higher education sectors to assess the viability of developing a range of articulation pathways in areas where there are current or emerging skill shortages. These articulation arrangements should provide advanced standing in relevant higher education programs for prospective students who could potentially graduate into critical rail occupations and job roles.

4.82. The Committee notes that the Dublin Accord represents a potential mechanism for recognising skill development from VET qualifications in the engineering discipline as a pathway into relevant higher education programs. The accord is an international agreement for the recognition of undergraduate engineering degrees across ten member countries, with Engineers Australia as the signatory accreditation body within Australia.

4.83. The Committee notes that Sheffield Hallam University in the United Kingdom has developed a foundation degree in rail engineering which forms the basis for articulation into higher level programs. The course includes an introduction across engineering disciplines in the first year, as well as an industrial placement. The second year enables students to build their skills in one of four disciplines: signal engineering; electrical and mechanical engineering; civil engineering; and track engineering.[247] Following completion of the two-year foundation degree, graduates have the option of completing the Bachelor of Engineering (Railway Technology). In addition, the program offers incentives such as tuition scholarships and paid work placements to encourage new students to enter into the rail industry or to up-skill existing staff.[248]

Postgraduate courses

4.84. There are a small number of rail-specific postgraduate programs available to rail engineers. Central Queensland University offers two postgraduate courses (railway signalling and telecommunications and rail operations management), while Queensland University of Technology offers postgraduate studies in railway infrastructure and the University of Wollongong offers a program in rolling stock engineering. These specialist postgraduate programs are targeted at people who

[246] Monash University, 'Bachelor of Technology (Infrastructure – Design, Construction and Management) for 2010,' Monash University, http://www.monash.edu.au/study/coursefinder/course/2758/print.html (accessed 10 March 2010).

[247] Sheffield Hallam University, 'Foundation Degree in Rail Engineering: General,' Sheffield Hallam University, http://prospectus.shu.ac.uk/CourseEntry.cfm?CourseID=441&CurrTab=1 (accessed 10 September 2009).

[248] Engage: Facilitating Dialogue between Employers and Engineering, Physical Sciences and Materials Academics in Higher Education, 'Foundation Degree in Railway Engineering at Sheffield Hallam University: Engage Workshop Wednesday 24th October 2007,' Engage, http://engage.lboro.ac.uk/files/resourcesmodule/@random471f636298b85/1193240567_Network_Rail_1.ppt#15 (accessed 10 September 2009).

have had several years experience within the rail industry, with the aim of 'fast-tracking' their knowledge and skills and increasing their 'usefulness' to industry. All are available as a distance learning program, enabling rail industry employees from around Australia to continue their studies while employed within the industry.

4.85. In 2009, there were 120 domestic and international student enrolments in postgraduate rail programs in Australia (refer Table 4.7). The Committee understands that the Victorian rail industry had approximately twelve people enrolled at Central Queensland and Wollongong universities.

Table 4.7: Number of enrolments in rail-specific postgraduate programs in Australia, by higher education provider (2009)

Program	University	Enrolments
Graduate Certificate in Railway Signalling and Telecommunications Graduate Diploma in Railway Signalling and Telecommunications Master of Railway Signalling and Telecommunications	Central Queensland University	70
Graduate Certificate in Rail Operations Management Graduate Diploma in Rail Operations Management Master of Rail Operations Management	Central Queensland University	20
Graduate Certificate (Railway Infrastructure) Master of Engineering (Railway Infrastructure)	Queensland University of Technology	20
Graduate Certificate in Rolling Stock Engineering Master of Rolling Stock Engineering	University of Wollongong	10

Source: Compiled by the Education and Training Committee based on data from Engineering Faculty, Monash University, Written Submission, April 2009, 19.

4.86. Since their inception in 2004, Central Queensland University's railway signalling and telecommunications programs have shown increasing enrolments, with more than 70 students currently enrolled. The newer programs have fewer students, with 10 to 20 students enrolled in rolling stock engineering, railway infrastructure engineering and rail operations management.

4.87. While Rail Innovation Australia told the Committee that the postgraduate programs are highly regarded and recognised both nationally and internationally,[249] the Committee received mixed evidence about their content and delivery. The executive director of Engineers Australia suggested that Victorian students see the online distance learning format as a barrier,[250] while a representative of the Railway Technical Society of Australasia attributed the relatively low take-up from Victorian students to a lack of state-based course content.[251] On the other hand, a representative of Queensland University of Technology highlighted the advantages of online delivery, which allows for increased flexibility and exposure to different railway operating systems and processes.[252]

[249] Rail Innovation Australia Pty Ltd, Written Submission, April 2009, 2.
[250] Ms G. Graham, Executive Director, Engineers Australia, Victorian Division, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 16.
[251] Mr P. Munro, Victorian Chapter Representative, Railway Technical Society of Australasia, Transcript of Evidence, Public Hearing, Melbourne, 20 July 2009, 16.
[252] Meeting with Dr M. Murray, Senior Lecturer in Civil Engineering, Faculty of Built Environment and Engineering, School of Urban Development, Queensland University of Technology, Brisbane, 7 September 2009.

4.88. The Committee acknowledges both the advantages and disadvantages of distance learning programs and believes that to gain the maximum benefit from such studies, distance learning students should be provided with additional study support, including bridging programs, industry experiences and mentoring.

4.89. The Committee is pleased to note that the postgraduate rail programs are currently being reviewed, potentially resulting in content changes and other improvements to better reflect the diverse needs of students and employers across Australia.[253] The Committee believes that as part of the review process, postgraudate programs should be benchmarked against international best practice standards.

4.90. The Committee notes that the Rail and Tram Industry Infrastructure Committee and the Department of Transport provide support to students undertaking the Central Queensland University postgraduate signalling program. For example, the Rail and Tram Industry Infrastructure Committee has a bridging and industry rotation program to provide hands-on experience to students and help them to broaden their understanding and experience of the industry. The Committee was told that this model contributes to a significantly reduced number of non-completions.[254] Similarly, the Department of Transport provides a program to develop skills and knowledge of the rail industry, through varied experiences in railway design, construction, maintenance and operating environments.

4.91. The learning and development manager at Connex Melbourne suggested that similar programs are required in other areas of rail, including operations, planning and networking.[255]

Short courses

4.92. Monash University's engineering faculty suggested that increased provision of short courses could be a useful additional strategy for up-skilling rail industry engineers. Short courses would consist of a structured series of seminars and/or workshops based on specific or current topics such as project management and track or rolling stock design.[256]

4.93. The Committee notes that short courses have a number of advantages. For example, while the time and cost required to complete a full university qualification may offer a disincentive for participation in rail-specific studies, short courses require less time and financial commitment. At the same time, short courses provide a means of flexible delivery of high quality, detailed rail-related content. The Committee notes that such programs could benefit current higher education students, recent graduates, and experienced rail employees who are seeking to further develop their careers in the industry.

4.94. The engineering faculty at Monash University argued that development of rail-specific short courses may help to counter an apparent 'monopoly on knowledge' among senior staff in the rail industry, by empowering and up-skilling younger employees. This would ensure a 'more sustainable' distribution of the skills and

[253] Victorian Government, Written Submission, July 2009, 18.
[254] Meeting with representatives of the Rail Skills Centre, Newport, Victoria, 17 August 2009.
[255] Ms. R Archer, Manager, Learning and Development, Connex Melbourne, Transcript of Evidence, Public Hearing, Melbourne, 27 July 2009, 5.
[256] Engineering Faculty, Monash University, Written Submission, April 2009, 3.

knowledge base across the industry.[257] It was also suggested that government investment could 'provide the missing momentum' for the development of course materials.[258] The Committee agrees that some government support may be warranted, but believes that industry should also take a lead role in the design and delivery of these programs.

Workforce planning and development

4.95. Workforce development has been described in many ways. The Organisation for Economic Co-operation and Development defines it as 'the comprehensive management of human resources, so as to better meet the demands of a global economy at both the national and local levels, through improving economic competitiveness and social cohesion'.[259] This definition illustrates that workforce development is fundamental to productivity. It looks at the connections between all aspects of a workplace, builds the capacity of people in a workforce to grow and prosper, and is about finding innovative ways to do things better.[260]

4.96. The Committee notes that while workforce development includes training, it also encompasses a range of other activities and mechanisms designed to assist in forecasting and managing the size and composition of a workforce. It is a strategic approach to ensuring the long-term sustainability of the workforce. Workforce development is reliant on having a sound understanding of a range of factors, including the demographic and skills profile of a workforce, job design and redesign options, support for job sharing and redeployment, knowledge management and mentoring, career progression and succession plans, working conditions and performance management, and the recruitment, induction and retention of workers.[261] A range of stakeholders must be involved in workforce development, including individual operators, industry organisations and governments.

Recruitment and retention strategies

4.97. Rail operators, like organisations in any other industry facing skill shortages, typically consider a range of employee attraction and retention strategies when faced with skill shortages or recruitment difficulties. The Committee heard about many of these strategies at the Rail Careers Conference in May 2009.

4.98. When seeking to recruit new employees, rail operators may consider a range of strategies aimed at enhancing the attractiveness of the role. These may include offering an attractive salary package or improved working conditions. Alternatively, employers may re-assess and modify the scope of the role, or change their expectations of new recruits and allow for upskilling within the role. Other recruitment strategies that might be considered include: increasing the recruitment effort and/or widening the pool of potential applicants; paying a sign-on bonus to new employees; or paying a recruitment bonus to existing employees who refer a suitable employee to the organisation.

[257] ibid.
[258] ibid., 4.
[259] Department of Education, Employment and Workplace Relations, Written Submission, April 2009, 7.
[260] ibid.
[261] ibid.

4.99. Skilled migration is another recruitment strategy that may be used by rail operators seeking to address skill shortages. Engineers Australia outlined in its submission that currently, migrants account for more than half of the growth of new entrants to the Australian engineering profession each year:

> Since 2003–04, the number of engineers working in Australia on 457 temporary visas has more than doubled, increasing from 810 to 1,970. The increase between 2005–06 and 2006–07 was particularly large and may be related to the fall in permanent off-shore migration between those years.
>
> The significance of these changes can be put into perspective by comparing migration to the output of Australian universities. In 2006, there were 5,044 new four year Bachelor of Engineering graduates. The supply of new engineers to the Australian workforce is the sum of university output and immigration. Thus in 2006, the supply of new professional engineers was 11,134 (5,044 new domestic graduates and 6,090 new migrant engineers) with migration accounting for more than half of new supply.[262]

4.100. The Committee notes, however, that the experience of rail operators using migration as a recruitment strategy is varied. Operators have indicated that this approach requires considerable time and money, with the results often failing to meet expectations:

> Sourcing skilled labour off-shore adds another level of diversity to the rail workforce. Well managed diversity provides a good source of refresh and innovation in organisations. Poorly managed it can create tensions that are difficult to resolve. As with diversification of the workforce on other dimensions (such as age and gender) the success of operators in retaining migrant workers will be dependent on their ability to sustain the necessary supporting mechanisms.[263]

4.101. Further, the Committee notes that the Victorian rail industry is competing for skilled labour with rail companies in other Australian and international jurisdictions, as well as with other industries worldwide. This point was also emphasised in a written submission from Engineers Australia:

> Engineers Australia recognises the significant contribution made by migrant engineers to Australia's competitiveness and economic growth. Migrant engineers are a vital element in generating new ideas and approaches to engineering, and for providing skills where there are shortages.
>
> However, there is an acute need for the Australian education system to produce more engineering graduates. Until relatively recently, only traditional immigrant countries (Australia, New Zealand, Canada and the United States) competed for immigrants. Now European nations and nations elsewhere (especially in the Middle East and Asia) are entering the competition for migrants with desired characteristics, especially skills in short supply. Countries experiencing labour shortages and population pressures are directing their focus toward skilled migration. Australia's reliance on migrant engineers to meet skills shortages leaves industry and our innovation system vulnerable.[264]

4.102. Thus, the Committee believes that it is essential that the Victorian rail industry develop a long-term training and development plan to ensure that the required skills can be developed within the local workforce.

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[262] Engineers Australia, Victorian Division, Written Submission, May 2009, 6.
[263] PricewaterhouseCoopers, *The Changing Face of Rail: A journey to the employer of choice; Attraction and Retention of Employees in the Australasian Rail Industry* (Barton: Australasian Railway Association, 2006), 50.
[264] Engineers Australia, Victorian Division, Written Submission, May 2009, 6.

4.103. A second key focus for operators seeking to address skill shortages within their workforce may be to change workplace practices. For example, employers may increase the amount of overtime required to be worked by employees, or reduce the need for the skill in short supply by altering job roles and workplace processes. Another common strategy is to contract out the work. The Committee notes, however, that as with skilled migration, outsourcing is unlikely to be sustainable in the long term, as each rail organisation will be competing with a range of other organisations for a limited local supply of the required skill set. A representative of V/Line Passenger told the Committee that the organisation has lost 25 per cent of its graduate civil engineers to contract companies within three to four years of them completing their training.[265]

4.104. While Victorian rail operators have previously used skilled migration and outsourcing to quickly acquire required skills, the industry has realised that these approaches are not sustainable. Therefore, they have increasingly taken on succession planning as a key strategy in workforce planning and development. Succession planning involves a detailed workforce analysis to identify roles critical to the business, the current skills held within the organisation, future skills required, any gaps between current and future skill requirements, and strategies to ensure the ongoing availability of employees with the required skill sets within the organisation. As noted by the Victorian Government, succession planning is particularly critical in areas where workers are involved in safety critical roles and must meet health requirements.[266]

4.105. Succession planning recognises that staff with high level or specialised skills cannot be easily recruited, and that organisations must refocus their efforts on strategies to retain existing employees and to further develop the skills and capabilities of the existing workforce. These strategies may include: retraining existing employees to take on new roles; supporting participation in advanced education programs that may enable employees to take on increased responsibilities; introducing mentoring programs; and encouraging older employees to continue to work in the industry as part-time workers, mentors, contractors, consultants, volunteers and/or trainers.

