Minerals Council of Australia

ESG

Change for the better

How Australia's minerals industry is addressing environmental, social and governance risks and opportunities.

Committed to ESG
Australian mining

minerals.org.au

The Minerals Council of Australia is committed to the development of policies, strategies and partnerships that support and improve mining's ESG performance. Here's a snapshot of programs and activities:

MINERALS COUNCIL OF AUSTRALIA

E
ENVIRONMENT

MCA CLIMATE ACTION PLAN
Commitment to the Paris Agreement and industry ambition of net zero by 2050

WATER ACCOUNTING FRAMEWORK
Developed a world-leading water accounting and reporting system for industry globally

TAILINGS MANAGEMENT
Contributed to the Global Industry Standard on Tailings Management

ENDURING VALUE
Industry commitment to sustainable development with a practical guide to implementation

S
SOCIAL

FIRST NATIONS PARTNERSHIPS
Implementing a plan to enhance industry skills, capability and engagement

RESPECT@WORK
An industry code and toolkit that recognises and helps prevent sexual harassment in mining

MENTAL HEALTH BLUEPRINT
Developed the Minewell app to support the mental health of mine workers

LAND USE PARTNERSHIPS
Collaboration on shared land use guide and code of conduct for explorers

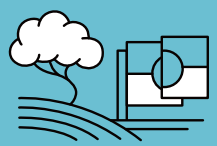
G
GOVERNANCE

TOWARDS SUSTAINABLE MINING
Tracking site-level ESG management performance

RESPONSIBLE BUSINESS CONDUCT
Supporting businesses to detect, prevent and address bribery and corruption risks

ELIMINATING MODERN SLAVERY
Released guidance to address risks associated with COVID-19

RESPECTING HUMAN RIGHTS
Promoting the UN Guiding Principles on Business and Human Rights



ACKNOWLEDGEMENT OF COUNTRY

The MCA acknowledges and pays its respects to past, present and emerging Traditional Custodians and Elders and the continuation of cultural, spiritual and educational practices of First Nations peoples.

Warning Please be aware that this publication may contain the names or images of Aboriginal and/or Torres Strait Islander people who may now be deceased.

Creating value through ESG

The success of Australia's minerals industry, both now and in the future, depends upon its ability to operate in line with community expectations on environmental, social and governance (ESG) performance.

Strong ESG performance creates shared value for workers, communities, investors and broader society. How the industry operates is as important as what it produces.

Minerals projects must be safe and environmentally and socially responsible in order to both make an economic contribution and support societal ambitions, such as those expressed in the United Nations Sustainable Development Goals and the Paris Agreement on climate change.

Australian companies are global leaders in innovative, high-tech mining and lead the way in ESG practice. The Australian industry's sustainability credentials are recognised globally, and its expertise and leading practice is exported around the world.

In 1997, the MCA developed a sector-first Code of Environmental Practice, establishing the industry as a global leader. In 2005, *Enduring Value – The Australian minerals industry framework for sustainable development* was a public commitment by the industry to improve ESG performance, contributing to sustainable development.

Today, MCA member companies are preparing to adopt the Towards Sustainable Mining (TSM) ESG management system.

TSM will provide greater accountability and transparency of the industry's management at the site level – where it matters most.

Good ESG performance is built off investment in workforce skills and capability, research, new technologies and innovative practice to improve safety and workforce diversity, drive down emissions and water use, support biodiversity and reduce waste.

The emerging focus on recycling, reuse and reimagining of resources – the circular economy – is an example. Partnerships with local communities, Indigenous Australians and civil society are enabling the industry to support local aspirations and improved environmental outcomes. This enhances business value.

Listening and collaborating with communities, First Nations partners, investors and customers has been central to this approach. The industry has a long history of working together to share leading practice and drive ESG performance across the sector and beyond.

There are still challenges to overcome. In instances where the industry does not meet community expectations, it listens, learns and redoubles efforts to improve performance.

By embedding ESG in company values, commitments, systems and culture, Australia's minerals industry will remain the responsible supplier of choice to provide the materials needed to support a net zero, sustainable future.

Case studies in this report demonstrate the industry's approach to ESG performance. They provide real examples of the strong commitment, investment and innovation occurring across the whole sector. Regardless of size or commodity, Australia's mining companies are translating ESG commitments into action.

The Australian minerals industry remains committed to doing more. These ongoing efforts will ensure the industry keeps pace with changing community expectations and fully realise the opportunities afforded by responsible minerals development.

Tania Constable
Chief Executive Officer
Minerals Council of Australia

Embedding ESG in company values, commitments, systems and culture will ensure the Australian minerals industry remains the responsible supplier of choice.

ESG *Australian mining*
across the mine lifecycle

Lifecycle of a mine

1 EXPLORATION

During exploration, geological data is collected and analysed to identify mineral deposits and determine the economic feasibility of extraction. Community engagement often forms part of an exploration program.

2 MINE PLANNING

Mine planning addresses regulatory, financial and technical aspects of a project. It focuses on safety and operational risks, assesses environmental and social impacts and plans for future mine rehabilitation.

3 MINE CONSTRUCTION

Constructing a mine site involves building roads, bridges, airstrips, processing facilities, employee camps and in some cases, even schools, medical facilities and recreation areas.

4 MINE PRODUCTION

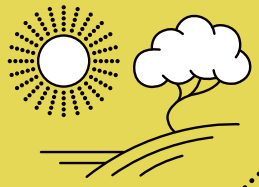
Production begins with the extraction of ore from an open pit or underground mine. The ore is crushed to separate valuable minerals before refining and smelting, or transported for export. Progressive rehabilitation may be undertaken.

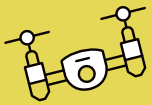
5 MINE CLOSURE

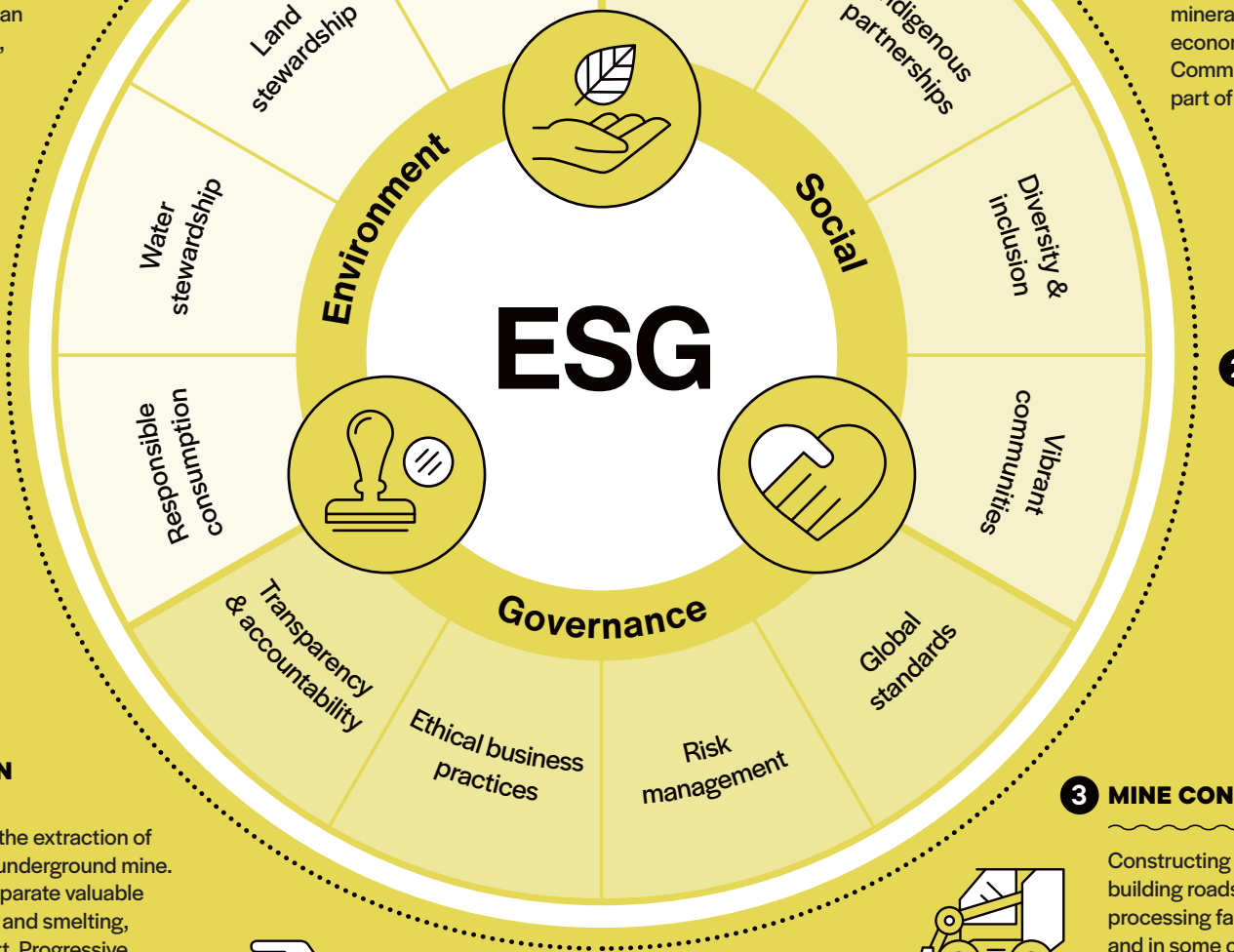
Mine closure occurs when the resource extraction comes to an end. Companies work with authorities and communities to implement previously agreed rehabilitation and closure plans.

6 RELINQUISHMENT

Relinquishment is the handover of a rehabilitated mine to the government or community. Future land uses can include agriculture, conservation, water storage, renewable energy or even a community space.







There's more to
Australian Mining

Contents

Embedding good environmental practices

Good environmental performance is central to modern mining practices.

Climate change, air quality, water, noise, tailings management and biodiversity conservation are key aspects of the industry's environmental management. So too is the management of non-mining land and the rehabilitation of mined land.

As scientific understanding, technology and community expectations have changed, so has industry's approach. Significant investment over many decades has resulted in substantial improvements in the industry's environmental performance.

While there will always be a strong focus on responsible on-site environmental management, industry also partners with local communities, First Nations landholders and groups, non-government organisations and others to support broader environmental objectives.

Climate action

The Australian minerals industry has a clear ambition to achieve net zero emissions by 2050. The MCA Climate Action Plan outlines how member companies are taking action on climate change as part of the sector's commitment to the Paris Agreement.

