

Mining

...covers coal mining, oil and gas extraction, metal ore mining, non-metallic mineral mining and quarrying, exploration, and mining support services such as mining draining and pumping services and well-casting.

This suite of Industry Snapshots complements *Future Focus*, the 2013 National Workforce Development Strategy. These snapshots provide additional information and analysis on each industry to assist stakeholders in planning for the future of their industry or sector. It should be noted that the longer term data contained in this publication is based on AWP's four scenarios for Australia to 2025 and is not intended to be compared to other data sources or projections.

Key points

- ▶ The mining industry employs approximately 263,500 people, which accounts for around two per cent of the total Australian workforce.
- ▶ Sustainable mining practices and improved environmental management policies have been adopted by some parts of the industry, but the increasing scale of production presents challenges for some mining sub-sectors in terms of skill shortages.
- ▶ The majority of the industry workforce (70 per cent) is employed in large enterprises (i.e. those that employ 200 workers or more), with only 15 per cent employed in small enterprises (i.e. those that employ less than 20 workers).
- ▶ Mining recorded the strongest employment growth of any industry over the past five years, at 79 per cent.
- ▶ 61 per cent of employment in the mining industry takes place in regional and remote areas, compared to 37 per cent for all industries.¹
- ▶ Most of the people employed within the mining industry are male (84 per cent), and 97 per cent of all workers are employed full time.
- ▶ Around 34 per cent of the mining workforce is aged 45 years or older, which is slightly below the all-industry average of 38 per cent.
- ▶ More than one third (34 per cent) of workers in the mining industry have attained a Certificate III/IV level qualification or equivalent—higher than the all-industry average of 20 per cent.
- ▶ A detailed employment profile for the mining industry (including information on its workforce, industry and occupational characteristics) can be found at www.skillsinfo.gov.au.

Industry outlook

Mining is primarily an export-oriented industry, with around one half of total mining output exported overseas each year. In the case of commodities such as iron ore, aluminium and

¹ Regional and remote areas are defined as those outside state capital cities.

uranium, almost all output is exported to international markets.² In 2011–12, mining contributed \$142.2b, or 10.3 per cent, in terms of total industry value added.³

Short-term growth

Despite high employment growth over the past five years, mining is still a relatively small employing industry, accounting for just over 2 per cent of total employment. Metal Ore Mining is the highest employing sub-sector, with 73,400 workers, followed by exploration and Other Mining Support Services, with 66,700. Oil and Gas Extraction is the fastest growing mining sub-sector, having nearly doubled to a workforce of 21,100 over the past five years.

Table 1 Current and past employment in mining

Industry	Current employment		Past growth: five years	
	'000	% of total	'000	%
Mining	263.5	2.3	116.5	79.3
Coal Mining	46.1	0.4	19.3	71.9
Oil and Gas Extraction	21.1	0.2	10.9	105.9
Metal Ore Mining	73.4	0.7	25.4	53.0
Non-Metallic Mineral Mining and Quarrying	14.4	0.1	3.7	35.2
Exploration and Other Mining Support Services	66.7	0.6	32.7	96.0
All industries	11,588.7	100.0	798.1	7.4

Note: Data for industry subsectors may not sum to the industry total because data for each subsector have been separately seasonally adjusted and trended and at the higher levels include 'not further defined' categories. Source: ABS (2013) *Labour Force Australia*, February, cat. no. 6291.0.55.003 (DEEWR trend).

Long-term growth

Australia needs to position itself in a world where work is changing rapidly. Technological innovation, globalisation, the Asian century and new patterns of work are impacting on the demand for skills and the speed of change is making it hard to predict and plan for the future.

To deal with this uncertainty, the Australia Workforce and Productivity Agency (AWPA) has adopted a scenario planning approach to help us overcome these limitations in making projections about the future. Scenarios are alternative visions of potential futures, and provide a means to make decisions that take account of uncertainty.

² Topp, V. Soames, L., Parham, D. and Bloch, H. (2008) *Productivity in the Mining Industry: Measurement and Interpretation*, Melbourne: Productivity Commission.

³ 'Industry value added' is the measure of the contribution by industry to gross domestic product (GDP) at basic prices. ABS (2012) *Australian System of National Accounts*, cat. no. 5204.0, Table 11.

AWPA developed four possible, plausible scenarios for Australia to 2025.

