



MINERALS COUNCIL OF AUSTRALIA

PRE-BUDGET SUBMISSION 2022-23

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10 decadal contributions by Australian mining

\$2.1 trillion

EXPORT REVENUE

Australian resources export revenue from 2011-12 to 2020-21.

ABS, *International Trade in Goods and Services*, Sept 2021, released 4 Nov 2021, table 3.

60%

▲ EXPORT REVENUE

Increase in resources export revenue from 2011-12 to 2020-21.

ABS, *International Trade in Goods and Services*, Sept 2021, released 4 Nov 2021, table 3.

21%

GDP GROWTH

Mining share of GDP growth from 2011-12 to 2020-21.

ABS, *Australian System of National Accounts*, 2020-21, released 29 Oct 2021, table 5.

\$132 billion

COMPANY TAXES

Company taxes paid by the mining industry from 2010-11 to 2019-20.

Deloitte Access Economics, *Estimates of Royalties and Company Tax Paid by the Minerals Sector*, prepared for the MCA, 17 May 2021.

\$106 billion

ROYALTIES

Royalties paid by the mining industry from 2010-11 to 2019-20.

Deloitte Access Economics, *Estimates of royalties and company tax paid by the minerals sector*, prepared for the MCA, 17 May 2021.

\$246 billion

MINING WAGES

Wages paid by the resources industry from 2011-12 to 2020-21.

ABS, *Business Indicators, Australia*, Sept 2021, released 29 Nov 2021, table 17.

\$24 billion

EXPLORATION

Exploration expenditure from 2011-12 to 2020-21.

ABS, *Mineral and Petroleum Exploration, Australia*, Sept 2021, released 29 Nov 2021, table 5.

\$257 billion

CAPITAL SPENDING

Mining industry capital expenditure from 2011-12 to 2020-21.

ABS, *Private New Capital Expenditure and Expected Expenditure*, Sept 2021, released 25 Nov 2021, table 19.

82%

▲ CAPITAL STOCK

Increase in real net capital stock from 2011-12 to 2020-21.

ABS, *Australian System of National Accounts*, released 29 Oct 2021, table 63.

54,000

NEW JOBS

Created in the mining industry from 2010-11 to 2019-20.

ABS, *Labour Force, Australia, Detailed*, Oct 2021, released 18 Nov 2021, table 6.

There's more to
Australian Mining
minerals.org.au

1. EXECUTIVE SUMMARY

The 2022-23 Federal Budget presents the Australian Government with a crucial opportunity to both support a strong business-led economic recovery from the COVID-19 pandemic, and secure the nation's longer-term prosperity as the world transforms to net zero emissions. As a pillar of the Australian economy, the minerals industry is central to achieving both outcomes.

Australian mining is a nation builder and global leader. It is Australia's largest exporter and industry, the biggest company taxpayer and investor in infrastructure and equipment, and the world's largest exporter of minerals and metals. Australian mining is a world leader in the exploration geoscience, processing technologies and environmental management systems needed to sustainably meet the world's growing demand for mineral and energy commodities.

The mining industry is firmly embedded in Australia's future. It is a global leader in providing the essential elements of modern life while growing the nation's economy and sustaining regional communities, including small businesses. Combined with its social contribution and responsible environmental management, Australian mining plays a critical role in the modern world. The materials the industry provides not only support the technology-led productivity growth that lifts the incomes and living standards of people across the globe, they are fundamental to the major global transformation to digital and net zero emissions economies.

At the beginning of 2020, the Australian economy entered its 29th year of sustained growth. Although this was an exceptional outcome relative to that experienced by other advanced economies, the rate of growth at the end of 2019 was dampened by weak private demand, including business investment, household consumption and housing, and low productivity growth. On a per capita basis the economy was hardly growing. The rate of growth over the previous decade was around the slowest in 60 years,¹ and almost one per cent below trend despite strong population growth. The economy was operating well below its potential.

The economy has since operated under artificial conditions owing to the pandemic. The health related restrictions imposed on households and businesses and closures of international and state borders, together with unprecedented fiscal and monetary policy support, have affected spending, investment and saving decisions. While these effects have varied across economic sectors and geographic regions, the support provided to the economy by federal and state and territory governments and the Reserve Bank of Australia has successfully avoided a major economic shock.

The success of both fiscal and monetary policy responses in preventing a major shock to the economy has come at the cost of Australia amassing a large amount of public debt. This has occurred at a time when the federal budget is facing growing demands, including expenditure on aged care, health and disability services, social security and defence.

More than ever, Australian businesses need policies that will encourage and enable them to improve their productivity and competitiveness in order to lift the economy's performance. The message to government is clear. It is through strong economic growth that more investment, jobs, higher real wages and higher incomes are delivered. Strong economic growth will contribute to the important task of budget repair and reduce the debt burden on future generations.

For Australia to have a strong business led economic recovery, the 2022-23 Federal Budget must not burden businesses with new or increased costs. It is businesses investing in capital, skills, technology and innovation to improve their productivity that will drive economic growth. This requires government removing distortions and barriers in the economy, promoting efficient investment in capital and innovation, enhancing labour participation and skills, and expanding opportunities for technological transfer and international competitiveness.

¹ Productivity Commission, [PC Productivity Insights: Recent Developments](#), Australian Government, June 2021, p.44.

Over the long-term, productivity growth is the main driver of rising living standards. Since 2005, labour productivity growth in many advanced economies has slowed. Although Australia has also experienced a slowdown in productivity growth over this period, it was comparatively smaller partly owing to the mining boom.²

The May 2021 Federal Budget assumes that labour productivity will regain its long-run (30 year) average growth rate of 1.5 per cent.³ To achieve strong economic growth, Australia's productivity growth needs to be significantly higher than the long-run average, and it needs to be achieved quickly. The challenge of lifting productivity growth cannot be underestimated, and highlights the importance and necessity of government policies that support and enable businesses to increase capital investment and seek out opportunities to grow and innovate.

Analysis by the Centre for International Economics (CIE) shows a modest productivity reform agenda that increases labour productivity by one per cent a year could by 2030 deliver benefits to the economy similar to the expansion of mining from 2005.⁴ The CIE estimates that by 2020 Australian households were \$14,800 better off compared to the expansion having not occurred and real GDP per person was about 15 per cent higher.

The Australian Government must embark on a comprehensive reform agenda to ensure the economy has the dynamism, resilience and competitiveness to successfully confront the emerging global challenges that could otherwise undermine its economic growth.

Policies that expand trade and investment, modernise training and skills, boost productivity in the workplace, support simpler project approval processes, ensure a competitive taxation system, support the discovery of new mining regions and emerging critical minerals, target the development of Northern Australia and enable businesses to adapt and grow will all be essential to sustaining the livelihoods and living standards of Australians.

Over the past two decades, the Australian minerals industry has underpinned the nation's prosperity through its contribution to exports, jobs, incomes and government revenue, and has been central to supporting regions and communities. Over a range of economic measures, the decadal contribution to the economy is stellar – \$2.1 trillion in resources export revenue, \$246 billion in mining wages and 21 per cent of Australia's GDP growth. The industry can also be relied on to generate large fiscal returns to the economy, having contributed \$132 billion in company taxes and \$106 billion in royalties over the last decade from significant capital investments in regional and remote Australia.

However, the minerals industry's contribution to the Australian economy, regions and communities cannot be taken for granted – having mineral resources and a stable political system is not enough to attract and secure investment in new and expanded projects. Global commodity markets are highly competitive and there is strong competition among countries as sources of supply.

Mining's commercial success is becoming more dependent on the efficiency of the entire export supply chain, from research, exploration, mine or product development through to final shipment. Improvements in technology transfer, productivity, cost competitiveness and enterprise flexibility are necessary if Australia is to unlock its growth potential across industries. Policies that improve productivity and competitiveness are integral to Australia maintaining its comparative advantage in mining and minerals exports, and will ultimately benefit all businesses, households and workers.

² Productivity Commission, [PC Productivity Insights: Recent Productivity Trends](#), February 2020, No.1/2020, p.1.