4.106. The Committee recognises that the above workplace strategies provide useful options for rail operators seeking to address skill shortages or skill gaps within their organisation. However, the continued operation of safe and reliable passenger and freight services depends on having a sufficient supply of highly skilled employees available to all organisations within the industry. Therefore, the Committee believes that all Victorian rail operators have a responsibility to contribute to the development of a comprehensive, long-term industry workforce plan.

Industry-wide workforce planning and development

4.107. The Committee found that there is a broad consensus about the need for the Victorian rail industry to develop a coordinated approach to training, recruitment, employee retention and the utilisation of existing workforce skills. Without this, the rail industry is unlikely to have access to sufficient labour and skills required to meet the current and projected demand. A recent report for the Australasian Railway

[265] Ms J. Kelman, General Manager, Human Resources, V/Line Passenger Pty Ltd, Transcript of Evidence, Public Hearing, Melbourne, 27 July 2009, 21.
[266] Victorian Government, Written Submission, July 2009, 3.

Association emphasised the need for accurate industry information and the involvement of all rail organisations in workforce planning and development:

> In order to ensure stakeholder buy-in to the risks facing the industry it is important to have valid, accurate information. This can be achieved if the individual organisations and the industry as a whole conduct regular workforce planning processes to clarify and validate the data … [and] ensure opportunities to share resources between organisations in the supply chain …[267]

4.108. The Committee notes that although workforce planning and development is being undertaken at the national level by the Australasian Railway Association, this work does not specifically cover the Victorian perspective. The Committee recognises that the Australasian Railway Association cannot account for skills available within or required by rail organisations that do not participate in its workforce planning processes. The Committee therefore believes that there is a leadership role for the Department of Transport to ensure the Victorian rail industry is adequately represented in workforce planning and development. This view was supported in evidence. For example, Mr Trevor Dobbyn, State Secretary, Rail, Tram and Bus Union, Victorian Branch stated:

> To meet the system's current and future needs, the government must take on a greater role of planning, delivering and mandating for training and workforce development. If we do not plan for the staffing needs of the system, the investment in track and rolling stock will come to nought. If we do not have an adequate, skilled workforce to maintain the network and serve the travelling public, the system will come to a standstill.[268]

4.109. The Committee believes that the department should, in consultation with the rail industry, develop an industry workforce plan for 2010 to 2020, outlining: current workforce skill needs, staffing levels and qualifications; current and emerging skill shortages and skill gaps, and their impact on passenger and freight operations; required staffing levels in safety critical roles; an industry-wide recruitment and retention strategy; and an industry-wide training and development plan.

4.110. The Rail and Tram Infrastructure Industry Committee was established in 2004, with the charter to help to build on the work of groups such as the Australasian Railway Association and to assist in identifying and addressing skill shortages. It is the key Victorian industry forum for rail infrastructure skills and training, and assists rail businesses to adopt and implement solutions to meet their current and future workforce development needs. One of its aims has been the coordination, development and documentation of skills for rail safety workers which are mutually recognised across rail operators, infrastructure managers and maintenance providers. The Rail and Tram Infrastructure Industry Committee has also worked to develop practical and innovative training to assist industry in aspects of workforce training and development, including assisting in increasing the number of commencements in the postgraduate program in railway signalling and telecommunications which is offered by Central Queensland University.

4.111. The work of the Rail and Tram Infrastructure Industry Committee has been accomplished through collaboration with rail organisations, the transport and electrical industry training advisory boards, unions and other associated bodies. The

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[267] Business Group Australia and others, for the Australasian Railway Association, *A Rail Revolution: Future Capability Identification and Skills Development for the Australasian Rail Industry* (Barton: ARA, 2008), 21.

[268] Mr T. Dobbyn, State Secretary, Rail, Tram and Bus Union, Victorian Branch, Transcript of Evidence, Public Hearing, Melbourne, 3 March 2010, 38.

Committee acknowledges the progress made by the Rail and Tram Infrastructure Industry Committee in addressing workforce skill needs, and supports its continued involvement as a key body in workforce planning and development for the rail infrastructure sector.

4.112. In February 2008, the Australian Transport Council agreed on the need for state, territory and national advisory groups to support workforce and skills development in the transport and logistics industry. The Victorian Freight and Logistics Council, with funding from the state government, was asked to form the Victorian advisory group. The primary objectives of the Transport and Logistics Workforce Advisory Group are to: improve access to appropriate education, training and employment; improve workforce planning, recruitment and retention practices, including input to national issues where appropriate; and provide advice on streamlining regulatory requirements for workers employed in the industry.[269]

4.113. The Committee notes that while there are several Victorian groups operating in an advisory role, the rail industry still lacks a single and coherent voice on matters dealing with workforce planning and development. While the Rail and Tram Infrastructure Industry Committee and the Transport and Logistics Workforce Advisory Group each cover some segments of the Victorian rail industry, other segments of the industry have little or no representation on state or national policy issues. Therefore, the Committee recommends that a more coordinated approach be adopted, and that the industry form a single advisory body to identify and articulate industry skill and training needs. The Committee believes that the establishment of a Victorian centre of excellence in rail skills, as discussed below, could form the basis of a single group representing all sectors of the rail industry.

Skills reform agenda

4.114. The Committee notes that the 'skills challenge' is a national challenge which cannot be addressed by individual industries alone. Governments in all Australian jurisdictions agree on the need for a far-reaching reform agenda to address skills development issues. To deal with the skills challenge, the Council of Australian Governments has outlined an action plan to grow a capable and highly skilled population and to ensure a sustainable workforce.

National skills reform agenda

4.115. As part of the national focus on productivity and the development of Australia's human capital, there is a strong emphasis on making training systems more responsive to changing labour market demands through more competitive and user-focused delivery.

4.116. Skills Australia has been established as an independent statutory body to provide advice to the federal Minister for Education, Employment and Workplace Relations on Australia's current, emerging and future workforce skills and workforce development needs. Its major functions include analysing current and emerging skill needs across industry sectors, and assessing evidence from commissioned research

[269] Victorian Freight and Logistics Council, 'T&L Workforce Advisory Group,' Victorian Freight and Logistics Council, http://www.vflc.com.au/html/s02_article/default.asp?nav_cat_id=265&nav_top_id=83 (accessed 23 March 2010).

and industry stakeholders to inform Australia's skills and workforce development needs.[270]

4.117. As part of an initial review of skill shortages across key industries, Skills Australia has proposed changes to aspects of government training priorities, through a targeted approach to planning for the future and identifying the need for intervention in areas of emerging skills. In 2009, Skills Australia launched a series of discussion papers aimed at assisting in the development of a strategy to best meet the nation's future skill needs. A key issue raised in these papers was how best to influence areas of priority.[271]

4.118. Accordingly, a risk-based model to fund industries of importance to the Australian economy has been developed. The model aims to: address workforce development issues; maximise people's capabilities; lift productivity; and increase workforce participation. Initially, 20 occupation groups were identified, including engineers. The federal and state governments must now implement strategies to increase the numbers of people training in and entering into these occupation groups in Australia.

4.119. The Committee believes that the Skills Australia risk-based model will provide a proactive approach and have a positive impact in tackling the issues associated with skill shortages in the Victorian rail industry, through the identification of priority occupation groups such as engineering and the traditional trades.

Victorian skills reform agenda

4.120. Skills Victoria is the key Victorian Government agency responsible for strategic advice and analysis of Victoria's skill requirements. Skills Victoria provides strategic leadership, legislation and other support for the development of the VET system, as well as legislative and regulatory policy advice for the higher education sector. Skills Victoria is also responsible for: planning, purchasing and monitoring the services offered by registered training organisations; administering VET regulatory frameworks; and delivering the apprenticeship and traineeship program.[272]

4.121. One of the key functions of Skills Victoria is to monitor and align industry training needs with available training places. Relevant industry bodies, including various training advisory bodies, provide advice to assist in the allocation of government-funded training places. The Committee notes, however, that the rail industry currently lacks a single body to provide comprehensive advice regarding the skill and training needs of the industry.

4.122. In an attempt to assist industries in dealing with the depletion of critical skills, Skills Victoria has strengthened the role of the Victorian Skills Commission. It has also improved industry input to policy and decision-making, with the aim of providing more investment in areas of skill shortages, and discouraging over-delivery in areas where job opportunities are restricted, or where there is already a sufficient supply of skilled workers. The Committee supports these changes and encourages the Victorian Government to continue to monitor processes for allocating VET funding to ensure that limited resources are targeted towards areas of skill shortages.

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[270] Skills Australia, ' What we do,' Skills Australia, http://www.skillsaustralia.gov.au/about-us.shtml (accessed 12 March 2010).

[271] These papers are available on Skills Australia's website, 'Workforce Futures Background and Consultation Progress,' Skills Australia, http://www.skillsaustralia.gov.au/WF_BackgroundConsultation.shtml.

[272] Skills Victoria Corporate, 'About Skills Victoria,' Skills Victoria Corporate, http://www.skills.vic.gov.au/corporate/about-skills (accessed 25 March 2010).

4.123. The Committee believes that one of the key strategies for assisting the rail industry to overcome skill shortages is for Skills Victoria to acknowledge the rail sector as a 'priority industry', as defined under its Programs and Initiatives statements. This would allow the industry greater access to Skills Victoria's expertise and knowledge, and assist in building capacity across rail, particularly in areas such as construction and installation, operations and maintenance, and manufacturing.

4.124. The Committee understands that as a priority industry under Securing Jobs for Your Future, rail would benefit from a range of programs and strategies such as:

- funding for traineeships and apprenticeships and funding for eligible retrenched workers and 15 to 24 year-olds, subject to admission requirements and course availability;
- contestable and demand driven funding;
- assistance with development of learning materials for programs that cover foundation skills, skills creation, skills building and skills deepening;
- assistance with building the capacity of training providers for delivery of rail-related training; and
- identifying rail as a long-term market for training and thus encouraging training provider investment in the sector.[273]

4.125. The Committee believes that Skills Victoria should prioritise training places for key safety critical roles such as track worker and ganger/special ganger, signaller/train controller, stationmaster, safeworking officer, driver, authorised officer and technical officer. The Committee also believes that Skills Victoria should provide resources to assist with the building of capacity for trainers and public training providers to deliver the level of training required to meet the skill needs of the Victorian rail industry.

Centres of Excellence

4.126. The Committee examined how a number of comparable industries have tackled the problem of skill shortages and how they have implemented new and innovative methods of training. In particular, the Committee believes that Centre of Excellence models should be further considered as a way of helping to address skill shortages in the Victorian rail industry.

Centre of excellence models

4.127. Centres of excellence provide the opportunity for targeted and customised training solutions to meet the skill needs of priority industry sectors. Skills Victoria currently funds 20 specialist centres across Victoria which link to specialist networks that facilitate resource sharing across the Victorian TAFE sector, and enable a single point of entry into the VET system for industries and organisations seeking training solutions in specialised industry areas.[274]

[273] Department of Innovation, Industry and Regional Development (Victoria), *Securing Jobs for Your Future – Skills for Victoria* (Melbourne: Victorian Government, 2008).
[274] Skills Victoria Corporate, 'Specialist Centres and Networks,' Skills Victoria Corporate, http://www.skills.vic.gov.au/corporate/programs-and-initiatives/specialist-centres (accessed 15 March 2009).

4.128. Given some obvious parallels between the automotive and rail sectors, in December 2009, the Committee sought the opportunity to visit the Automotive Centre of Excellence, which is located at the Batman's Hill Precinct at the Docklands in Melbourne.

4.129. The Automotive Centre of Excellence is a dedicated training facility for the automotive industry, which is a very important part of the Victorian economy. The Automotive Centre of Excellence concept was developed in consultation with the automotive industry, which identified the need for: increased innovation capabilities within the industry; a better, more integrated approach to education and training and research and development; highly-skilled staff trained in the latest technology; centralisation of training to allow resource sharing and the ability to constantly update technology; and ongoing professional development for existing staff (in particular leadership training for management staff) bringing together the TAFE, university and corporate education and training systems.[275]

4.130. The Automotive Centre of Excellence delivers: innovative and sustainable environmental design principles and practices; a venue to showcase the latest technology and equipment; more employer friendly, flexible training opportunities; and new learning technologies, all within a flexible learning environment.[276]

4.131. During its visit to the Automotive Centre of Excellence, the Committee was very impressed with the training facility and its vision for the future. In particular, the Committee was impressed with features such as the strong industry presence, the modern training environment, and the emphasis on new and emerging technologies. The Committee notes that these are all aspects which appeal to new entrants to the industry. Therefore, the centre has been successful in assisting the industry to attract suitable young workers who are committed to a career in the automotive industry.

4.132. Another Victorian example of a dedicated training facility responding successfully to an industry training need is the Plumbing Industry Climate Action Centre. This is an industry-led facility jointly funded by the Communications, Electrical and Plumbing Union, the Master Plumbers and the Mechanical Services Association of Australia Joint Training Fund, with additional funding support from the Victorian Government and the Building Commission. In total, $9 million was made available to establish the centre.[277]

4.133. The development of the Plumbing Industry Climate Action Centre stemmed from concerns raised in a review into the future professional development and trade training requirements for the plumbing industry, which specifically identified the need for more targeted training in the green plumbing and sustainable living initiatives. The function of the Plumbing Industry Climate Action Centre is to assist in the training of the plumbing profession, providing access to the latest energy and water-efficient practices with hands-on experience on the most up-to-date products and technologies.[278] The centre showcases the world's leading-edge technology and provides the industry with the means to train a new generation of technicians in this new and exciting technology. The centre also showcases green building

[275] Automotive Centre of Excellence, 'About the ACE,' ACE, http://www.aceauto.com.au/what/about/ (accessed 9 March 2010).
[276] ibid.
[277] Plumbing Industry Climate Action Centre, 'PICAC facility opens in Brunswick,' PICAC, http://www.picac.com.au/PICAC-facility-opens-in-Brunswick.html (accessed on 4 March 2010).
[278] ibid.

developments, hydronic heating, solar systems, environmental sustainability, waste management reduction and accessibility.[279]

4.134. The Committee notes that some other jurisdictions have developed or are in the process of developing rail-specific centres of excellence. In particular, the Committee considered the role, structure and activities of the proposed Queensland Rail Skills Centre of Excellence, as well as rail specialty centres in the United Kingdom.