- ▶ In the **Long Boom** scenario, the high demand for resources traded with China and other countries continues. Industries challenged by the high terms of trade undertake structural adjustment. This results in a scenario of sustained prosperity and a restructured economy.
- ▶ In **Smart Recovery**, the challenges facing Europe and the United States affect financial markets. This means low growth for Australia to 2014–15. Growth then improves and Australia benefits from industry and government strategies to implement a knowledge economy.
- ▶ In **Terms of Trade Shock**, resource prices fall mainly due to increased supply from other countries, the Australian dollar falls and we move to a broader-based economy.
- ▶ **Ring of Fire** is a risky world with multiple economic and environmental shocks resulting in ongoing lower growth.

Economic modelling against each of these four scenarios was undertaken by Deloitte Access Economics (DAE) to determine the skills demand for the economy into the future.⁴

Employment in the mining industry is forecast to grow in all four scenarios. For each world except Ring of Fire in 2025, average employment growth per annum is expected to be higher than the average for all industries between 2011 and 2025.

The sub-division Oil and Gas Extraction is predicted to have the strongest growth, followed by Coal Mining and Metal Ore Mining. Non-Metallic Mineral Mining and Quarrying is expected to have high growth over the next five years across all scenarios (between 6 and 10 per cent), but to show slower growth to 2025 (below 3 per cent). However, it should be noted that under a high productivity scenario such as Long Boom, mining output may actually grow at a higher rate than employment due to productivity improvements.

Table 2 Average annual industry employment growth in four scenarios, 2011–18 and 2011–25 (% per annum)

Industry	Long Boom		Smart Recovery		Terms of Trade Shock		Ring of Fire	
	2018	2025	2018	2025	2018	2025	2018	2025
Mining	4.9	3.5	4.4	2.9	3.9	2.2	1.8	0.1
Coal Mining	5.1	4.0	4.7	3.5	4.2	2.7	2.0	0.6
Oil and Gas Extraction	13.3	8.3	12.8	7.8	12.3	7.0	10.0	4.7
Metal Ore Mining	4.3	3.1	3.9	2.6	3.4	1.9	1.3	-0.2
Non-Metallic Mineral Mining and Quarrying	9.7	2.9	9.2	2.4	8.8	1.7	6.5	-0.4
Exploration and other Mining Support Services	0.8	1.3	0.3	0.8	-0.1	0.0	-2.2	-2.0
All industries	2.1	2.0	1.5	1.5	1.7	1.6	0.8	0.7

Source: Deloitte Access Economics (2012) *Economic modelling of skills demand and supply*, Scenario output—detailed employment results.

⁴ A description of the scenarios and the Deloitte Access Economics modeling of employment in each, with state and territory breakdowns, is available at the AWPA website www.awpa.gov.au.

Occupation outlook

Key occupations

The top ten mining occupations account for over half of employment in the industry as a whole, with nearly one in five workers (17.4 per cent) employed as Drillers, Miners and Shot Firers.

Table 3 Top ten mining occupations

Occupation	People employed	Industry employment
	'000	% of total
7122 Drillers, Miners and Shot Firers	46.3	17.4
3232 Metal Fitters and Machinists	26.8	10.1
7331 Truck Drivers	17.1	6.4
3129 Other Building and Engineering Technicians	13.6	5.1
3411 Electricians	8.8	3.3
7212 Earthmoving Plant Operators	7.6	2.8
1335 Production Managers	7.1	2.7
2336 Mining Engineers	6.5	2.5
3223 Structural Steel and Welding Trades Workers	6.5	2.4
7129 Other Stationary Plant Operators	5.2	2.0
Total mining	265.5	54.8

Source: ABS (2013) *Labour Force Australia*, detailed quarterly report, 2012 average of four quarters, cat. no. 6291.0.55.003.

Short-term growth

Table 4 shows current employment and past growth for the occupations that feature prominently within the industry. **Note that the figures refer to the expected number of people in these occupations across all industries, not just in the mining sector.**

Employment has grown strongly in a number of mining occupations over the past five years, with growth for all occupations except Structural Steel and Welding Trades Workers and Earthmoving Plant Operators exceeding the Australian average.