³ Australian Government, *Budget 2021-22, Budget Paper no.1*, p.239.

⁴ *Ibid*, p.1.

Summary of policy recommendations

Maintain stable and competitive tax settings

- Retain the fuel tax credit scheme in its current form
- Support the economy's recovery by not increasing the tax burden on business
- Improve Australia's international competitiveness and attract large-scale investment by reducing the company tax rate to the OECD average for all Australian businesses.

Modernise workplace relations rules

- Maintain enterprise productivity by continuing to allow differential pay rates and conditions above awards
- Simplify the procedure for terminating expired enterprise agreements
- Focus bargaining on matters directly relevant to employers and employees
- Expand the scope for tailored employment arrangements by allowing high-income earners to opt out of enterprise agreements and enter into individual agreements.

Provide ongoing support for industry-led skills, training and apprenticeships

- Support the AUSMESA to pilot vocational training qualification reform to fast-track apprenticeships for Diesel Fitter-Mechanics
- Expand the work of the National Careers Institute on new interactive career pathways maps to include mining
- Provide additional resources to the Department of Home Affairs to improve the skilled migration program by reducing duplication and being more responsive to skills shortages
- Provide additional resources to the ABS to update the ANZSCO to accommodate new occupations.

Support timely approvals and uphold high levels of environmental and heritage protection

- Establish National Cabinet's 'single touch' environmental assessment and approvals
- Progress technical reforms to improve assessment and approval processes
- Continue the additional funding of Commonwealth regulators to support timely assessment and approvals
- Provide funding for improved environmental information systems and analytics
- Rationalise the water and nuclear triggers and remove the prohibition on nuclear energy within the EPBC Act
- Increase and continue additional funding and resourcing to support improved administration of the Aboriginal and Torres Strait Islander Heritage Protection Act
- Support the partnership to improve Commonwealth heritage protection safeguards through funding for Traditional Owner and custodian and stakeholder engagement.

Facilitate an effective transformation to net zero emissions

- Ensure that any reform of the safeguard mechanism is preceded by detailed consultation with those industries most affected – including mining – to enable a manageable and sustainable reduction in emissions by:
 - Appropriately treating export industries competing in global markets

- Appropriately treating facilities linked to parent company emissions reduction plans
- Enable least-cost abatement of CO₂ emissions by promoting all low and zero-emissions technologies, including currently prohibited advanced nuclear technologies
- Maintain programs and funding announced in the 2021-22 Budget and Mid-Year Economic and Fiscal Outlook that advance:
 - Hydrogen hubs and hydrogen certification
 - CCS/CCUS hubs and projects
 - International technology partnerships
- Encourage the uptake of cost effective abatement opportunities ahead of normal investment cycles through accelerated depreciation allowances
- Enable access to increased supply of credible, verified, low-cost domestic and international abatement following the progress made on Article 6 at COP 26 in Glasgow.

Support strong, respectful and mutually beneficial industry and First Nations partnerships

- Fund priority short-term actions under the National Roadmap on Indigenous Skills, Jobs and Wealth Creation, including investment in capability of Indigenous businesses, leaders and Traditional Owner corporations, that will help unlock mining related opportunities.

Expand opportunities for investment and trade

- Remove mining from the foreign investment review and assessment process unless it overlaps or is adjacent to defence land or a defence installation
- Work with strategic partner countries to support private investment that secures supply chains
- Support industry-led innovative solutions to increasing finance and insurance challenges that ensure resource businesses can continue operating and underpin jobs and regional communities
- Require assessments for trade agreements and strategic partnerships to inform how they can maximise opportunities for trade, investment and economic co-operation
- Deploy practical resources expertise to diplomatic posts, support industry-to-industry dialogues and deepen knowledge of key markets through the Global Resources Strategy announced in the 2021-22 budget
- Promote Australian mining's reputation as a reliable and responsible partner in supporting global economic development, secure supply chains and decarbonisation.

Increase exploration investment in Australia

- Expand and permanently fund *Exploring for the Future* program and fund the integration of state geological data into a seamless national system
- Maintain the Junior Minerals Exploration Incentive and develop a national grants program for priority greenfield exploration by junior miners.

Back technological innovation to unlock productivity gains

- Ensure regulatory frameworks are coordinated within the federal government, and where relevant with state and territory governments, to enable the mining industry to adopt transformative technologies such as drones, electrification and internet of things devices
- Make strategic investments to support sovereign capability in critical technologies
- Ensure appropriate government investment to combat ever-increasing cybersecurity threats.

2. PERFORMANCE AND CONTRIBUTION OF AUSTRALIAN MINING

- Effective, comprehensive and complementary productivity enhancing policies are needed to ensure that Australia does not lose mining and minerals processing opportunities to economies that offer lower construction and energy costs, as well as lower taxes. The productivity and competitiveness of Australian mining depends on policies that deliver:
 - Internationally competitive tax settings
 - Productive workplace relations
 - A highly skilled workforce
 - Timely project approvals and high levels of environmental and heritage protection
 - Strong industry and First Nations partnerships
 - An expansion in trade and foreign investment
 - Increased investment in exploration, innovation and decarbonisation
- The Australian minerals industry is Australia’s premier industry with a global reputation as a reliable, responsible supplier that is committed to continuous improvement in its workforce health and safety, and environmental, social and governance performance
- The minerals industry is Australia’s largest exporter and industry, and biggest company taxpayer and investor in infrastructure and equipment. It is Australia’s highest payer in terms of average wages and is the world’s largest exporter of minerals and metals.

Conditions to encourage mining and minerals processing need to be improved

In the emerging markets for high-tech minerals such as rare earth elements, graphite and high-purity alumina, companies are already planning to invest in projects that extract ores in Australia, but send untreated minerals to other countries where it is more cost effective to undertake downstream processing. Australia’s uncompetitive corporate tax rate, relatively high costs of construction and operation (including energy) and complex and prescriptive regulatory regime can all combine to override the natural advantages of processing near the site of extraction.

Australia needs a clear plan, including supporting policies, to restore its competitive advantage in mining if we are to attract the investment necessary to benefit from growing world commodity demand in the future. Increasing productivity growth is key to improving competitiveness, boosting economic growth, accelerating budget repair and raising the living standards of all Australians. Achieving productivity growth and improved competitiveness requires businesses to invest in skills, capital and technology along with supportive government policies.

To be internationally competitive and attract investment in large and long-life mining projects, and secure the benefits they bring to workers, communities and governments, the mining industry needs policies that deliver: internationally competitive tax settings, productive workplace relations, a highly skilled workforce, timely project approvals and related environmental and heritage protection, strong industry and First Nations partnerships, expanded trade and foreign investment, and support for investment in exploration, innovation and decarbonisation.

Global consumption of mineral and energy commodities will continue to grow. Rising urbanisation, rising incomes and the transformation to net zero emissions, together with the technology-led productivity growth has lifted the incomes and improved the living standards of millions of people in highly populated economies. These factors will continue to be the driving force of higher commodity consumption.

The opportunities for Australian mining and its contribution to Australia's prosperity will continue to expand as the populations of emerging economies, particularly in Asia, converge to those of developed nations and technology becomes more advanced and diffuse.