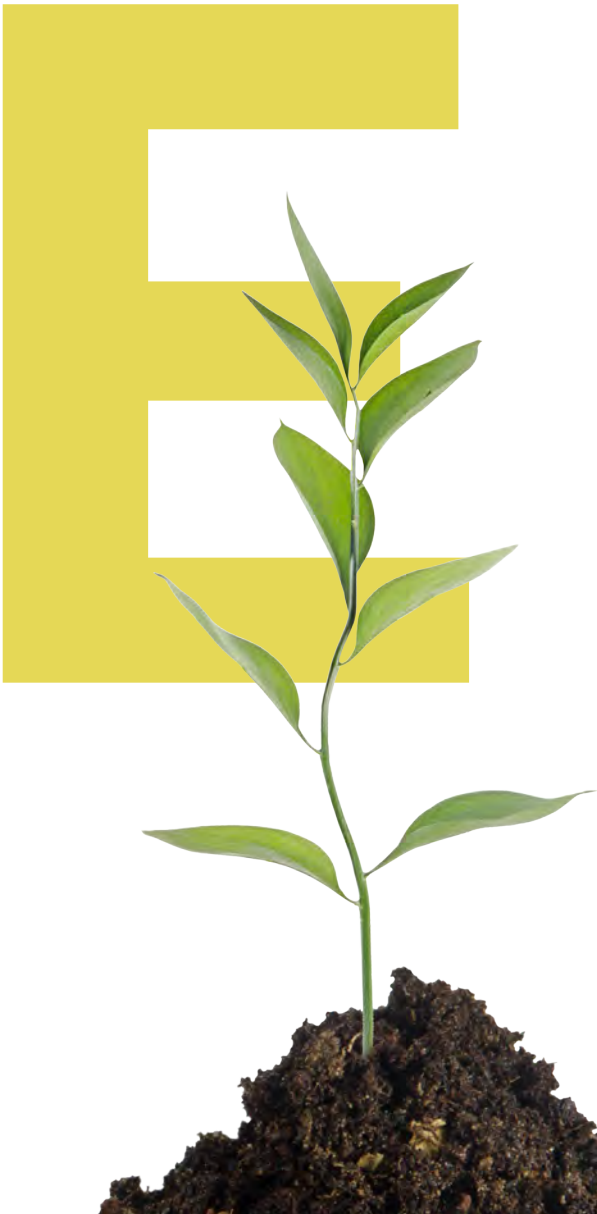
The Climate Action Plan consists of three overarching goals and ten climate actions supported by 30 individual measures. Collectively the measures aim to assist members implement their own independent short and longer-term climate responses and enhance the sector's capacity to transform to net zero emissions.

Significant opportunities exist in new energy sources (transition to renewables, nuclear, biofuels, and carbon capture use and storage); greater resilience (new production processes, and developing new products) and resource efficiency (technological innovation to assist transitioning to more efficient production and distribution processes).

Activities identified for facilitating emissions reductions at scale include: energy efficiency initiatives, renewable energy to replace current emitting energy sources, gas capture, flaring of underground emissions, ventilated air methane abatement, and funding medium-longer term carbon neutral initiatives.

The minerals sector continues to implement a technology-led transformation for the manufacture of cleaner energy and low emissions production. The opportunity this presents Australia's minerals industry is vast.

Key metals and minerals such as lithium, copper, uranium and rare earth elements will underpin energy generation, storage and emerging technologies, representing a significant opportunity for the industry.



"Australian mining is a global leader in environmental performance, but this needs to be showcased from mine sites to the boardroom so that communities trust actions will meet our words."

THE HON HELEN COONAN
Chair | **Minerals Council of Australia**

Land stewardship

Working with local farmers, communities and Traditional Owners, the industry is committed to land use co-existence, progressive rehabilitation and supporting alternative post-mining uses, including agriculture and conservation.

Land rehabilitation is considered across all stages of mine development and operation. The industry's approach to rehabilitation has improved significantly over past decades driven by sustained company investment in research to strengthen the science underpinning rehabilitation methods, evolving community expectations and corporate values.

Establishing farmland, recreational areas, protecting cultural assets and preserving biodiversity can all form part of the closure plan. Rehabilitation is broader than returning land to its former state, it's about leaving a positive legacy. This means ensuring previously mined land has ongoing social, economic or biodiversity values and supports communities transition after the mine closes.

The preservation of biodiversity and the protection of wildlife is part of the development, operation and closure planning of every mining project. Minerals companies contribute to the recovery of threatened species through data collection and research. The industry supports innovation and the inclusion of Indigenous knowledge, where culturally appropriate. Voluntary conservation initiatives also contribute to biodiversity outcomes.

Safe tailings management is a priority of the minerals sector. Government and industry collaboration has ensured Australian codes, guidelines and practice are a global good practice benchmark.

Driven by recent tragedies overseas, companies have stepped up international collaboration, contributing to a new global standard to support safe tailings management around the world. The industry is also supporting the development of new technologies to reduce tailings waste and eliminate water, and is also investing in building future tailings expertise.

Water stewardship

The minerals industry has a long-standing commitment to responsible water stewardship. Water is recognised as a shared resource with multiple social, cultural, environmental and economic values.

The industry is a global leader in water use transparency. Through the MCA, the industry developed a sector leading Water Accounting Framework (WAF), which is used globally and reflected in international reporting standards.

The WAF provides the basis to understand operational water use and its interaction with the surrounding environment and communities. This enables companies to manage both water risks and opportunities.

The industry is working together to improve water stewardship, from strong corporate leadership and governance through to site operations. Industry-led approaches, such as the Towards Sustainable Mining sustainability system and investment in new technologies and practices, continue to support good water management.

Industry generally supplies its own water infrastructure and often makes this available to other water users. Water is often extracted primarily to enable safe operations and may not be used in the mining process. Where feasible it is made available for other purposes including environmental water or agricultural production.

Industry partnerships with landholders, catchment management groups, Traditional Owners and other businesses is an increasing focus. Collaboration based on active participation and leveraging local and Indigenous knowledge, where culturally appropriate, is leading to improved community outcomes and a more resilient environment.

Industry initiatives

TOWARDS SUSTAINABLE MINING
Tracking site-level ESG management performance

CLIMATE ACTION PLAN
A commitment to the Paris Agreement and its net zero by 2050 ambition

WATER ACCOUNTING FRAMEWORK
World-leading site-level water accounting and reporting system

ENDURING VALUE
Commitment to sustainable development principles and implementation guidance

"We direct our efforts not only to minimise impact, we also seek to deliver positive and lasting environmental outcomes."

TYLER MITCHELSON
CEO Metallurgical Coal, Anglo American

Responsible consumption and the circular economy

The minerals industry is using technology to improve operational efficiencies, reduce consumption and produce more with less. A strong focus on minimising waste is supported by the development of the circular economy which is generating new opportunities to recycle and reuse the materials used and produced by the industry.

The industry is at the forefront of effectively managing the lifecycle use of resources through a focus on product stewardship. This is achieved by working with international customers to deliver more efficient and cleaner ways of producing end-products using new technologies.

The development of new technologies will improve operational efficiencies and the generation of mine waste (e.g. tailings). Sensor technology is allowing more selective mineral processing to improve metals recovery while reducing water, chemical and energy inputs, as well as maximising the lifespan of equipment. Autonomous truck haulage and railway networks are improving productivity and fuel efficiency, while reducing greenhouse gas emissions.

Improving practices to minimise waste generation through increased recycling and repurposing of materials is reducing the environmental footprint of mining.

The industry is working in partnership with research institutions and other sectors to enhance environmental management of wastes through their life cycle, avoiding or minimising landfill for mining consumables including waste oils and tyres.

Australia's minerals industry is committed to continual improvement

- Implement the MCA Climate Action Plan to support industry's ambition of achieving net zero emissions by 2050
- Facilitate leading practice tailings management and engage in global initiatives to enhance performance
- Support material use innovation to reduce waste and enable industry to fully engage in the circular economy
- Partner with others to support innovative regional-based approaches to land use planning and biodiversity
- Progress the second tranche of CRC – Transformations in Mining Economies to ensure sustainable post mining landscapes and vibrant communities
- Encourage innovative cross-industry partnerships to enhance catchment based water stewardship
- Support integration of Indigenous knowledge into environmental practices, where permitted by custodians.

Net zero
EMISSIONS BY 2050
The minerals industry's ambition to achieve net zero emissions by 2050.
MCA

<0.1%
LAND USE
Australian land mass temporarily disturbed by mining activities.
Department of Agriculture, Water and the Environment

3.2%
WATER SHARE
The mining industry's share of national water consumption in 2018-19.
Based on ABS

$257m
WATER VALUE ADD
Gross added value per gigalitre of water used by the mining industry in Australia.
ABS

Natural landform restoration at Glencore's Mangoola coal operation in the Upper Hunter.

Natural landform rehabilitation at Mangoola

Glencore has set the industry benchmark for natural landform restoration at its Mangoola coal operation in the NSW Upper Hunter Valley.

Since 2011, the Mangoola team has progressively rehabilitated 790 hectares of mined land by incorporating natural slopes and drainage suited to native vegetation and returning wildlife.

Fauna monitoring in the rehabilitated area has identified wombats, rednecked and swamp wallabies, eastern grey kangaroos, wallaroos, short-beaked echidnas, brushtail possums, microbats, tree goannas and five species of frogs.

Various reptiles have also taken up residence including bearded dragons, brown snakes and eastern longneck turtles, as well as over 50 woodland bird species.

E

Environmental performance
Case studies

- Climate targets
- Renewable energy
- Hydrogen precinct
- Mine rehabilitation
- Electric vehicles
- Water stewardship
- Land use coexistence
- Tailings management
- Carbon capture and storage
- Blue carbon potential
- Low carbon steel
- Critical minerals

"This is about us as an industry having the courage to set targets that make us uncomfortable."

TOM PALMER
President and CEO | **Newmont**

Industry ambition of net zero by 2050

The MCA has confirmed the industry's ambition to achieve net zero emissions by 2050 in support of the goals of the Paris Agreement.

The launch of the MCA Climate Action Plan in June 2020 was a clear commitment to do the work needed to achieve net zero emissions. To reach this objective, the MCA and its member companies continue to invest in research to better understand the technologies and practices necessary to achieve decarbonisation across the sector.