Table 4 Current and past employment in key occupations

Occupation	Current employment (all industries)		Past growth: five years	
	'000	% of total	'000	%
7122 Drillers, Miners and Shot Firers	66.7	0.6	32.1	92.7
3232 Metal Fitters and Machinists	115.6	1.0	13.3	13.0
7331 Truck Drivers	198.5	1.8	30.6	18.2
3129 Other Building and Engineering Technicians	24.4	0.2	5.4	28.2
3411 Electricians	130.2	1.2	17.3	15.3
7212 Earthmoving Plant Operators	56.5	0.5	0.4	0.8
1335 Production Managers	63.7	0.6	17.7	38.6
2336 Mining Engineers	13.2	0.1	5.5	71.9
3223 Structural Steel and Welding Trades Workers	79.1	0.7	-1.4	-1.8
7129 Other Stationary Plant Operators	18.9	0.2	3.0	18.7
All employed	11,588.7	100.0	798.1	7.4

Source: ABS (2013) *Labour Force Australia*, February, cat. no. 6291.0.55.003 (DEEWR trend).

Long-term growth and job openings

Table 5 indicates the long-term net job growth per annum expected in these occupation groups, according to Deloitte Access Economics' economic modelling of the scenarios.

Occupational growth is expected to be strong in the years to 2025 for Other Building and Engineering Technicians; Mining Engineers; and Drillers, Miners and Shot Firers across all four scenarios. Production Managers also show growth that is consistently at or above the average for all occupations to 2025. Conversely, employment of Truck Drivers and Earthmoving Plant Operators is expected to decrease in the Ring of Fire world.

Occupational growth of Structural Steel and Welding Trades Workers is expected to be modest to 2018 in all future worlds, but to decline under the Smart Recovery, Terms of Trade Shock and Ring of Fire scenarios to 2025. This reflects the shift of some mining sectors to a post-construction phase after 2018 (Terms of Trade Shock), cyclical instability under the Smart Recovery scenario and volatility in the resources and construction sectors under Ring of Fire.

Table 5 Average annual occupation growth in four scenarios, 2011–18 and 2011–25 (%pa)

Industry	Long Boom		Smart Recovery		Terms of Trade Shock		Ring of Fire	
	2018	2025	2018	2025	2018	2025	2018	2025
7122 Drillers, Miners and Shot Firers	5.1	4.4	4.5	3.8	4.0	3.2	2.3	1.6
3232 Metal Fitters and Machinists	1.3	1.0	1.0	0.7	0.7	0.5	0.5	0.1
7331 Truck Drivers	1.2	0.9	0.6	0.5	0.5	0.3	-0.2	-0.4
3129 Other Building and Engineering Technicians	6.4	5.1	5.8	4.6	5.5	4.3	4.7	3.6
3411 Electricians	2.8	2.1	1.7	1.6	1.0	1.0	0.6	0.6
7212 Earthmoving Plant Operators	2.4	1.7	1.1	1.0	0.3	0.3	-0.3	-0.4
1335 Production Managers	2.8	2.0	2.7	1.7	2.7	1.7	2.8	1.8
2336 Mining Engineers	4.8	4.6	3.9	4.0	3.8	3.8	2.0	2.3
3223 Structural Steel and Welding Trades Workers	0.7	0.2	0.4	-0.1	0.1	-0.3	0.3	-0.1
7129 Other Stationary Plant Operators	1.7	1.3	1.2	0.9	1.0	0.6	0.5	0.1
All occupations	2.1	2.0	1.5	1.5	1.7	1.6	0.8	0.7

Source: Deloitte Access Economics (2012) *Economic modelling of skills demand and supply*, Scenario output—detailed employment results.

As noted, the data in Table 5 concerns employment growth in an industry. The number of total **job openings** which includes both employment growth and **the replacement resulting from individuals leaving the occupation net of those re-entering** can also be estimated. This replacement requirement is particularly significant in industries where there are high numbers of people retiring or leaving the occupation.

Table 6 shows the average annual job openings projected in key mining occupations to 2025. Under Long Boom, the highest proportion of job openings is forecast among Mining Engineers; Other Building and Engineering Technicians; and Drillers, Miners and Shot Firers.