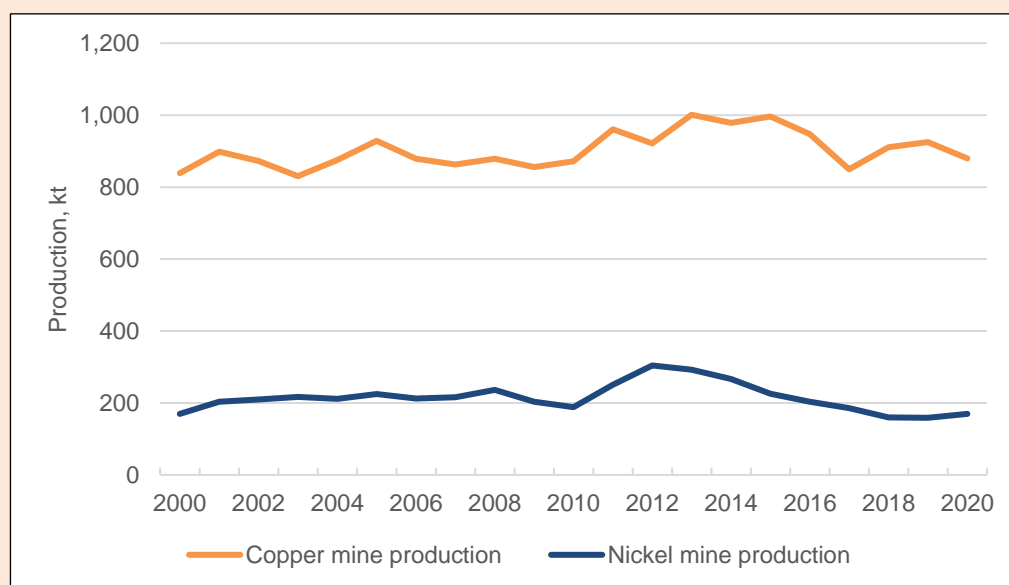
While Australia has significant resource endowments, and an established comparative advantage in minerals and energy exports, these benefits cannot guarantee future economic success (see Box 1).

Box 1: Economic success depends on more than large resource endowments

There is broad consensus that demand for metals essential to the clean energy transition will rise substantially in the long-term. This was confirmed in modelling recently released by the Department of Industry, Science, Energy and Resources.⁵ While there is potential, Australia's future role in supplying these materials is not a foregone conclusion. Without the necessary investment there are considerable risks to growing Australia's output of copper, nickel and other battery minerals.

Analysis of Australia's production of these metals over the last twenty years shows little to no growth in output despite world demand growing significantly in that period. As shown in the chart below, Australia's copper and nickel mine production in 2020 were about the same as in 2000. This is despite Australia having the world's second largest copper resources and largest nickel resources. In the same period, world copper and nickel consumption increased 65 per cent and 112 per cent, respectively.

Australia's copper and nickel mine production - 2000 to 2020



Source: Department of Industry, Science, Energy and Resources, [Resources and Energy Quarterly: September 2021](#).

There is significant competition from emerging mineral provinces in other countries for investment in exploration, mine development and downstream processing facilities. Many of these emerging mining regions are jurisdictions that offer lower construction and energy costs, as well as lower taxes that provide superior capital returns for investors. Australia has already missed many opportunities in the last decade as a result of our deteriorating competitiveness. Australia's share of global exploration expenditure has fallen, its output of some minerals have plateaued and in some cases decreased in recent years, and higher energy costs are contributing to the closure of existing downstream processing industries.

⁵ Department of Industry, Science, Energy and Resources, [Australia's Long-Term Emissions Reduction Plan: Modelling and Analysis](#), Australian Government, 16 November 2021.

International competition applies both between and within companies. When an Australian division of a global company makes the case for progressing a local mining project to its board, predictable and competitive policy settings are crucial to defining the risk profile of that project favourably against other investment opportunities in the company’s international portfolio. Although a number of factors influence the allocation of scarce capital, the right policy incentives can be instrumental in persuading mining companies to commit to complex projects with high upfront costs, but multigenerational benefits.

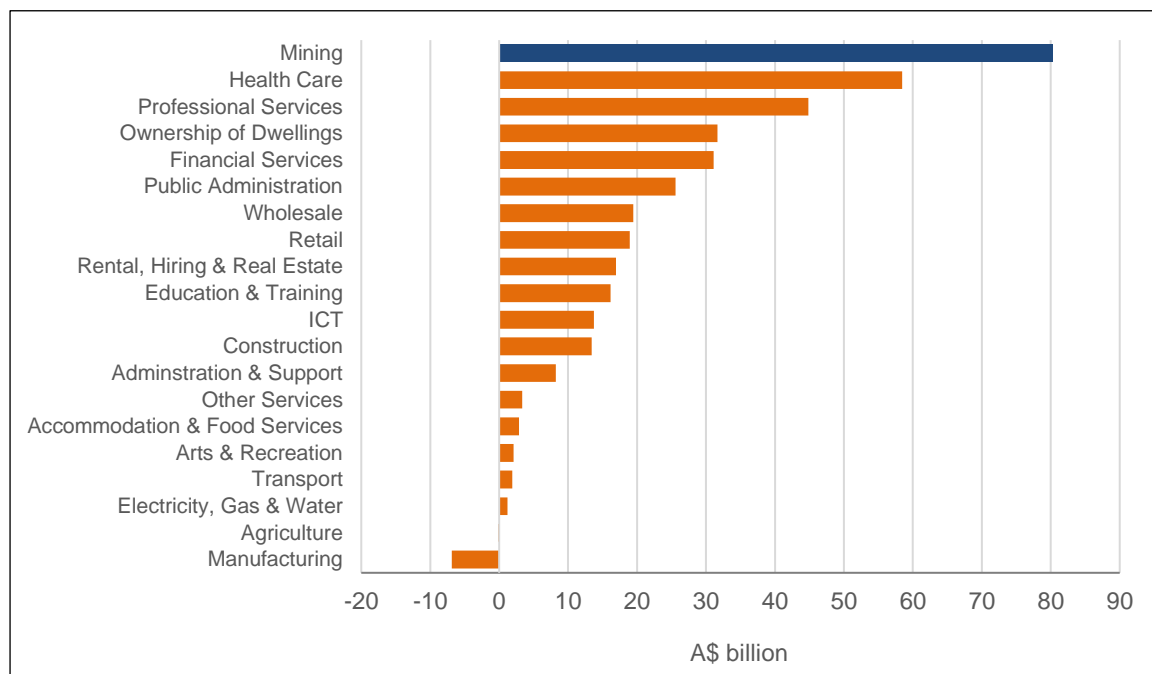
While policies such as those recommended in this submission contribute to improving the productivity and competitiveness of Australian mining, government facilitating the delivery of productive infrastructure can complement and remove impediments to mining investment. In cases where there is a clear benefit from public investment, federal and state government support for critical infrastructure may promote the growth of mining, other industries and communities in line with broader regional development. An example at the early stage of assessment, is the Northern South Australia Productive Water Security project listed by Infrastructure Australia as a priority initiative.⁶

The economic contribution of the Australian mining industry

Australia is the world’s largest exporter of minerals and metals, making it an essential part of global supply chains, and contributed to \$2.1 trillion in resources export revenue over the last decade. Australian mining provides the materials that support economic growth, the development of innovative technologies, and the transformation to a digital and net zero emissions economy. The Australian mining industry delivers these materials while having world leading sustainability standards, including best-practice environmental management and community engagement.

Mining was the largest contributor to Australia’s economic growth both in 2020-21 and over the last decade (Chart 1).⁷

Chart 1: Growth in real Gross Value Added, 2011-12 to 2020-21



Source: Australian Bureau of Statistics, [Australian System of National Accounts](#), released 29 October 2021.

⁶ Infrastructure Australia, [Infrastructure Priority List: Project and Initiative Summaries](#), Australian Government, p. 213, viewed 18 January 2022.

⁷ Australian Bureau of Statistics, [Australian System of National Accounts](#), released 29 October 2021.

Australian mining is part of the identity of Australian communities and regions, contributing to the strength of national and regional economies, and to local commerce and employment. It is a responsive and responsible partner and neighbour, particularly during times of challenge.