4.135. Queensland's response to skill shortages in the rail industry has been to establish a Rail Skills Centre of Excellence.[280] A working group had identified that a coordinated industry response was the only possible mechanism to lead the collaborative efforts of businesses within the rail industry. This group recommended that the required leadership and direction be made available through the formation of a rail skills centre of excellence. It believed that the necessary critical mass of industry and training providers existed to create this new collaborative venture to address current and future skill needs.

4.136. The Queensland Rail Skills Centre of Excellence will take the lead on all aspects of VET, higher education, specialised rail skills development initiatives, and whole of industry workforce planning. The centre will ensure that current and projected skill needs are identified at regional and state levels, and ensure that appropriate levels of workforce development activity can meet these projected needs. The centre will link into Queensland's skills plan and will be tailored to meet the skill needs of the industry.[281] Its membership will comprise all peak state bodies in the rail sector and government. The Queensland Government will contribute to the cost of the centre, with additional funding from an industry levy which is based on the operational size of each organisation.

4.137. A UK example of the centre of excellence model is the Yorkshire Rail Academy, a partnership between York College and the National Railway Museum. The Yorkshire Rail Academy is a dedicated rail training facility which delivers the apprenticeship in rail transport engineering, as well as foundation degrees in engineering with a rail specialty. The campus includes fully operational track and signalling equipment as well as state-of-the-art training facilities.[282]

A Victorian Centre of Excellence in Rail Skills

4.138. The Committee believes that in order for current skill shortages to be properly addressed, the Victorian rail industry must take firm action and establish a peak body that can respond to training and development needs through effective workforce planning. The Committee also believes that the development of specialist skills, as required by the Victorian rail industry, requires the establishment of specialist training and development facilities, along the lines of the centres of excellence described above. The Committee believes that the benefits of a centre of excellence in rail skills would include the development of new training and employment pathways into the industry. The Committee also envisages that the centre of excellence would provide

[279] Plumbing Industry Climate Action Centre, 'Training at PICAC,' PICAC, http://www.picac.com.au/training-at-picac.html (accessed on 4 March 2010).

[280] Glen Watson, prepared for the Rail Industry Leaders Group, *World Class Rail Solutions: Information Paper for the Rail Industry; Business Model for The Rail Skills Centre of Excellence* (Brisbane: Department of Employment, Economic Development and Innovation, 2009), 11.

[281] ibid.

[282] York College, 'Yorkshire Rail Academy,' York College, http://www.yorkcollege.ac.uk/yra/ (accessed 7 April 2010).

a showcase for best practice and the adoption of new technologies within the Victorian rail industry.

Role of the centre

4.139. The Committee notes that the establishment of a Victorian Centre of Excellence in Rail Skills should occur as a collaborative process between the Victorian Government, rail operators, industry bodies, unions and education and training providers. The Committee believes that the goals set out for the centre should be in line with those of existing specialist centres in other industries and other jurisdictions. In particular, the Centre of Excellence in Rail Skills should aim to:

- increase innovation capabilities;
- develop an integrated approach to education and training and research and development;
- assist in the development of trainers who are proficient in the latest technologies;
- facilitate the centralisation of training to allow resource sharing and the use of up-to-date technology;
- develop ongoing professional development, in particular leadership training; and
- ensure VET, higher education and corporate training is based on improved quality of service delivery within the industry.

4.140. The Committee believes that a key task of the proposed Victorian Centre of Excellence in Rail Skills should be to assist in the implementation of the workforce development plan to be developed by the Department of Transport (refer Recommendation 4.1). This could be achieved by the Victorian rail industry and the Victorian Government working collaboratively to identify and monitor current and emerging skill shortages and devising strategies to address these shortages.

4.141. Some of the specific issues that could be considered by the Victorian Centre of Excellence in Rail Skills include:

- strategies to expand the pipeline of youth entering the rail industry;
- assistance for alternative labour pools to gain industry-specific skills and competencies;
- the development of alternative training strategies, such as e-learning and accelerated training;
- the development of tools and curriculum to enhance the skills of rail professionals;
- strategies to stimulate demand for training;
- strategies to help increase the capacity of educational institutions and the industry itself to train to industry defined competencies;
- strategies to retain and help incumbent workers move into higher level positions; and
- assistance for individuals moving from other industries into the rail industry.

4.142. The Committee believes that another opportunity for a Centre of Excellence in Rail Skills would be to investigate and assist in the establishment of pre-employment training programs as a careers taster for people wishing to gain employment in the industry. The Committee is aware that there are already high levels of interest in certain roles within the industry, especially in train driving. The Committee believes that the industry could tap into this interest by designing and delivering pre-employment training programs aimed at developing a workforce ready pool of potential applicants for positions across the industry. Links to VET in Schools programs with related skill acquisition, such as engineering and electronics, could also be established.

4.143. Mr Brian McNaught, General Manager, Rail Compliance, Asciano, suggested that developing pre-employment training opportunities in areas such as driving and track maintenance should be a priority.[283] It was envisaged that such training would cover the basic 'prerequisite' industry skills such as radio protocol, first aid, manual handling and customer service. In its submission to the inquiry, Asciano noted that while each of these components are currently offered by a number of registered training organisations, they are not part of a clearly identifiable rail skills career package that can be pursued by would-be entrants to the industry.[284]

4.144. The Committee notes that the benefits of developing suitable pre-employment programs would be two-fold: pre-employment training would provide a visible and accessible pathway into the rail industry, while allowing employers to recruit employees who have 'self-selected' and demonstrated commitment and interest in the industry.[285]

4.145. The Committee believes that the Centre of Excellence in Rail Skills could also assist in the development of training programs for supervisors and managers across the rail industry, to address the current gap in skills among the middle management level. The Committee believes that building capacity at this level is essential for continued advancement of the industry. It is suggested that when developing suitable management programs, the industry incorporate international knowledge and best practice from the international organisations currently operating within the local environment.

Venue and facilities

4.146. The Committee believes that following an upgrade to existing training and administration facilities, the Rail Skills Centre (based at the Newport Rail Precinct) could provide a suitable location for the development of a Victorian Centre of Excellence in Rail Skills. The existing Rail Skills Centre already has significant rail infrastructure in place, with 400 metres of dual track with overhead and associated turnouts, a level crossing and trackside communications systems. There are also 150 metres of tram overhead, with the potential to put in place the track below. All of this infrastructure was upgraded in 2009 after a train stabling project resulted in a reconfiguration of the in-field training facilities.

[283] Mr B. McNaught, General Manager, Rail Compliance, Asciano Limited, Transcript of Evidence, Public Hearing, Melbourne, 23 July 2009, 12–13.
[284] Asciano Limited, Written Submission, April 2009, 4.
[285] Mr B. McNaught, General Manager, Rail Compliance, Asciano Limited, Transcript of Evidence, Public Hearing, Melbourne, 23 July 2009, 12–13, 17.

4.147. The Committee also notes that a number of complementary developments are currently occurring as part of a revitalisation of the Newport Rail Precinct, including a new metropolitan stabling facility, maintenance depots and a rail heritage operation and maintenance facility.

4.148. The Committee envisages that the proposed Centre of Excellence in Rail Skills could offer an enhanced range of practical industry training as it expands its operations. As noted by the Victorian Government, the use of simulators and other technologies could also bring new learning experiences to industry training programs, especially those that have inherent safety issues and cost barriers.[286]

4.149. The Committee experienced a range of training simulators during its visit to driver training facilities in Rockhampton. Although the Committee was unable to undertake a detailed evaluation of the advantages of the use of simulators for driver training, it believes that further consideration of these training methods is warranted.

Management structure

4.150. A key aspect of the proposed Victorian Centre of Excellence in Rail Skills would be the establishment of a Board of Management with representation from all sectors of the industry. The Committee notes that current franchise agreements already require Metro Trains Melbourne and Yarra Trams to participate in an industry skills forum, and believes that this should be expanded to the other Victorian rail operators.

4.151. The Board of Management would provide direct advice to Skills Victoria on the workforce requirements of the rail industry. The Board of Management would be assisted by various functional groups representing the needs of the sectors. These groups would comprise a group of recognised industry experts holding the necessary technical and training expertise.

4.152. For the proposed Centre of Excellence in Rail Skills to be successful, it will be essential that the Board of Management is independent, and not overly influenced by the needs and direction of any one operator or training organisation. Likewise, each rail organisation would need to retain operational independence from the Board of Management through their respective training departments or academies. Nonetheless, the Committee envisages that each organisation would support and provide expertise to ensure the success of the Centre of Excellence in Rail Skills.

4.153. Each organisation, in conjunction with their training departments, would be entitled to tender for and provide training to the Centre of Excellence in Rail Skills. The training provision would be contracted at market rates, with the understanding that government-funded training places should be allocated under the risk-based model. Other training would be sought through the member organisations with the intention of sharing development and delivery costs.

4.154. The Committee believes that funding for the Centre of Excellence in Rail Skills should be provided through three key sources. The Department of Transport should provide funding to establish the land, buildings and rail infrastructure, while Skills Victoria would fund ongoing training and development, as well as a library, electronic and computer laboratories, a workshop and educational training aids. Industry involvement could include direct and in-kind support, including access to appropriate

[286] Victorian Government, Written Submission, July 2009,18.

computer software, technical drawings, equipment, and fair and reasonable access to in-field operational knowledge and assets for training purposes.

Conclusion and recommendations

4.155. The Committee examined the range of rail-related VET and higher education programs available within Victoria, together with recent enrolments. The Committee found that training within the industry has been insufficient to build capacity in core engineering and trade roles. The Committee observed a shift in industry training efforts in recent years, from trade and technical studies to customer service roles. This has resulted in a situation where certain rail industry occupations appear to be over-trained, while various safety critical occupations are under-trained. Further, the Committee found that the content and design of current training programs do not fully respond to industry needs, thereby creating a disincentive for some organisations to invest in training and development for their staff.

4.156. The Committee believes that training and development within the rail industry could be improved by the development of a clearer qualifications framework within the industry, supported by an accreditation or registration system for safety critical roles. The Committee also believes that the range of higher education qualifications could be enhanced through the inclusion of additional rail-related content, and increased opportunities for students to participate in practical workplace experiences. The Committee believes that the development and delivery of a range of rail-specific short courses would complement the range of industry training that is currently available.

4.157. The Committee believes that skill shortages in the Victorian rail industry will not be effectively addressed until there is a coordinated, industry approach to training, recruitment, employee retention and the utilisation of existing workforce skills. The Committee believes that the Victorian Government can support industry-wide workforce planning through its current skills reform agenda, supported by a state-of-the-art Victorian Centre of Excellence in Rail Skills, which could be located at the existing Newport Rail Precinct. The development of the centre should be a collaborative process involving the Victorian Government and all industry stakeholders.

Recommendations

4.1 That the Department of Transport, in consultation with Skills Victoria and the rail industry, develop a comprehensive industry-wide workforce development plan covering the period up to 2020. The plan should outline:

- current workforce skill needs, staffing levels and qualifications;
- current and emerging skill shortages and skill gaps and their impact on passenger and freight operations;
- required staffing levels in safety critical roles, including the number of apprentices to be included in operator franchising agreements;
- an industry-wide recruitment and retention strategy; and
- an industry-wide training and development plan.

4.2 That the Victorian Government, in consultation with Victorian rail operators, support the development of a single industry workforce advisory body representing all sectors of the rail industry.

4.3 That the Victorian Government, in consultation with the rail industry and relevant advisory bodies, support a review of existing rail industry training packages and qualifications. The review should:

- assess the adequacy of current enrolment levels in qualifications relevant to critical job roles within the rail industry;
- identify any existing, new or emerging skills which are not covered by current industry training packages and qualifications; and
- make recommendations for improvements to the content and range of qualifications available to ensure they continue to meet the needs of the rail industry.

4.4 That the Victorian Government, in consultation with the Victorian rail operators, support the development of a state-of-the-art centre of excellence in rail skills at the existing Newport Rail Precinct. Further, that funding for the centre be made available through the Department of Transport and Skills Victoria, together with direct and in-kind support from industry.

4.5 That the Department of Transport, in consultation with relevant industry stakeholders, undertake an evaluation of the potential to use simulators and other emerging technologies for training and retraining drivers, controllers and other safety critical personnel.

4.6 That Skills Victoria, in consultation with the rail industry and VET providers, investigate opportunities to increase the number of apprenticeships and traineeships in the rail industry, especially traditional trade-based apprenticeships. Options which should be investigated include:

- opportunities for new and sustained training within the industry;
- processes for allocating VET funding to ensure limited resources are targeted towards areas of skill shortages;
- improved incentives for potential students and employers to participate in apprenticeship training;
- measures to ensure that there are a sufficient number of appropriately qualified workplace trainers and assessors to support apprentices within the rail industry; and
- opportunities to increase the flexibility and improve the quality of training outcomes for apprentices.

4.7 That the Victorian Government, in consultation with the rail industry and higher education providers, investigate opportunities to improve the quality and range of rail-related content in higher education programs. Options which should be investigated include:

- bridging programs and other strategies to increase enrolments in engineering and related degree programs;
- opportunities to increase the amount of rail-specific content in engineering and related undergraduate courses;
- opportunities to incorporate high quality rail industry experiences or practical research projects into relevant undergraduate and postgraduate programs;
- opportunities to increase the accessibility of relevant higher education courses offered through interstate or overseas universities, and improve the quality of delivery of relevant distance education programs; and
- development of a range of rail-specific short courses targeted at recent graduates and experienced rail industry employees.