Table 6 Average annual job openings per annum, 2011 to 2025, in four scenarios

Occupation	Long Boom		Smart Recovery		Terms of Trade Shock		Ring of Fire	
	('000)	%	('000)	%	('000)	%	('000)	%
7122 Drillers, Miners and Shot Firers	4.0	5.3	3.5	4.7	3.0	4.1	2.0	2.5
3232 Metal Fitters and Machinists	4.1	3.1	3.6	2.8	3.4	2.6	3.1	2.2
7331 Truck Drivers	4.9	2.7	4.2	2.3	3.7	2.0	3.3	1.4
3129 Other Building and Engineering Technicians	1.9	5.8	1.7	5.3	1.6	5.0	1.3	4.3
3411 Electricians	5.9	3.4	5.0	2.9	3.9	2.3	3.4	1.8
7212 Earthmoving Plant Operators	2.0	3.3	1.6	2.7	1.1	2.0	1.0	1.3
1335 Production Managers	2.3	3.9	2.1	3.6	2.1	3.6	2.1	3.6
2336 Mining Engineers	0.8	6.0	0.7	5.4	0.7	5.2	0.4	3.7
3223 Structural Steel and Welding Trades Workers	1.7	1.9	1.6	1.6	1.6	1.5	1.6	1.6
7129 Other Stationary Plant Operators	0.6	2.9	0.5	2.5	0.5	2.3	0.4	1.7
All occupations	576.4	4.4	500.9	3.9	513.3	4.0	391.4	3.1

Source: Deloitte Access Economics (2012) *Economic modelling of skills demand and supply*, Scenario output—detailed employment results. Net replacement demand by AWPA (2013).

As Table 7 shows, nearly as many, or in some cases, more job openings are created by replacement as by new growth.

For example, despite the lack of annual growth to 2025 for Structural Steel and Welding Trades Workers under some scenarios (as shown in Table 5), we can still expect there to be modest job openings in this occupation due to replacement demand. Across all four scenarios, more than five times' as many job openings for Structural Steel and Welding Trades Workers will be created by replacement requirements than by new jobs.

Similarly, more than two-thirds of job openings for Truck Drivers (67.5 per cent) are driven by replacement requirements than by annual growth. This is attributable to workforce demographics such as the age profile of the current workforce, and workforce dynamics such as the rate of job turnover.

By contrast, the majority of job openings among Other Building and Engineering Tradespersons; Drillers, Miners and Shot Firers; and Mining Engineers will be driven by annual growth (that is, new jobs) rather than replacement demand.

Table 7 Total job openings (growth and net replacement) in four scenarios, 2011 to 2025

7.1 Long Boom

Occupation	Total growth (persons)		Net replacement estimates (persons)		Total job openings (persons)	
	('000)	%	('000)	%	('000)	%
7122 Drillers, Miners and Shot Firers	50.2	83.6	9.8	16.4	60.0	100.0
3232 Metal Fitters and Machinists	22.0	36.2	38.8	63.8	60.8	100.0
7331 Truck Drivers	24.1	32.5	50.0	67.5	74.0	100.0
3129 Other Building and Engineering Technicians	25.3	88.1	3.4	11.9	28.7	100.0
3411 Electricians	55.4	62.9	32.7	37.1	88.1	100.0
7212 Earthmoving Plant Operators	13.9	47.2	15.5	52.8	29.4	100.0
1335 Production Managers	16.7	49.1	17.3	50.9	34.0	100.0
2336 Mining Engineers	9.3	75.5	3.0	24.5	12.3	100.0
3223 Structural Steel and Welding Trades Workers	4.2	16.6	21.1	83.4	25.2	100.0
7129 Other Stationary Plant Operators	4.0	42.9	5.3	57.1	9.3	100.0
All occupations	3,889.7	45.0	4,755.6	55.0	8,645.3	100.0

7.2 Smart Recovery

Occupation	Total growth (persons)		Net replacement estimates (persons)		Total job openings (persons)	
	('000)	%	('000)	%	('000)	%
7122 Drillers, Miners and Shot Firers	43.6	82.3	9.4	17.7	53.0	100.0
3232 Metal Fitters and Machinists	16.6	30.5	37.8	69.5	54.4	100.0
7331 Truck Drivers	15.2	24.0	48.2	76.0	63.3	100.0
3129 Other Building and Engineering Technicians	22.6	87.3	3.3	12.7	25.9	100.0
3411 Electricians	44.2	59.0	30.6	41.0	74.8	100.0
7212 Earthmoving Plant Operators	9.5	39.9	14.4	60.1	23.9	100.0
1335 Production Managers	13.8	44.7	17.1	55.3	30.9	100.0
2336 Mining Engineers	7.7	73.0	2.8	27.0	10.5	100.0
3223 Structural Steel and Welding Trades Workers	3.8	15.6	20.6	84.4	24.4	100.0
7129 Other Stationary Plant Operators	3.0	37.4	5.1	62.6	8.1	100.0
All occupations	2,953.2	39.3	4,559.6	60.7	7,512.9	100.0

