

DOWNSTREAM PROCESS MANUFACTURING

SNAPSHOT

MARCH 2015

The Resources Industry Training Council (RITC) is a state government funded joint venture between The Chamber of Minerals and Energy of Western Australia (CME) and the Australian Petroleum Production and Exploration Association Ltd (APPEA). It represents training and workforce interests of Western Australia's mining, oil and gas and downstream process manufacturing industries. A major function of the RITC is to work with key stakeholders to develop and implement innovative solutions to address skill shortages, changing workforce needs and vocational education and training policy issues.

The RITC produces annual workforce development plans which provide an overview of the RITC industries from the perspective of training and workforce development. Each industry plan highlights issues impacting on the industry environment, identified training and workforce issues, current and emerging skill shortages, and offers responsive training and workforce development policy solutions for industry. This document is a snapshot of the information contained in the 2013-14 industry workforce development plan.



RESOURCES

INDUSTRY

TRAINING

COUNCIL



OVERVIEW

The downstream process manufacturing industry is diverse covering activities from paint and cement to rubber and plastics manufacture, metallic and non-metallic mineral production and laboratory operations. Since 2007, the process manufacturing sector value add has been stagnant, the number of businesses operating domestically has decreased and employment in the industry has declined. However, despite declines in manufacturing's contribution to national employment and output, the industry continues to play a vital part in Australia's economy, directly employing 8.1 per cent of Australia's total employment, accounting for 6.6 per cent of the nation's GDP and a third of merchandise exports, with almost a quarter of business expenditure allocated to research and development¹.

Australian manufacturing has been in transition for decades in response to a range of domestic and global forces. Economic turbulence and international competition has driven the industry to explore competitive strengths and question its current business models and practices. The

future of the industry *depends on its ability to produce, innovate and manage productively*².

Drivers of Change

Drivers of change include labour productivity growth associated with increased mechanisation and use of technology in production; tariff cuts, which exposed the sector to greater international competition; and changing consumer preferences towards services. More recently, the high Australian dollar, slow productivity growth across the economy, intense global competition and a focus on sustainable production have placed additional pressure on the industry. Globalisation and the internationalisation of technology and labour markets have seen many manufacturing tasks outsourced from industrialised countries to lower cost economies, especially those in Asia. Many of these emerging economies are gaining market share not only in traditional manufacturing but increasingly in high-technology sectors. It will take a concerted effort to ensure Australia's manufacturing workforce has the necessary skills based and innovative capability to grow and sustain its competitive advantage.

Skills

With recent manufacturing closures and an industry in a state of flux, strong growth has been emerging in niche, high skilled manufacturing such as professional and scientific equipment and specialised precision engineering technologies and automation related manufacturing. Manufacturing workers of tomorrow will need to have high levels of science, technology, engineering and mathematics (STEM) skills, flexibility, resilience and innovation to meet employer and market requirements. High levels of STEM skills are fundamental for high quality skills development and innovation to advance and build on industry strengths and grow competitive advantage particularly in regional Western Australia. The need to develop and maintain a productive workforce in the current climate emphasises the need for a continued focus on workforce planning to ensure the future health and sustainability of the downstream process manufacturing industries in Western Australia. This planning must address retention and up-skilling of existing employees and the attraction of skilled workers, high quality skills development, particularly in regional Western Australia, and mechanisms to increase opportunities for the participation of all in employment and skills development. To achieve this, a greater focus needs to be extended on the mapping of career pathways in process manufacturing and their relationship to the education and training sector.



¹ IBISWorld Manufacturing Industry Reports

² Australian Workforce and Productivity Agency, Manufacturing Workforce Study, April 2014

INDUSTRY ACTIVITY

Western Australia's manufacturing sector remained relatively flat between 2006 and 2012, with the downstream process manufacturing in Western Australia representing approximately 2.5 per cent of total employment³. The fragile state of manufacturing in Western Australia became evident as employment in the industry dropped from 95,800 to 86,200 between November 2012 and August 2014, constituting 6.3 per cent of the state's workforce, down from 9 per cent in August 2006.

Composition

Small and medium enterprises (SMEs) comprise the majority of manufacturing businesses in Western Australia. Since the 2008 global financial crisis, the volatility in commodity prices has had a profound impact on the local manufacturing market⁴ with cost increases eroding already tight profit margins⁵. More than half of the downstream process manufacturing industry areas covered by RITC experienced negative growth in the five years to 2013-14. Most affected were aluminium smelting (-8.4 per cent), copper, silver, lead and zinc smelting, (-8.4 per cent) and ceramic product manufacturing (-7 per cent), alumina production (-4.9 per cent), fertiliser manufacturing (-2.5 per cent) and nickel refining (-1.3 per cent).

Employment

In contrast, the professional, scientific and testing services have increased to 123,000 workers from 77,300 workers over the same period, and

now constitute nearly 9 per cent of the Western Australian workforce⁶. Employment is highly concentrated, with 50 per cent of employees in downstream process manufacturing employed in alumina production, scientific testing and analysis services, scientific research services, other basic non-ferrous metal manufacturing and basic inorganic chemical manufacturing. Across the downstream process manufacturing sector, 27.7 per cent of the workforce is classified as technicians and tradespersons, 13.5 per cent as machinery operators and drivers, 9.5 per cent as professionals and 14.9 per cent as managers.