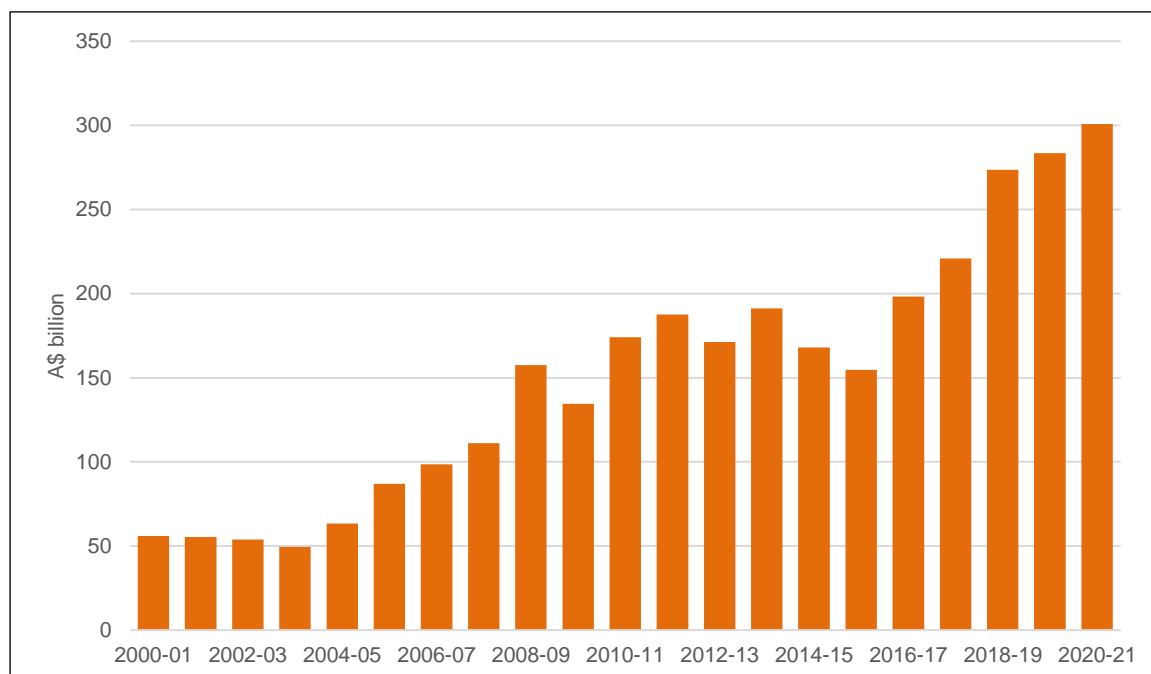
The industry's significant decadal economic contribution, which equates to 21 per cent of GDP, was underpinned by \$257 billion of investment to develop new mines, processing facilities and infrastructure. It was investment in mining that drove substantial increases in production and made Australia the world's largest producer of key minerals including iron ore, bauxite and lithium.

In 2020-21, while operating in adherence to strict health and safety protocols during the COVID-19 pandemic, the Australian mining industry generated a record high \$301 billion of export revenue and accounted for 66 per cent of total exports.⁸ This was underpinned by robust exports of:

- Iron ore: \$151.9 billion
- Coal: \$39.2 billion
- Gold: \$28.4 billion
- Aluminium: \$12.0 billion
- Copper: \$11.5 billion

Export market diversification has contributed strong revenue. Export revenue in 2020-21 supported over 1.1 million direct and indirect jobs in the mining industry and across its supply chains – many of which are located in regional Australia. Jobs in the mining industry are well-paid with the average full time earnings of the mining workforce the highest in the country and 54 per cent above the national average. The mining industry is also a key source of government revenue. In 2019-20, the industry paid \$24.1 billion in company tax and generated \$15.2 billion in royalties for state governments.

Chart 2: Australia's resources export revenue



Source: Australian Bureau of Statistics, [International Trade in Goods and Services, Australia](#), table 3, released 4 November 2021.

⁸ Australian Bureau of Statistics, [International Trade in Goods and Services, Australia](#), table 3, released 4 November 2021.

Mining investment remains historically high as a result of ongoing expenditure to sustain production levels at existing mines. At \$3.2 billion, exploration expenditure was close to record levels in 2020-21, and demand for the mineral commodities Australia produces are likely to remain robust in the future.

Global consumption of mineral and energy commodities will continue to grow as economies develop, grow and decarbonise. As new energy, transport and health care technologies emerge, there will be even greater opportunities for Australia to export a range of minerals and metals used in high-tech manufacturing.

The outlook for Australian mining is broadly positive, providing it remains competitive at both attracting investment and being able to diversify to other export markets as required. The policy priorities and budget measures outlined in this submission are essential for positioning Australia for the next wave of mining investment and maintaining its position as the largest exporter of minerals and metals in the world.

The transition to clean energy systems and advances in technology are boosting demand for battery minerals, rare earth elements and other critical minerals such as copper. Australia has significant resources of these minerals, but future investment in new mining operations is not guaranteed. The mining industry faces significant competition from emerging mining regions in Africa as well as traditional mining centres in South America and Canada to attract investors.

Health, safety and psychological wellbeing

Australian mining is committed to eliminating fatalities, injuries and occupational illnesses, with a strong focus on building and sustaining respectful workplaces.

All individuals, regardless of where they work, for whom they work, how they are employed, or the tasks they undertake, expect the same high standard of workplace safety, health and wellbeing.

MCA member companies are committed to the following principles:

- All fatalities, injuries and occupational illnesses are preventable
- No task is so important that it cannot be done safely and respectfully
- All hazards can be identified, and risks eliminated or controlled
- All instances of harassment and disrespectful behaviour in the workplace can be prevented.

Everyone in the industry has a personal responsibility for the safety, health and wellbeing of themselves and their work mates, as well as contributing to positive and respectful workplaces. Australian mining supports everyone at the workplace being able to speak up when unsafe work practices and unacceptable behaviour occurs.

Sexual harassment is unacceptable, against the law and must be eliminated from our culture and workplaces. The minerals industry has committed to eliminating sexual harassment in its workplaces and has adopted a national industry code that provides clear expectations on members to establish both preventative and response measures to address sexual harassment.

The industry recognises that continuous effort is needed in areas of leadership, people, culture, behaviour and systems, working collaboratively with all stakeholders and supported by risk-based regulation.

3. POLICY PRIORITIES TO SUPPORT PRODUCTIVITY GROWTH AND BUDGET REPAIR

Maintain stable and internationally competitive tax settings

- Stable and internationally competitive tax settings are essential to attracting investment in innovative, lasting and large-scale projects in mining and minerals processing
- Australian mining consistently pays high company tax and royalty receipts to federal, state and territory governments throughout the business cycle
- Mining investment and jobs should not put at risk through additional tax imposts or changes to long-standing policy, such as the fuel tax credit scheme.

Recommendations

- Retain the fuel tax credit scheme in its current form
- Support the economy's recovery by not increasing the tax burden on business
- Improve Australia's international competitiveness and attract large-scale investment by reducing the company tax rate to the OECD average for all Australian businesses.

Business investment in capital has a direct impact on labour productivity and growth in wages. Tax competitiveness is a critical factor to attracting the investment required to grow both the minerals industry and the economy.

It is vital that the Australian business tax system is internationally competitive to attract future investment in innovative, long-lasting and large-scale projects in mining and minerals processing.

The minerals industry pays significant taxes and royalties every year to federal, state and territory governments, contributing a total of \$238.8 billion between 2010-11 and 2019-20. The payment of consistently high company tax and royalty receipts throughout the business cycle demonstrates the reliability of the industry's contribution. Furthermore, the industry transparently reports the taxes and other payments made to governments.

In 2019-20, the minerals industry paid record taxes and royalties to federal, state and territory governments, even as the COVID-19 pandemic started to push the economy into recession. Deloitte Access Economics estimates that company tax payments and royalties from the industry in that year amounted to \$39.3 billion. This consisted of \$24.1 billion in company tax – approximately 30 per cent of total company tax receipts – and \$15.2 billion in royalties.⁹

Australia is at risk of being uncompetitive at attracting new business investment. Over the last 20 years, the company tax rate for Australian businesses with annual turnover at or above \$50 million has remained at 30 per cent – higher than the weighted average of the G7, G20 and OECD countries. Addressing Australia's uncompetitive company tax rate is crucial to attracting more investment in major projects.