7.3 Terms of Trade Shock

Occupation	Total growth (persons)		Net replacement estimates (persons)		Total job openings (persons)	
	('000)	%	('000)	%	('000)	%
7122 Drillers, Miners and Shot Firers	36.7	80.2	9.0	19.8	45.7	100.0
3232 Metal Fitters and Machinists	13.4	26.4	37.3	73.6	50.7	100.0
7331 Truck Drivers	7.2	13.2	47.6	86.8	54.8	100.0
3129 Other Building and Engineering Technicians	21.0	86.7	3.2	13.3	24.3	100.0
3411 Electricians	29.1	49.6	29.5	50.4	58.6	100.0
7212 Earthmoving Plant Operators	3.3	19.5	13.7	80.5	17.0	100.0
1335 Production Managers	13.9	44.9	17.1	55.1	31.0	100.0
2336 Mining Engineers	7.2	72.0	2.8	28.0	10.0	100.0
3223 Structural Steel and Welding Trades Workers	3.2	13.8	20.3	86.2	23.5	100.0
7129 Other Stationary Plant Operators	2.1	29.7	5.0	70.3	7.2	100.0
All occupations	3,080.4	40.0	4,619.3	60.0	7,699.6	100.0

7.4 Ring of Fire

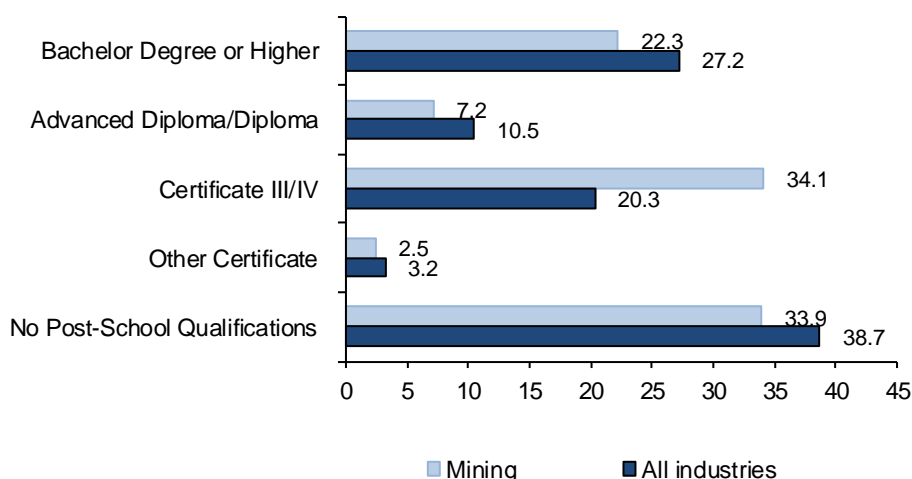
Occupation	Total growth (persons)		Net replacement estimates (persons)		Total job openings (persons)	
	('000)	%	('000)	%	('000)	%
7122 Drillers, Miners and Shot Firers	21.6	73.0	8.0	27.0	29.6	100.0
3232 Metal Fitters and Machinists	9.9	21.4	36.4	78.6	46.4	100.0
7331 Truck Drivers	3.2	6.6	45.5	93.4	48.8	100.0
3129 Other Building and Engineering Technicians	17.2	84.9	3.1	15.1	20.2	100.0
3411 Electricians	22.5	44.0	28.6	56.0	51.0	100.0
7212 Earthmoving Plant Operators	1.8	11.9	13.1	88.1	14.8	100.0
1335 Production Managers	14.4	45.6	17.2	54.4	31.6	100.0
2336 Mining Engineers	4.2	62.6	2.5	37.4	6.7	100.0
3223 Structural Steel and Welding Trades Workers	3.6	15.0	20.5	85.0	24.2	100.0
7129 Other Stationary Plant Operators	1.5	24.1	4.8	75.9	6.4	100.0
All occupations	1,532.9	26.1	4,338.5	73.9	5,871.4	100.0

Source: Deloitte Access Economics (2012) *Economic modelling of skills demand and supply*, Scenario output—detailed employment results. Net replacement demand by AWPA (2013).

Education and training profile

More than one third of mining workers (34.1 per cent) have attained a Certificate III/IV level qualification or equivalent, which is significantly higher than the all-industry average of 20.3 per cent. This reflects the fact that vocational education and training is a vital source of skills for the mining sector.