Since then, the industry has acted with major members announcing collaborations with key equipment providers to develop zero emissions haulage, and increased deployment of renewables at mine sites.

A more sustainable minerals sector is not only important for Australia's post-COVID recovery, it is also providing the critical raw materials necessary for modern and emerging economies to flourish.

Newcrest's Cadia gold mine near Orange in New South Wales.

Mine sites increasingly powered by renewables

Mine sites across Australia are increasingly being powered by renewable energy.

Newcrest intends meeting the future energy requirements of Cadia gold mine through renewable power sourced from the Rye Park wind farm in New South Wales.

It struck a 15-year power purchase agreement (PPA) contracting for more than 40 per cent of Cadia's projected energy demand from 2024, when the wind farm is expected to commence operations. The PPA is expected to help deliver a 20 per cent reduction in Newcrest's emissions intensity.

Over in the west, Rio Tinto is building a 34 MW solar farm at Gudai-Darri in the Pilbara. Around 100,000 photovoltaic solar cells will generate electricity for its newest iron ore mine due to come online in late 2021.

The solar farm will be complemented by a 12 MWh battery in Tom Price that will provide spinning reserve generating capacity to support a stable, reliable network. Combined, the solar plant and battery will reduce Rio Tinto's annual greenhouse gas emissions by an estimated 90,000 tonnes compared to conventional gas powered generation.

Rio Tinto's Weipa operation in Queensland is already powered by on-site solar energy. Rio Tinto is committed to scaling up deployment including finding green energy solutions for its Boyne and Tomago smelters on the east coast of Australia.

“Idemitsu has a long standing commitment to Muswellbrook. We want to do what we can to turn an otherwise empty pit into an exciting new project that provides jobs.”

STEVE KOVAC
CEO | **Idemitsu Australia**

Renewables precinct planned for Australia’s oldest coal mine

Idemitsu Australia has unveiled an ambitious masterplan for a renewable energy, training and industrial precinct as part of its future plans for Muswellbrook coal mine in the Upper Hunter.

Idemitsu has been working with AGL Energy to develop the Bells Mountain 250 MW pumped hydro project at the site. Now it’s exploring the feasibility of adding large scale solar and integrating battery storage. Idemitsu has also opened up part of the site to a consortium led by Energy Estate to develop green hydrogen production facilities for local use in refuelling and industry.

Idemitsu has been operating for 40 years in Australia, and supports more than 1000 jobs at its coal mining operations in Queensland and New South Wales.

Idemitsu has a long history of developing renewable energy projects in Japan, and is committed to developing hybrid renewable energy technologies that support regional communities and existing mining operations.

New Hope has rehabilitated more than 700 hectares of mined land at its New Acland mine.

Responsible water management

New Hope Group’s New Acland coal mine in Queensland is 100 per cent self-sufficient when it comes to mine water supply. This includes using recycled water purchased from the Toowoomba Regional Council’s Wetalla wastewater reclamation facility.

New Hope built a $30 million pumping station and pipeline to carry the treated wastewater from Wetalla to the mine. Less than 30 per cent of Wetalla’s water is purchased by New Hope with the majority of the water discharged down Gowrie Creek, making this available to local irrigators.

Since 2002, New Hope has progressively rehabilitated 719 hectares of mined land at its New Acland operations on the Darling Downs. Around 505 hectares of the rehabilitated land is now used for grazing between 150-200 cow/calf units.

Miners’ shared vision for low emissions trucks

From light passenger utilities to large haul trucks, the switch to electric and hybrid vehicles on mine sites across the country is making a real difference in reducing emissions.

At Tropicana gold mine near Kalgoorlie in Western Australia, AngloGold Ashanti (70 per cent and manager, Regis Resources 30 per cent) is working with mining contractor Macmahon to upgrade the current fleet of diesel haul trucks by trialling six new electric haul trucks to reduce diesel consumption.

Meanwhile, Anglo American is developing a hybrid haul truck that uses a lithium-ion battery and a hydrogen fuel cell module. If successful, it will become the world’s largest hydrogen powered truck.

The Komatsu Greenhouse Gas Alliance, including BHP and Rio Tinto, is collaborating on the next generation of zero emissions equipment. Its initial target is advancing Komatsu’s power agnostic truck concept that can run on a variety of power sources including diesel electric, electric, battery power and even hydrogen fuel cells.

An electric haul truck at Tropicana gold mine.

WATCH THE VIDEO

ENVIRONMENT. SOCIAL. GOVERNANCE.

Anglo American rehabilitated more than 400 ha of mined land in 2020 – the equivalent of more than 200 MCG football ovals.

Graziers make good use of mined land

A focus of mine restoration is rehabilitating mined land to provide ongoing value to communities.

At Anglo American's Dawson metallurgical coal mine in Central Queensland, farmers are reaping the benefits of a decade-long program of progressive rehabilitation.

A 165-hectare pit originally used as a spoil dump and topsoil stockpile is now used for agriculture. Cattle grazing on the restored land and drinking from a repurposed pit dam have shown strong weight gain.

Native pasture grasses were part of the reseeding program, as well as shrub and tree species including brigalow, silver-leaved ironbark and bottle trees.

Grazier Michael Kucks and Anglo American's Larry Hantler.

Miners collaborate on global tailings management

The safe management of tailings facilities around the world is the focus of a five-year partnership between the University of Western Australia, Rio Tinto and BHP.

Future Tails aims to build talent and capability across the industry through training, research, education and practice in line with the Global Industry Standard on Tailings Management, which was released in August 2020.

Jointly funded by Rio Tinto and BHP, the initiative includes leading-edge training; technical publications on tailings analysis, design, operation and management, and research collaborations to drive innovation.

While tailings management practices in Australia are advanced and highly regulated, the industry is committed to continual improvement as part of its culture of safe and responsible resource development.

Future Tails will help ensure that high quality expertise is available globally for the continued safe operation of tailings and waste facilities.

Rendered image of proposed CO_2 capture plant at Millmerran power station.

Carbon capture and storage in Queensland's Surat Basin

One of Australia's most advanced onshore Carbon Capture, Use and Storage (CCUS) projects is being developed by Glencore's Carbon Transport and Storage Company (CTSCo).

The project will demonstrate large-scale capture and permanent storage of CO_2 emissions in Queensland's Surat Basin. This basin has the potential to store up to three billion tonnes of captured CO_2 safely, providing significant environmental benefits and supporting emissions reduction targets.

CTSCo will show a pathway to a commercial scale CCUS plant to capture CO_2 emissions from one of Australia's youngest baseload generators. This could be followed by similar emissions solutions at other generators and in industries such as cement and chemicals.

Investment in CCUS will boost energy security and regional jobs and support future industries, such as hydrogen production.

Mitsubishi Development has funded research into the carbon sequestration potential of mangroves.

Exploring blue carbon potential in the Daintree

Jabalbina Land and Sea Rangers will head up scientific monitoring of world heritage mangrove forests in the Daintree following a successful ecological partnership between Mitsubishi Development and Earthwatch Institute Australia.

The $450,000 research program called Understanding Queensland's Blue Carbon Resource successfully contributed to the assessment of the health of the wetlands and the capacity of mangroves to store and sequester carbon emissions. This critical research will inform greater conservation and understanding of blue carbon ecosystems, which could help Australia move to a low carbon future.

Indigenous Ranger groups are being equipped with the citizen science tools and training by Earthwatch to undertake ongoing data collection and enhance their participation in the blue carbon market.

Supporting the land conservation efforts of the Traditional Owners was an important focus for Mitsubishi Development. The Jabalbina Rangers hold critical knowledge about the history of the mangroves which has added significant value to the research.

"We are encouraged by early testing results of this new process, which could provide a cost-efficient way to produce low-carbon steel from our Pilbara iron ore."

SIMON TROTT
Iron Ore Chief Executive | **Rio Tinto**

Rio Tinto sets sights on low carbon steel

Rio Tinto is developing a new steel making process combining sustainable biomass with iron ore to deliver low carbon steel.

More than 70 per cent of Rio Tinto's Scope 3 emissions come from its customers converting iron ore into steel – one of the world's most heavily emitting industries.

This new patent-pending process uses plant matter known as lignocellulosic biomass instead of coal as a chemical reductant. The biomass is blended with iron ore and heated by a combination of gas released by the biomass and high efficiency microwaves that can be powered by renewable energy.

Lignocellulosic biomass includes agriculture by-products (i.e. wheat straw, corn stover, barley straw, sugar cane bagasse) and purpose-grown crops, which would be sustainable sources for the process. Rio Tinto would not use biomass sources that support logging of old-growth forests.

Rio Tinto is testing the technology in a small pilot plant and if successful, the technology could potentially be scaled commercially to support its decarbonisation efforts.

Yancoal's Environment and Community Superintendent Emily Evans at Lake Kepwari.

"Yancoal has transformed the former mine site into a popular attraction for water sports, which will assist in diversifying Collie's economy and providing jobs."

DAVID MOULT
CEO | **Yancoal**

Premier Coal Mine c. 1980s

From open-cut mine to water sports hub, Lake Kepwari is a landmark

Lake Kepwari near Collie in Western Australia is testament to the mining industry's commitment to rehabilitation.

An integral part of the community for many years, Yancoal's Premier Coal Mine provided jobs, infrastructure and support for local organisations.

Rehabilitation works began in the 1980s and ran alongside the operation up to and beyond the mine's closure in 1996.

Erosion gullies were filled and re-seeded and the Collie River was rerouted back through the lake to improve water quality, fish life and support ecosystem development.

Yancoal's Environment and Community Superintendent Emily Evans said the project exceeded the usual aims of mine rehabilitation.

"We've been able to create a space that has a future land use of recreation. We are one of the first mining companies to have done that and we're pretty proud," said Emily.

Mt Weld rare earths in Western Australia.

Lynas takes 'mine to magnet' approach

From wind turbines to catalytic converters to electric and hybrid vehicles, rare earth elements are used extensively in clean energy technologies.

Spearheading the burgeoning rare earths industry in Australia is Lynas Rare Earths. Lynas is the world's only significant producer of separated rare earths outside of China.

Lynas' Mt Weld operation is one of the world's highest grade rare earth deposits. A responsible supplier of choice, Lynas offers customers products with assured provenance from mine to finished product.

Other projects under development in Australia include Arafura Resources' Nolans project in the Northern Territory. Arafura has the potential to supply 5 to 10 per cent of the world's rare earths magnet supply.