4.8 That the Victorian Government, in consultation with the rail industry, implement a registration system for safety critical roles within the rail industry.

Chapter 5

Rail manufacturing and component supply

5.1. A critical part of the Committee's inquiry was its investigations around the rail manufacturing and component supply sectors. Capacity in these two sectors has obvious benefits for the delivery of reliable passenger and freight services. Just as important, however, are the broader economic and employment benefits associated with rail manufacturing and component supply. A skilled manufacturing workforce that is capable of responding flexibly and efficiently to emerging challenges and opportunities is fundamental to realising these benefits.

The manufacturing sector

5.2. The Committee recognises advanced manufacturing capabilities as critical for Victoria's future as an innovative, technologically advanced and internationally competitive economy. An advanced manufacturing sector drives research and development, leading-edge technologies, workplace practices, supply chain management, skills development and productivity. It is also a key focus for the investment and industry activity that provides markets for the numerous small and medium sized businesses that make up the supply chain.

Manufacturing in Victoria

5.3. Manufacturing remains a key part of Victoria's economy, accounting for $30.6 billion, or 11.4 per cent of Gross State Product (GSP). The sector directly employs 326,000 people.[287] Victoria's traditional areas of manufacturing include food, automotive, textiles, clothing and footwear, chemicals, pharmaceuticals, printing and aluminium. However, sectors such as ICT, aerospace and defence are emerging as major contributors to jobs and export growth.[288] Enabling sectors such as design, nanotechnology, ICT and biotechnology are also an important part of the economy, and help other industries to gain a competitive edge in global markets.

5.4. Victorian manufacturing operates within an increasingly competitive global marketplace and, worldwide, manufacturing is changing. New technologies are transforming development and production, and the value of goods produced by modern manufacturing is increasingly being driven by factors such as design, research and development, licensing and branding.[289] Supply chains are spread over

[287] Department of Innovation, Industry and Regional Development (Victoria), *Building Our Industries for the Future: Action Plans for Victorian Industry & Manufacturing* (Melbourne: DIIRD, 2008), 8.
[288] ibid.
[289] ibid., 8–9.

many countries, often where low labour and unit costs provide competitive advantages for manufacturing activities.[290]

5.5. The Committee notes that modern manufacturing requires increasingly diverse skill sets, including engineering and production, research and development, intellectual property management, design, software, supply chain management, marketing, sales, after-sales services and many other areas.[291] As manufacturing advances, the skills required within the sector change, and demand for higher-skilled professional, paraprofessional and technical occupations increases.[292] As at August 2008, managers and professionals accounted for 30 per cent of manufacturing jobs, up from 20 per cent in 1996.[293]

The Victorian industry and manufacturing development strategy

5.6. The Victorian Government's goal for Victorian industry and manufacturing is to reinforce Victoria's position as a global leader in strategic industry sectors driven by skills and technology, and a supplier of high value-added goods and services.[294] To deliver on this goal, the Victorian Government has outlined an overarching industry and manufacturing development strategy which aims to:

- deliver broad economic reforms and business programs to boost competitiveness;
- invest in the skills and innovation capabilities that Victoria will need for the future; and
- stimulate the growth of more globally competitive and sustainable industries and companies.[295]

5.7. There are three major statements which support the Victorian Government's aims for strengthening Victorian industry and manufacturing. Two of these statements, Innovation: Victoria's Future and Securing Jobs for Your Future, were released in August 2008. These statements were followed in November 2008 by Building Our Industries for the Future, which focuses on specific sectors and industry issues central to Victoria's future. Building Our Industries for the Future includes four separate action plans, namely: the Manufacturing Action Plan; the Services Action Plan; the Global Markets Action Plan; and an action plan to influence the national policy agenda.

5.8. Building Our Industries for the Future acknowledges Victoria's place as the nation's manufacturing hub, especially in skills and technology-driven sectors. It also recognises the emerging challenges facing local manufacturing, including globalisation, pressure on environmental resources, slowing global economic growth, and unpredictable global financial markets.[296]

[290] ibid., 12.
[291] ibid., 9.
[292] ibid., 18.
[293] ibid., 9.
[294] ibid., 4.
[295] ibid., 3.
[296] ibid.

5.9. Building Our Industries for the Future provides an overview of the Victorian Government's current and planned actions to build a more competitive business environment. It describes how, using the resources and leverage available to a state government, the growth of core and emerging manufacturing and services industries are being supported.

5.10. A key platform of Building Our Industries for the Future is a strengthened Victorian Industry Participation Policy, which applies to all Victorian Government procurement projects with a value of $3 million or more in metropolitan areas and over $1 million in non-metropolitan areas. When two or more bids are comparable in terms of quality and whole-of-life pricing, the government will continue to give preference to bids that maximise local industry benefits in areas such as skills development, capacity building and local research and development.[297]

5.11. The objectives of the Victorian Industry Participation Policy are to:

- boost employment and business growth in Victoria by expanding market opportunities for local small and medium sized enterprises;
- provide the main contractors for major projects with increased access to a wider range of companies able to deliver the best value for money;
- promote a culture in local business, raising awareness and shifting perception from 'imports are always best' to 'local suppliers can be world class';
- expose Victorian companies to world's best practice in workplace innovation, e-commerce and use of new technologies and materials;
- develop industry's international competitiveness and flexibility in responding to changing global markets, by giving local small and medium sized enterprises a fair opportunity to compete against overseas suppliers; and
- maximise skills and training outcomes.[298]

5.12. Under Building Our Industries for the Future, major projects that meet the stated criteria will be declared of strategic significance to the Victorian economy, and will be subject to additional requirements, including minimum local content requirements. For the purposes of Victorian policy, 'local content' refers to goods and services that have value-added activities based in Victoria, Australia or New Zealand.[299]

5.13. The criteria for assessing strategic significance will capture projects that:

- have whole-of-life costs of $250 million or more;
- contribute over their whole lives to the productive capability of Victoria and make a strategic contribution to the state's ongoing economic wellbeing;
- have potential to generate significant local industry participation, employment and skills or technology transfer during the project or procurement activity;

[297] ibid., 16.

[298] Department of Innovation, Industry and Regional Development (Victoria), 'About the VIPP,' DIIRD, http://www.diird.vic.gov.au/diird-strategies-and-initiatives/victorian-industry-participation-policy/about-the-vipp (accessed 23 September 2009).

[299] Department of Innovation, Industry and Regional Development (Victoria), 'Victorian Industry Participation Policy: Frequently Asked Questions (FAQ's),' DIIRD, http://www.diird.vic.gov.au/CORPLIVE/STANDARD/PC_65237.html#intNav11 (accessed 23 September 2009).

- have potential for building ongoing industry capability, skills and employment benefits resulting from the project ; and
- present a clear choice between using local and overseas suppliers.[300]

5.14. Within the framework of strategic projects, rail rolling stock is one of the largest areas of government procurement, and is of particular importance to the manufacturing sector.[301]

Rail manufacturing in Victoria

5.15. Rail manufacturing is dependent on effective and efficient supply chain clusters similar to those seen in automobile manufacturing. The key components of these supply chain clusters are steel fabrications, sheet metal, tooling and fibreglass mouldings. These components feed into various systems, including the car body, brakes, communications, propulsion, interiors and other systems.

5.16. In many instances, the maintenance of rolling stock is closely interrelated with manufacturing contracts. As rolling stock has a long operational life, many rail manufacturing companies are interested in developing the skills and capacity within their facilities to be able to maintain rolling stock and to take on technology upgrades across its operational life. According to the Victorian Tram Rail Manufacturing Strategy: Mark II, maintenance activities typically have an additional value approximately 20 to 25 per cent of the value of the supply contracts.[302]

Procurement of Victoria's train and tram fleets

5.17. Victoria has had the capacity to build its own passenger rail rolling stock for well over 100 years. Until the 1980s, the Victorian Railways made passenger carriages and freight wagons at its Newport Workshop, supported by satellite plants in Ballarat and Bendigo. In the 1980s, most of Melbourne's trains and trams were made at the Commonwealth Engineering ('Comeng') plant at Dandenong.

5.18. More recently, most of Victoria's rolling stock has been imported. Between 1999 and 2002, orders were placed with Alstom France for 58 X'Trapolis trains and 36 Citadis trams, Siemens Germany for 36 Metro trains and 57 Combino trams, and Bombardier Transportation for 54 VLocity trains for the regional network. Other than the VLocity trains, all of this rolling stock was manufactured overseas. A subsequent 'top up' order for an additional 18 X'Trapolis trains from Alstom are being imported.

5.19. Despite having one of the world's largest tram networks, trams have not been manufactured in Victoria over the last 25 years. Procurement of rolling stock for the freight sector has also mostly been from outside Victoria.

5.20. The Victorian Transport Plan outlines planned procurement of new trains and trams from 2009. This includes up to 70 six-carriage trains and 50 trams on the metropolitan network, and up to 74 VLocity carriages to be added to the regional

[300] Department of Innovation, Industry and Regional Development (Victoria), *Building Our Industries for the Future: Action Plans for Victorian Industry & Manufacturing* (Melbourne: DIIRD, 2008), 17.
[301] ibid.
[302] Department of Innovation, Industry and Regional Development (Victoria), *Victorian Tram Rail Manufacturing Strategy Mark II* (Melbourne: DIIRD, 2002), 6.

passenger fleet.[303] The first of 38 new six-carriage X'Trapolis trains are currently being introduced into Melbourne's metropolitan network and, once this order is complete, the first of the next generation trains (with 30 per cent more space) will begin arriving.[304] The first of the new VLocity carriages are being introduced into the regional network, and it is anticipated that the first of up to 50 new low-floor trams will be introduced by 2012–13.[305]

Victorian rail manufacturers and suppliers

5.21. The Committee found that Victoria has a well developed rail manufacturing base, capable of delivering rolling stock to the Victorian and interstate markets. There are currently two major players in Victorian rail manufacturing: Bombardier Transportation and United Group Limited/Alstom Australia and New Zealand. Additionally, there are around 100 small to medium sized businesses in Victoria (each employing between 50 and 100 people) providing goods and services as diverse as airconditioning, aluminium and glass products, cabling, rail carriage interiors and train management systems into the supply chain.[306]

5.22. Bombardier Transportation is one of two arms of Canadian company Bombardier Incorporated. Operating across 56 production and engineering sites in 22 countries, Bombardier Transportation is the world's largest manufacturer of passenger rail rolling stock, with a market share in excess of 20 per cent. More than 63 per cent of Bombardier Transportation's business comes through the manufacture of trains.[307]

5.23. Bombardier Transportation told the Committee that it is the world's largest supplier for 8 out of 10 rail business segments: metros, commuter trains, regional trains, trams, E-Locomotives, fleet maintenance services, propulsion and bogies.[308] It is also the world's third largest supplier in high speed and intercity rail, and sixth in signalling.[309] In the year ending 31 January 2009, Bombardier Transportation earned revenue of US$9.8 billion and had order backlogs worth US$24.7 billion.[310]

5.24. Within Australia, Bombardier Transportation is involved in the design, manufacture and fleet maintenance of passenger rolling stock. It has manufacturing facilities in Dandenong (Victoria) and Maryborough (Queensland), as well as fleet maintenance sites in Victoria, South Australia, Western Australia, New South Wales and Queensland. The Dandenong manufacturing plant features a 28,000 square metres production centre on a 17 hectare property, 1 kilometre of standard gauge tram test track, specialist stainless steel body manufacturing and direct access to the rail network.[311] The Dandenong site employs 130 of Bombardier Transportation's

[303] The Victorian Transport Plan, 'New trains and trams fact sheet,' Department of Transport (Victoria), http://www.transport.vic.gov.au/web23/Home.nsf/AllDocs/8237085489F555C3CA257625001B9F5A?OpenDocument (accessed 19 April 2010).
[304] ibid.
[305] ibid.
[306] Jay Rutovitz and others, *Victoria – the Green Jobs State: Seizing the Opportunities* (Carlton: Environment Victoria, 2009), 14.
[307] Supplementary information provided by Bombardier Transportation, March 2010.
[308] ibid.
[309] ibid.
[310] ibid.
[311] ibid.

Australian employees, with another 13 employees responsible for maintaining the fleet at the West Melbourne site.[312]

5.25. Bombardier Transportation has completed a contract with V/Line Passenger to design and manufacture 76 VLocity trains which are now in service on regional lines. An order for an additional 18 x 2-car sets and 32 x 3-car sets, being built at the Dandenong workshops, is due to be delivered by 2012.[313]

5.26. ARM Group is a consortium of four local manufacturing companies based in Dandenong, supplying equipment and components to Bombardier Transportation. Collectively, the consortium employs 200 people and has attracted $30 million worth of work as a direct result of the contract to manufacture the VLocity trains.[314]

5.27. Bombardier Transportation has also completed several contracts at its interstate facilities. It has delivered 93 ltino commuter trains in a joint venture with Downer EDI for the Public Transport Authority in Western Australia, with a further order for 15 similar units now in production.[315] It has also delivered 132 passenger trains for QR Limited, with a further order for 20 similar trains currently in production.[316]

5.28. The French company Alstom Group operates two business arms in around 70 countries. Alstom Transport controls 18 per cent of the worldwide railcar market, achieving sales of more than 5.5 billion euros (A$10.6 billion) in the year ending March 2008.[317]

5.29. In 2005, Alstom's Australian and New Zealand transport operations were acquired by Australian-based engineering and property services company United Group Limited (UGL). In Australia, UGL Rail operates rail infrastructure and rolling stock manufacture and maintenance interests serving the passenger and freight markets. UGL Rail has an alliance with Alstom Transport for the fit-out of new rolling stock.[318] It also undertakes fit-out and maintenance work for the passenger and freight fleets across sites in Ballarat, Spotswood, Preston, Epping and Bayswater.