In the absence of comprehensive tax reform aimed at making the business tax system more internationally competitive, there should be no additional tax imposts or changes to long-standing tax policy, such as the fuel tax credit scheme which is essential to competitive mining businesses and jobs in regional and remote Australia. Mining investment and highly paid jobs should not be put at risk through any move to increase the already high tax burden on the industry.

Fuel tax credits are critical to a diverse range of regional industries reliant on diesel including mining, agriculture, tourism and fishing. Fuel tax credits are not a subsidy and are based on the fundamental

⁹ Deloitte Access Economics, [Estimates of royalties and company tax paid by the minerals sector](#), report prepared for the Minerals Council of Australia, Canberra, 17 May 2021.

tax policy principle that business inputs should not be taxed – the same principle that underpins the goods and services tax.

The temporary full expensing measure is bringing forward capital expenditure for an immediate economic benefit. However, it is equally important to encourage innovative, lasting and large-scale projects that will have multi-generational benefits; and this requires a globally competitive, well-structured business tax system that offers a reasonable after-tax rate of return and does not distort investment decisions.

Modernise workplace relations rules

- High-wage jobs depend on high-productivity workplaces
- Access to workers across Australia, and a range of employment options, allows for a diverse and engaged workforce where pay is linked to performance
- Australian mining is a world-leader in developing and adapting transformative technologies, which are continually augmenting and reshaping mining roles.

Recommendations

- Maintain enterprise productivity by continuing to allow differential pay rates and conditions above awards
- Simplify the procedure for terminating expired enterprise agreements
- Focus bargaining on matters directly relevant to employers and employees
- Expand the scope for tailored employment arrangements by allowing high-income earners to opt out of enterprise agreements and enter into individual agreements.

To compete and succeed, Australian mining needs to be safe, technologically advanced and adaptable. This is best achieved by mutually beneficial partnerships between employers and employees founded on flexible workplace arrangements underpinned by a strong safety net.

The mining industry successfully employs a range of agreement options to drive productivity and incomes, with 99 per cent of mining workers earning above-award wages and conditions. Average full-time adult total earnings in mining was \$143,000 in 2020-21, compared to \$93,000 across all industries.¹⁰

The mining industry directly employs 256,800 highly skilled, highly paid workers across Australia, more than triple the number employed in 2001-02 (81,400). 88 per cent of mining workers are permanently employed and 96 per cent are full-time. Over the past decade, the share of casual workers in mining across Australia has averaged 13 per cent, compared to 24 per cent for all industries.¹¹

Mining companies tailor their employment arrangements to suit very different locations, ore bodies, production techniques, occupations and worker preferences. Service contractors perform specialist tasks, ranging from overburden removal to planned maintenance shutdowns. Some companies use labour hire to manage temporary expansions, while others deploy specialised teams of permanent employees for specific safety, environment and productivity projects.

The MCA is opposed to any legislation or regulation that would require employers to provide workers doing the same (or similar) jobs the same wages and conditions *above the award safety net*, as this would undermine the flexibility benefits and performance incentives of enterprise bargaining at the very time the industry needs to be flexible, adaptable and competitive to support economic recovery.

Incremental improvements to the Fair Work Act could help attract additional investment in new projects, as well as foster more efficient, harmonious and competitive enterprises. Making the process of terminating an expired enterprise agreement less onerous and costly would enable minerals companies to remove outdated, irrelevant and restrictive clauses, and lower the risk of coordinated

¹⁰ Australian Bureau of Statistics, [Employee Earnings and Hours, Australia, May 2018](#), released 22 January 2019, data cube 7; [Average Weekly Earnings, Australia](#), May 2021, released 19 August 2021, table 10H.

¹¹ Australian Bureau of Statistics, [Labour Force, Australia, Detailed](#), October 2021, released 18 November 2021, table 6, [Characteristics of Employment, Australia](#) (latest issue August 2021, released 14 December 2021); [6359.0 - Forms of Employment, Australia](#) (discontinued).

protected industrial action by unions who are party to multiple single-enterprise agreements with the same employer.

Consistent with the Productivity Commission, the MCA supports removing the availability of protected industrial action for matters not directly related to the employment relationship.¹² This would discourage the insertion of clauses in enterprise agreements that restrict the fundamental right of an employer to manage its own business, or which have little to do with employer-employee relations.

Every employee, business and industry cannot and should not be expected to flourish under the same workplace rules. High-income earners should be permitted to opt out of an enterprise agreement and enter into individual agreements.

¹² Productivity Commission, [Workplace Relations Framework: Inquiry Report, Volume 2](#), Canberra, 21 December 2015, p. 683.

Provide ongoing support for industry-led skills, training and apprenticeships

- Partnering with industry is the most effective way for governments and providers to identify skills shortages, reconfigure roles and careers, and anticipate future workforce requirements
- The success of Australian mining depends on a highly skilled, flexible and resilient workforce
- Rapid changes in innovation and technology require training courses that are focused on contemporary and future skills to provide job-ready graduates.

Recommendations

- Support the AUSMESA to pilot vocational training qualification reform to fast-track apprenticeships for Diesel Fitter-Mechanics
- Expand the work of the National Careers Institute on new interactive career pathways maps to include mining
- Provide additional resources to the Department of Home Affairs to improve the skilled migration program by reducing duplication and being more responsive to skills shortages
- Provide additional resources to the ABS to update the ANZSCO to accommodate new occupations.

Rapid changes in innovation and technology in the minerals industry make it important to ensure training courses are focused on contemporary and future skills to produce job-ready graduates.

The Australian mining industry has invested more than \$65 million through the MCA's Minerals Tertiary Education Council delivering innovative education and training initiatives to match the evolving skills demanded by the industry. Additionally, as part of the COVID-19 economic recovery, the mining industry commenced 3,800 new apprenticeships towards a target of 5,000.¹³

The National Skills Commission identified a national shortage of Diesel Fitter-Mechanics and forecast moderate future growth,¹⁴ and the mining industry has also forecast strong ongoing demand for these skills. The Australian Minerals and Energy Skills Alliance (AUSMESA) is piloting a project to accelerate apprenticeships, with the initial focus on vocational training qualification reform to fast-track Diesel Fitter-Mechanics. Given the significant investment by industry, the Australian Government's continued support is required. Supporting the AUSMESA to reduce the apprenticeship duration from four years to two years would enable more Australians to gain highly paid highly secure jobs in the mining industry quicker.

The MCA actively promotes the vast array of careers in Australian mining, including distributing in the past two years more than 50,000 career guides to students, teachers, parents and careers advisors. The MCA strongly supports the work being undertaken by the Department of Education, Skills and Employment's National Careers Institute to develop an interactive digital map of career pathways for the modern agricultural sector, funded in the 2021/22 Budget.¹⁵ The MCA encourages the Australian Government to extend this commitment to mining industry careers, given the highly paid, highly secure careers mining offers, and the significant industry investment in career pathway promotion.

The Australian mining industry remains committed to employing Australians. Skilled migration is only used to address skills in critical shortage and skilled migrants are only a very small component at less

¹³ MCA analysis of National Centre for Vocational Education Research VET statistics, viewed 21 October 2021; Australian Bureau of Statistics, Labour Force, Australia, Detailed, October 2021, released 18 November 2021, table 6.

¹⁴ National Skills Commission, *Skills Priority List 2021*, viewed 7 December 2021.

¹⁵ Australian Government, *Budget Paper 2 Measures 2021-22*, released 11 May 2021, p.55.

than 0.6 per cent of the industry's workforce.¹⁶ Furthermore, the nominated total remuneration for skilled migrants in the mining industry is one of the highest of all industries at \$141,900, which far exceeds the Temporary Skilled Migration Income Threshold.¹⁷

The Joint Standing Committee on Migration's Final Report of the Inquiry into Australia's Skilled Migration Program made recommendations for the Department of Home Affairs to improve visa-processing systems. It is important that resourcing be provided to implement these recommendations.