Figure 1 Education profile of the mining workforce (%)



Note: Excludes 'Level of education not stated' from total.

Source: DEEWR (2012) *Australian Jobs 2012* (ABS 2011 Census data).

Figure 2 illustrates how demand for qualifications is expected to change over time. It shows the current education profile for each respective occupation: across all industries and within the mining industry. It also shows projected levels of educational attainment to 2025 by each occupation group depending on which of the four scenarios eventuates.

As Figure 2 indicates, the proportion of managers with a Bachelor degree or higher is expected to increase by at least 10 percentage points under the three higher growth scenarios to 2025. The proportion of managers with other qualifications (Certificates I-IV, Diplomas and Advanced Diplomas) is expected to remain relatively stable to 2025 in all four future worlds, while the proportion of those without post-school qualification is forecast to decrease significantly under all scenarios except Ring of Fire.

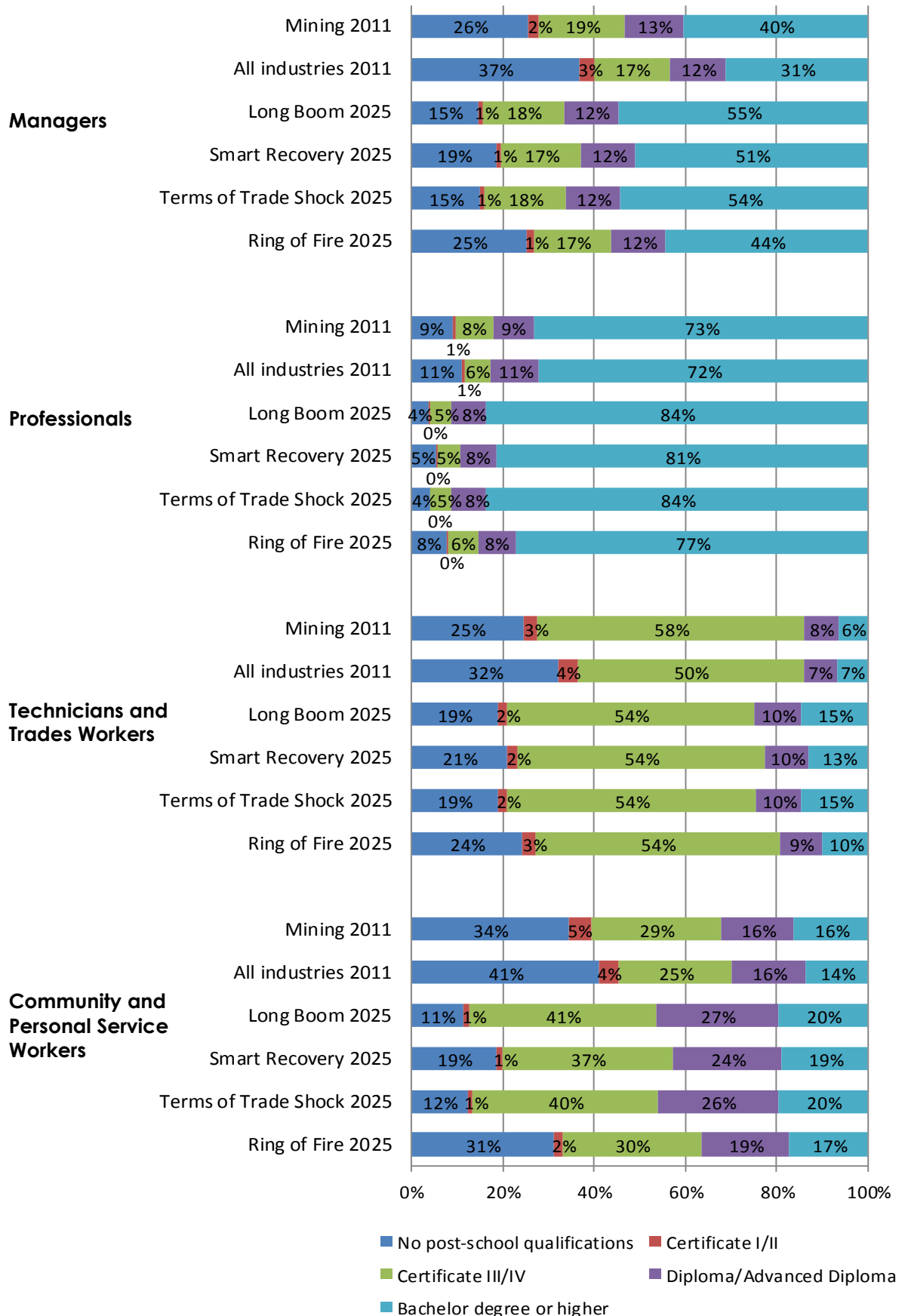
Professionals in the mining industry are expected to continue to progressively upskill in the years to 2025, with the proportion holding a Bachelor degree or higher expected to increase from 73 per cent to 84 per cent under the Long Boom and Terms of Trade Shock, and 81 per cent under Smart Recovery.

