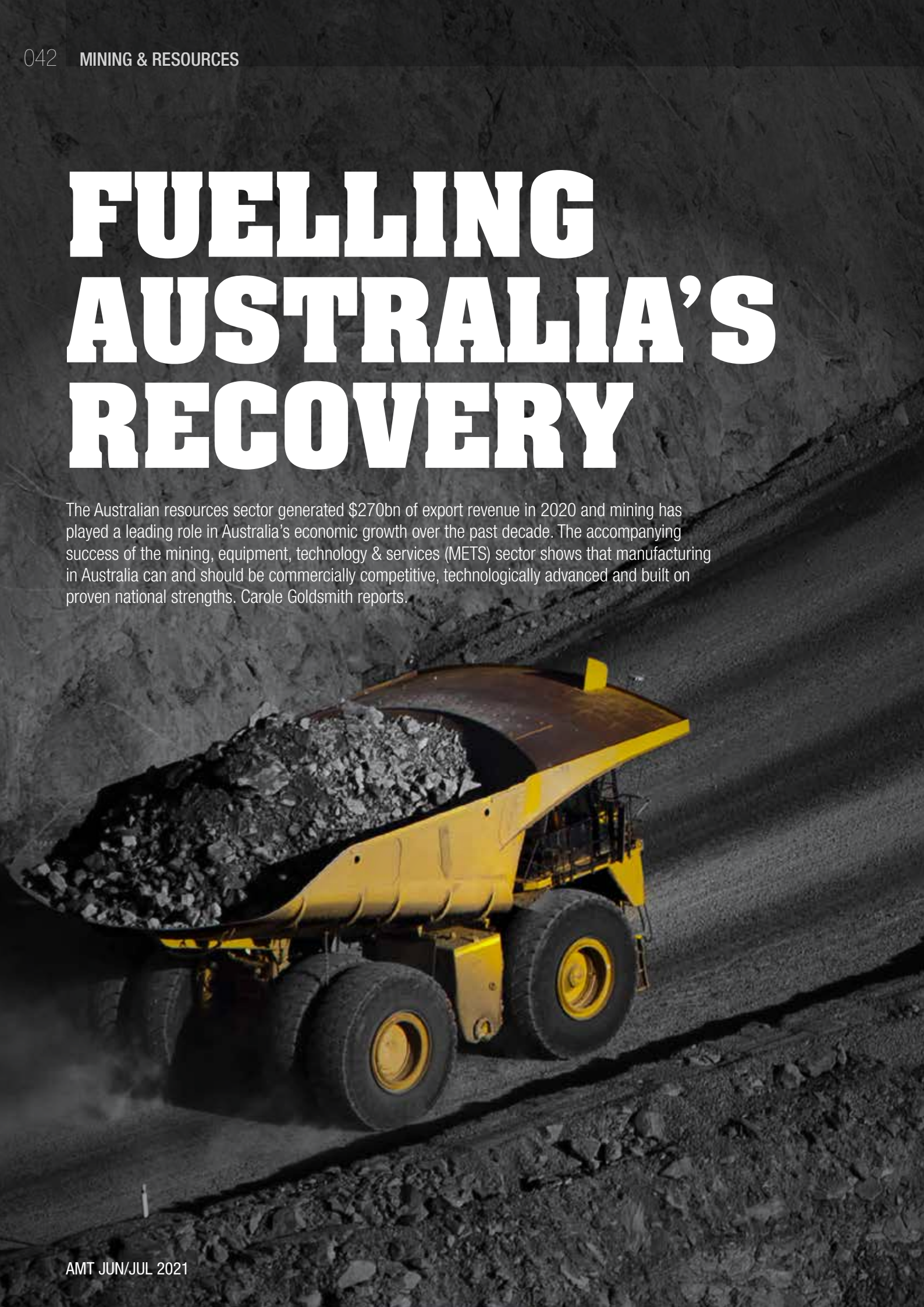
FUELLING AUSTRALIA'S RECOVERY

The Australian resources sector generated $270bn of export revenue in 2020 and mining has played a leading role in Australia's economic growth over the past decade. The accompanying success of the mining, equipment, technology & services (METS) sector shows that manufacturing in Australia can and should be commercially competitive, technologically advanced and built on proven national strengths. Carole Goldsmith reports.



Mining has been a key contributor to Australia's economic growth over the past decade. In 2019-20, the mining industry (including oil & gas) accounted for 10.4% of Australia's GDP, according to figures provided by the Minerals Council of Australia (MCA), the leading advocate for Australia's world-class minerals industry, promoting and enhancing sustainability, profitability and competitiveness. The resources sector (including minerals, metals and energy commodities) generated $270bn of export revenue in 2020, and accounted for 62% of Australia's total export earnings, says MCA's CEO Tania Constable.

"Also, the broader mining and METs (mining, equipment, technology & services) sector accounted for 12% of Australia's GDP in 2019–20 when both direct and indirect contributions are included," Constable adds.