In Victoria, mineral sands producers such as Donald Mineral Sands, Murray Zircon and VHM Limited are potential rare earth producers.

Lithium producers critical to EV demand

Global demand for electric vehicles and the transition to renewable energy is behind the surge in demand for lithium. Already the world's largest lithium producer, Australia is moving downstream into battery grade lithium hydroxide.

The Kemerton plant in Western Australia, jointly owned 60/40 by Albemarle and Mineral Resources Limited as part of the MARBL Lithium JV, will be one of the world's largest lithium refineries when target production is reached.

In the Northern Territory, construction has begun on its first lithium mine, Core Lithium's Finniss project near Darwin Port. The project will create 250 jobs, with targeted annual production of 173,000 tonnes of high quality lithium concentrate.

Other mines and lithium hydroxide plants are scheduled as world demand grows.

Albemarle's Kemerton plant near Bunbury.

Vimy's Mulga Rock uranium project has received key state and federal approvals.

Nuclear: a zero emissions energy solution

Australia has one-third of the world's uranium resources which will be increasingly critical to global decarbonisation efforts.

As the third largest uranium exporter, electricity produced globally by Australia's uranium is equivalent to 96 per cent of Australia's total annual electricity generation – and all with zero emissions.

Small modular reactors (SMRs) are the next generation of nuclear technology and a real prospect to meet the energy challenges ahead for Australia.

SMRs are safer, cheaper, scalable and importantly for Australia, could help to replace baseload power lost through rolling closures of our oldest power stations.

Australia's uranium producers have an eye to the future. Boss Resources' Honeymoon (SA) is preparing to restart production after being mothballed in 2013. Other projects include Vimy Resources' Mulga Rock, which could be Western Australia's first uranium mine, as well as Cameco's Yeelirrie and Toro Energy's Wiluna, also in WA.

Honeymoon mine in South Australia.

Honeymoon resets with green focus

Uranium miner Boss Energy is preparing to restart operations at its Honeymoon mine in South Australia, and at the forefront of its mind is environmental stewardship.

Demonstrating safe and environmentally-sound uranium production is key to an operation's regulatory requirements, as well as its social license to operate.

Boss Energy is pursuing technological advancements to both avoid environmental impacts and improve environmental monitoring and management.

The company is transitioning Honeymoon from solvent extraction to newly developed ion exchange technologies, improving groundwater quality, during and after mining.

Boss Energy is also partnering with Heathgate Resources and Australia's national science agency, CSIRO, on the new Vesi™ groundwater monitoring system, which uses sensor technologies to deliver continuous real-time data.

Green initiatives

Australian mining

Australia's minerals industry is committed to sustained investment in practical environmental measures ranging from emissions reduction to water conservation to the recovery of threatened species. Here are just a handful of environmental initiatives underway across the country.

Ghost bats
Kirkland Lake Gold

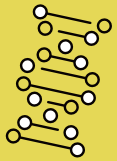
KL Gold has monitored a population of rare ghost bats near its Union Reef project since 2018. Its work is helping researchers understand how to protect the species.

Battery energy storage
Rio Tinto

A lithium-ion battery at Gudai-Darri will store energy from Rio Tinto's 34 MW solar farm, reducing annual CO_2 emissions by about 90,000 tonnes.

Forest restoration
Newmont

Newmont has been working with Greening Australia to restore around 470 ha of farm land back to native Jarrah Forest as part of its biodiversity offset program.



Environmental DNA
BHP

BHP and Curtin University are trialling a new approach to biodiversity conservation using environmental DNA. eDNA will reveal more about rare species, including the Pilbara Olive Python, and how best to protect them.

Green hydrogen
Consortium

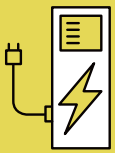
BHP, Fortescue, Anglo American and Hatch have established a green hydrogen consortium to tackle the industry's carbon emissions.

Water savings
St Barbara

St Barbara's Leonora operations have reduced water usage by 15 per cent through training, a structured audit program and efficiency measures.

Automated rail network
Rio Tinto

Rio Tinto's automated rail network has cut emissions by replacing the almost 1.5 million kms of annual road transport previously required.



Electric Land Cruisers
BHP

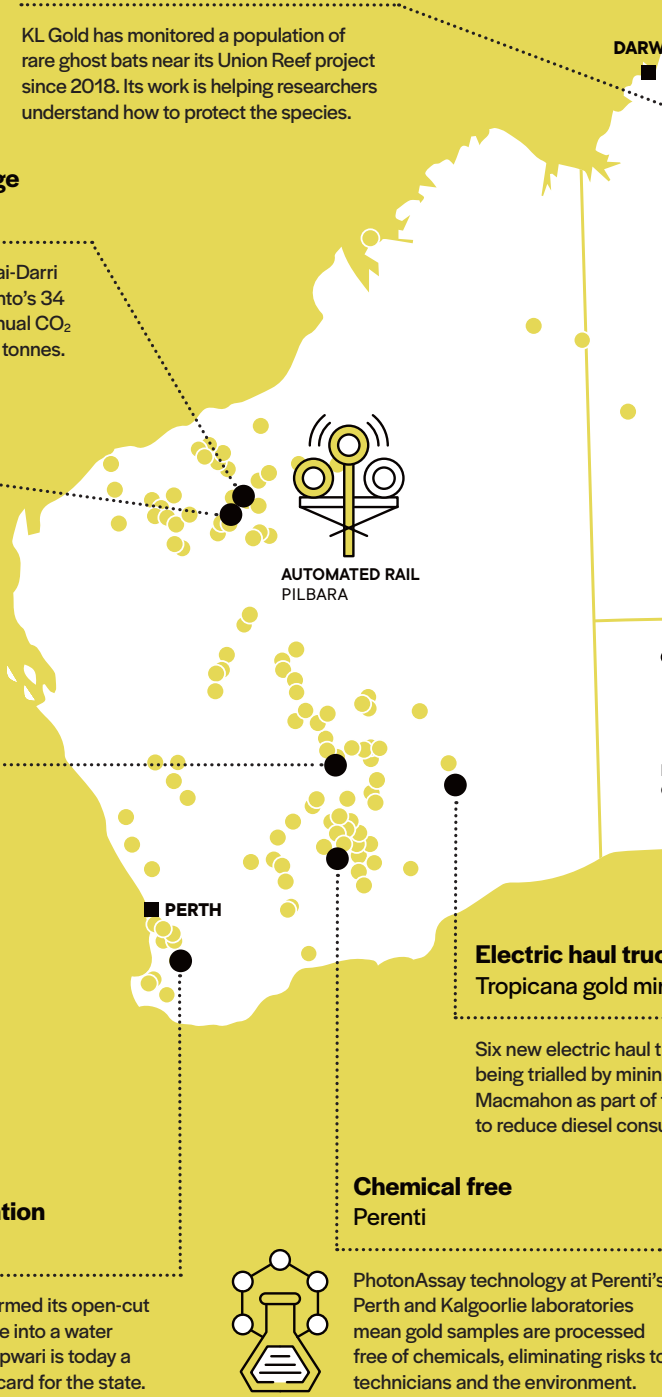
BHP is expanding its electric Land Cruiser pilot program to its iron ore and nickel businesses after successful testing at Olympic Dam.

Drilling efficiencies
MinEx CRC

MinEx CRC is developing world-first technologies and using real-time data analytics to reduce the environmental footprint of drilling projects.

Mine rehabilitation
Yancoal

Yancoal has transformed its open-cut coal mine near Collie into a water sports hub. Lake Kepwari is today a major tourism drawcard for the state.



Electric haul trucks
Tropicana gold mine

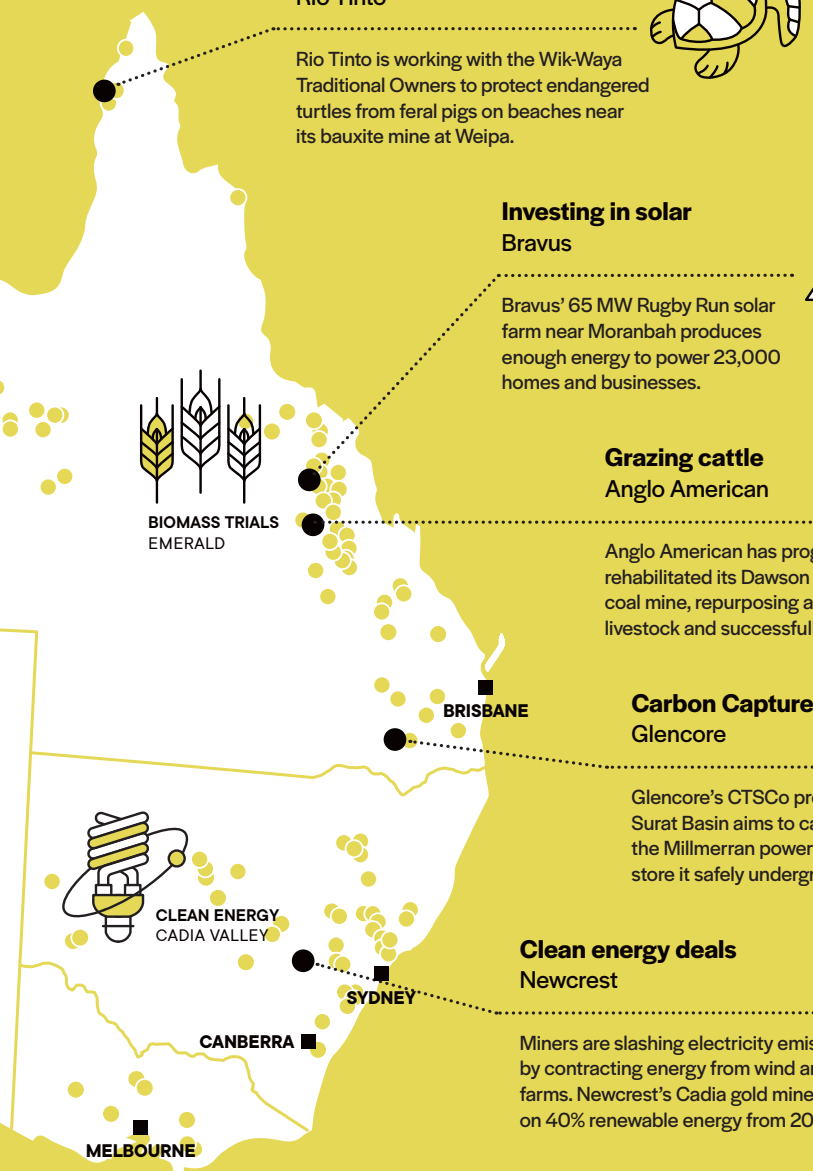
Six new electric haul trucks are being trialled by mining contractor Macmahon as part of fleet upgrades to reduce diesel consumption.

