



# **Logistics Industries ENVIRONMENTAL SCAN**

**November 2011**

**Rail**



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## Overview

The rail industry is made up of freight companies that operate or hire railways for the transportation of freight or provide services allied to railway transport; and companies operating railways for the transportation of passengers. Railways consist of heavy rail (large trains using dedicated rail tracks over short distances) and commuter trains (large trains using dedicated track over longer distances), but exclude tramways and monorails. The industry is characterised by a relatively small number of very large organisations, with the remainder categorised as small to medium enterprises.

Like most other industry sectors, the rail industry in WA is driven by supply and demand pressures which in turn are dependent on State and national economic circumstances, as well as the status of their suppliers and competitors.

There is a major shortage of workers in the rail industry due to the large amount of projects which have either commenced or are due to commence in the near future. Positions in short supply include drivers, maintainers, mechanical and electrical tradespeople and engineers. Many of these workers are being sourced from overseas due to the long lead time in training and the high incidence of poaching from other companies.

Upgrading of the grain network and the development of new tracks to service new and existing mining projects also means an increased demand for infrastructure workers in many categories. These include train controllers and engineers which are also sourced from overseas, as well as signal technicians and railway track workers.

A major factor affecting this industry is the ageing workforce, especially amongst drivers and within the trades and engineering workforce, as well as specialists in areas such as train services and train management. It is anticipated that nearly a quarter of the workforce will retire in the next decade, taking their knowledge and skills with them.

Urban passenger rail patronage in Perth has increased by 81% in the past ten years, with 44% of public transport trips made using rail services compared with 10% in 1990<sup>1</sup>. Significant increases in the use of passenger rail patronage in the metropolitan area in the past two years (particularly since the completion of the Perth to Mandurah line) has placed huge pressures on the rail transport system, including the capacity to attract and retain appropriately skilled personnel to work in the sector. Fifteen new carriages, creating room for 7,748 passengers, have been ordered, the first of which will arrive by September 2013. New major projects include the Northbridge hub link, which is planned for completion by 2011-12 and the Butler extension on the northern line. Potential longer-term projects include the extension of the northern suburbs railways to Yanchep and a light rail from Mirrabooka to the CBD.<sup>2</sup>

## Trends Analysis

### Freight

The primary activities of companies in this industry are: container terminal operation (railway); freight transport service (railway) and terminal operation (railway). More than half

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of product carried consists of mineral bulk freight with a substantial amount of non-bulk freight and a small proportion of other bulk freight.

### Passenger Rail

This class consists of companies operating railways for the transportation of passengers. The majority of services run on intra-urban lines with the regional sector making up a quarter and a small percentage of rail in the tourist sector. The primary activities of companies in this industry are passenger transport services (railway); railway station operations and suburban railway transport services.

## Regulatory Requirements

Rail passenger services, rail track work and safe working are regulated by the Office of Rail Safety and WorkSafe WA.

WA's rail network is subject to the Railways (Access) Code 2000 developed as a requirement of the Railways (Access) Act 1998. The Regime is administered by the Economic Regulation Authority.

From January 2013 a National Rail Safety Regulator with responsibility for regulatory oversight across all of Australia will be established. This will include national laws, operational policies and process, planning and reporting, training, education, research and safety promotion together with overall leadership and co-ordination of regulatory functions. The Regulator will be based in Adelaide, with regional offices in Sydney, Melbourne, Brisbane, Perth and Adelaide.

## Demographics of Workforce

As at May 2011, there were approximately 1,500 train drivers working in WA, with full-time drivers working an average of 39.6 hours per week.<sup>3</sup>

### Gender

The rail sector is dominated by male workers, with a small number of females entering the workforce as train drivers rather than track workers. Currently women make up 16% of Australia's rail workforce. This issue is being investigated nationally, particularly with regard to female engineers.<sup>4</sup>

### Age Profile

- The median age for railway track workers is 46 years and for train drivers 43 years.
- It is expected that nearly a quarter of the workforce will retire in the next decade.
- There is a lot of movement in and out of this workforce, so there is a need to attract younger workers.

## Impact of Globalisation

The worldwide demand for iron ore has impacted on the workforce, with qualified drivers and engineers being sought from Europe, the United Kingdom and South Africa to fill positions in the mining industry. There are many new projects commencing in the mining sector and new track is being laid and upgraded to accommodate mining operations and the grain network.