Resources industry workers received the highest wages in Australia in 2020, with average annual earnings of $143,022, which is 55 % above the national average, advises Constable: "In that year, the resources industry directly employed 242,963 people. When workers in the mining industry's supply chains are included (excluding oil & gas), mining supports 1.1m jobs across Australia."

Over the last decade, mining industry (excluding oil & gas) capital expenditure on new mines, equipment and infrastructure has totalled $256bn. This included $26.9bn invested in 2020, explains Constable.

Tania Constable, CEO of the Minerals Council of Australia.

The MCA's pre-budget submission 2021-22, submitted to the Federal Government on 29 January, outlines directives and recommendations for the mining and METS sector. These included:

- The METS sector's success shows that manufacturing in Australia can and should be commercially competitive, technologically advanced, and built on proven national strengths. The Government's road maps on manufacturing, low-emissions technology and 5G rollout should operate together to complement the growth and productivity agenda.
- The priority for the Government's Modern Manufacturing Strategy road map should be: safety; low emissions; digital capability; direct policies to encourage priority areas; and collaboration in downstream processing.

The MCA works closely with representatives of manufacturing and technology producers to enhance collaboration between the mining and METS sectors. The submission recommends that the Government could do more by:

- Supporting public-private research in low-emissions resources technology projects, such as the Carbon Transport and Storage Company project in Queensland.
- Using existing loan vehicles such as the Clean Energy Finance Corporation and the Northern Australia Infrastructure Fund and related policies to encourage downstream manufacturing (or processes that occur later in the production process).
- Developing a nationally co-ordinated approach to downstream processing by providing infrastructure and transport networks, technology precincts and reducing related costs.

AMT Magazine spoke to two family-owned METS companies that have been supplying innovative technology, products and services to the mining and resources sector for a combined total of more than eight decades.

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P&D L's workshop is equipped with an extensive line-up of CNC horizontal and vertical machining centres, boring and milling machines, lathes, coordinate measuring machines (CMMs), and fabrication equipment.

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P&D Lipski Engineering: Docking assemblies for mining ships

Mineral Resources Tasmania reports that the mineral extraction and processing sector is Tasmania's largest export industry and accounts for more than 50% of mercantile exports. The state exports ores and concentrates of iron, copper, lead, zinc, tin, high-grade silica and tungsten.

Launceston manufacturer P&D Lipski Engineering (P&D L) has been supplying the Tasmanian and Australia-wide mining sector for more than 34 years. On a site tour of the company, P&D L's quality assurance manager Martin Lipski points to around 30 steel quick release hock assemblies, lined up in the front of the business. Martin explains that these were manufactured at P&D L a few years ago and are now in for refurbishing.

"The assemblies are a docking and berthing mechanism for ships," he adds. "We make and refurbish them for one of our main clients, and the longest-serving one, Trelleborg Marine Systems Australia. Trelleborg supplies our assemblies to their mining clients like Rio Tinto and other Western Australian mining businesses. These are used to dock their ships, bound for export."

Phil Lipski, Martin's father, started Lip Engineering (as it was known then) in 1987, working from a workshop at the back of the family home in Launceston, equipped with one milling machine. Phil trained as a fitter and turner and mechanical engineer in Poland, before emigrating to Australia in 1982. His first big business break came soon after starting the company, winning contracting jobs for several Tasmanian mining companies.

"The main projects that Phil worked on then, was installing pneumatic and hydraulic pumps for air compressors that were running the underground air tools at the Aberfoyle Limited's Hellyer tin and zinc mine in north-west Tasmania," says Martin. "Phil employed up to five people at a time and they all mainly worked on-site at the mine's mill nearby, where the company's mining operations minerals were processed."

Martin adds that most mines use air tools such as drills and wrenches driven by compressed air. They are safer to use than electric tools underground, because mines often contain copious amounts of water for operation purposes.

The company has changed a lot since those early days; P&D Lipski Engineering now functions as a large machining and manufacturing site, exporting its products directly or indirectly through its clients to around 30 countries. It employs 11 people, with Phil and his wife Danuta still involved as company directors and owners. On a factory walkthrough with Martin and the company's General Manager Paul Morris, the site's ground floor is abuzz, with several

P&D L Engineering's manufacturing facility in Launceston, Tasmania.

of the machines in action. Among P&D L's 35 machines are a Toshiba CNC horizontal machining centre and several Okuma and Mazak CNC horizontal and vertical machining centres. There are also boring and milling machines and lathes, coordinate measuring machines (CMMs), and a range of fabrication equipment.

"We have the advantage of having such a wide range of advanced manufacturing equipment here for our client's work and for local businesses," says Paul. "Quite often our customers turn up and want a component built on the spot, and we have the machine capacity to do the job promptly. We don't charge much more than a plumber or electrician's hourly rate for doing these jobs."

Paul adds: "We are in the process of doing upgrades on some of the older machines. As we are at capacity with our building space, we may need to build a mezzanine level to expand our manufacturing area and capability."