Chemical free
Perenti

PhotonAssay technology at Perenti's Perth and Kalgoorlie laboratories mean gold samples are processed free of chemicals, eliminating risks to technicians and the environment.

"We're integrating environmental, social and governance factors in all our decision making, focusing on reducing operational emissions and contributing to the decarbonisation of the industry."

MICHAEL WRIGHT
Executive Chairman and CEO | Thiess



Endangered turtles
Rio Tinto

Rio Tinto is working with the Wik-Waya Traditional Owners to protect endangered turtles from feral pigs on beaches near its bauxite mine at Weipa.

Investing in solar
Bravus

Bravus' 65 MW Rugby Run solar farm near Moranbah produces enough energy to power 23,000 homes and businesses.

Grazing cattle
Anglo American

Anglo American has progressively rehabilitated its Dawson metallurgical coal mine, repurposing a dam for livestock and successfully grazing cattle.

Carbon Capture & Storage
Glencore

Glencore's CTSCo project in the Surat Basin aims to capture CO_2 from the Millmerran power station and store it safely underground.

Clean energy deals
Newcrest

Miners are slashing electricity emissions by contracting energy from wind and solar farms. Newcrest's Cadia gold mine will run on 40% renewable energy from 2024.

Technology centres
Kirkland Lake Gold

KL Gold is investing US$75 million each year for the next five years in environmental technology centres to reduce its carbon footprint through innovation.

Methane capture
Anglo American

Methane captured at Anglo American's metallurgical coal mines is being used to generate enough electricity to power 90,000 homes.

Wombat colonies
Glencore

Glencore is helping secure the survival of the northern hairy-nosed wombat. Efforts include airlifting the endangered species from Epping Forest National Park to a new colony near St George.

Dual fuel trucks
Thiess

Thiess is partnering with Mine Energy Solutions to bring lower emission, dual fuel technology to its mining fleet by capturing and using fugitive methane.

Biomass trial
Idemitsu Australia Resources

Idemitsu is conducting a biomass trial near Emerald. Burning organic pellets creates fewer emissions and may prove an alternative to fossil fuels.

Climate funds
Newmont

Miners are creating climate funds, like Newmont's US$500 million investment in climate initiatives, to build the pathways to meet emissions reduction targets.

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ENVIRONMENT. SOCIAL. GOVERNANCE.

E

Building enduring partnerships

Industry is working harder than ever before to earn and maintain the trust of the people and communities with which it partners.

Respectful relationships, enduring community benefits and fair, transparent practices underpin trust in mining.

Achieving excellence in social performance requires focus across all of the social aspects of mining. This includes workforce and community health and wellbeing, First Nations and community partnerships, social and economic opportunity and community vibrancy and liveability.

Excellence in social performance also depends on strong relationships. Mining is working together with First Nations and regional communities, non-government organisations, governments and academia to demonstrate and strengthen social performance across the mining lifecycle.

Vibrant regional communities

From Central Queensland to the Hunter Valley and Bendigo to Port Hedland, the minerals industry is an important part of some of Australia's most diverse and vibrant regional communities.

The industry seeks to employ locals first, and works hard to attract and retain new workers in regional communities.

Regional Australia is home to some of the nation's most innovative mining equipment, technology and services companies. The industry aims to increase local procurement to support local businesses and keep economic benefits in mining communities.

A new generation of tradespeople, technical specialists and professionals are getting their start in mining. 2020 was one of the strongest on record for commencements in mining-related trades with over 1000 more apprentices and trainees than 2019.

The COVID-19 pandemic reinforced how strong relationships can help the industry quickly mobilise community support. Throughout the pandemic, companies have provided assistance to regional communities and local businesses, including grants. The industry also supported the rollout of vaccines through vaccination outreach and access in nearby regional and remote communities.

Indigenous partnerships

First Nations landholders and communities are fundamental partners in mining, and integral to the social and economic contribution mining makes to Australia.

The industry deeply values Aboriginal and Torres Strait Islander cultures, heritage and knowledge. The tragic destruction of the 46,000 year old caves at Juukan Gorge did not reflect industry's values.

Industry has strengthened heritage protection processes, increased its community engagement capability and reviewed operational and project plans. Co-developing and implementing heritage protection processes with Traditional Owners is the next step.

Economic independence through jobs, training and business opportunities is a long-standing priority for the industry. Indigenous people will make up around half of the working-age population in northern Australia by 2050.

Pathways in remote areas for young people to work on country are particularly important to communities. Mining is the largest employer of Indigenous men in remote areas. Increasing the number of Indigenous Australians in leadership and professional roles is another priority.

Another positive development is the emergence of Aboriginal-owned minerals projects. Gulkula and Winchelsea Mining in the Northern Territory are leading the way.

Health and safety

The safety, health and psychological wellbeing of the mining workforce – where everyone who goes to work returns home safe and healthy – is the industry's core

“We have always believed that our social licence to operate must be considered in every decision we make.”

REINHOLD SCHMIDT
CEO | **New Hope Group**

value and commitment. The industry is committed to eliminating fatalities, injuries and occupational illnesses and is working continually to achieve these objectives.

The minerals industry is taking action to eliminate sexual harassment and ensure respectful workplaces.

The MCA has developed an Industry Code on Eliminating Sexual Harassment that establishes clear expectations on companies in developing a culture of respect that empowers individuals to raise concerns in a supportive and protected way.

Honest, respectful and open communication is the key to eliminating sexual harassment.

Mental health is central to health and safety. The industry is delivering a range of programs that promote mental health and wellbeing, prevent problems, provide an effective and early response and integrate such programs within overall health and safety policy and practice.

To support the minerals workforce, the MCA has developed a Blueprint for Mental Health and Wellbeing Industry Guide and the MineWell mental health app to support prevention, intervention and education in mental health and wellbeing.

The industry continually invests in new technologies to reduce or eliminate safety hazards. This includes measures to avoid vehicle collisions, manage fatigue, eliminate air quality hazards and automating or enabling equipment to be controlled remotely.

Diversity and inclusion

Creating an environment in which everyone feels safe to bring their real and best selves to work is a priority for the industry. With more career pathways than ever, Australia’s mining industry needs motivated people of all ages, genders, cultures and experiences to enhance the future of mining.

Employing a diverse workforce has never been more important. To remain globally competitive and to attract the best and brightest, the mining industry needs the diversity of thought and experience that comes from employing people from different backgrounds.

The mining workforce also needs to reflect the communities in which miners live and work, and that means actively seeking a mix of people across age groups, caring responsibilities, cultural backgrounds, physical abilities, gender identity and sexual orientation.

98%

HIGHER EARNINGS

Women in mining are the highest paid of any industry with median earnings 98% above the national average.

ABS

22%

APPRENTICES

Trainees and apprentices in WA’s resources industry that identify as Indigenous.

CMEWA 2019

61%▼

WORKERS’ COMP

Reduction in workers’ compensation claims in the mining industry since 2000.

Safe Work Australia

"The minerals industry is committed to creating a culture that respects all people, eliminates sexual harassment, and supports and cares for people affected by unacceptable behaviour."

THE HON HELEN COONAN
Chair | **Minerals Council of Australia**

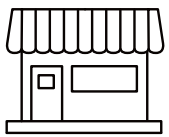
The MCA Industry of Choice Framework aims to position and promote the mining industry for job seekers, investors, employers, talent, and partners.

The Framework is built around global diversity and inclusion benchmarks and includes a single point of access for tools and resources on best practice.

A diverse workforce requires flexible training and education options and industry invests millions of dollars every year to equip employees with the skills they need for a fulfilling career.

From graduate programs to retraining for older workers, the industry regularly relies on local training by education providers in the regions.

Skills, education and training are critical pathways into careers in mining. The industry has invested in excess of $65 million in initiatives that target learners at the primary, secondary, tertiary and professional level. Through the MCA's Minerals Tertiary Education Council, the industry is working with universities to make sure the skills they teach are in demand, future-proofed and ready to adapt to changing industry needs.



35,883

LOCAL BUSINESSES

Businesses supported by the resources industry in QLD, WA and NSW in 2018-19.

CMEWA, QRC, NSWMC

3404

LOCAL GROUPS

Contributions from the resources sector to local community groups in QLD, WA and NSW in 2018-19.

CMEWA, QRC, NSWMC

Australia's minerals industry is committed to continual improvement

- Continue to work to understand and address causes of industry fatalities
- Drive cultural change to eliminate sexual harassment in mining
- Support equal and enduring partnerships with Indigenous landholders and communities on common agreed priorities
- Strengthen local procurement programs and support promotion of mining equipment, technology and services businesses globally
- Continue to strengthen heritage protection practices in partnership with Traditional Owners and custodians
- Further develop social impact partnerships to support community wellbeing, prosperity and sustainability
- Progress Industry of Choice Framework and skills program
- Embed and strengthen social performance practices across industry.

"BHP is proud that we were able to support the communities that support us. From everything we've seen, the communities where we operate are well positioned to lead Australia toward economic recovery."

EDGAR BASTO
President | **BHP Minerals Australia**

Rio Tinto introduced health screening early last year at Perth Airport.

Miners support remote vaccination efforts

Keeping people safe and sustaining livelihoods has been the Australian minerals industry's first priority throughout the COVD-19 pandemic.

Partnering to support local, regional and national health and community responses has underpinned its approach with a strong focus on supporting First Nations-led responses, building on existing strong links with Indigenous communities and organisations.

The industry has also worked together through the MCA to ensure consistently high COVID-19 prevention and response measures across the sector.

Efforts to support vaccination in remote and regional communities include:

- Rio Tinto partnering with the Western Australian Government on pop up vaccination clinics in Paraburdoo, Pannawonica, Tom Price, Dampier, Cape Lambert and other communities
- Glencore supporting local health education and vaccination access in Borroloola
- Promoting local community awareness campaigns. Rio Tinto is sharing tailored information through its networks in Cape York and East Arnhem Land with Glencore doing the same at Mount Isa Mines
- BHP supporting the Pilbara Aboriginal Health Alliance's COVID-19 vaccination campaign, partnering with governments on clinics in Port Hedland and Newman and supporting Bega Garnbirringu's outreach in the Goldfields
- AngloGold Ashanti, Glencore and other companies actively participating in planning for a mass vaccination campaign in Kalgoorlie
- BHP providing funding for Queensland, South Australian and Western Australian Aboriginal health councils, partnering on a vaccination clinic in Central Queensland and supporting vaccination efforts around Roxby Downs
- Newcrest providing $65,000 in funding for the Orange Aboriginal Medical Service to employ an additional doctor.

