

Labour Market Trends in the Australian Natural Gas Industry



ManpowerGroup

INTRODUCTION: LONG TERM TRENDS IN THE NATURAL GAS INDUSTRY

Natural gas is a key energy source throughout the world for both industrial production and electricity generation. Global demand for natural gas peaked at about 108 trillion cubic feet in 2007, and declined slightly during 2008 and 2009 in response to the global recession. However, long term global demand is expected to demonstrate strong and sustained growth – by about 1.8% per year through 2020 and about 0.9% per year from 2021-2035. Total demand is expected to increase over this period by 44 percent, to 156 trillion cubic feet in 2035.¹

Industrial demand accounts for about 40% of natural gas consumption, and electrical and residential uses for about 25% each. Natural gas is also used for a variety of other commercial and manufacturing purposes, including an increasing role as a “clean” source of energy for transportation. The long-term increase in the demand for natural gas is driven both by a general global expansion of industrial activity and by a shift in energy preferences favoring cleaner-burning fossil fuels.² These trends apply broadly across all global regions, but Asia in particular is expected to nearly double its share of natural gas consumption, from 10% of the world’s total to 18%, by 2035. This shift will result largely from decisions by India and China to emphasize greener energy in their industrial development. China in particular has adopted a policy of increasing natural gas consumption by 5% per year over the next 25 years.

Most of this additional demand will be met by new sources of supply in the non-OECD world, including the exploitation of vast natural gas fields in the Persian Gulf, and strong production increases in Russia/Central Asia, Africa, Brazil, and China. Among the OECD countries, the greatest amount of new production by volume will be in the U.S., with a projected increase from 19.2 trillion cubic feet in 2007 to 23.4 trillion cubic feet in 2035.

But the largest proportional increase in production among OECD countries will be in Australia and New Zealand – up from 1.7 trillion cubic feet today to 4.5 trillion in 2035. This represents a sustained 3.5% annual growth rate in production over the next 25 years.³ These changes will create unique pressures on Australia’s (and New Zealand’s) oil and gas sector labour market.

NATURAL GAS PRODUCTION IN AUSTRALIA

Australia produced about 1.6 trillion cubic feet of natural gas in 2010 and has proven reserves to support nearly 100 years of production at that level. Australia consumes about 70% of the natural gas it produces, and exports the remaining 30%, but the share of production that is exported is projected to increase to 60% by 2020.⁴ Natural gas is one of Australia’s most significant export commodities, representing 6% of the total value of its minerals exports.⁵

Because of Australia’s geographic location and the limited technology that exists for long-distance undersea gas pipelines, most Australian natural gas exports must be processed into Liquefied Natural Gas (LNG) in capital-intensive liquefaction plants before being transported by ship to export markets. Most of Australia’s LNG gas is exported to Asian markets, especially Japan, Korea, China, India, and Taiwan, where regional Asian demand is expected to steadily intensify over the next 25 years.

Australia is the fourth-largest LNG producer in the world and the third-largest in the Asia-Pacific region; its current capacity to export nearly 20 million tons of LNG per year (worth about \$7.8 billion)⁶ is fully subscribed. To meet potential demand, projects representing nearly \$90 billion in capital investment are currently in development, which will bring export capacity up to 50 million tons per year

¹ U.S. Energy Information Agency, http://www.eia.gov/oiaf/ieo/nat_gas.html

² <http://www.naturalgas.org/business/demand.asp>

³ http://www.eia.gov/oiaf/ieo/nat_gas.html

⁴ Parliament of Australia, Parliamentary Library, http://www.aph.gov.au/library/pubs/rp/2007-08/08rp25.htm#_Toc192411139

⁵ US Geological Survey, Minerals Yearbook 2009, Australia

⁶ Australian Government, Department of Resources, Energy and Tourism, http://www.ret.gov.au/resources/upstream_petroleum/australian_liquefied_natural_gas/pages/home.aspx



over the next few years. Additional projects worth \$100 billion are in various planning stages. These projects will add tens of thousands of jobs to the industry.⁷

About 90% of Australia's natural gas reserves are located in offshore basins, principally in the Carnarvon, Browse, and Bonaparte Basins along the western and northern coasts of Western Australia. There is also expanding offshore production in the Bass, Otway and Gippsland Basins off the coast of south and southeast Victoria. The heaviest concentration of existing and proposed LNG processing plants for export is associated with the Western Australia offshore fields.