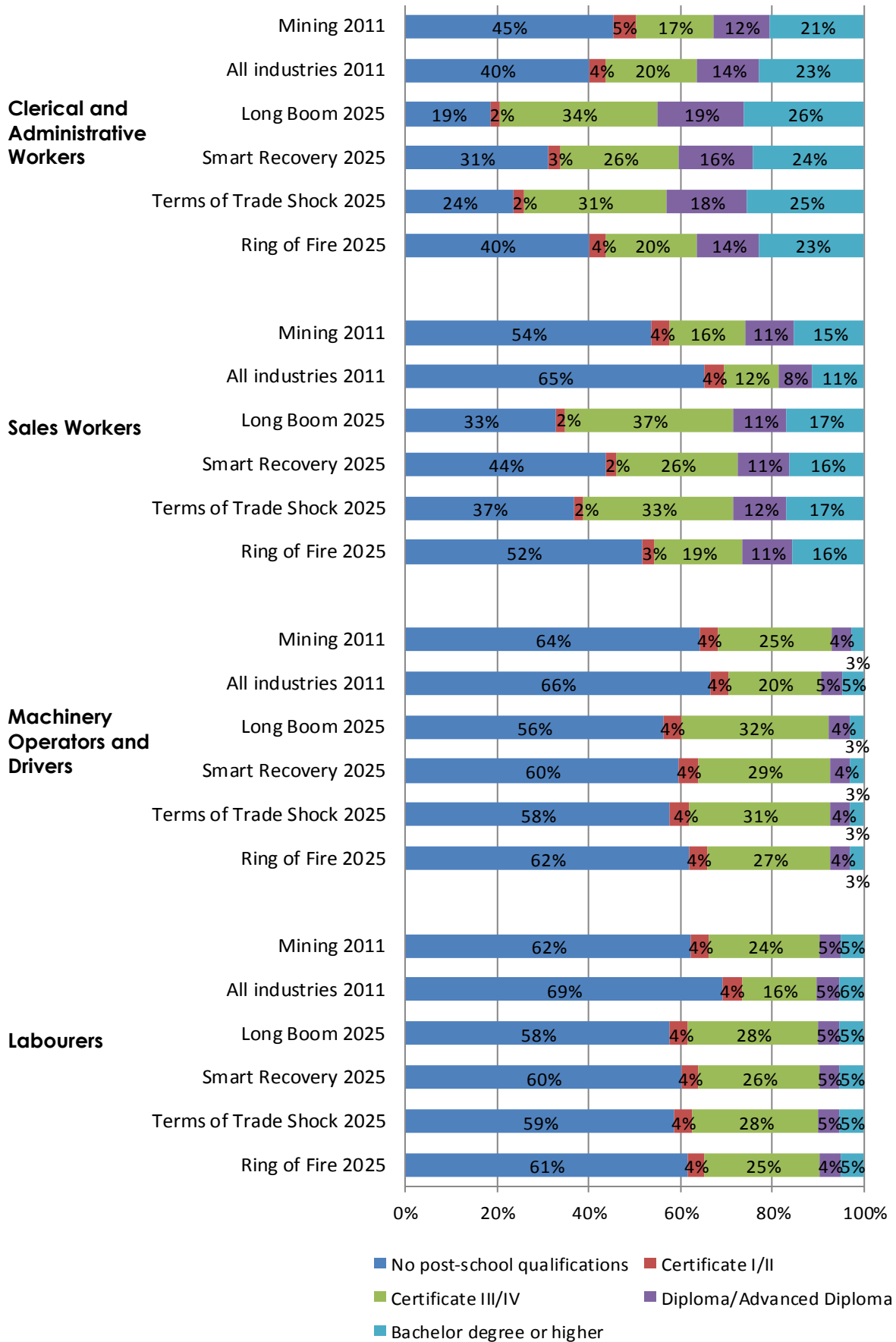
The proportion of technicians and trades workers with no post school qualifications is forecast to decrease moderately under the higher growth scenarios, with a concomitant rise in the proportion of highly-skilled, degree-holding technicians and trades workers to 2025. This may also reflect the movement of qualified workers from other sectors into mining, corresponding with sustained growth in the industry under some scenarios.