Social performance
Case studies

- Focus on First Nations
- Women in mining
- Regional and remote jobs
- LGBTIQA+ allies
- Heritage protection
- Mental health
- Mine rescue
- Community building
- Digital mines
- Skills and training

"By providing long-term training and employment opportunities, Whitehaven is making a genuine contribution to addressing Indigenous disadvantage and dislocation."

PAUL FLYNN
CEO | **Whitehaven**

Whitehaven, through the Gomeroi Narrabri People Charitable Trust Fund, supports young people to connect with their cultural identity by taking part in the Kamilaroi Dance Group.

Building on success at Whitehaven

Whitehaven Coal has built enduring partnerships with the Traditional Owners of the lands on which it operates.

At Maules Creek in northern New South Wales, Whitehaven and Gomeroi Elders work together to ensure Aboriginal people have access to rewarding, stable and long-term jobs, and the mine benefits from a committed local workforce.

This approach supports a culturally-safe workplace with a high retention rate. Today, Indigenous Australians make up about 20 per cent of Whitehaven's Maules Creek workforce – double the original target.

New initiatives being rolled out by the company include tailored mentoring to support the transition for Indigenous employees to leadership roles, as well as a trainee operator program.

Gumatj Corporation Chief Executive Officer Klaus Helms and far right, Deputy Chairman Djawa Yunupingu watch the first Gulkula bauxite shipment to China.

Indigenous mines take centre stage

Two Aboriginal enterprises are paving the way for other Indigenous-owned and operated mines.

The Yolnju People's Gumatj Corporation opened the world's first Indigenous-owned and operated bauxite mine in 2017. Located in East Arnhem Land, Gulkula mine supplies bauxite to Rio Tinto's Nhulunbuy (Gove) operations.

Three years later, Gulkula achieved another global first, becoming the first Indigenous mining company to receive provisional certification under the Aluminium Stewardship Initiative responsible sourcing program.

Gumatj Corporation CEO Klaus Helm said the Gulkula operation had provided employment and training opportunities for many Indigenous men and women in the North East Arnhem Land region.

"This a major step forward in building a sustainable future for our local people."

Another Indigenous-owned company, also in the NT, is Anindilyakwa Advancement Aboriginal Corporation's Winchelsea Mining. Winchelsea Mining aims to support the socio-economic future of all speaking clans on the Groote Archipelago and is currently assessing its first potential project.

Peabody has a permanent reminder the company is working on Barada Barna country.

Cultural collaborations recognise place

Mining companies are working to build strong and respectful relationships with Traditional Owners, collaborating on projects ranging from art spaces and cultural centres to health and literacy programs and native seed banks.

In Queensland, Peabody and the Barada Barna people developed a special 'Keeping Place' at the Coppabella mine entrance near Moranbah. The 'Keeping Place' houses scar trees and serves as a reminder to all that the company is working on Barada Barna country.

Yancoal partners with Indigenous stakeholders to identify and protect culturally significant sites across its operations. Changes to land titles secure the sites in perpetuity, ensuring access to the land for cultural activities is retained throughout the mine life and beyond.

"At St Barbara, we conduct regular pay audits. We've halved our overall gender pay gap in the last 12 months to 7.7 per cent. Our ultimate goal is – and should be – equality."

CRAIG JETSON
Managing Director and CEO
St Barbara

Exploration Technician Natalie Smith at St Barbara's Leonora Operations.

Diversity is core business strategy at St Barbara

St Barbara formalised a strategy to address gender inequality in 2010. Since then it has received the Workplace Gender Equality Agency's 'Employer of choice for gender equality' citation for seven consecutive years.

Flexible work arrangements, leading leave practices, including paid leave for those experiencing domestic violence, and career development pathways are some of the practices that have made St Barbara an employer of choice for women.

Women make up 33 per cent of St Barbara's board, and 28 per cent of its workforce in its Australia operations. The overall gender pay gap of its Australian operations is 7.65 per cent, with zero gender pay gaps in like-for-like roles across the St Barbara Group.

St Barbara is not alone in doing the hard work to bring more women into the industry. In 2016, BHP set its goal to achieve gender balance by 2025, while 60 per cent of Rio Tinto's graduate intake in 2020 were women.

Newmont helps put food on the table

Foodbank Central Australia officially opened its Foodbank Food Hub in Alice Springs in October thanks in large part to a $250,000 seed funding donation from Newmont's Global Community Support Fund.

Newmont Tanami supported a welcome proposal from Foodbank SA to establish the Alice Springs Food Hub, which will improve food security for those at risk in central Australia. Newmont also worked with Foodbank NT and Foodbank WA during the pandemic, targeting food security support for those most in need.

Newmont has a proud record of contributing to its local communities in meaningful ways. In Western Australia, Newmont supports the Breakfast Club at Boddington District High School, a program set up to help students who arrive early having skipped breakfast. Along with financial support, employees volunteer a couple of days a week to prepare breakfast for students.

Breakfast Club volunteers Candice and Drew at Boddington District High School.

New recruits taking part in BHP's Rail Academy Traineeship Program.

The BHP Rail Academy addresses skills shortages and creates new pathways into the mining industry.

Regional recruits on track at Port Hedland

BHP will train as many as 200 new train drivers in the Pilbara over the next three years as part of a $20 million investment in the next generation of train drivers.

The Rail Academy Traineeship Program, based at BHP's rail headquarters in Port Hedland, welcomed its first 54 recruits in August 2021. Recruits undergo an intensive 10-month training program during which they learn specialist skills in train shunting, communication systems and signaling, route planning, and safety and fatigue management. At the end of the training, drivers qualify with a Certificate IV in train driving.

BHP's train drivers transport 40,000 tonnes of ore in each train across the 1000 km rail network that connects BHP's operations to Port Hedland.

Thiess Allies, an LGBTIQA+ pride network.

Miners make good allies at work

Mining companies are active allies of LGBTIQA+ employees with a raft of workplace programs to support a safe and inclusive work environment.

Newmont was recognised for its inclusion and diversity policies in 2020, named one of the best places to work for LGBTIQA+ equality by the Human Rights Campaign Foundation. Newmont wears it's pride proudly – a rainbow truck tray is part of its commitment to increase visibility and inclusion of the LGBTIQA+ community.

At Thiess, a conversation between colleagues was the catalyst for Allies, an LGBTIQA+ pride network which today has more than 180 members among its Australian and Chilean workforce.

Good neighbours in troubled times

In remote corners of Australia, mining companies provide essential health and education services, childcare centres, utilities such as gas and water, as well as first responder emergency services.

Mine rescue teams often leap into action to respond to emergencies in their host communities. During the 2020 bushfires, miners contributed people power and equipment, and when the flames were doused, donated many millions of dollars to assist relief efforts and restore lives.

Rescue helicopters are also often part or wholly funded by mining companies. BHP recently contributed $2 million through its Vital Resources Fund to expand the Royal Flying Doctor Service Western Operations (RFDS) fleet at Port Hedland. The new aeromedical aircraft will transport an estimated 500 patients each year and help the RFDS meet demand for its services.

Thiess partners with the RFDS (WA), RACQ CQ Rescue (QLD) and Westpac Rescue Helicopter Service (NSW).

St Barbara employees and Leonora community members raise awareness about mental health.

"We pride ourselves on our programs to promote mental health awareness and how we put mental health on the agenda in our business."

RENATA ROBERTS
The Bloomfield Group

Mining industry puts mental health firmly in the spotlight

Health and safety is the mining industry's number one value and priority, and central to health and safety is mental health. Poor mental health can have an adverse impact on mining workers, their families and industry productivity.

In addition to mental health and wellness programs offered through companies, industry-wide initiatives such as Mates in Mining provide suicide prevention awareness and training on mine sites.

The industry also benefits from leading advocates like Renata Roberts, The Bloomfield Group's Chief Corporate Services Officer and 2020 Australian Resources Exceptional Woman. Renata's experience and commitment in the field helped shape the mining industry's smartphone app, MineWell.

MineWell helps workers and their families manage challenges such as long hours, isolation and financial stress.

Community awareness initiatives such as R U Ok? Day and the Blue Tree Project are also recognised across the industry. The Blue Tree Project encourages teams to spread the 'it's OK to not be OK' message.

St Barbara unveiled its blue tree near the entrance to its Leonora Operations in 2019 in recognition that mental health and specifically suicide prevention should be openly discussed.

For crisis support call 13 11 14.

“Mine rescue teams need to be fit, engaged and ready to attend to any emergency across our operations and participating in this competition is an excellent way to test their capability.”

TYRONE CAMPBELL
Team Manager | **Queensland Metals**

The Victorian Mine Rescue Competition underway at EnergyAustralia’s Yallourn Mine.

A grim scenario at the Northern Australian Emergency Response Competition.

Emergency response skills put to the test

Mine rescue competitions play an integral part in emergency response training, simulating emergency situations to test the preparedness of teams for real-life emergency events.

Scenarios are designed to be the closest responders will get to the real thing, with those playing the role of accident victims sporting ‘broken’ bones and fake wounds.

Teams provide first aid and emergency extractions depending on the scenario while being judged by professional adjudicators and watched by peers, colleagues and the general public.

A call to respond kicks off the competiton for an individual team, which must then tackle scenarios ranging from fire fighting to underground search and rescues, hazardous breathing challenges and road accident rescues. Teams also compete in theory and individual skills testing.

The Victorian Mine Rescue Competition (VMRC) and the Northern Australian Emergency Response Competition (NAERC) attract dozens of teams each year from state and territory-based mine sites.

VMRC has been held annually since 1993, while NAERC marks 10 years in 2022.

Central Victoria well served by local miners

Kirkland Lake Gold launched its $12 million Australian Community Partnership Program in March 2021 to support the post-COVID recovery in regional communities.

Established to support groups and services that stepped up during the pandemic, the program aims to make a lasting contribution to the organisations that receive the funds and the lives of the people they support.

Nearby in Costerfield, Mandalay Resources threw its support behind Bunbunarik Children’s Hub in Heathcote, which opened in 2019. Mandalay funded an early feasibility study and later provided funding, people power and equipment for the project.