There are also significant onshore sources of natural gas in Australia's interior, in the Cooper/Eromanga Basins in north-east South Australia and south-west Queensland which provide, together with the offshore Victoria fields, the bulk of domestic supply in eastern Australia (South Australia, the Australian Capital Territory, New South Wales, and Queensland). This gas is principally delivered by pipeline but several new LNG plants are coming on line in Queensland, associated with coal seam gas production there.⁸

Consequently, specialised skills in demand in the Australian natural gas industry relate principally to offshore/undersea drilling, pipeline development, coal-seam gas recovery, and the construction and operation of LNG plants.

SKILLS DEMAND IN THE AUSTRALIAN GAS INDUSTRY

The rapidly developing industry response to new market opportunities is already putting significant pressure on the Australian oil and gas sector workforce, and skills shortages are expected to become even more acute in the future. Already, according to a 2011 survey, oil and gas workers in Australia are the highest paid in the world, earning an average of \$US 140,000 per year compared to a global average of \$US 76,000. In the same survey, 60 percent of Australian resource-sector employers reported that skilled labour shortages were their biggest concern. Globally, about a third of employers plan to hire additional staff in the next year, and ¾ anticipate that further salary increases will be required. Job mobility is also increasing as resource-sector workers identify and take advantage of emerging opportunities – about 25% of oil and gas workers have been in their current jobs for less than one year, compared to 17 percent in 2010.⁹

The 4 major Coal Seam Gas to LNG Projects currently in the pipeline for Gladstone, Queensland are expected to add 4,500-5,000 jobs each, during peak construction and 900-1,000 ongoing operational jobs each after construction, bringing 3,600-4,000 new permanent positions to Gladstone by around 2016.

In addition, oil and gas sector jobs tend to have relatively high turnover, making replacement demand a significant factor in total hiring demand. *Skills Australia* estimates that turnover in the industry as a whole is 26% per year, with even higher turnover among drillers.

A typical coal seam/LNG plant project needs 900-1,000 professional and technical employees to sustain its operations, including a substantial number of drillers. A typical LNG plant to support offshore gas drilling requires 150-300 workers depending on the employment model (residential vs. fly-in/fly-out). There are additional efficiencies from operating multiple plants on the same site. Overall occupational demand breaks down to about 15% for professional positions, 35% for technicians, and 50% for operators including drillers.¹⁰

This new demand comes at a time when the mining sector labour force has already been experiencing skills shortages in several key areas. Year-over-year employment growth in the Australian mining sector as a whole was 16.7 percent as of February 2011, the strongest of any industry. This represented 29,400 new jobs. According to *Skills Australia*, the top 20 occupational

⁷ <http://www.lngworldnews.com/appea-skilled-migration-changes-to-underpin-oil-and-gas-expansion-australia/>

⁸ Parliament of Australia, Parliamentary Library, http://www.aph.gov.au/library/pubs/rp/2007-08/08rp25.htm#_Toc192411139

⁹ <http://www.businessspectator.com.au/bs.nsf/Article/Australia-oil-gas-workers-top-global-pay-scale--s-EMCZF?OpenDocument&src=hp7>

¹⁰ Skills Australia 2011 interim report on resources sector skill needs; http://www.skillsaustralia.gov.au/PDFs_RTFs/InterimReport.pdf



categories in the mining sector are listed in the table below, with those positions in shortage marked with an asterisk:

Table 6.1: Occupational employment in Mining, Top 20 occupations, 2010¹¹
ANZSCO code and Occupation Number Employed in Mining, 2010

7122 Drillers, Miners and Shot Firers	34,900
3232 Metal Fitters and Machinists*	15,500
3129 Other Building and Engineering Technicians	10,700
7331 Truck Drivers	10,100
3411 Electricians*	8,000
2336 Mining Engineers*	7,400
1335 Production Managers*	5,400
7212 Earthmoving Plant Operators	5,000
3223 Structural Steel and Welding Trades Workers*	4,000
2344 Geologists and Geophysicists*	3,900
8219 Other Construction and Mining Labourers	3,700
2211 Accountants*	3,400
5111 Contract, Program and Project Administrators	2,700
7129 Other Stationary Plant Operators	2,600
2335 Industrial, Mechanical and Production Engineers*	2,200
3992 Chemical, Gas, Petroleum and Power Generation Plant Operators	2,100
5911 Purchasing and Supply Logistics Clerks	1,900
2513 Occupational and Environmental Health Professionals	1,800
1323 Human Resource Managers	1,800
7123 Engineering Production Systems Workers	1,800