5.30. The Victorian Government had an existing order with UGL/Alstom for 18 X'Trapolis trains. This order was increased in February 2009 by an additional 20 X'Trapolis trains. The original 18 trains are being manufactured in Poland and fit-out will be undertaken in Italy. The additional 20 trains will be manufactured in Poland, with the fit-out for one 6-car train to be undertaken in Italy and the balance to be shipped to Australia for fit-out in UGL Rail's Ballarat workshops.

5.31. Siemens has also been a major supplier of rolling stock within Australia. During 2004 to 2006, Siemens supplied 36 six-car trains for the metropolitan network, which were constructed in Austria and fitted out at the Newport workshops. The Siemens trains are now serviced by Metro Trains Melbourne's rolling stock maintenance group, having previously been serviced by Downer EDI.

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312 ibid.
313 ibid.
314 Jay Rutovitz and others, *Victoria – the Green Jobs State: Seizing the Opportunities* (Carlton: Environment Victoria, 2009), 14.
315 ibid., 13.
316 ibid.
317 ibid.
318 ibid.

5.32. Underpinning the major rail manufacturers is a strong local supply chain that has the capability to supply more than 50 per cent of the components to support all forms of local rolling stock manufacturing.[319] Bombardier Transportation told the Committee that the supply chain for its VLocity project included over 90 Victorian businesses (72 businesses in Melbourne's southeast and 20 businesses elsewhere in Melbourne and Victoria), 19 businesses in New South Wales, 10 business in Queensland and 2 businesses in Western Australia.[320]

5.33. The Australian companies involved in component supply are shown in Table 5.1.

[319] Victorian Government, Written Submission, July 2009, 7.
[320] Supplementary information provided by Bombardier Transportation, March 2010.

Table 5.1: Local component suppliers to the rail industry

Component	Supplier	Supplier location
Airconditioning	Air International Transit ALCAN	Huntingwood, NSW Gembrook, VIC
Aluminium and Glass	Australian Rail Manufacturers ALCAN G. James Glass & Aluminium Pty Ltd	Dandenong, VIC Gembrook, VIC Eagle Farm, QLD
Cabling	AME Systems Pty Ltd Cablex Pty Ltd Olex	Ararat, VIC East Bentleigh, VIC West Footscray, VIC
CCTV	Australian Rail Manufacturers Innovonics Pty Ltd Vision Fire & Security	Dandenong, VIC Kensington, VIC Mount Waverley, VIC
Composites	ALCAN	Gembrook, VIC
Design Project Management	ALCAN	Gembrook, VIC
Doors	Southport Engineering	Dandenong South,VIC
Electrical Signage	Australian Rail Manufacturers Innovonics Pty Ltd	Dandenong, VIC Kensington, VIC
Engine Cooling Systems	Air Radiators	Lara, VIC
Fire Protection	Vision Fire & Security	Mount Waverley, VIC
Foundry	Austcast Foundry Graham Campbell Ferrum Steele and Lincoln Foundry (Vic) Pty Ltd Davies & Baird	Northgate, QLD West Footscray, VIC Dandenong, VIC Coburg, VIC
Glass	G. James Glass & Aluminium Pty Ltd Glassform	Eagle Farm, QLD Cheltenham, VIC
Glass Reinforced Plastic (GRP)	ALCAN Australian Rail Manufacturers Transform Rail Interiors	Gembrook, VIC Dandenong, VIC Broadmeadow, NSW
Handrails	U-Neek Bending Co	Dandenong, VIC
Lighting	ALCAN	Gembrook, VIC
Pantographs	Austbreck Pty Ltd	Hallam, VIC
Precision Engineering	Australian Rail Manufacturers Marand Precision Manufacturing Pty Ltd Atlas Rail Ronson Gears Production Parts	Dandenong, VIC Moorabbin, VIC Moorabbin, VIC Highett, VIC Airport West, VIC
Rail carriage interiors	ALCAN Transform Rail Interiors	Gembrook, VIC Broadmeadow, NSW
Rubber	Baron Rubber Pty Ltd Mackay Consolidated	Coburg, VIC Moorabbin, VIC
Seats	McConnell Seats Australia Pty Ltd	North Coburg, VIC
Sheet Metal Work	Australian Rail Manufacturers ALCAN	Dandenong, VIC Gembrook, VIC
Train Management Systems	Australian Rail Manufacturers Innovonics Pty Ltd	Dandenong, VIC Kensington, VIC
Wheel	Atlas Rail	Moorabbin, VIC

Source: Australian Rail Industry Network, http://www.railnetwork.com.au/ (accessed 22 April 2010).

5.34. The Committee notes that current work is being undertaken nationally to map the rail industry supply chain. This work is aimed at capturing the current status of the industry, including: levels and recent rates of growth on measures such as turnover, investment, employment and productivity; identifying customers, suppliers and competitors, and the broad policy environment in which they operate; and identifying the main strengths, weaknesses, opportunities and threats for the industry.[321] The Committee welcomes this work and believes that it will provide useful input into the skills audit and workforce planning recommended earlier in this report (refer Recommendation 3.1 and Recommendation 4.1). The Committee also believes that this work will demonstrate Victoria's place as the major centre for rail manufacturing and component supply in Australia.

Challenges facing the rail manufacturing sector

5.35. The Committee heard that the rail manufacturing sector is facing a range of challenges which will affect its future viability. These challenges are of key interest to the Committee given their obvious implications for workforce planning and development.

5.36. One of the most significant challenges presented to the Committee was the size of the rail manufacturing sector in Victoria. The Committee heard that due to the limited market for rolling stock within Victoria, together with inconsistency between train and tram types ordered here and interstate, production runs are generally small. The Committee notes that small production runs are costly, and there is a relatively long lead time involved in preparing a prototype before moving into full production.

5.37. Submissions and witnesses spoke of the potential for growing the local rail manufacturing industry. In particular, they noted the potential for local content requirements to provide a level of certainty over the work generated within the local market, thereby providing an incentive for local suppliers to invest in local facilities and workshops and workforce development.

5.38. The lack of consistency in the type of rolling stock purchased for the Victorian rail network contributes to the small size of the local manufacturing market. For example, over the last ten years, Victoria has had two different train types introduced onto the metropolitan network, one new train type on the regional network and two different tram types. The Committee notes that as well as presenting challenges during the manufacturing stage, this situation has ongoing effects in terms of skill needs, training and development over the whole life cycle, as each different type of rolling stock has specialist components and maintenance requirements. It is therefore likely to become increasingly expensive and difficult to maintain this rolling stock if special components and specialist skills are lost to the system.

5.39. The Committee heard that a national approach to procurement would assist the local industry to achieve the critical mass required to be competitive. The Committee notes that $30 billion investment in rail infrastructure and rolling stock projects are planned nationwide over the next five years.[322]

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[321] Attachment A of the Australasian Railway Association and Industry Capability Network, *ARA/ICNL Progress Report – December 2009: Rail Supply Industry Reform Agenda* (Canberra: ARA and ICN, 2009).

[322] Australasian Railway Association, Written Submission, April 2009, 4.

5.40. While the benefits of developing a national approach to procurement appear obvious, the Committee found that there are significant challenges associated with this. For many years, state rail systems have pursued technological harmonisation, aimed at enabling equipment manufactured interstate to be purchased 'off-the-shelf', rather than undergoing costly and time-consuming customisations. As noted in a 2006 Bureau of Transport and Regional Economics report, however, the potential for technical standardisation in rolling stock and other rail equipment across states is limited:

> … it is unlikely that urban trains can be made to a universal design due to the adoption of radically different structural standards such as the Sydney double-deck trains.[323]

5.41. Nonetheless, the Committee believes that an increased level of standardisation would assist in developing more efficient manufacturing processes for the future. The Committee notes that in 2009, the Council of Australian Federation agreed to establish a taskforce to examine the opportunities for states and territories to achieve value for money and encourage relevant Australian industry through a coordinated national approach for the procurement of rolling stock.

5.42. Industry representatives told the Committee that another challenge facing the rail manufacturing sector is the lack of clarity around the number and type of trains to be purchased for the Victorian rail network in coming years, as well as uncertainty around the level of local content, and the absence of a delivery timetable. Mr Trevor Dobbyn, State Secretary, Rail, Tram and Bus Union, Victorian Branch stated:

> The current issues are there are peaks and troughs caused by the inconsistent demands of the rail projects. We have billions of dollars of work coming in but these projects come and then they go, so that causes bottlenecks in terms of skills requirements and everyone is running around pinching people from everywhere else, which is a bit of an issue... There needs to be a continuous flow of rolling stock, and that will enable manufacturers and rail workshops to tool up, to determine their staff and skill requirements and to hire apprentices on the back of all that.[324]

5.43. The Australasian Railway Association also described the implications of this unpredictability for training and workforce development:

> Victoria's rail manufacturing industry is operating within a very uncertain and unpredictable market environment because of a lack of forward planning in infrastructure investment by government, and inconsistent application of local content rules. This unpredictability creates a fluctuating demand for workers and the loss of skilled tradespeople when work dries up.[325]

5.44. The ARM Group consortium has also elaborated on this point:

> The three years of continuous work created by the original order for 76 VLocity cars manufactured in Dandenong generated $22 million in income for the ARM Group consortium of suppliers, at least $3 million in plant and equipment purchases, and full-time work for at least 70 people. In contrast, the subsequent intermittent small orders of 14, 8 and finally 32 cars have led to gaps in orders and work for suppliers, leading to retrenchments and loss of skilled employees.

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[323] Bureau of Transport and Regional Economics, *Optimising harmonisation in the Australian railway industry*, Report 114 (Canberra: BTRE, 2006), 152.

[324] Mr T. Dobbyn, State Secretary, Rail, Tram and Bus Union, Victorian Branch, Transcript of Evidence, Public Hearing, Melbourne, 3 March 2010, 39.

[325] Australasian Railway Association, Appendix A to Written Submission, April 2009, 7.

> The continuity created by large orders also allows companies to take on the extra training and supervisory commitments associated with unskilled and disadvantaged jobseekers.[326]

5.45. The Committee notes that while the Victorian Transport Plan outlines the total volume of proposed future orders, it does not provide the required details regarding production and delivery schedules to enable industry to plan effectively and respond to the challenges of 'tooling up', technology transfer and building the workforce.

5.46. The Committee notes that the Victorian Government has been advocating for a national assessment of current rail rolling stock, and future needs across the country. This would allow for a more strategic process for ordering rolling stock nationally, so as to maintain a continuous supply of work for rail manufacturers and suppliers. The Australasian Railway Association believes that the establishment of consistent specifications for fit-out components across state boundaries would create a significantly more stable investment and employment environment for a wide range of small to medium sized businesses.[327]

5.47. The Committee believes that the continuation of a rail manufacturing sector in Victoria has wide-ranging benefits to the Victorian economy, including increased jobs, skills development and potential for increased export earnings. Evidence to the inquiry reveals, however, that the Victorian rail manufacturing and component supply sectors are at a critical point. Without ongoing government investment in local manufacturing, the industry may not be able to sustain a skilled workforce, or capitalise on export opportunities. Without this, local manufacturing capacity is likely to be eroded. The Committee notes that once local manufacturing capacity and workforce skills are lost, it is likely to be difficult to regain them in the future.

Support for the rail manufacturing and component supply sectors

5.48. The Committee notes that the state and federal governments have developed various policies and programs aimed at supporting the rail manufacturing and supply sectors over the past decade. These are supplemented by various industry-related initiatives.

Victorian Government statements for the rail manufacturing industry

5.49. In 1999, the Victorian Government launched the Rail Manufacturing Industry Strategy, covering the development of a rail industry database, overseas trade missions and funding to support local industry in tendering and winning contracts for new rolling stock. The strategy was also instrumental in the development of the Victorian Industry Participation Policy.[328]

5.50. According to the Victorian Government, the Rail Manufacturing Industry Strategy resulted in over $18 million in new investment by the world's two largest rail manufacturers, more than $400 million in new orders from local suppliers, 240 new jobs in rail vehicle manufacture, over 2,240 new jobs in the rail industry supply chain,

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[326] Jill Walsh, ARM Group consortium, March 2009, cited in Jay Rutovitz and others, *Victoria – the Green Jobs State: Seizing the Opportunities* (Carlton: Environment Victoria, 2009), 16–17.

[327] Australasian Railway Association, Appendix A to Written Submission, April 2009, 7.

[328] Department of Innovation, Industry and Regional Development (Victoria), *Victorian Tram Rail Manufacturing Strategy Mark II* (Melbourne: DIIRD, 2002), 2.

and over $20 million in secured orders for the European market in areas such as doors, CCTV and duress systems, airconditioning systems and castings.[329]

5.51. The Rail Manufacturing Industry Strategy was followed in 2002 by the Victorian Tram Rail Manufacturing Strategy: Mark II, which was intended to create more than one billion dollars in economic activity in Victoria, with investment in competitive light rail manufacture and export capacity for growing markets.[330] The strategy aimed to facilitate the supply of components, spare parts and maintenance contracts for new trains and trams in Australia and New Zealand, as well as component supply into European and Asian markets.[331]

5.52. The Committee acknowledges that when released, the Victorian Tram Rail Manufacturing Strategy: Mark II provided a basic road map for the future direction of rail manufacturing in Victoria. The Committee notes, however, that the strategy may need to be updated given substantial growth in patronage and the current procurement plans for new rolling stock in Victoria. The Committee therefore encourages the Victorian Government to update the rail manufacturing strategy in line with the expectations for manufacturing and procurement identified in the Victorian Transport Plan. The Committee believes that a renewed rail manufacturing strategy should provide detailed plans regarding the type and volume of trains and trams to be purchased and the schedule for their delivery, local content requirements, maintenance requirements and the labour and skills required to fulfil these orders.