Both companies are also supporting the Australian-first dementia village proposed for Heathcote. The purpose-built community will provide dementia-friendly facilities including a cafe, hairdresser and supermarket.

Kirkland Lake Gold

Mandalay Resources and Kirkland Lake Gold sponsor the annual O’Keefe Challenge raising funds for the Heathcote Dementia Alliance.

Rio Tinto's Operations Centre uses data analysis and articial intelligence to help controllers make decisions 1500 km away in the Pilbara.

Innovation driving change as mines embrace a digital future

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

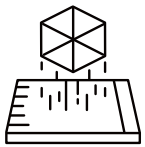
From 3D drone mapping of underground mines to cameras that detect hazards and mixed reality headsets that make remote maintenance possible, the industry is responding to increased expectations from government, communities and investors.

Rio Tinto's Gudai-Darri iron ore mine north-west of Newman, Western Australia is set to become one of the world's most intelligent mines. In addition to autonomous trucks, trains and drills, Gudai-Darri has many new design innovations in scope, and in a world first, autonomous water carts. With remote operations completed from Perth, this improves safety outcomes and efficiencies across the operation.

All team members onsite have a tablet which provides access to core business functions, real-time data and plant schematics.

The Gudai-Darri laboratory will be the first ISO accredited sampling station in the Pilbara (non-port). This world class facility will provide excellent visibility of the ore grade being stockpiled through the increased frequency and volume of samples we can take using automated sample collection.

Gudai-Darri technologies will allow new types of data to be accessed that support greater understanding of how operations are progressing, and will include novel innovations on how mine operations are optimized.



Investing in advanced skills and training

Technology is transforming mining skills with traditional mining trades increasingly incorporating elements of computing, and new career paths such as mechatronics and virtual reality advancing the digital ambitions of mining companies.

As part of this transformation, the industry is investing millions of dollars in training to equip young people and those looking for a mid-career change with in-demand skills.

In 2019, Rio Tinto launched Australia's first accredited automation qualification in partnership with South Metropolitan TAFE and the Western Australian Government. The Certificate II looks at how data drives processes in an autonomous workplace and the human-machine interface.

There are almost as many pathways into mining as there are careers – and there are more than 100 careers in mining. Companies offer vacation and graduate programs, as well as internships and apprenticeships. More than 3800 people have started new apprenticeships or traineeships as part of the industry's commitment to create 5000 new apprenticeships.

Social contribution *Australian mining*

22%

APPRENTICES

Trainees and apprentices in WA's resources industry that identify as Indigenous.

Source: CMEWA 2019

$300b

EXPORT EARNINGS

Australia's resources export earnings in 2020-21. Earnings have doubled in last decade.

Source: ABS

DID YOU KNOW?

Mining has paid $302 billion in taxes and royalties since 2005-06. That's enough to build 11,000 schools or 390 hospitals.

Regional jobs

From rehabilitating mine sites to building robotics, the mining industry offers more than 100 well paid careers, many of which directly support regional and remote communities.

- Mining engineers
- Geologists
- Environmental scientists
- Digital operations managers
- Social performance specialists
- Metallurgists
- Haul truck drivers
- Electrical engineers
- Indigenous engagement specialists
- Chemical engineers
- Robotics specialists

Good neighbours

Whether its distributing supplies to remote communities during a global pandemic or redeploying employees and equipment to fight bushfires, miners are good neighbours to have in bad times.

- Emergency services
- Community projects
- Sporting partnerships
- Charitable donations
- Family and childcare services
- Remote medical assistance

Taxes & royalties

Mining taxes and royalties help pay for the services and infrastructure that benefit all Australians. In 2019-20, mining contributed a record $39 billion – up $2.4 billion from 2018-19). These funds help pay for:

- Roads
- Schools
- Hospitals
- Community services
- National parks

First Nations

Mining is a major stakeholder in the economic priorities of First Nations communities. Mining supports these aspirations through tailored:

- Apprenticeships and cadetships
- Employment pathways
- Career development initiatives
- Indigenous procurement programs
- Community and infrastructure investment
- Governance support

DID YOU KNOW?

Australian mining employs First Nations people at a greater rate than any other industry.

3404

COMMUNITY GROUPS

Groups supported by the resources sector in QLD, WA and NSW in 2018-19.

Source: CMEWA, QRC, NSWMC

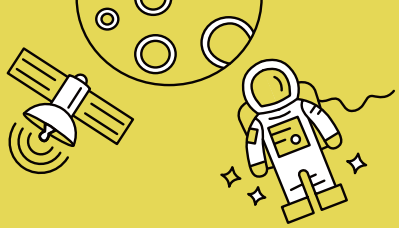
256k

EMPLOYMENT

Direct employment in Australia's resources industry in 2020-21.

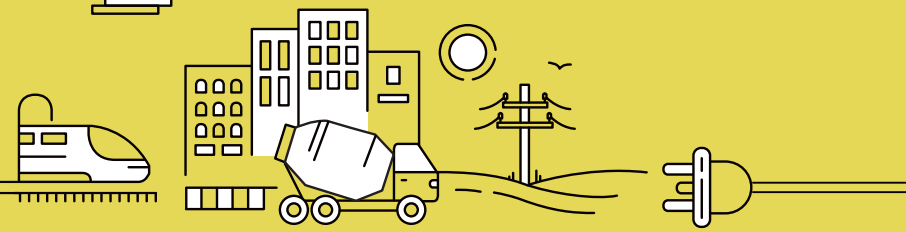
Source: ABS

SCHOOLS · HOSPITALS · TRANSPORT



SPACE TRAVEL · COMMUNICATIONS

STEEL · CONCRETE · GLASS



$93.8b

DIRECT SPENDING

Resources industry payments to suppliers, employees, community groups and governments in WA, QLD and NSW in 2018-19.

Source: CMEWA, QRC, NSWMC

DID YOU KNOW?

62% of mining companies offer an average 12.1 weeks of paid maternity leave, well above the national average.

Source: Workplace Gender Equality Agency

R&D partnerships

Innovation is a hallmark of the mining sector and drives industry partnerships with universities and research bodies. Australia's mining R&D is in demand across the world. Partners include:

- Universities
- Technology partners
- Cooperative Research Centres
- Research laboratories
- Government bodies (CSIRO)

Buying local

Mining supports regional and remote businesses through local procurement and a network of mining equipment, services and technology firms. External service providers include:

- Steel fabricators
- Geoscience services
- Environmental services
- Scientific services
- Equipment suppliers
- Service industry
- Accommodation sector

DID YOU KNOW?

Women in mining are the highest paid of any industry with median weekly earnings 98 per cent higher than the national average.

Source: ABS

$890m

MINING R&D

Mining industry research and development expenditure in 2019-20.

Source: ABS

Everyday products

Australian mining produces more than 45 minerals used to manufacture the products we rely on everyday – everything from skyscrapers to medical impants to the ring on your finger.

ELECTRIC CARS

Manufacturing an electric vehicle (EV) battery requires more than a dozen minerals. According to the International Energy Agency, at least 30 times as much lithium, nickel, rare earth elements and other key minerals will be required by the EV industry by 2040.

RENEWABLE ENERGY

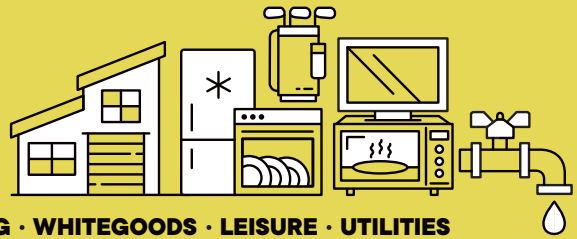
The permanent magnets in wind turbines and catalysts in catalytic converters are made using rare earth elements, while battery storage depends on lithium and nickel. As electricity networks expand, large quantities of copper and aluminium will also be needed.

ADVANCED HEALTH

Gold nanotechnology is the new focus of advanced medicine, delivering antibodies into cancerous tumours. Rare earth elements are used in medical imaging, while nuclear medicine is used to diagnose and treat illnesses such as cancer.

LATEST GADGETS

From earpods to laptop computers, mining underpins the world's insatiable demand for consumer electronics. Every smartphone contains more than 40 mined metals and minerals, including copper, gold, silicon, rare earths, silver, manganese and zinc.



HOUSING · WHITEGOODS · LEISURE · UTILITIES

A global leader in good governance

Good governance is more than meeting regulatory requirements. It creates value for business, shareholders and communities.

Good governance underpins safety, environmental and social performance. It is as much about leadership and company culture as it is systems and accountability. Good governance enables companies to manage risk and identify and maximise opportunities.

Australia's minerals industry has led the voluntary adoption of sustainability governance standards. Over time, these standards have shifted in focus from the corporate level to the site level and are increasingly being applied to other parts of the minerals value-chain, including suppliers and customers.

From the sector-first Code of Environmental Practice in 1997 to the Enduring Value sustainable development framework in 2005 and the Towards Sustainable Mining (TSM) sustainability management system in 2020, the Australian industry has continued to shift the dial on ESG governance.

Accountability and transparency

MCA members are adopting the globally recognised TSM sustainability management system. TSM enables companies to assess and communicate site-level management consistently and transparently demonstrating how industry is operating in line with community expectations.

By evaluating their systems against a set of indicators each year, companies are able to consistently assess management across their operations. Independent verification and public reporting will provide an unprecedented level of transparency, enhancing industry accountability and community confidence.

Australia's minerals industry is a leader in tax reporting transparency and supports the Australian Government Voluntary Tax Transparency Code. The industry also supports measures to improve tax transparency around the globe.

Ethical business practices

The minerals industry is committed to fair, responsible and respectful business practices. The industry has mature systems in place, but vigilance around human rights, bribery and corruption risks is always required.

In recognition of business responsibilities, the industry is embedding the UN Guiding Principles on Business and Human Rights. Through TSM, industry will assess, measure and report on site-level actions to respect human rights, including the rights of Indigenous peoples.

Contributing to the elimination of modern slavery in all its forms is an industry priority. Modern slavery can occur in any jurisdiction or sector. As part of its commitment to respecting human rights, the minerals industry is increasing efforts to develop, implement and report on actions to address modern slavery risks in local and global operations and supply chains.

Applying a human rights perspective was especially important during the COVID-19 pandemic. The MCA collaborated with business and human rights advisory firm Pillar Two on world-leading guidance to assist industry to understand and address COVID-19-related modern slavery risks.