The mining sector experienced much more rapid post-recession growth than was typical for Australian industry as a whole, where employment demand has been recovering variably across most categories of the Australian work force. Across all industrial sectors, the largest employment gains between 2010 and 2011 were among Technicians and Trades workers (5.7 percent or 92,300 new positions). Professional positions were up 2.5% to 60,800, and Community and Service workers increased by 5.6% or 56,800 positions. On the other hand, the number of management positions declined year-over-year by 3.4 percent or 50,600 positions, due in large part to corporate efforts to restructure their white-collar workforce.

Among lower skilled occupational groups the number of Sales Workers increased by 8.2% or 85,900 positions, Labourers increased by 2.6% or 30,300 positions, Machinery Operators and drivers by 2.9% or 20,100 positions, and Clerical and Administrative Workers by 1.0% or 15,900 positions.¹²

The consequence for employers is that, while 2008 levels of labour market tightness may not yet have reappeared in the economy as a whole, the resources sector including the natural gas sector is well on its way toward the emergence of severe skills shortages and the situation will only get worse as more gas projects come on line and the rest of the Australian economy completes its recovery.

- According to ManpowerGroup's 2011 Talent Shortage Survey, 54% of Australian employers reported difficulty in hiring the talent that they needed -- one of the highest rates in the world. 57% of global employers reported that unfilled jobs had a "medium" or "high" impact on their company's customers and investors.¹³
- According to *Skills Australia*, resource-sector employers in Western Australia and the Northern Territory were filling just 53% and 55% respectively of surveyed vacancies in 2011.

¹¹ Source: Australian Bureau of Statistics, Labour Force Survey, average 2010, cited in Skills Australia 2011

¹² Skills Australia 2011 interim report on resources sector skill needs;
http://www.skillsaustralia.gov.au/PDFs_RTFs/InterimReport.pdf

¹³ ManpowerGroup, Talent Shortage Survey 2011



- According to the Fitch ratings agency, projects in the natural gas and LNG sector “face increasing execution risks from upward cost pressures and schedule delays” relating to skills shortages and salary spikes in key occupations.¹⁴
- According to *Skills Australia*, even with maximum exploitation of domestic recruitment sources for the oil and gas industry, the available domestic supply of skilled workers is unlikely to be adequate to meet demand by 2014.
- According to the government’s National Resources Sector Employment Taskforce, there will be a shortage of about 36,000 skilled tradespeople in the resources sector by 2015.¹⁵

WHERE WILL THE NEW WORKERS COME FROM?

Ultimately new workers will need to come from a variety of sources. Those persons unemployed in other sectors can be retrained for jobs in emerging and high-demand industries. New graduates of schools, universities, and vocational institutions will generate a new generation of workers.

According to The Australian Petroleum Production & Exploration Association (APPEA), government and industry partnerships will generate an estimated 130,000 training positions to help ensure the long-term growth of the oil and gas sector. The industry itself remains committed to investing heavily in cadetships, traineeships and graduate programs for Australians and to remaining actively engaged with schools and universities to promote careers in the industry and curricula to create needed skills.¹⁶

According to the World Economic Forum’s *Global Talent Risk Report, 2011*, Australia may be better-placed demographically than any other highly-developed country to sustain long-term skills demand and replenish its workforce with a continuing supply of younger workers.¹⁷

But many of these approaches take time – it takes several years for highly skilled professionals to acquire relevant credentials, and even vocational and lower-skilled workers need time to acquire skills and become productive on the job.

The World Economic Forum recommends that countries address their long-term skills shortages in a segmented and strategic way. Policies need to be coordinated with good analysis and specific projections of skills supply and demand. Domestic skills investment must be maximized, but countries also need to attract highly skilled international migrants by designing appropriate migration policies.

The Australian Department of Education, Employment, and Workforce Relations projects that migration of skilled workers will remain a key element of the labor supply for the Australian resources and construction industries, and the Australian government is in the process of reforming several of its visa programs to make it easier for companies operating large resources projects -- like the gas and LNG projects discussed in this paper -- to attract the skilled workforce they need in a timely way to sustain their operations. These measures include the revision of quotas to better favour critical resource-industry jobs, investment in speeding up visa processing times, and the creation of new Enterprise Migration Agreements that will streamline and speed up the flow of overseas workers where there is a documented need and a documented domestic or regional shortage.