The digital transformation will present both significant opportunities and challenges for the entire Australian workforce. With respect to mining, EY found that new technology and innovative practices will enhance the performance and productivity of 42 per cent of Australian mining jobs, with a further 35 per cent of occupations being redesigned and upskilled leading to more valuable employment opportunities.¹⁸

As new occupations emerge it is important they are classified in the Australian and New Zealand Standard Classification of Occupations (ANZSCO), as this assists with curriculum and qualification development, career pathway promotion and labour mobility. This is not always happening. New occupations such as Plant Controller - Remote Operations and Mine Controllers - Autonomous Mine Systems have already emerged, but are yet to be reflected in ANZSCO. The occupation of Data Scientist was only added to the ANZSCO in 2019 and not as a discrete occupation, but grouped with Other Information and Organisation Professionals.¹⁹

A number of submissions to the Joint Standing Committee on Migration inquiry into Australia's skilled migration program highlighted the need for the Australian Bureau of Statistics (ABS) to update ANZSCO.²⁰ The ABS advised the Committee that resource constraints were a key factor in conducting a review.²¹ Adequate resourcing must be provided to the ABS to appropriately classify occupations.

¹⁶ MCA analysis of the Department of Home Affairs, [Temporary resident \(skilled\) report](#), as at 30 September, viewed 7 December 2021.

¹⁷ Ibid.

¹⁸ EY, [The Future of Work: the Changing Skills Landscape for Miners](#), report prepared for the Minerals Council of Australia, 14 February 2019, p. 2.

¹⁹ CEDA, [Submission to Joint Standing Committee on Migration Inquiry into Australia's Skilled Migration Program](#), March 2021.

²⁰ Joint Standing Committee on Migration, [Final Report of the Inquiry into Australia's Skilled Migration Program](#), August 2021.

²¹ Ibid.

Support timely project approvals and uphold high levels of environmental and heritage protection

- Addressing inefficiencies, delays and uncertainty in national environmental regulation will boost minerals investment, supporting jobs and businesses in regional communities while upholding environmental standards
- Australian mining is committed to protecting the country's unique environment through leading practice based on sound science and robust risk-taking approaches.

Recommendations

- Establish National Cabinet's 'single touch' environmental assessment and approvals
- Progress technical reforms to improve assessment and approval processes
- Continue the additional funding of Commonwealth regulators to support timely assessment and approvals
- Provide funding for improved environmental information systems and analytics
- Rationalise the water and nuclear triggers and remove the prohibition on nuclear energy within the Environment Protection and Biodiversity Conservation Act
- Increase and continue additional funding and resourcing to support improved administration of the Aboriginal and Torres Strait Islander Heritage Protection Act
- Support industry engagement as part the Commonwealth and First Nations Heritage Protection partnership to identify options to strengthen federal heritage protection safeguards.

There are currently 112 minerals projects across Australia in the pre-feasibility or feasibility stage, which together have the potential to generate 31,600 construction jobs and 21,600 operational jobs.²² Addressing inefficiencies, delays and uncertainty in national environmental regulation will boost minerals investment, supporting jobs and businesses in regional communities while upholding high environmental standards.

Australian mining is committed to protecting the country's unique environment through leading practice based on sound science and robust risk-based approaches. Australian industry expertise is exported around the world.

Successive reviews of national environmental regulation by the Productivity Commission have found that unnecessarily complex, uncertain or disproportionate requirements impose delays and costs on minerals projects, without delivering any environmental gains.²³ The commission's 2020 study of resource sector regulation found that despite recent worthwhile initiatives, regulatory processes continue to impose unnecessary costs, and may be becoming more burdensome.²⁴

The MCA supports National Cabinet's commitment to establish a 'single touch' approvals process. Referring approvals to states and territories (with national environmental standards and independent assurance) will address regulatory duplication, reduce delays, and provide greater certainty for businesses to invest in mines.

²² MCA review of companies' feasibility studies.

²³ See the Productivity Commission, [Major Project Development Assessment Processes: Research report](#), Canberra, November 2013, released 10 December 2013, p. 2; [Shifting the Dial: 5 Year Productivity Review](#), Canberra, released 24 October 2017, p. 236; [Resources sector regulation: Study report](#), 30 November 2020, released 10 December 2020, Canberra, p. 2.

²⁴ Productivity Commission, [Resources sector regulation: Study report](#), 30 November 2020, released 10 December 2020, Canberra, p. 2.

Technical reforms should also be progressed. These include statutory timeframes for post-approval processes, risk-based assessments, flexibility to vary approvals and coordinated environmental offsets.

Government funding is required to support Commonwealth regulators in providing timely assessment and approvals and ensure improvements to environmental information systems and analytics.

Duplicative triggers should be fully rationalised by abolishing the water trigger for coal developments and removing uranium mining, milling and decommissioning from the nuclear trigger within the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The current prohibition on nuclear energy has no scientific basis and should be removed. Removing the prohibition will allow all zero-emissions technologies to participate in Australia's future energy mix and cost-effectively transform the economy to net zero emissions.

The MCA supports modernisation of Australia's Indigenous cultural heritage framework to improve protections. Modernisation should result in protection-focused, robust and equitable state and territory regimes with transparent and predictable Commonwealth safeguards. Protection regimes should work alongside other initiatives outside of approvals regimes that support recognition and appreciation of Aboriginal and Torres Strait Islander cultures, heritage and knowledge.

The Australian Government and First Nations Heritage Protection Alliance partnership to develop options to strengthen safeguards will support engagement of diverse Traditional Owners and custodians, which will be central to this process. Involvement of major land users, such as the minerals industry, will also ensure practicality and predictability for proponents. The Australian Government should ensure appropriate funding for stakeholder engagement as part of this process.

As modernisation occurs, additional funding is also required to improve administration of, and meet an increase in, applications under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*. Additional resourcing and further development and publication of guidance, timelines and a list of applications would help restore confidence, reduce assessment timelines and ensure predictability for applicants and respondents.

Facilitate an effective transition to net zero emissions

- Internationally competitive mining and minerals processing requires technology-neutral policies to deliver affordable and reliable energy with zero emissions
- A stable policy framework is required to achieve the mining industry's ambition of net zero emissions by 2050
- The scale of the technology-led transformation required cannot occur without the minerals and raw materials provided by the mining sector.

Recommendations

- Ensure that any reform of the safeguard mechanism is preceded by detailed consultation with those industries most affected – including mining – to enable a manageable and sustainable reduction in emissions by:
 - Appropriately treating export industries competing in global markets
 - Appropriately treating facilities linked to parent company emissions reduction plans
- Enable least-cost abatement of CO₂ emissions by promoting all low and zero-emissions technologies, including currently prohibited advanced nuclear technologies
- Maintain programs announced in Budget 2021-22 and the Mid-Year Economic and Fiscal Outlook that advance:
 - Hydrogen hubs and hydrogen certification
 - CCS/CCUS hubs and projects
 - International technology partnerships
- Encourage the uptake of cost effective abatement opportunities ahead of normal investment cycles through accelerated depreciation allowances
- Enable access to increased supply of credible, verified, low-cost domestic and international abatement following the progress made on Article 6 at COP 26 in Glasgow.

Internationally competitive mining and minerals processing – which will make decarbonisation possible – requires technology-neutral policies to deliver affordable and reliable energy with zero emissions.

The MCA has confirmed the industry's ambition to achieve net zero emissions by 2050. In the 2021 progress report under the MCA's *Climate Action Plan*, members identified 39 emissions-reduction activities. The aggregate annual abatement potential of emissions-reduction projects underway is 30 per cent.

Australia has substantial energy resources including coal, gas, renewables, and uranium, as well as the minerals and metals needed for energy storage, hydrogen and ammonia production. All fuels and technologies can play a part in maximising opportunities for Australian mining and minerals processing by facilitating an effective transformation to reliable, competitive, zero emissions energy.

The Australian Government must ensure early, detailed consultation with industries, including minerals, affected by potential reforms to the Safeguards Mechanism to enable a manageable, sustainable reduction in emissions. Reforms of the mechanism must appropriately treat both export industries competing in global markets and facilities linked to parent company emissions reduction plans.