Local content policies

5.53. The rail manufacturing and component supply sectors are dependent on state government procurement policy and purchasing decisions. Since 2001, all Victorian Government departments have been required to apply the Victorian Industry Participation Policy to projects over $3 million in metropolitan Melbourne and over $1 million in regional Victoria. Short-listed bidders are required to prepare a statement that addresses the level of local content, the number of new jobs created, and the possible skills and technology transfer expected to be generated by the project.

5.54. Studies carried out for Industry Capability Network Victoria have shown the benefits that the Victorian Industry Participation Policy can deliver to the local economy. The Victorian Government reports that for every $1 million spent in manufacturing activity in Australia, it generates on average, 10 person-years of direct and indirect employment, $985,000 of value-added, $333,900 in tax revenue and $95,000 of savings in welfare payments.[332] According to Building Our Industries for the Future, the Victorian Industry Participation Policy has achieved average levels of local content of 84 per cent, led to $480 million of import replacement, and resulted in the creation of more than 22,500 jobs.[333]

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[329] ibid., 1.
[330] ibid., 3.
[331] ibid., 6.
[332] Industry Capability Network Victoria, *Victorian Industry Participation Policy: Opportunities for local small and medium enterprises* (Melbourne: Department of Innovation, Industry and Regional Development (Victoria), 2009), 12.
[333] Department of Innovation, Industry and Regional Development (Victoria), *Building Our Industries for the Future: Action Plans for Victorian Industry & Manufacturing* (Melbourne: DIIRD, 2008), 16.

5.55. Rail rolling stock has been identified as one of the largest areas of government procurement within the Strategic Projects framework. As such, rail rolling stock projects are subject to the following local content requirements:

- a minimum local content target of 40 per cent, measured on a whole-of-life basis, including capital costs, maintenance and training;
- local content will be a formal selection criterion in tender evaluation, with a weighting of 10 per cent;
- tenderers for rolling stock projects will be required to produce detailed Local Industry Development Plans in consultation with Industry Capability Network Victoria, to be used in the assessment of competing bids; and
- tenderers will be required to identify opportunities to train and engage apprentices.[334]

5.56. The terms of reference for the inquiry required the Committee to consider the implications of the local content requirements for skill needs in the Victorian rail industry.

5.57. The Committee notes that for local content provisions to be able to be met, Victorian companies need to have the expertise in order to seek out opportunities. Engineers Australia told the Committee, however, that its analysis has shown that engineering companies across Australia (that is all sectors, not just rail) have had some difficulty undertaking work due to skill shortages:

> In a regular survey of engineering companies, Engineers Australia has included questions on engineering skill shortages. Anecdotal information that engineering skills shortages were harming the Australian economy has been confirmed with 82% of businesses reporting that there were moderate to severe consequences caused by skill shortages.
>
> Moderate problems with some monetary consequences were experienced by about half of this group and major problems including project delays and major cost consequences by the other half. Of particular interest to the local content commitments in the Victorian Industry and Manufacturing Statement is that 6–7% of businesses reported that projects did not proceed because of engineering skills shortages.[335]

5.58. The Committee heard much support for local content requirements as a means of supporting the rail manufacturing sector, and providing the basis for local investment and skills development. If local manufacturing is accompanied with high local content, then the local manufacturing and component supply workforces will necessarily be larger and more highly skilled. Conversely, if future rolling stock is imported into Victoria, then the local manufacturing and component supply workforces will be smaller and less skilled. Bombardier Transportation told the Committee that based on production of 20 VLocity carriages, 55 jobs are created directly at Bombardier, 220 jobs are created with local suppliers, and 685 jobs are created in the community through local economic benefit.[336]

5.59. The Victorian Government told the Committee that studies have shown that the benefits of a local manufacturer producing 20 trams per year and achieving 50 per cent local content would include: increased value of the state's manufacturing sector

[334] Victorian Government, Written Submission, July 2009, 8.
[335] Engineers Australia, Victorian Division, Written Submission, May 2009, 6–7.
[336] Supplementary information provided by Bombardier Transportation, March 2010.

by $100 million per year; creation of 80 to 100 direct full-time jobs and another 250 full-time jobs in the supply chain; income of $4.3 million per year and another $9 million in income generated through companies in the supply chain; and $3.5 million per year in payroll tax.[337]

5.60. The Australian Manufacturing Workers' Union suggested that local manufacturing had flow-on benefits in terms of effective and efficient maintenance of Victoria's rolling stock:

> Awarding the contract to manufacture trains and trams to Victorian companies will ensure that the same workers who build the stock, will be in the best position to maintain it.[338]

5.61. Some submissions and witnesses suggested that Victoria's local content policies are not strong enough in terms of their ability to increase local manufacturing. For example, a case study provided as part of Environment Victoria's submission suggested that as the majority of maintenance is conducted locally, it is therefore relatively easy to satisfy the 40 per cent 'whole of life' requirement, even if the vehicle is manufactured overseas.[339] The same case study also compared Victoria's local content policies to various interstate and international examples:

> Recent rolling stock manufacturing contracts in Western Australia mandated a 10 per cent local content requirement with 30 per cent of the contract value in counter-trade opportunities. Internationally, the United States mandates a minimum 60 per cent local content requirement for rolling stock, the European Union 50 per cent, China 70 per cent and Canada 25 per cent.[340]

5.62. Environment Victoria's case study advocated for local content rules to be strengthened, to require 50 per cent local content in manufacturing and 95 per cent in maintenance.[341] This view is supported by the Australasian Railway Association, which has also argued for local bids to be eligible for a price premium on overseas companies. It notes that maintenance costs for locally made rolling stock are generally lower than for imported rolling stock because it is designed for local conditions and less reliant on imported parts.[342]

Industry Capability Network Victoria

5.63. Industry Capability Network Victoria is a non-profit organisation funded by the Victorian Government to support import replacement and to assist Australian companies to access export opportunities. It provides a technical service to buyers and nominates competitive manufacturers of locally-made goods and services across all industry sectors and major projects.[343] The network aims to ensure that local businesses are presented with the opportunity to participate in major projects by

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[337] Victorian Government, Written Submission, July 2009, 8.
[338] Australian Manufacturing Workers' Union, Metals Division, Victorian Branch, Written Submission, April 2009, 3.
[339] Jay Rutovitz and others, *Victoria – the Green Jobs State: Seizing the Opportunities* (Carlton: Environment Victoria, 2009), 15.
[340] Australian Industry Group, Submission on the development of a New Victorian Industry and Manufacturing Statement, August 2008, cited in Jay Rutovitz and others, *Victoria – the Green Jobs State: Seizing the Opportunities* (Carlton: Environment Victoria, 2009),17.
[341] Jay Rutovitz and others, *Victoria – the Green Jobs State: Seizing the Opportunities* (Carlton: Environment Victoria, 2009), 17.
[342] Australasian Railway Association, cited in Jay Rutovitz and others, *Victoria – the Green Jobs State: Seizing the Opportunities* (Carlton: Environment Victoria, 2009), 17.
[343] Industry Capability Network Victoria, *Victorian Industry Participation Policy: Opportunities for local small and medium enterprises* (Melbourne: Department of Innovation, Industry and Regional Development (Victoria), 2009), 13.

working in partnership with government, relevant associations, industry and project proponents.[344]

5.64. As well as its head office in Melbourne, the network has five regional offices in Victoria, based in Geelong, Ballarat, Bendigo, Wodonga and Traralgon. Industry Capability Network Victoria is part of a network of 26 offices throughout Australia and New Zealand and, with a growing database of over 50,000 companies, is recognised as a leading authority on Australian and New Zealand business capability.

5.65. For government agencies, Industry Capability Network Victoria provides: advice on activities with potential for local industry involvement; guidance in the form of suitable VIPP clauses for use in documentation; nomination of potential metropolitan and regional tenderers; introduction of competitive suppliers; analysis of bidders' VIPP Plans; certification of post-tender changes and contract outcomes; and advice and templates for monitoring VIPP compliance.[345]

5.66. For tenderers and industry, Industry Capability Network Victoria provides: advice on how companies can best access major projects; explanation of VIPP requirements; advice on activities with potential for local industry involvement; advice on how to complete VIPP Plans; introduction to competitive suppliers; certification and sign-off of VIPP Plans, post-tender changes and contract outcomes; and advice and templates for monitoring VIPP activities.[346]

Australian Rail Industry Network

5.67. Managed by Industry Capability Network Victoria, the Australian Rail Industry Network comprises a broad range of Australian companies working collectively to provide integrated and complete solutions for the rail industry. The network is a dedicated group with the skills and scope to provide most equipment and components for the rail industry.

5.68. The network's member companies have visited the major rail manufacturers in the United Kingdom, Europe and the United States of America to gain firsthand knowledge of the work practices and cultural differences applying at these overseas facilities.[347] According to the network's website, these visits have resulted in many of the companies winning multi-million dollar contracts from Alstom, Bombardier and Siemens for the supply of components for trains and trams. Some companies have also won major supply contracts to the international market through their association with either Alstom or Siemens.[348]

5.69. The Australian Rail Industry Network believes that the work that has been performed flowing directly from its trade missions has confirmed that Australian companies are able to provide innovative design, flexible and low volume production schedules, internationally competitive engineering and labour cost rates, quality requirements

[344] Industry Capability Network Victoria, 'About us,' ICN Victoria, http://www.icnvic.org.au/about_us.html (accessed 16 April 2010).
[345] Industry Capability Network Victoria, *Victorian Industry Participation Policy: Opportunities for local small and medium enterprises* (Melbourne: Department of Innovation, Industry and Regional Development (Victoria), 2009), 13.
[346] ibid.
[347] Australian Rail Industry Network, 'Welcome to A.R.I.N,' ARIN, http://railnetwork.com.au/index.htm (accessed 16 April 2010).
[348] ibid.

that meet overseas standards, project management services that meet product delivery schedules, and collective strength resulting in integrated solutions.[349]

Australian Rail Supplier Task Force

5.70. In 2009, the Australasian Railway Association commenced working with rail industry suppliers to identify how to best advance initiatives that would maximise opportunities for growth and employment in the Australian rail industry. The organisations involved outlined the drivers of their work as follows:

> Importantly, each of the organisations shares the strongest of desires for local companies to be in a competitive position to take advantage of the opportunities that will arise from the investment by Australian governments and private parties in rail rolling stock and infrastructure. As well, they desire to be in a strong position to meet the growth in demand evident in rail freight and commuter patronage in Australia and internationally. Likewise, it is recognised that competitive Australian suppliers can extend their reach into international markets.[350]

5.71. The issues were subsequently pursued through the Council of Australian Governments, resulting in the establishment of the Australian Rail Supplier Task Force, chaired by Jim Betts, Secretary of the Victorian Department of Transport. Other participants include the federal Transport Department, federal Department of Innovation, Industry, Science and Research, state governments, the Rail Industry Advocate and industry representatives.

5.72. The scope of work for the Australian Rail Supplier Task Force includes:

- Industry metrics: identify the nature and depth of the capability of the Australian rail industry suppliers.
- Policy barriers: identify the current inconsistencies in policies, standards and procurement approaches across jurisdictions and assess their impact on the Australian industry.
- National standards: recommend both short-term and longer-term steps to harmonise the widely differing design, technology and safety standards imposed on rail suppliers.
- Levelling of demand: compile data on the age of Australia's rolling stock fleet (both public and private) and propose a model to create long-term order levelling for manufacturers.
- Supply chain improvement: determine how the supply chain can be better integrated and its capability deepened to meet Australia's rail-related needs.
- Workforce skills: establish the facts about the ageing workforce in the rail manufacturing sector and its forward skill requirements.[351]

[349] ibid.

[350] Correspondence from the Australasian Railway Association and Industry Capability Network to Mr Terry Moran AO, Secretary, Department of Prime Minister and Cabinet, provided as supplementary information by Mr Bob Herbert, March 2009.

[351] Australasian Railway Association, 'Fortnightly Update,' Issue 091, 22 May 2009.

5.73. The Committee supports this work on potential harmonisation of rail rolling stock procurement specifications at the national level as a potential means of improving the viability of the rail manufacturing industry in Victoria and nationally.

Supplier advocate for the rail industry

5.74. The federal Innovation Minister, Senator Kim Carr, has recently appointed manufacturing industry representative Mr Bruce Griffiths to champion Australian rail suppliers under the Supplier Advocate program. This program is aimed at providing leadership for specific industry sectors. The role of the Rail Advocate is to assist small and medium sized businesses to market their products to government buyers and to champion sectoral initiatives to improve competitiveness. The role will also help to coordinate support from the Industry Capability Network, Enterprise Connect, Austrade and other programs.[352]

5.75. It has been proposed that the supplier advocate will work with industry to develop a business development strategy for the industry, which could include the following activities: supply chain mapping; scoping the potential for harmonisation of rail rolling stock procurement specifications; demand forecasting; technology road-mapping; and supply chain improvement.[353]

5.76. The federal Department of Innovation, Industry, Science and Research is prepared to fund the Industry Capability Network to engage a rail domain specialist to provide full-time support to the Rail Supplier Advocate, and to assist rail project proponents in Australia and overseas to identify Australian industry capabilities. Any international activity would be conducted through Austrade.[354]

Other government support programs

5.77. The Committee notes that there are many other state and federal government programs available to assist rail industry manufacturers and component suppliers.

5.78. The Australian Government is supporting manufacturers and component suppliers through programs such as the Supplier Access to Major Projects program and Enterprise Connect.