## Impact of Government Policy/Decisions

- The introduction of a national rail safety regulator by the Federal Government in January 2013 will have a huge impact on the rail industry. The regulator will administer a single national act, the Rail Safety Act, which will encompass all aspects of rail safety such as operations, equipment standards, hours of work, fatigue and worker health and will draw on a national pool of knowledge and experience.<sup>5</sup>
- Government initiatives to seek a greater percentage of containers on rail from metropolitan locations to the Fremantle Inner Harbour would reduce road congestion, particularly at the port. Although containers are subsidised at \$45 per Twenty Foot Equivalent Unit (TEU) for transportation to the port by rail, currently only about 10% of containers to the Fremantle Inner Harbour from the Kewdale area travel by rail.<sup>6</sup> The Government is aiming at 30% on rail, but the subsidy is one-way whereas by road the containers can be returned full, making the road option more attractive to operators.
- The State Government's plan to invest more than \$350 million in WA's grain freight network, which includes upgrades on the most competitive grain freight lines (\$187.9 million), and a transition package to ensure rail transport remained competitive with road (\$14.6 million)<sup>7</sup>.
- A bumper harvest for 2011-2012 has resulted in the Government negotiating with Brookfield Rail to extend the operating life of four Tier 3 rail lines. This will allow additional time for road improvements to be completed while ensuring that the 2011-2012 grain freight harvest receives adequate service.
- The decision by the Federal Government to exempt the road transport industry from the proposed carbon tax for the first two years is of concern to the rail industry which fears a loss of custom to road.

## Technological

The industry relies on a vast range of technologies for engines, communications, track work, signalling, business and customer service which will be paramount to meet increasing demands over the next thirty years and beyond. Technology affects all aspects of rail business and operations including:

- train protection and control systems;
- alternative propulsion systems;
- rolling stock and track design;
- level crossings; and
- ticketing and customer information systems\*<sup>8</sup>

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\*Transperth's SmartRider smartcard ticketing system is a leader in smartcard ticketing technology, providing users with up to a 25% discount on the cash fare. State-of-the-art ticket vending machines have been installed at all train stations and ferry jetties to provide a cash alternative for passengers.<sup>9</sup>

Despite the new technology that has emerged, there are still many older diesel locomotives which emit much higher levels of carbon monoxide, particulate matter, nitrogen oxide and CO<sup>2</sup> than current technology. In the short term the industry proposes a ten-year program of repowering and/or replacing up to 183 of Australia's oldest locomotives. In the longer term, the industry proposes a joint research and development program into the use of alternative fuels in Australia's locomotives.<sup>10</sup>

## Economic Drivers

Factors affecting this industry are the world price of energy and crude oil, the current resources boom and the tourism industry (passenger rail). As well as the numerous projects under way, there are many new projects planned, particularly for the north west of the State. These include new or upgraded port facilities which will have a huge impact on the rail industry. Australia's ore exports are expected to near double by 2015, and the Pilbara already accounts for 40% of the one billion tonnes a year of iron ore traded globally by sea.<sup>11</sup>

## Size and Distribution

Over 40,000 men and women are employed in diverse occupations in rail throughout urban and regional Australia. Many more people work in supporting industries providing goods and services to the industry (estimated at almost 100,000 people).<sup>12</sup>

Rail in WA consists of 5,100 km standard, narrow and dual gauge network in the south west operated by Brookfield Rail; the Electrified Urban Passenger Network maintained by the Public Transport Authority, the interstate standard gauge line from Kalgoorlie to Adelaide which is owned by the Australian Rail Track Corporation and a number of heavy haul, standard gauge rail lines in the Pilbara which run from inland mines to the ports of Dampier, Cape Lambert and Port Hedland.<sup>13</sup>

Perth's urban services are operated by Transperth, a division of the Public Transport Authority (PTA), and consist of a fleet of 234 railcars across a rail network of more than 173 km, five lines and 69 stations. Transwa (another division of the PTA) operate 62 scheduled rail services each week to four regional centres.<sup>14</sup>

The current system of railways in the Pilbara consists of more than 2000 km, with three major railway infrastructure managers in the Pilbara: Rio Tinto, BHP Billiton, and Fortescue Metals; wholly owning the railways or majority owning the infrastructure in joint ventures with other companies. Pilbara trains are up to 2.8 km in length, making them amongst the longest and heaviest trains regularly operated in the world.<sup>15</sup> The vast cost of building such infrastructure has largely kept smaller competitors out of the market, and major miners have been reluctant to open up their lines to potential rivals. However, QR National is reputed to be planning a railway operation in the region. This would open up prospects for smaller miners at a time of rising iron ore demand, as the vast cost of building such infrastructure has previously kept the smaller competitors out of the market.<sup>16</sup>

### Regional Activity

The vast amount of activity in the regions is having a huge effect on the rail industry which has seen a huge growth rate in recent times. The many projects, both planned and underway include the following:

- Esperance Port Access Transport Corridor, involving major improvements to facilitate future expansion of the port. This will significantly improve safety for all road and railways users, enhance community access across the transport corridor, improve transport efficiency of freight in and out of the Port and reduce freight costs.<sup>17</sup>
- Esperance line upgrade to support the iron ore operation from Koolyanobbing through to Esperance Port, due for completion January 2012.<sup>18</sup>
- Eastern Goldfields Railway Upgrade, involving the replacement of 185 kilometres of the railway between Koolyanobbing and Kalgoorlie. This will significantly increase the number of train paths per week and provide opportunities for the continued growth of exports through the Port of Esperance. There are currently approximately 315 workers employed on this project.<sup>19</sup>
- Mount Gibson Iron/Geraldton Port Authority port train unloader upgrade will increase iron ore receival rate to 3,000 tonnes per hour, extend port rail network to accommodate longer trains, align existing iron ore ship loading capacity with receival capacity and reduce reliance on the road network to transport iron ore to port.<sup>20</sup>
- Oakajee Port and Rail development of a heavy freight rail to link proposed northern mines to the proposed Oakajee Port and an import/export multi-use, multi-function deepwater port to support a world class industrial estate. Both projects are planned to commence in 2012 and be completed in 2014.<sup>21</sup>
- Karara Iron Ore Project development of a magnetite deposit by Gindalbie Metals at Karara. Rail solutions have been identified to transport iron products from Karara to Geraldton Port for shipping. Work on a new 85 km spur line from Karara to Tilley Siding, near Morawa commenced in 2011. The existing rail line which runs from Morawa to Geraldton will be upgraded to support Karara's production.<sup>22</sup>
- Alumina, which accounts for 70% of exports from the Bunbury Port, is railed from Pinjarra, Wagerup and Worsley on the Perth to Bunbury single track narrow gauge line. Due to the size of the freight task, congestion occurs on the track and at the Port. Planned plant expansions and a new plant near Collie will add another 40% to the annual freight task.<sup>23</sup>
- Upgrading the Brunswick Junction to Bunbury Port section of the rail network with a second track is considered the highest priority rail infrastructure project in the South West region. This is currently the most congested section of the network and is presently operating at or near capacity. Major projects currently under consideration for the region will require access to this section of the network.<sup>24</sup>
- Construction of a rail line for the Fortescue Metals Group's Solomon mine will commence shortly and is due to be completed by June 2012. Solomon lies in the Hamersley Ranges to the west of Fortescue's existing Cloudbreak and Christmas Creek mines in the Chichester Ranges.<sup>25</sup>

## Sustainability

Rail is considerably more energy efficient than road transport, therefore reducing Australia's dependence on oil imports. Passenger rail is about seven times more efficient than cars for city commuting. Rail is approximately eleven times more efficient than trucks for transporting bulk freight and about three times more efficient for other freight.<sup>26</sup>

According to the Australasian Railway Association (ARA), every additional train takes 150 trucks off the road, saves 45,000 litres of fuel and reduces greenhouse gas emissions by 125 tonnes.<sup>27</sup>

There are currently a number of old locomotives which are considered inefficient and emissions-intensive. In a bid to address this issue the rail industry has partnered with the Federal Government to undertake a review of the ageing fleet of locomotives and put the Australian rail industry in line with international performance on emissions. It will also propose a long-term environmental solution for rail to contribute to achieving Australia's emissions reduction targets.<sup>28</sup>

## Qualification Profile of Workforce

Training in this industry has traditionally been on a needs basis. The industry is heavily regulated, with qualifications linked to regulatory requirements, which is where most training has occurred. The industry has recognised the need to train and develop its workforce for future needs.

The current method of delivery of operational and entry level training is primarily through on-the-job training with some off-the-job or off site training for generic skills. Opportunities exist for entry and operational level training through traineeships. Funding of traineeships for all rail qualifications and the full implementation of the Productivity Places Program has further enhanced the availability of training opportunities within the industry.

Changes in the rail industry are occurring at the upper levels, with mining companies particularly looking for quality management, stronger administrative roles and better reporting. This is in contrast to the traditional method of promotion where operational staff have been promoted to the more senior managerial roles.

Approximately 70% of track workers and 50% of train drivers have no post school qualifications; however, an increase in the level of training for these workers has been increasing over a period of time. The implementation of the Rail Safety Act in January 2013, in which every activity must be aligned to a unit of competence, should also have an effect on these demographics.

## Social Impact

The industry sees a need for cultural changes at company and industry-wide levels, via communication, involvement and participation, to create long-term sustainability of the industry. It is looking at developing initiatives for more flexible working arrangements and higher levels of diversity, which includes increasing the number of women in the workplace.<sup>29</sup>

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Current social factors affecting the industry include shift and weekend work, isolation (eg train driver) and “on call” arrangements. Some rail jobs in the mining sector also involve fly in fly out arrangements which can be a disruptive influence on families.

Railway track workers can work in remote locations for up to three weeks at a time in isolation with limited facilities. This is disruptive for family life and puts a great strain on relationships.

The greater usage of the rail system for longer periods of the day is putting more strain on the infrastructure and making it difficult to carry out the necessary track maintenance. This is being done either in the middle of the night or on weekends when the usage is less, making it difficult to attract workers.

## **Critical skills shortage occupations**

Train driver  
Maintainer  
Mechanical and electrical tradespeople  
Engineer  
Train controller  
Signal technician  
Track worker  
Rail Trainers and Assessor  
Freight Handler

## Reference – End notes

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