Australia is extremely well-positioned to benefit from the global migration of talent – according to a 2011 ManpowerGroup survey on *Migration for Work*, Australia was the third most desirable destination for migrants in 2010, up from fifth place in 2008.¹⁸

¹⁴ <http://www.ingworldnews.com/australia-Ing-projects-face-costly-future-fitch-says/>

¹⁵ Skills Australia 2011 interim report on resources sector skill needs;

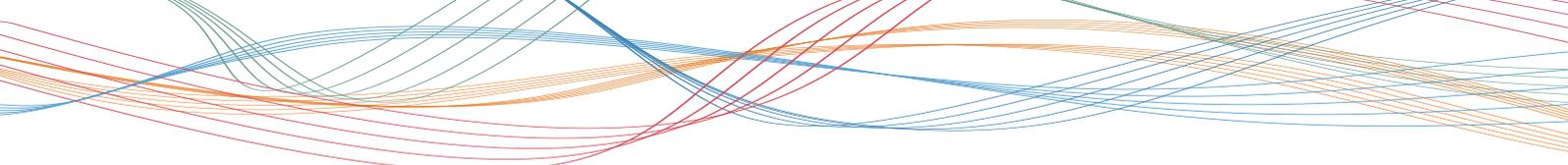
http://www.skillsaustralia.gov.au/PDFs_RTf/InterimReport.pdf

¹⁶ <http://www.ingworldnews.com/appea-skilled-migration-changes-to-underpin-oil-and-gas-expansion-australia/>

¹⁷ World Economic Forum 2011, *Global Talent Risk – Seven Responses*

¹⁸ ManpowerGroup, *Migration For Work Survey, 2011*





The “Teachable Fit” Concept

ManpowerGroup has developed a broad approach to re-conceptualizing the search for talent, using a concept called “Teachable Fit.”¹⁹ The premise of Teachable Fit is that sourcing efforts designed to acquire optimal talent in real time and at the right place may be increasingly misaligned with the ways that both business operations and labour markets are changing. Talent is elusive: business operations are evolving too rapidly in response to emerging economic opportunities for normal processes of labour market signaling and adjustment to work as efficiently as they have in the past. As a result, businesses face ongoing skills shortages in key areas even at times of high unemployment.

The solution is to cast a wider net for potential talent across many dimensions of geography – not just physical geography but industry geography and social and professional geography as well. Businesses must consciously develop stronger systems for global recruitment, but also for recruitment of individuals who are industry migrants, career changers, new workforce entrants, and existing employees seeking a new role. In order to make this approach successful, employers need to reconsider both their mindsets and their support systems for nontraditional candidates. They need to carefully consider core skill requirements and the training “distance” between those skills and adjacent skill sets, and they need to commit to re-skilling and up-skilling candidates who are a “teachable fit” rather than an exact match for their requirements.

¹⁹ ManpowerGroup, *Teachable Fit – A New Approach for Easing the Talent Mismatch*

About ManpowerGroup

ManpowerGroup, the world leader in innovative workforce solutions, has been helping clients and candidates win in Australia and New Zealand since 1965. With over 60 branches across the region, ManpowerGroup provides unique value to clients and candidates through recruitment and assessment, training and development, and career management, to outsourcing and workforce consulting. ManpowerGroup maintains the world's largest and industry-leading network of nearly 3,900 offices in over 80 countries and territories, generating a dynamic mix of an unmatched global footprint with valuable insight and local expertise to meet the needs of its 400,000 clients per year, across all industry sectors, small and medium-sized enterprises, local, multinational and global companies. The ManpowerGroup suite of solutions is offered through ManpowerGroup Solutions, Experis, Manpower Professional NZ, Manpower, and Right Management.

This is the Human Age, where access to talent has replaced access to capital as the key competitive differentiator. ManpowerGroup creates powerful connections between organisations and the talent they need to enhance their competitiveness and unleash their workforce potential. By creating these powerful connections, we help everybody achieve more than they imagined, and power the world of work.

Find out more at:

Australian Websites

www.manpowergroup.com.au

www.manpower.com.au

www.experis.com.au

New Zealand Websites

www.manpowergroup.co.nz

www.manpower.co.nz

www.manpowerprofessional.co.nz