5.79. Enterprise Connect offers financial assistance to small and medium sized enterprises with annual turnover of between $2 million and $100 million, for a business assessment followed by sponsored, technical advice directed to areas of need.[355]

5.80. The Supplier Access to Major Projects program aims to increase opportunities for Australian industry, especially small and medium sized enterprises, to participate in major projects in Australia and overseas. The program was accessed during the initial procurement contracts following the franchising of Victoria's passenger

[352] Senator Kim Car, Australian Government Minister for Innovation, 'First supplier advocate appointed: rail advocate to champion industry,' Media Release, 3 November 2008, Media Centre, Ministers for Innovation, Industry, Science and Research, http://minister.innovation.gov.au/Carr/Pages/FIRSTSUPPLIERADVOCATEAPPOINTED.aspx (accessed 12 November 2009).

[353] Attachment A of the Australasian Railway Association and Industry Capability Network, *ARA/ICNL Progress Report – December 2009: Rail Supply Industry Reform Agenda* (Canberra: ARA and ICN, 2009).

[354] ibid.

[355] Australasian Railway Association and Industry Capability Network, *ARA/ICNL Progress Report – December 2009: Rail Supply Industry Reform Agenda* (Canberra: ARA and ICN, 2009), 2.

services. It has been reported that as a result of assistance provided under the program, orders to Australian industry of over $550 million were made, despite initial plans for the rolling stock to be fully imported.[356]

5.81. At the state level, the 2009 State Budget saw the creation of the Transport Infrastructure Manufacturing scheme. As a partnership between the Victorian Government and industry, the scheme is aimed at assisting Victorian manufacturers to maximise Australian and international transport infrastructure business opportunities.[357]

Skill shortages within the rail manufacturing sector

5.82. As for the rail industry workforce more broadly, the Committee was not able to access reliable, detailed information regarding the quantity of skills required within the rail manufacturing and component supply sectors, or any associated skill gaps. The Committee notes, however, that many of the skills used within the rail manufacturing sector are shared with other areas of the rail industry. It therefore believes that the rail manufacturing sector should be specifically identified within a comprehensive audit of the rail workforce and industry-wide workforce development strategy, which the Committee has recommended should be undertaken by the Department of Transport, in consultation with the rail industry (refer Recommendation 3.1 and Recommendation 4.1).

Skills required in rail manufacturing

5.83. The job roles and skill sets involved in train and tram manufacturing are diverse. They include: engineering, computer aided drafting, inspectors (quality, testing), electricians, electronics technicians, mechanical fitters, fibreglass workers, machinists, spray painters, boilermakers, panel beaters, welders, airconditioning mechanics and a range of other tradespeople. Some skills are highly specialised, while others require additional training or extensive rail-specific experience if they are to be utilised effectively within rail manufacturing

5.84. Most of the qualifications and training required for rail manufacturing fall within the VET sector. These include qualifications and training (mostly apprenticeships) relevant to the manufacturing sector more broadly, as well as the small range of rail-specific qualifications. The only higher education qualifications within Australia which specifically cover rail manufacturing are the Graduate Certificate in Rolling Stock Engineering and the Master of Rolling Stock Engineering, available at the University of Wollongong via distance education.

5.85. Although the local rail manufacturing sector is small, continued skills development is essential if Victorian manufacturers (and the community more broadly) are to benefit from technological advancements within the industry. Advanced skills are essential to productivity gains, including the safety and efficiency of Victoria's rail networks. The

[356] Department of Innovation, Industry, Science and Research, *Trams and Trains for Melbourne* (Canberra: DIISR, n.d.). Available on Department of Innovation, Industry, Science and Research website, http://www.innovation.gov.au/General/MEC-IndustryParticipation/Pages/MelbourneTramsandTrainsSAMPCaseStudy.aspx.

[357] Minister for Industry and Trade (Victoria), 'Industry and Freight Package to Help Secure Local Jobs,' *Media Release*, 6 May 2009, The Premier of Victoria, http://www.premier.vic.gov.au/component/content/article/6730.html (accessed 16 November 2009).

Committee believes that young graduates and tradespeople in particular, can provide the bridge between new technologies and existing rail technologies.

5.86. The Committee is aware that the quantity of labour and skills required within the local rail manufacturing sector will largely depend on the Victorian Government's future procurement decisions. There are a number of options for future rolling stock procurement, including manufacturing locally, importing, or a combination of the two. An alternative strategy may be to delay the procurement of new trains and trams, and to instead undertake a major upgrade of the existing fleet. The Committee notes that each of these strategies will have different implications for the viability of local businesses, as well as for their workforce planning and development.

5.87. Bombardier Transportation provided an example of the skills required for a rolling stock project involving local manufacturing, compared with those required for a project involving imported trains. It estimated the following labour and skills requirements for the various stages of the local manufacturing process: around 60 to 70 engineers, industrial designers and professional staff required at the engineering, design, drafting and drawing stage; around 30 to 50 professional and low-skilled employees for procurement, management and stores once at peak production; up to 150 skilled tradespeople and apprentices during the peak manufacturing stage; and around 100 semi-skilled and low-skilled trades for assembly and fit-out.[358] These skills would not be required if the trains were imported.

5.88. The Committee notes that additional skilled, semi-skilled and low-skilled trades are required at the testing, running maintenance and heavy maintenance and overhaul phases, irrespective of whether the trains are manufactured locally, or imported.

Identified skill shortages

5.89. The Committee found that while skill shortages and skill gaps in the rail manufacturing sector are difficult to quantify, the sector appears to be facing similar challenges to those faced by the broader rail industry workforce, including the ageing workforce, pending large-scale retirements, and the tendency for workforce development to be reactive rather than proactive where the industry is comprised of a large number of small and medium sized enterprises. Recent reductions in the size of the sector, together with the small and sporadic nature of government and private procurement contracts also influence the extent of skill shortages within the rail manufacturing sector. The Committee notes that these issues will have an ongoing impact as the number of highly specialised and experienced employees available to act as trainers or mentors declines.

5.90. Additionally, rail manufacturing is affected by skill shortages and skill gaps within the broader manufacturing sector, which were outlined in a 2006 report of the Victorian Auditor-General.[359] The national skill shortages list also provides evidence of skill shortages relevant to the rail manufacturing sector.[360] Relevant skills identified on

[358] Supplementary information provided by Bombardier Transportation, March 2010.

[359] Victorian Auditor-General's Office, *Vocational education and training: Meeting the skill needs of the manufacturing industry*, Victorian Auditor-General's Report, (Melbourne: VAGO, 2006).

[360] Department of Education, Employment and Workplace Relations, *State and Territory Skill Shortage List-Victoria* (Canberra: DEEWR, n.d), Available on Australian Government website, http://www.workplace.gov.au/workplace/Publications/LabourMarketAnalysis/SkillShortages/StateandTerritorySkillShortagelists/ (accessed 25 February 2010).

this list include: civil, structural, electrical and mechanical engineers and associate engineers; construction estimator; metallurgical and materials technician; fitters and welders; sheetmetal workers; diesel motor mechanics; vehicle painters and vehicle trimmers; general electricians; refrigeration and airconditioning mechanics; electronic equipment tradespeople; and cablers (data and telecommunications).[361]

Strategies to address skill shortages in rail manufacturing

5.91. The Committee notes that many of the strategies already in place to address skill shortages in the rail industry are likely to benefit the rail manufacturing sector. Additionally, the rail manufacturing sector is also likely to benefit from the range of policies and programs aimed at improving the skills supply for the manufacturing sector more broadly.

5.92. Careers in Manufacturing is a state-wide program aimed at promoting the extensive range of career options available to young people in the manufacturing and engineering sectors. The program has been designed for year 9 and 10 students, and is described as 'see, taste, touch and feel manufacturing'.[362] Careers in Manufacturing is supported by the Young Industry Ambassador Program, which aims to promote enthusiasm in apprentices, trainees and graduates who are making career choices to work in the manufacturing and engineering sectors. Young Industry Ambassadors visit schools and talk about their own career pathway, or host groups of students through their worksite.[363]

5.93. The Committee heard about various other initiatives aimed at generating interest in manufacturing careers. In 2003, the Agenda for New Manufacturing Scholarships program (a partnership between the Victorian Government, manufacturers, industry and Victorian tertiary institutions) was launched to draw talented tertiary students and postgraduates into manufacturing.[364] The Victorian Government has also run a manufacturing careers promotion program called Make Something of Yourself. In addition, the Re-Engineering Australia Foundation reported that its school-based programs have increased the number of students choosing pathways that lead to manufacturing, as well as to other engineering careers.[365]

5.94. Another important initiative is the Advanced Manufacturing Precinct at RMIT University, which is being established to deliver practical industry skills training for the design, development, production, marketing and management processes of the advanced manufacturing sectors. The precinct will bring together RMIT University's applied design and manufacturing streams with the aim of encouraging the development of advanced industry skills, enhancing transitions from training to the workforce, and improving collaboration between industry and training.[366]

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[361] Department of Education, Employment and Workplace Relations, *State and Territory Skill Shortage List-Victoria* (Canberra: DEEWR, n.d), Available on Australian Government website, http://www.workplace.gov.au/workplace/Publications/LabourMarketAnalysis/SkillShortages/StateandTerritorySkillShortagelists/ (accessed 25 February 2010).

[362] Manufacturing and Engineering Skills Advisory Board, 'Careers in Manufacturing,' MESAB, http://www.mesab.com.au/index.php?id=17 (accessed 2 February 2009).

[363] ibid.

[364] Office of Manufacturing, Department of Innovation, Industry and Regional Development (Victoria), *Agenda for New Manufacturing* (Melbourne: DIIRD, 2003), 14.

[365] Re-Engineering Australia Foundation, Written Submission, May 2009, 16.

[366] RMIT University, 'RMIT's future Advanced Manufacturing Precinct,' RMIT University, http://rmit.biz/browse;ID=21qtfqc3d9c3#overview (accessed 5 February 2010).

5.95. VET programs to be delivered at the Advanced Manufacturing Precinct include Certificate III (Mechanical), Diploma and Advanced Diplomas in Engineering (Mechanical and Aerospace), Associate Degree in Engineering and the Diploma of Advanced Trade. Higher education programs will include Bachelor of Engineering degree programs in mechanical, manufacturing, automotive and aerospace engineering and Master of Engineering programs.[367]

5.96. The Committee supports the above range of initiatives aimed at attracting and recruiting young people into the manufacturing industry, as well as the establishment of the Advanced Manufacturing Precinct at RMIT University. In addition, the Committee notes that local content policies play an important role in attracting and developing skills for the rail manufacturing sector.

Training and development within the rail manufacturing sector

5.97. As for the rail industry more broadly, the issue of apprenticeships was a key theme arising in relation to the rail manufacturing sector. Evidence suggests that there are very few apprenticeships being undertaken within rail manufacturing, with the current size of the industry and individual procurement contracts representing a key barrier to increased apprenticeship commencements. The Australian Manufacturing Workers' Union also argued that requirements about the employment of apprentices are not specific enough:

> The privatisation process has resulted in a 95% drop in rail industry apprentices. This is mainly due to the cost of training apprentices not being built into the contract tendering process. Whilst training apprentices is mentioned generally in tendering criteria, it does not seem to be apparent that it is mandatory to train any apprentices when fulfilling the contract.[368]

5.98. The Australian Manufacturing Workers' Union's submission went on to note that 'building loyalty to the rail industry through the apprenticeship process is important because, comparatively speaking, the rail industry is not as well paid as other industries'.[369] It was observed, however, that the current structure of procurement contracts does not allow for an apprentice to start and finish their apprenticeship on the one contract.[370] The union therefore argued that the Victorian Government 'should ensure through its contracts that a minimum ration of apprentices is supported for the entire length of a four-year apprenticeship'.[371] Ms Pam Jonas, Manager, Policy and Research, Group Training Association of Victoria similarly argued that commitments to local content must include a commitment to apprenticeship and traineeship training as part of any government contract.[372]

5.99. The Committee questions whether training quotas are the solution to addressing skill shortages and skill gaps in rail manufacturing. The Committee recognises, however, that overly prescriptive training quotas could impose significant costs on industry, given the small size of the workforce and current manufacturing schedules.

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[367] ibid.
[368] Australian Manufacturing Workers' Union, Metals Division, Victorian Branch, Written Submission, April 2009, 2.
[369] ibid.
[370] ibid.
[371] ibid.
[372] Ms P. Jonas, Manager, Policy and Research, Group Training Association of Victoria, Transcript of Evidence, Public Hearing, Melbourne, 10 August 2009, 8–9.

5.100. The Committee notes that the Council of Australian Governments has recently proposed that states and territories should support increased apprentice numbers when contracting for government stimulus projects. The Council of Australian Governments agreed to aim for at least 10 per cent of total contract labour hours to be undertaken by apprentices, trainees and those seeking to upskill, where this does not result in unreasonable costs to business. It has also agreed for an 'out of trade' register to be established in each state and territory, to provide job matching and mentoring for apprentices and trainees. A Council of Australian Governments taskforce is monitoring its implementation and will advise of any further actions required to support apprentices.[373]

5.101. The Committee supports the view that there are currently too few apprentices within rail manufacturing to meet the ongoing skill needs of the sector. The Committee would like to see an increase in a range of apprenticeships, especially for electrical and mechanical fitters, body building and repairers. Other areas where the Committee believes that apprenticeships are required include airconditioning mechanics, boilermakers (metal fabrication) and possibly, electronics and telecommunications technicians. The Committee believes that an increase in the number of apprenticeships can be achieved through implementation of a range of strategies, including employer incentives, as identified in chapter 4.

Conclusion and recommendations

5.102. Victoria has a small and valuable rail manufacturing sector with the capacity to manufacture train and trams for the Victorian rail network and potentially, for rail networks in other jurisdictions. The component supply sector also has the capacity to meet the needs of the local market and be competitive in key international markets. The Committee found, however, that these sectors are currently at a critical stage in their development. Without greater certainty about the level of future work, the rail manufacturing and component supply sectors will face increasing challenges in maintaining a skilled workforce and investing in new plant and equipment.