Martin points to a batch of black quick-release hock assemblies on the first floor that have just been manufactured for Trelleborg: "We have produced some of these assemblies in vivid yellow too and even made some white ones bound for Trelleborg in Sweden."

At the moment P&D L is working on a new product range for Trelleborg's high-end clients in the shipping, gas and oil sectors.

"All product design, materials and quality assurance for these products must be registered with and approved by the world's oldest shipping registry, DNV GL," advises Martin.

DNV GL is the world's leading classification society and a recognised advisor for the maritime industry. It enhances safety, quality, energy efficiency and environmental performance of the global shipping industry across all vessel types and offshore structures.

Paul describes some other recent mining-related projects: "P&D L made steel knuckles for low loader outer pillars for a mining operation near Savage River, Tasmania. We machined ingot moulds

for Bell Bay, Tasmania's largest aluminium smelter, and we have also been making components for smaller Tasmanian subcontractors that supply the mining sector. Another project we are doing is for Haywards steel fabricator and construction company, across the road. This involves developing technology and components for their bridge building contracts.

"Expanding the factory to the mezzanine level, ordering an extra vertical machining centre, exploring new industry sectors, and engaging new employees with real on-the-job experience, are all on the agenda moving forward for P&D L Engineering."

Berg Engineering: Keeping mining companies' assets in check

Berg Engineering has been successfully growing its business with the mining sector and other industry sectors for almost 50 years. Since joining the family business in 2007 as CEO, Derek Berg and his team, together with his father Roger as chairman, have grown the $3m workshop they had in 1996 into a very successful global business. Berg Engineering manages around $90m in rotable assets and collects revenue in manufacturing and construction of more than $45m per annum.

"Rotable assets in our industry are those assets that can be charged out and shut down," explains Derek. "It includes fixed plant equipment, and within that, pumps, valves, gearboxes, autoclaves and other specialised equipment. Components of those assets can be removed from site when special work needs to be done on them – so they rotate out of the business."

Roger Berg, the company's founder, trained as a fitter and turner and started the business in 1972, working out of his parent's garage, making rivets and bolts. His wife and co-founder Pam was the delivery driver and handled all the accounting side of the business. Berg Engineering has certainly come a long way since then, after almost five decades of Australian manufacturing and engineering.

The business has manufacturing operations in both Brisbane and at its newer plant at Gladstone in Central Queensland, with 50 employees at each site. It also has offices in Indonesia, The Philippines and New Caledonia. Berg's mining sector client list includes BHP, Rio Tinto, PT Aman, Indonesia and Boron Nickel, New Caledonia, to name a few.

Speaking on the innovative asset management and registration work that Berg carries out for the mining sector, Derek explains: "At mining sites, there is generally some disconnect between capital expenditure and how the operations run its assets as well as handle its repairs and maintenance. How you measure the operational cost of the valve or pump, should include all the aspects of operating the valves and pumps, what it costs for the spare parts, the cost to install the item and to keep it running."

He adds that Berg Engineering is the only company in Australia, as far as he is aware, that performs both the asset management side and the client consultancy, that verifies that the innovative process

is dropping the asset cost. This practice helps increase the mining company's accountability. Derek's qualifications in law and accounting, followed by three years on London's Metal Exchange, has certainly equipped him to drive the valuable mining sector asset management part of the business.

Derek Berg, CEO of Berg Engineering.

"Another innovation we are offering is medium-to-large machine capability, as well as large-scale, high-end welding technology," he adds. "We have more than 40 welding technologists on-site. Other companies may have to outsource some of their welding, but we can do all of ours in-house. Berg has certification AS 3834 in welding technology and we have our own in-house NATA testing laboratory."

Berg manufactures a wide range of components for mining companies, including pumps, valves, pullies and draglines to drive shovels used to power coal and other minerals out of the ground.

Derek describes an interesting project the company is doing to assist one of its mining clients in its processes: "When a business owns a fleet of valves and gearboxes, anything associated with running that fleet, from holding the inventory, to purchasing it, to managing the down-time, is a head wind to that company making a profit – it's an overhead. Companies may be very good at making gold but they are not experts at making valves.

"Berg has a program called the Asset Optimisation Program where we take responsibility for every aspect of managing the fleet of valves and gearboxes. So, the company has a valve when they need it."

Last June, Berg Engineering achieved an extra boost for its Gladstone operations, receiving $161,000 in Queensland Government funding to employ five new staff and purchase a Titan SC 40/50 – 4HY double-column vertical boring and turning mill. Berg Engineering purchased the machine from Germany for around $2m, primarily to attract extra defence industry work, which it has achieved. It is also being used in its mining sector and in projects for other industries.

Berg Engineering continues to have a successful growth path with its Australian and global business operations.

"The next generation of leaders are coming through to run the company, so in the future, I will resign as CEO and become the chairman," Derek says proudly. "My existing management team will manage the business here in Australia and I will manage the overseas business." AMT

www.minerals.org.au www.pdl-engineering.com
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