A decrease in the proportion of clerical and administrative workers without post-school qualifications is expected in the years to 2025 under the three higher growth scenarios, with modest increases in qualification holding also expected for machinery operators and drivers and labourers.

It should be noted that the number of sales workers in the mining industry is very small, accounting for less than one thousand workers. Projections for qualification holding within this occupation/industry breakdown should therefore be treated with caution.

Figure 2 Educational attainment in the mining industry by occupation, 2011 and projections to 2025 (%)





Source: ABS (2012) *Survey of Education and Work 2012*, cat. no. 6227.0; and DAE (2012) Unpublished data.

Specialised occupations

In *Future Focus*, the 2013 National Workforce Development Strategy, AWPA has proposed that national planning for skills and industry workforce development should focus on **specialised occupations**. Specialised occupations are defined as those 'where specialised skills, learned in formal education and training, are needed at entry level and where the impact of market failure is potentially significant for the economy and/or the community.'

Specialised occupations demonstrate these characteristics:

- ▶ long lead time—skills are highly specialised and require extended learning and preparation time over several years;
- ▶ high use—skills are deployed for the uses intended (i.e. good occupational 'fit');
- ▶ high risk—the disruption caused by the skills being in short supply is great, resulting either in bottlenecks in supply chains or imposing significant economic or community costs because an organisation cannot operate; and
- ▶ high information—the quality of information about the occupation is adequate to the task of assessing future demand and evaluating the first three criteria.

Monitoring skills supply, especially for specialised occupations, will remain a critical element in meeting our workforce needs.

Specialised occupations associated with the mining industry include:

Construction Managers
Engineering Managers
Production Managers
Chemical and Materials Engineers
Electrical Engineers
Electronics Engineers
Industrial, Mechanical and Production Engineers
Mining Engineers
Other Engineering Professionals
Occupational and Environmental Health Professionals
Electrical Engineering Draftspersons and Technicians
Structural Steel and Welding Trades Workers
Metal Fitters and Machinists
Plumbers
Electricians
Airconditioning and Refrigeration Mechanics
Electrical Distribution Trades Workers
Electronics Trades Workers
Fire and Emergency Workers

More detailed information about specialised occupations is available in *Future Focus, 2013 National Workforce Development Strategy* at <http://www.awpa.gov.au>.

Example workforce development initiatives

Investment in workforce development has been shown to maximise people's capabilities, lift productivity and increase workforce participation. Employee satisfaction levels and engagement also increase when enterprises make better use of their employees' skills.⁵ Current workforce development initiatives in mining include the following examples:

- ▶ The **MINE (Mining Industry Network of Excellence) Project** is being conducted by the Industry Skills Council Skills Drilling Mining and Civil Infrastructure (SkillsDMC). SkillsDMC plans to conduct a skills audit of industry trainers and assessors and develop an industry code of practice for training providers. The aim is to boost the reputation of trainers in the industry and ensure that they are upskilled to reflect this. Further information can be found at www.skillsdmc.com.au.
- ▶ The **Regional Agriculture and Mining Integrated Training** is a joint initiative between SkillsDMC, Agrifood Skills Australia, Minerals Council of Australia, National Farmers' Federation, and the Australian Government Department of Education, Employment and Workplace Relations. The project will develop and deliver a cross-industry training program suitable for entry level skilling in the agriculture, mining and related regional industries. The project will aim to achieve employment and natural resource sustainability by creating skills and jobs that are relevant to regional Australia, and will contribute to enhanced management of natural resources in regional Australia. Further information can be found at www.skillsdmc.com.au.
- ▶ The **One Stop VET Webportal** has been developed by SkillsDMC. It involved the launch of a web portal that supports stakeholders to develop strategies that address current and future training needs and promote the uptake of apprenticeships. Further information can be found at www.skillsdmc.com.au.

⁵ Skills Australia (2012) *Better use of skills, better outcomes: A research report on skills utilisation in Australia*.