The Australian Government should encourage least-cost abatement of CO₂ emissions by promoting the development and deployment of all low and zero-emissions technologies, including carbon

capture, utilisation and storage (CCUS), renewable energy technologies, advanced storage, hydrogen from various zero-emissions production sources, and advanced nuclear.

In addition to reducing emissions in power generation, CCUS technology can reduce emissions in cement, iron and steel, and alumina and aluminium production, all of which require coal for the provision of essential infrastructure.

Therefore, it is important that the Australian Government maintains the programs announced in the 2021-22 Budget and Mid-Year Economic and Fiscal Outlook relating to clean hydrogen, CCS/CCUS, and new international technology partnerships to make zero emissions technologies cheaper and drive investment in Australia-based projects. The programs include:

- the accelerated development of four additional clean hydrogen hubs in regional Australia and implementation of a clean hydrogen certification scheme
- support for the development of CCS/CCUS projects and hubs
- funding to build practical, project-based international partnerships to accelerate new energy technologies and drive down costs.

Potential technologies under the project-based international partnership program include hydrogen and CCS, low carbon materials, R&D on new and emerging technologies (batteries, critical minerals, agriculture), and R&D on small modular reactor technologies with the UK and US.

Accelerated depreciation should be considered to incentivise the uptake of cost effective abatement opportunities ahead of normal investment cycles.

Following on from the progress made on Article 6 at COP 26 in Glasgow, the Australian Government must ensure emissions intensive industries that have either no or limited opportunity to invest in emissions reduction technologies, can access an increased supply of credible, verified, low-cost abatement.

Support strong, respectful and mutually beneficial First Nations partnerships

- Mining is integral to the economic aspirations and plans of First Nations people, communities and businesses in many remote and regional communities
- Today mining employs a larger share of Indigenous Australians than any other industry and the Indigenous business and mining sectors are closely linked
- Governments have an important role in enabling strong and equal partnerships between industry and First Nations communities.

Recommendations

- Fund priority short-term actions under the National Roadmap on Indigenous Skills, Jobs and Wealth Creation, including investment in capability of Indigenous businesses, leaders and Traditional Owner corporations, that will help unlock mining related opportunities.

The new National Roadmap on Indigenous Skills, Jobs and Wealth Creation recognises the Commonwealth's important and ongoing role in enabling strong industry and First Nations partnerships and mutually-beneficial outcomes.

Aboriginal and Torres Strait Islander landholders, communities and organisations are fundamental partners in Australian mining. For decades, Australia's minerals industry has been a major stakeholder in supporting the economic aspirations of partner Traditional Owners and communities. This includes working together to provide tailored opportunities for young people, for people to return and to work on country, and for local skills, career and business development.

Today about 10 per cent of all mining apprentices are Indigenous Australians, mining employs about 18 per cent of Indigenous men in remote areas and the industry is an important driver of Indigenous business sector growth.

Government funding for short-term actions under the National Roadmap will help unlock mining-related opportunities. In particular, the MCA recommends prioritising funding for:

- Activities that assist in connecting Indigenous Australians with the labour market and align place-based training and employment programs with future workforce demand
- The Indigenous Ranger Strategy and how it could leverage mining environmental management and rehabilitation programs
- Initiatives that showcase Indigenous excellence and aspiration in the economy, including Indigenous mining and mining equipment, technology and services firms
- Development of good practice guidance on Indigenous benefit management structure options, operations, trustee conduct and reporting in consultation with the native title sector and industry
- Improvements to data on workforce participation and the Indigenous business sector.

Expand opportunities for investment and trade

- Australian mining relies on recurrent flows of international investment to fund exploration, develop and sustain job-creating, large, long-life projects, and gain access to technology
- Additional investment to both sustain existing operations and build new mines is a prerequisite to increasing output and jobs
- Australia's foreign investment regime must manage national security risks while maintaining a strong economy with globally competitive industries.

Recommendations

- Remove mining from the foreign investment review and assessment process unless it overlaps or is adjacent to defence land or a defence installation
- Work with strategic partner countries to support private investment that secures supply chains
- Support industry-led innovative solutions to increasing finance and insurance challenges that ensure resource businesses can continue operating and underpin jobs and regional communities
- Require assessments for trade agreements and strategic partnerships to inform how they can maximise opportunities for trade, investment and economic co-operation
- Deploy practical resources expertise to diplomatic posts, support industry-to-industry dialogues and deepen knowledge of key markets through the Global Resources Strategy announced in the 2021 budget
- Promote Australian mining's reputation as a reliable and responsible partner in supporting global economic development, secure supply chains and decarbonisation.

Australia's openness to trade and investment drives innovation and job creation. International investment has helped mining become the nation's most successful global industry, bringing with it new technologies, skills and capabilities.

Australia is the largest exporter of minerals and metals in the world and the top exporter of iron ore, metallurgical coal, alumina, lithium and mineral sands. Australia's resources exports were worth \$301 billion in 2020-21, accounting for 66 per cent of total exports.²⁵ Stable, rules-based international trade, free from political coercion, is vital to the ability of Australian companies – including in mining and mining equipment, technology and services – to meet the needs of customers overseas and maintain their global reputation as reliable, responsible suppliers. Bilateral and multilateral trade agreements help Australian exporters to engage at a business-to-business level and gain competitive access to growing markets – including through the elimination of tariffs and non-tariff barriers.

Australian mining relies on recurrent flows of international investment to fund exploration, develop and sustain job-creating projects, and gain access to technology. The resources sector has undertaken unprecedented investments over the past two decades, increasing the sector's net capital stock fourfold between 2001-02 and 2020-21. In the same period, the number of Australians employed directly in mining more than tripled from 81,400 to 256,800.²⁶

²⁵ United Nations Conference on Trade and Development, [UNCTADstat](#), viewed 10 November 2021; Department of Industry, Science, Energy and Resources, [Resources and Energy Quarterly](#), September 2021, released 30 September 2021; Australian Bureau of Statistics, [International Trade in Goods and Services, Australia](#), September 2021, released 4 November 2021, tables 2 and 3.

²⁶ Australian Bureau of Statistics, [Private New Capital Expenditure and Expected Expenditure](#), September 2021, released 25 November 2021, table 19; [Labour Force, Australia, Detailed](#), October 2021, released 18 November 2021, table 6.

Australian mining's ability to continue to grow and compete globally is dependent on its ability to attract this investment. Policies that create investment uncertainty weaken the global competitiveness of the sector and remove opportunities for new Australian strategic minerals and energy projects.

Other than through proximity to sensitive defence land or installations, there are no situations where the act of mining, or not mining, can be considered a national security risk. While the same may not be said for downstream processing and manufacture of some minerals products, the availability of minable deposits means the market can respond to a change in conditions at the mining level.

Mining should be removed from the foreign investment review and assessment process unless it overlaps or is adjacent to defence land or a defence installation. Australia's foreign investment regime must manage national security risks while maintaining a strong economy with globally competitive industries. International investment in non-sensitive sectors, including mining, should only be subject to national security reviews and pre-screening requirements in very limited circumstances.

Investment in export and import supply chain infrastructure is also key to the continued viability of trade exposed industries. The Australian Government's provision of up to \$10 million to investigate the business case for a Toowoomba to Gladstone inland rail connection provides an opportunity to understand the economic potential of better rail connectivity to the Port of Gladstone and expanded access to export markets for Australian businesses and industry.²⁷

To resolve the growing difficulty experienced by some resource extractive operations in obtaining insurance and accessing finance, the Australian Government's support for industry-led solutions to these challenges would ensure resources businesses continue operating and support jobs and regional communities.

Trading nations are relying ever more on strategic partnerships to cooperate on long-term policy objectives, including securing supply chains, advancing economic growth and development, and facilitating new technologies and decarbonisation. In particular, trade development, growth and diversification are increasingly dependent on the stable platform provided by robust and successful partnerships and trade agreements that align areas of common strategic and economic importance.