This workforce is thought to result from the sector's exposure to Western Australia's resources development sector. Likewise, the construction markets of China and other Asian countries have been driving the export market, not only for the raw materials, but also in the demand for value-added processed products and products in demand for mining services.

Sector Growth

Industries experiencing greatest growth nationally to 2013-14 were explosives manufacturing (14.4 per cent) and basic organic chemical manufacturing (7.7 per cent), followed by natural rubber product manufacturing (3.3 per cent) and scientific testing and analysis services (3 per cent). However, greatest activity does not necessarily correspond with revenue as seen with research focused, specialised areas such as pharmaceutical production manufacturing and scientific research services which only represent 6.5 per cent and 10.2



per cent of WA activity with a revenue of \$9.2 billion and \$4.6 billion, respectively. Likewise, growth in construction is reflected in the revenue generated by smaller manufacturing industries with smaller representation in WA like clay brick manufacturing (8th), concrete product manufacturing (13th), paint and coatings (23rd), cement and lime (24th) plaster product manufacturing (25th) and ready mix concrete manufacturing (26th), totalling \$165 billion⁷.

Professional, scientific and testing services have a strong exposure to the resources sector and are used in the production process across Australia's manufacturing industry. These services increased from \$8.3 billion (3.3 per cent of total intermediate use) in 2006-07 to \$10.8 billion (4.1 per cent of total intermediate use) in 2009-10⁸. Western Australia accounts for about 21 per cent of the national environmental science services sector and 10 per cent of the national scientific research services sector⁹.

³ 2011 Census of Population and Housing

⁴ Manufacturing Skills Australia – ABS Small Business Count Data 2010

^{5,7} IBISWorld Manufacturing Industry Reports

⁶ ABS Detailed Labour Force Quarterly, November 2012

⁸ Australian Bureau of Statistics

⁹ IBISWorld – Environmental Science Services and Scientific Research Services

KEY ISSUES AND PRIORITY ACTIONS



Vocational Education and Training (VET)

Industry has little confidence that the training system can produce consistent outcomes. The downstream process manufacturing and laboratory operations sectors are faced with the challenge of accessing and retaining a highly skilled, flexible labour force capable of operating in increasingly scientifically driven and technologically advanced workplaces to meet employer and market conditions. A flexible, responsive and innovative VET sector is essential to train and up-skill the local workforce with the skills required by industry. For training packages to remain relevant, industry must be engaged in the training package development, delivery and review processes.

Productivity and Collaboration

In a cost constrained environment, there is a need to maximise workforce productivity and for process manufacturing enterprises to collaborate around elements of workforce development to minimise duplication and to provide critical mass of participants for skills development activities. Opportunities exist to develop a collaborative approach for addressing productivity and workforce development issues which industry is prepared to support.

Impact of Automation and Technology

The future of a sustainable and globally competitive downstream process manufacturing industry hinges on niche areas and the development of advanced manufacturing technologies driven by a workforce capable of maximising productivity and efficiency gains. A multilayered workforce capable of transitioning highly technical STEM skills and applying knowledge in the areas of design and operation becomes increasingly critical and difficult to source in Australia's traditional labour pools, prompting national and state reforms to address these challenges.

Female Workforce Participation

In recent years there has been low female participation in the Western Australian downstream process manufacturing workforce. Attracting and retaining more women in the industry is a means of addressing skills challenges.

Ageing Workforce

Process manufacturing industries generally have an older age profile in their workforce making them susceptible to a strong risk of permanent loss of skills and operational knowledge unless more mature workers can be retained and their knowledge transitioned to younger workers. For this sector, attracting a younger workforce is also fundamental for the sustainability of this sector in the coming years.

Australian and New Zealand Standard Classification of Occupations (ANZSCO) for Skilled Occupation Lists

Use of the ANZSCO occupational classification system does not accurately reflect innovative and emerging occupations across RITC industries, especially within

process manufacturing and laboratory operations sectors. A review of the ANZSCO processes is needed, guided by industry consultation to identify particular industry areas and occupations inadequately represented through the ANZSCO classification system, as the determinants drive business processes of key commonwealth agencies such as the Department of Immigration and Border Protection.

VET Delivered to School Students

To ensure that the downstream process manufacturing industries can continue to train and develop a sustainable workforce in the future, ensuring access to high quality, flexible VET programs for school students that meet industry's needs is becoming increasingly important. It is pertinent to undertake a detailed analysis of VET for school student delivery in the process manufacturing industries, gauge potential for industry engagement in relevant programs and explore the viability of implementing current operating models into similar industry regions such as the one developed by the Kwinana Industries Council where industry enterprises collaborate and engage with local schools offering VET programs.

Language, Literacy and Numeracy Skills (LLN)

Low levels of LLN skills in the downstream manufacturing workforce are also an issue that has been raised with the RITC. To ensure that workforce safety is not compromised and to address productivity issues, addressing LLN skills should be a priority.

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