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Mining employment set to boom again

An imminent return to boom-time employment levels in the Australian mining sector is likely to accelerate labour cost inflation that is already evident in the industry's most active hubs in Western Australia and Queensland.

A landmark review of near-term investment intentions by the Australian Mines & Metals Association has identified $41 billion worth of projects that are likely to be installed across our mining nation over the five years to 2024. As a result, AMMA anticipates that direct employment by the mining sector will grow by about 8 per cent – or more than 20,000 – between now and 2024.

The AMMA study quoted an unnamed gold mining executive as saying: "We are headed for the biggest skills shortage seen since 2012-13. Skilled jobseekers in our industry will soon have even greater advantage in bargaining and determining their employment terms and conditions."

Provided the employment picture plays out as predicted in AMMA's 2019-2024 Mining Workforce study, total employment by the sector will top 260,000. That is a level not seen since the end of the original investment boom triggered by China's compounding embrace of seaborne raw materials markets from 2005.

When that once-in-a-century expansion in mining sector capacity began, local miners directly employed about 113,000 people. By the time the boom exhausted itself in 2012, 274,000 Australians were employed by miners. As AMMA noted, through that hectic seven-year stretch, workforce demand in the mining business grew by 20 per cent annually.

The resulting cost inflation – particularly in the heavy equipment, engineering and contract construction sectors – left permanent scars on the bottom lines of the expansion projects that subsequently undermined rates of investment returns and sectoral productivity.

On the back of what is an important study that we would hope AMMA builds into a series, the industry lobby has identified the need for employers, peak bodies and governments state and federal to "learn the lessons from the past and be better at industry workforce planning".

"Australia's mining industry is facing new workforce demand at levels not seen since the previous investment and construction 'boom'," AMMA says in a report to be published today.

"Securing the pipeline of skills to support mining project growth is a significant challenge that must be met head-on, collaboratively, by industry and government."

That this recovery to 2012 employment peaks is likely to coincide with tectonic shifts in the way miners work and the skills set they will need to secure their jobs only reinforces the need for alignment between government, industry and educators on preparing the workforce "for the demands of the next phase of industry growth".

The nature of mining work and the broader demographics of the whole industry are going to change more profoundly over the coming decade than at any time since the breakthroughs in processing technologies that arrived in the early decades of the last century.

Again, the forces of change will be technological. Automation made possible by an ever-advancing concert of digital communications and data-processing technologies is going to relentlessly contain traditional contract mine workers and the coal face.

As AMMA identified in a report on the future of mine work published last December: "Far from being confined to driverless trucks and trains, process automation can and is extending to all areas of the resources and energy supply chain. Theoretically, any process involving predictable, repeated tasks can be automated, ranging from large machinery such as excavators and draglines, through to smaller technical componentry like collision avoidance, auto-positioning, aerial drones and proximity sensors."

That report, called *A New Horizon: Guiding principles for the future of work*, noted that 75 per cent of employers expect "full or partial process automation to impact their organisations within the next 10 years".

A cornerstone to this upcoming revolution is the advance of technologies that allow full, continuous real-time monitoring of men and machinery, AMMA reported.

"Competitive advantage will likely not be derived from systems, technology and data alone, but the capacity of an employer to act on such information and optimise production," AMMA predicted.

"The immediate availability of crucial information about the performance of equipment and people is revolutionising the productivity of assets and the efficiency of people who service and maintain them. Combined with automation, innovations like continuous monitoring systems and real-time sensory data are supporting the ultimate goal for resources productivity – continuous extraction technologies."

The most obvious theatre of mining's workplace reformation are the remote operations centres that were pioneered at Rio Tinto's Western Australian iron ore business back in 2008. A decade and a billions of dollars on, Rio now runs trains, trucks and drills across its Pilbara operations from an operations centre some 1500

kilometres away in Perth.

Rio's distant operating capacity and the automation it enables has now been matched by BHP and Fortescue Metals Group, with the result that there are progressively fewer and fewer people employed in the relentless routines of mining and more and more employed in overseeing operations from afar and distilling meaning from the massive amounts of data generated in making those robots work productivity and safely.

"Over the next decade it is estimated that technology will create around $320 billion in value-add to the global mining sector, of which Australia is a dominant player and would benefit enormously," AMMA said, quoting a 2017 paper by the World Economic Forum called Digital Transformation Initiative, Mining and Metals Industry.

"Add to that the value creation throughout the resources and energy industry and its enormously diverse related service and supply chains, and the logical conclusion is that the employment and economic opportunities on offer from the technology revolution will far outweigh any adverse short-term impacts on individual job areas."

What AMMA is talking about there is a steady repopulation of the mining industry by an increasingly diversified community of workers with some new and very specific skill sets.

The urbanisation of resources operations (the trend to operating from distances is aboard in the oil and gas sectors as well) and the evolving skills needed to operate very large bits of kit by remote control have already seen the industry attract a younger cohort of workers and added momentum to the quest of some level of gender balance.

"Both the CSIRO2 and the World Economic Forum have found the biggest impact of high technology in the resources and energy industry is the advent of the 'digitally enabled workforce'," AMMA's report of future workers said. "This describes an increasingly mobile, technology-enabled workforce comprising of remote, data-guided field workers utilising more productive information than ever before, connected to and interacting in real time with centralised managers and data analysts," that December report noted.

Just finally, AMMA's review of employment trends reminds us all that the mining industry needs no encouragement from the Treasurer or anyone else to invest and reinvest in Australian growth projects.

AMMA's forecasts are based on an assessment of the employment needs of 57 projects modelled that are assessed as likely to proceed at a point before 2022 by state and commonwealth authorities.

After calling out that, of course, some of those plans might not be fulfilled, AMMA said: "However, Australia does have a further 153 projects in feasibility stage considered 'possible' to proceed, many of which are advanced in planning and awaiting final investment decision. These projects ... are not included in new workforce demand forecasts."

Just to give you an idea of the quality of projects that did not make the AMMA grade this time around, we note that both the next cabs off Whitehaven Coal's project rank are missing from the numbers. As recently as last week's investor day, Whitehaven expressed hopes for 2022 first coal for its circa $700 million Vickery coal project in NSW's Gunnedah Basin and a late 2024 start-up for the maybe $800 million Winchester South project in Queensland's Bowen Basin.

Interestingly, AMMA admitted to being "very conservative" in assembling its project list for fear of over-cooking the employment outlook.

This approach reflects the obvious potential that newer mines will sit at the higher end of the industry productivity curve, and that past employment patterns might not accurately forecast future ones because of the roll-out of automation and digital technologies, and because a lot of jobs will be recycled as older mines leave the system.

Rio Tinto's pioneering autonomous train has been matched by BHP and Fortescue.