5.103. The Committee notes that through its future procurement decisions, the Victorian Government will play a critical role in supporting the rail manufacturing and component supply sectors. The Committee therefore believes that the Victorian Government should develop a rail industry manufacturing strategy. This strategy should provide the industry with greater certainty regarding future government procurement, including the type and volume of trains and trams to be purchased in the future, and the schedule for their delivery. The strategy should also outline the Victorian Government's local content requirements, plans for maintaining trains and trams, and a workforce development strategy. The Committee believes that in setting the workforce development strategy, the Victorian Government should take into account the information gathered through an industry skills audit (refer Recommendation 3.1). The Committee further believes that the Victorian Government, through the Council of Australian Governments and other relevant mechanisms, should support the development of a national rail manufacturing and procurement strategy which seeks to consolidate rail manufacturing in key locations.

[373] Victorian Government, Written Submission, July 2009, 8.

Recommendations

5.1 That the Victorian Government develop a rail industry manufacturing strategy which sets out:

- the Victorian Government's long-term procurement strategy for the passenger networks, including the type and volume of trains and trams to be purchased, and the schedule for their delivery; and
- a local content policy for rail manufacturing which includes life cycle considerations such as maintenance and training requirements.

5.2 That the Department of Transport, in consultation with the rail manufacturers and suppliers, specifically identify the rail manufacturing and component supply sectors when undertaking a comprehensive audit of the rail workforce (refer Recommendation 3.1), and preparing an industry-wide workforce development plan (refer Recommendation 4.1).

5.3 That the Victorian Government, through the Council of Australian Governments and other relevant mechanisms, advocate for the development of a national rail manufacturing and procurement strategy which seeks to consolidate rail manufacturing in key locations.

Adopted by the Education and Training Committee

Committee Room, 55 St Andrews Place

East Melbourne

3 May 2010

Appendix A

Submissions

Name of individual/organisation	Date received
Mr Ross Pink, Rolling Stock Manager, EDI Rail	4 March 2009
Department of Education, Employment and Workplace Relations	20 April 2009
Cooperative Research Centre (CRC) for Rail Innovation	22 April 2009
GippsTAFE (Central Gippsland Institute of TAFE)	22 April 2009
The Hon Michael O'Brien MP, Minister for Employment, Training and Further Education, Government of South Australia	22 April 2009
Rail Innovation Australia Pty Ltd	23 April 2009
Electrical Trades Union of Australia, Victorian Branch	23 April 2009
Australasian Railway Association	23 April 2009
Engineering Faculty, Monash University	23 April 2009
Australian Manufacturing Workers' Union, Metals Division, Victorian Branch	23 April 2009
Mr Allan Ballagh, Director TAFE, RMIT University	27 April 2009
Mr Barry Wright, Head, School of Manufacturing Services, University of Ballarat	30 April 2009
Coffey Rail Pty Ltd	30 April 2009
Essential Services Commission	1 May 2009
Department of Education and Training, Western Australia	4 May 2009
Re-Engineering Australia Foundation	4 May 2009
Mr Frank Feldman, Director, RailCom Pty Ltd	5 May 2009
Victorian Community Transport Association	8 May 2009
Asciano Limited	25 May 2009

Name of individual/organisation	Date received
Engineers Australia, Victorian Division	26 May 2009
Environment Victoria	1 July 2009
Transport and Logistics Industry Skills Council	13 July 2009
Victorian Government	15 July 2009
V/Line Passenger Pty Ltd	28 July 2009
Mr Brian Hill, Locomotive Divisional Secretary, Rail, Tram and Bus Union, Victorian Branch	12 March 2010

Appendix B

Public hearings

Melbourne, 20 July 2009		
Name	Position	Organisation
Mr Howard Ronaldson	Secretary	Department of Innovation, Industry and Regional Development
Mr John Robinson	Deputy Secretary, Economic Infrastructure	Department of Innovation, Industry and Regional Development
Mr Philip Clarke	Executive Director, Skills Victoria	Department of Innovation, Industry and Regional Development
Ms Madeleine McManus	State President	Engineers Australia, Victorian Division
Ms Glenda Graham	Executive Director	Engineers Australia, Victorian Division
Ms Kathryn Hurford	Associate Director, Public Policy International and National Policy Directorate	Engineers Australia
Mr Peter Munro	Victorian Chapter Representative	Railway Technical Society of Australasia
Mr Rae Fossard	Training Package Specialist (Rail)	Transport and Logistics Industry Skills Council
Mr Michael Myers	Founder	Re-Engineering Australia Foundation

Melbourne, 23 July 2009		
Name	Position	Organisation
Mr Peter Douglas	Organiser, Metals Division	Australian Manufacturing Workers' Union, Victorian Branch
Mr Ray Portelli	Delegate, Rail Industry	Australian Manufacturing Workers' Union, Victorian Branch

Mr Paul Candy	Delegate, Rail Industry	Australian Manufacturing Workers' Union, Victorian Branch
Mr Brian McNaught	General Manager, Rail Compliance	Asciano Limited
Mr Greg Moffatt	National Training Manager	Asciano Limited
Mr Phil Davrain	State Manager, Victoria	Downer EDI
Mr Howard Worthing	Assistant State Secretary	Electrical Trades Union, Victorian Branch
Mr Gerry Glover	State Organiser	Electrical Trades Union, Victorian Branch
Mr Graeme Watson	Secretary Director	Electrical Electronic Industry Training Ltd

Melbourne, 27 July 2009

Name	Position	Organisation
Mr Wally O'Carroll	Manager, HR Services	Connex Melbourne
Ms Robyn Archer	Manager, Learning and Development	Connex Melbourne
Ms Tania Davies	Manager, Rail Careers	Australasian Railway Association
Ms Jenny Kelman	General Manager, Human Resources	V/Line Passenger Pty Ltd
Ms Ursula McGinnes	General Manager, Stakeholders Relations	V/Line Passenger Pty Ltd
Mr Paul Hulonce	Organisational Development Manager	V/Line Passenger Pty Ltd

Melbourne, 10 August 2009

Name	Position	Organisation
Mr Ian McMillan	Executive Officer	Transport and Distribution Training Victoria
Mr John Glover	Chief Executive Officer	Group Training Association of Victoria
Ms Pam Jonas	Manager, Policy and Research	Group Training Association of Victoria
Mr Barry Wright	Head, School of Manufacturing Services	University of Ballarat
Ms Coralie Morrissey	Executive Director, Faculty of Technical and Trades Innovations	Victoria University

Mr Dennis Saunders	Head, School of Industry Skills Training Manager, Urban Systems Training	Victoria University
Dr Elaine Saunders	Senior Business Development Manager, Faculty of Engineering	Monash University
Mr Ravi Ravitharan	Business Manager, Institute of Railway Technology, Department of Mechanical Engineering	Monash University

Melbourne, 3 March 2010

Name	Position	Organisation
Ms Nicole Sullivan	Head, Learning and Development	Metro Trains Melbourne
Mr Matthew Dolan	Manager, Human Resources Development	Metro Trains Melbourne
Ms Melicia Weitsz	Project Manager, Human Resources	Metro Trains Melbourne
Mr Des Davies	Director, Human Resources	Yarra Trams
Mr Rod Labourne	Training and Development Manager	Yarra Trams
Mr Danny Walsh	Director, Human Resources	Bombardier Transportation
Mr Trevor Dobbyn	State Secretary	Rail, Tram and Bus Union, Victorian Branch

Appendix C

Site visits

EDI Rail Workshops, Newport, Victoria, 17 August 2009

Name	Position	Organisation
Mr Phil Davrain	State Manager Victoria (Rail)	Downer EDI
Mr Doug Hedges	Operations Manager (Rail)	Downer EDI
Mr Anthony Lea	Passenger Vehicles Superintendent (Rail)	Downer EDI
Mr Chris Collett	OHS and Environment Officer (Rail)	Downer EDI
Mr Ray Portelli	Combined Union Shop Committee Representative (Rail)	Downer EDI
Mr Josh Holford	Electrical Apprentice, Carriage Shop (Rail)	Downer EDI
Mr Michael Last	Dual Trade Apprentice Mechanical and Electrical, Locomotive Shop (Rail)	Downer EDI
Mr Tom McNally	Apprentice Fitter and Turner, Carriage Shop (Rail)	Downer EDI

Rail Skills Centre, Newport, Victoria, 17 August 2009

Name	Position	Organisation
Mr Geoff Walker	General Manager, Asset Management	VicTrack
	Chair, Rail Tram Industry Infrastructure Committee	
Mr Marc D'Antonio	Manager, Training and Development	Connex Melbourne
Mr Peter Thomson	Senior Project Manager, Workforce Planning	Department of Transport
Ms Sam Spice	Research Officer	EPIC Industry Training Board

Mr Loc Vuong	Inspector, Infrastructure Safety, Electrical Department	Energy Safe Victoria
Mr Phil Nankervis	Director	HRD Integrated Services Pty Ltd
Mr Noel Arandt	Infrastructure Training Manager	MainCo Melbourne Pty Ltd
Mr Michael Ball	Human Resources Manager	MainCo Melbourne Pty Ltd
Mr Rod Ryan	Coordinator, Rail Skills Centre Victoria	VicTrack
Mr Jim Warwick	Manager, Technical Support Asset Management	VicTrack
Mr Owen Hicks	Overhead Manager	Yarra Trams
Mr Rod Labourne	Training and Development Manager	Yarra Trams

Automotive Centre of Excellence, Docklands, Victoria, 30 November 2009

Name	Position	Organisation
Mr Phillip Murphy	General Manager, Industry Liaison, Automotive Centre of Excellence	Kangan Institute
Mr John Nicholas	Project Director, ACE Development, Automotive Centre of Excellence	Kangan Institute

Appendix D

Interstate investigations

Site visit
'The Workshops' Rail Museum
North Ipswich, Queensland
6 September 2009

Tour of the museum and workshops led by Mr Andrew Moritz, Director of 'The Workshops' Rail Museum

Meetings, Brisbane, 7 September 2009

Name	Position	Organisation
Mr Tom Wiltshire	Deputy Chair	Industry Leaders Group, Rail Transport Skills Formation Strategy
Mr Clive Shepherd	Member	Industry Leaders Group, Rail Transport Skills Formation Strategy
Mr Andrew Matthews	Member	Industry Leaders Group, Rail Transport Skills Formation Strategy
Dr Martin Murray	Member	Industry Leaders Group, Rail Transport Skills Formation Strategy
Mr David George	Chief Executive Officer	CRC for Rail Innovation
Dr Chris Gourlay	Research Director	CRC for Rail Innovation
Mr Charlie Robinson	Business Manager	CRC for Rail Innovation
Mr Frank Feldman	Director	RailCom Pty Ltd
Ms Kaye Kurth	Director	RailCom Pty Ltd
Mr Graham Walters	Associate Director and Senior Trainer	RailCom Pty Ltd
Dr Martin Murray	Senior Lecturer in Civil Engineering, Faculty of Built Environment and Engineering, School of Urban Development	Queensland University of Technology

Meeting, Brisbane, 8 September 2009

Name	Position	Organisation
Mr John Stephens	Chief HR Officer	QR Limited
Mr Paul Pfizner	Manager, Learning and Development	QR Limited
Mr Ian Dunlop	Human Resources Manager	QR Limited
Mr Peter Lees	Manager, Projects and Delivery, RACS Group	QR Limited
Ms Bree Taylor	Advisor, Stakeholder Relations	QR Limited

Meeting, Rockhampton, 9 September 2009

Name	Position	Organisation
Professor Scott Bowman	Vice-Chancellor and President	Central Queensland University
Professor Elizabeth Taylor	Pro Vice-Chancellor and Executive Dean, Faculty of Sciences, Engineering and Health	Central Queensland University
Associate Professor Colin Cole	Director, Centre for Railway Engineering	Central Queensland University
Associate Professor Ken Kwong	Rail Signalling and Operations Management Program Lecture Coordinator	Central Queensland University
Ms Vicky Kreiser	Administration Manager, Centre for Railway Engineering	Central Queensland University

Site visit
QR Driver Training Centre, Rockhampton
9 September 2009

Name	Position	Organisation
Mr Paul Bashford	Senior Learning and Development Adviser	QR Limited
Mr Tony Sinclair	Senior Learning and Development Adviser	QR Limited
Ms Suzan Stewart	Senior Learning and Development Adviser	QR Limited

Site visit and meeting
QR Rollingstock and Component Services Workshop, Rockhampton
9 September 2009

Name	Position	Organisation
Mr Barry Butterfield	General Manager, QR Rollingstock and Component Services Workshop	QR Limited
Mr Syd O'Sing	Commercial Manager, QR Rollingstock and Component Services Workshop	QR Limited
Ms Michelle Horn	Components Operations Manager, QR Rollingstock and Component Services Workshop	QR Limited
Mr Tony Stabb	Rollingstock Operations Manager, QR Rollingstock and Component Services Workshop	QR Limited
Mr Darrin Spark	Projects Coordinator, QR Rollingstock and Component Services Workshop	QR Limited
Ms Bree Taylor	Advisor, Stakeholder Relations	QR Limited

Appendix E

International investigations

The Committee undertook international investigations in New Zealand during the period 19 October to 23 October 2009. During these investigations, the Committee conducted meetings and site visits for two separate parliamentary inquiries: Inquiry into Skills Shortages in the Rail Industry; and Inquiry into the Potential for Developing Opportunities for Schools to Become a Focus for Promoting Healthy Community Living.

WELLINGTON, 20 October 2009

KiwiRail

Ms Nicola Brown, General Manager, Human Resources

AUCKLAND, 22 October 2009

Competenz

Ms Sriyani Warusauithana, Industry Manager

Mr Jonathan Gale, Industry Manager

Mr Matt Allfree, General Manager, Strategic Development

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