To maximise success, trade and investment specific assessments should support and inform the development of strategic partnerships and trade agreements. These assessments should examine how the provisions of the agreement under negotiation could maximise the opportunities for trade, investment and economic co-operation along commodity and manufacturing supply chains.

The Australian Government has a long-standing and important role in promoting Australian mining's reputation as a reliable and responsible partner in supporting global economic development, secure supply chains and decarbonisation. Through the \$20.1 million Global Resources Strategy announced in the 2021-22 Budget, the Australian Government can deploy practical resources expertise to diplomatic posts, support industry-to-industry dialogues and deepen knowledge.

²⁷ The Hon Barnaby Joyce MP, [Business case for Toowoomba to Gladstone Inland Rail connection](#), released 3 September 2021.

Increase exploration investment in Australia

- Exploration is the foundation of the mining industry's long-term success and its ability to deliver economic benefits for all Australians
- Australia still remains underexplored, particularly at greater depths
- Precompetitive data generated by government programs are playing a key role in attracting international exploration investment to Australia.

Recommendations

- Expand and permanently fund the *Exploring for the Future* program and fund the integration of state geological data into a seamless national system
- Maintain the Junior Minerals Exploration Incentive and develop a national grants program for priority greenfield exploration by junior miners.

The mining industry's long-term success and its ability to deliver economic benefits for all Australians is attributable to exploration. Over the last decade, mining exploration expenditure in Australia totalled \$24 billion. In 2020-21, the industry invested \$3.2 billion in exploration in Australia, with one-third of this going to exploring greenfield sites which, if developed, can create high-paying jobs and supply-chain opportunities in regional Australia.²⁸

The growth in demand for advanced technologies will result in larger markets for critical minerals (such as rare earth elements) as well as for key metals like iron ore, copper, zinc and nickel. However, Australia's comparative advantage in resources exports is not guaranteed. Government policies must attract greater exploration investment and support the development of new mines for Australia to maximise the potential of its mineral endowments.

Attracting more investment in greenfield exploration must be a priority for Australia. Although exploration expenditure is currently rebounding strongly during this period of high prices, it is not identifying many prospective new deposits that could be considered future tier one or tier two assets. Geoscience Australia's report, *Australia's Identified Mineral Resources 2020*, shows that for many commodities, including copper and nickel, Australia's Economically Demonstrated Resources are not increasing. Exploration investment is instead focused on sustaining existing production at mines already in operation rather than unlocking deposits at new sites.

A closely related issue is that Australia still remains underexplored, particularly at greater depths. Government programs that are generating precompetitive data are playing a key role in narrowing the search space for commercial exploration programs; but more funding for these programs is needed to speed up the rate of discovery and attract greater greenfield exploration investment. The returns on such programs can be significant. Recent modelling by ACIL Allen shows the benefit-cost ratio of the exploration of the East Tennant area undertaken as part of phase one of Geoscience Australia's *Exploring for the Future* program could be as high as \$51 in benefits for every dollar invested.²⁹

To maximise the economic returns to Australia from exploration, the Government should commit further funding to increase exploration investment and improve the chances of successful exploration programs. This requires expanding and permanently funding the *Exploring for the Future* program and funding the integration of state geological data into a seamless national system that could assist in identifying potential mineral systems. While it is important to maintain the Junior Minerals Exploration Incentive, further assistance should be provided through a national grants program for priority greenfield exploration by junior miners.

²⁸ Australian Bureau of Statistics, [Mineral and Petroleum Exploration](#), released 30 August 2021, table 4.

²⁹ ACIL Allen, [Exploring for the Future Program: Return on Investment Analysis](#), a report commissioned by Geoscience Australia.

Back technological innovation to unlock productivity gains

- Government collaboration with industry on regulations, research priorities and STEM education initiatives is necessary to develop the policy and regulatory settings, and workforce to realise the productive potential of digital transformation
- Investing in technology increases the amount of capital per worker and boosts labour productivity
- Australian mining is a world-leader in developing and adapting transformative technologies, including automated trucks, trains and drills, drones, remotely operated vehicles and robotic processes automations to perform repetitive tasks.

Recommendations

- Ensure regulatory frameworks are coordinated within the federal government, and where relevant with state and territory governments, to enable the mining industry to adopt transformative technologies such as drones, electrification and internet of things devices
- Make strategic investments to support sovereign capability in critical technologies
- Ensure appropriate government investment to combat ever-increasing cybersecurity threats.

Achieving productivity growth is key to improving business performance and increasing the standard of living of all Australians. Investing in technology increases the amount of capital per worker and boosts labour productivity.

Australian mining produces commodities that are indispensable to modern life, such as iron ore and metallurgical coal for steel, aluminium for aeroplanes and vehicles, zinc for galvanising steel, copper for computer circuitry and electric cars, nickel for stainless steel and batteries, rare earth elements for permanent magnets and medical devices, lithium for lightweight batteries, thermal coal and uranium for electricity, gold for aerospace and advanced medicine, and silver for telecommunications and solar panels.

Supported by rising urbanisation rates, rising incomes and the transformation to net zero emissions, the technology-led productivity growth that has lifted the incomes and improved the living standards of millions of people in highly populated economies will continue to be the driving force of higher commodity consumption.

Technology is also driving change across the mining industry and making the industry more sustainable, energy efficient and productive.

Australian mining is a world-leader in developing and adapting transformative technologies, including autonomous equipment and remote operations centres, artificial intelligence, augmented and virtual reality, drones, advanced robotics, the internet of things, digital twinning, electric batteries and advanced data analytics. These transformative technologies will improve safety, increase productivity and decarbonise the Australian mining industry.

The digital transformation of the mining industry will require tens of billions of dollars of investment by mining companies. This investment will make existing mines more productive and previously uneconomic mineral deposits commercially viable. It is therefore essential that government policy frameworks support and encourage the investment necessary for the digital transformation to occur.

Regulatory settings for both processes and approaches must be supportive of businesses investing in new productivity enhancing technologies. The potential benefits from governments amending regulations to keep pace with emerging technologies are large.

For example, the New South Wales Productivity Commission, as part of an inquiry into regulating emerging technologies, commissioned the Centre for International Economics (CIE) to examine the potential gains from moving to risk based regulation of drones in the agricultural sector in NSW. CIE

found that if the Civil Aviation Safety Authority (CASA) moved to risk based regulation, it could deliver up to \$500 million in net benefits for the state in today's dollars by 2041.³⁰

The MCA welcomed the Australian Government's Blueprint for Critical Technologies and The Action Plan for Critical Technologies, which highlight the opportunities and the challenges from the technology transformation.³¹ To build sovereign capability and ensure there is choice in cost-effective systems, the Australian Government should make strategic investments in technology firms such as the recent purchase of Digicel Pacific rather than pursuing mandates or restricting access to technology vendors.

The Australian Government's Blueprint for Critical Technologies acknowledges evolutions in technology can create new opportunities for malicious actors and cyber criminals to target and exploit Australian industry for their own profit. This builds on the Parliamentary Joint Committee on Intelligence and Security's recent assessment that 'Australia faces a very serious and rapidly deteriorating cyber security environment'.³²

Australian mining is exposed to cyber security threats and while businesses have a role in protecting themselves, there is an undeniable role for government to raise awareness about cybersecurity and protect Australia's economic interests. Therefore, it is imperative that the Australian Government commits the necessary investment to cybersecurity measures to develop an effective national cybersecurity ecosystem, which will support the adoption of new, advanced productivity enhancing technologies in all Australian industries, including mining.

³⁰ NSW Productivity Commission, [Research and Discussion Paper Regulating emerging technologies](#), 2021, p. 29, viewed 14 December 2021.

³¹ Australian Government, [Blueprint for Critical Technologies](#), 2021, viewed 15 December 2021; Australian Government, [The Action Plan for Critical Technologies](#), 2021, viewed 15 December 2021.

³² Parliamentary Joint Committee on Intelligence and Security, [Advisory report on the Security Legislation Amendment \(Critical Infrastructure\) Bill 2020 and Statutory Review of the Security of Critical Infrastructure Act 2018](#), September 2021, p.iii.