Partnerships with community and other organisations are also important, especially to remedy harm, support people and communities and promote human rights.

Bribery and corruption have no place in mining. The industry supports initiatives such as the Bribery Prevention Network to strengthen anti-corruption and bribery culture in the minerals and broader business sector.

Risk management

Effective risk management underpins industry safety, social and environmental performance. Leadership, robust processes and company culture are key factors contributing to good risk management. The industry continues to innovate – developing new systems and approaches to ensure safe, ethical and responsible operation.

“Governance is much more than systems and processes and standards... It’s about culture and values, being transparent and doing the right thing.”

SANDEEP BISWAS
Managing Director and CEO, Newcrest Mining

Sophisticated approaches are applied to identify, manage and eliminate risks within operations, supply chains, the community and environment. For example, focusing on critical controls (controls which really matter, how they work and are checked, and who is accountable) and reporting performance can prevent serious incidents.

Leading practice is shared across industry through the development of global standards such as the Cyanide Management Code and the International Standards Organization. A range of industry guidance and frameworks, including Enduring Value, embed governance requirements for sound risk management across areas of safety, environmental and social performance. Many of these tools can be used not only to identify risks, but opportunities.

Climate risk is addressed by the Taskforce on Climate-related Financial Disclosures (TCFD). TCFD allows companies to incorporate climate-related risks and opportunities into risk management and planning. This supports company and investor understanding of the financial implications of climate change.

The MCA and its members support the TCFD and are working towards aligning corporate reporting with its recommendations.

Global standards

The Australian minerals industry is part of an ecosystem of supplier businesses, service companies, investors, downstream processing and manufacturing. The minerals value chain can span different countries and it is only through partnerships and agreement on common standards that good governance can be assured.

The need for international collaboration to ensure responsible sourcing and supply chains has long been recognised. Customers purchasing minerals containing products – from mobile telephones to electric vehicles and the construction industry – need to have confidence the materials they use are responsibly sourced.

The minerals industry has supported the establishment of responsible sourcing certification schemes to provide this assurance. Examples include the Responsible Jewellery Council, Aluminium Stewardship Initiative, Responsible Steel, Copper Mark and BetterCoal.

The industry is actively exploring new technologies to trace responsibly sourced products, from the individual mines to the retail outlet.

"We're fortunate to have a highly skilled mining workforce, world-class service providers and knowledgable regulators who understand our industry."

MIKE ERICKSON
Senior Vice President – Australia | **AngloGold Ashanti**

The industry also continues to work with supplier businesses to ensure appropriate ESG standards are adhered to. This includes identifying and addressing risks, such as modern slavery.

Partnerships to drive innovation in logistics chains to address ESG risks and meet broader company commitments have become more commonplace. For example, the minerals industry is working with original equipment manufacturers to improve vehicle safety. Another example is where companies are working together to reduce greenhouse gas emissions from the shipping of minerals products.

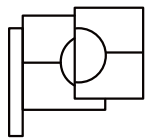
Downstream customers, particularly minerals processing and manufacturing customers, are central to the achievement of sustainability objectives. Australian companies, for example, are working closely with customers and other businesses to address emissions from producing aluminium, steel other products.

$890m

RESEARCH & DEVELOPMENT

Mining expenditure on research and development in 2019-20.

ABS



48%

MINING SHARE

Supply Nation corporate members' spend with First Nations businesses.

Supply Nation

G Australia's minerals industry is committed to continual improvement

- Operationalise and embed TSM to enhance transparency and confidence in industry's sustainability performance
- Partner with industry, investors and customers to support the convergence of global ethical investing and responsible sourcing standards
- Support the uptake of industry ESG standards internationally
- Support the implementation of TCFD reporting across the MCA membership
- Continue to promote and support embedding of the UN Guiding Principles across the minerals industry
- Develop new tools and resources to support human rights due diligence, including actions to identify, address and report on modern slavery risks
- Contribute to a strong Australian modern slavery reporting framework
- Support multisector partnerships, such as the Bribery Prevention Network, that strengthen industry's anti-corruption and bribery culture.

Indigenous business Woongal Environmental Services monitor groundwater ecosystems at Bravus' Carmichael mine in Queensland.

Stakeholder advisory panel to oversee TSM reporting

The Towards Sustainable Mining (TSM) framework will demonstrate and enhance the industry's ESG performance at site level.

MCA member companies will publicly report annually against TSM indicators, with results to be externally verified every three years.

TSM implementation will include ongoing consultation with a national Community of Interest Advisory Panel, an independent group that will include First Nations and community stakeholders, NGOs, workforce and financial organisations.

The Panel will play an important role. It will meet regularly with senior minerals company representatives to provide support and advice, identify emerging issues for the sector and encourage the mining industry in continual improvement.

TOWARDS SUSTAINABLE MINING

"TSM will enable an unprecedented level of visibility of ESG-related activities with independent verification right down to the individual mine site-level."

ALEX BATES
Regional Senior Vice President | **Newmont Australia**

Governance
Case studies

- Eliminating sexual harassment
- Towards Sustainable Mining
- Copper supply chains
- The circular economy
- 'Responsible' aluminium
- Bribery Prevention Network
- The Cyanide Code
- Indigenous suppliers
- Shifting the dial

Code to eliminate sexual harassment

Australia's minerals industry is taking action to eliminate workplace sexual harassment. The MCA's Industry Code on Eliminating Sexual Harassment sets clear expectations on MCA member companies to establish both preventative and response measures to address sexual harassment.

Member companies will be required to confirm their commitment to adopting the Code. A resource toolkit including fact sheets, guidance and templates is being developed to support member companies with implementation.

The industry acknowledges that we are only part way on the journey and is committed to continue working closely with governments, employer and employee groups, and communities to eliminate sexual harassment.

Anglo American's Balancing the Team program attracted female underground mining trainees at Moranbah North Mine.

"A shift toward a more circular economy presents a significant opportunity for mining companies that are willing to embrace it."

MARK CUTIFANI
CEO, Anglo American

Circular economy central at Anglo American

Anglo American is embedding circular economy principles across its business by optimising its use of resources and eliminating waste. It hopes to achieve a neutral or even net positive impact on the environment through its ethos of reduce, reuse and recycle as part of the company's Sustainable Mining Plan.

The company is rolling out new technologies and digitised processes, as well as internal standards and systems, to support its circular ambitions under its broader sustainability program, FutureSmart Mining.

One way the company is reducing waste is recycling end-of-use rubber products. Anglo American is collaborating with Novum Energy in Central Queensland to transform rubber waste products such as mining truck tyres and conveyor belts into usable industrial products at a new processing facility in Biloela.

A similar agreement between BHP and Novum Energy is also underway in the Bowen Basin. Truck tyres weigh up to five tonnes each and can be recycled into high-quality by-products and energy.

The Copper Mark for responsible production

Copper is central to the green energy transition, including the growth of electric vehicles. The Copper Mark certification program provides assurance the copper used to make these products has been responsibly sourced.

Developed in collaboration with the minerals industry, NGOs and others in the supply chain to validate ESG performance, the program assesses copper operations and refiners against ESG requirements and is verified through an independent site-based assurance process.

Since launching in 2020, the Copper Mark has been awarded to 12 operations worldwide which together produce over 10 per cent of global copper production. In Australia, BHP has submitted its Letter of Commitment to the Copper Mark Responsible Production Framework for Olympic Dam in South Australia.

The Copper Mark is also developing an evaluation system to track the industry's contribution to the UN Sustainable Development Goals.

Rio Tinto's Yarwun alumina refinery in Central Queensland.

From mine to market, it starts with blockchain

Rio Tinto has set a new standard in transparency and traceability with the launch of blockchain platform START, a 'nutrition label' for responsible aluminium.

START will help customers meet consumer demand for greater transparency on where and how products they purchase are made. Customers receive a digital sustainability label – similar to a nutrition label found on food and drink packaging – containing key information about the site where the aluminium was responsibly produced, including carbon footprint, water use, energy sources and recycled content.

START will help end-users differentiate between end products based on their ESG credentials and make more informed choices, enabling them to contribute to a sustainable future.

No country is immune to bribery and corruption and all sectors – including the minerals industry – must be vigilant.

Embedding ethical business systems

The MCA is an active supporting partner in a new initiative assisting Australian businesses to strengthen anti-corruption practices.

Hosted by the Global Compact Network Australia, the Bribery Prevention Network is an innovative public-private partnership with Transparency International Australia, the Australian Federal Police and BHP among its foundation partners.

While Australia's minerals industry has a mature risk framework in place, the sector recognises its responsibility to remain vigilant of bribery and corruption risks.

In addition to raising awareness, the network curates a free online library of quality tools, research and case studies to address bribery and corruption risks.

The Cyanide Code extends beyond the requirements of most governments and regulatory agencies.

Mining has a long history of self-regulation

One of the earliest and most established certification programs operating across the minerals industry today is the International Cyanide Management Code.

A voluntary, performance driven program, the Cyanide Code sets leading practices for cyanide management in gold and silver mining.

Developed and implemented by gold producers, cyanide manufacturers and transport companies in 2005, it has been adopted by more than 200 companies at over 300 operations worldwide.

Australian mining companies are among signatories to the Code, further demonstrating the industry's commitment to best practice. The Code extends beyond regulatory requirements.

Companies that adopt the Code have their operations independently audited and the results made public to inform stakeholders of the status of cyanide management practices. Certified operations are triennially assessed for continued compliance.

Shifting the dial

Australia's minerals industry has long recognised its sustainability performance is fundamental to community acceptance.

1997

MINING CODE OF ENVIRONMENTAL PRACTICE

Developed the Mining Code of Environmental Practice, establishing Australian industry as a global leader.

2003

ICMM PRINCIPLES

Supported development of the 10 Principles for Sustainable Development adopted in 2003 by the International Council on Mining and Metals.

2005

ENDURING VALUE FRAMEWORK

Launched Enduring Value, the Australian industry's sustainable development framework based on the ICMM Principles.

2011

EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE

Funded a pilot program as a founding member of the EITI multi-stakeholder group. EITI promotes transparency in company reporting.

2011

WATER ACCOUNTING FRAMEWORK

Developed framework to standardise water accounting that has since been used to inform global standards.

2014

VOLUNTARY COMMUNITY INVESTMENT TOOLKIT

Released a toolkit to help member companies more effectively deliver regional development outcomes.

2014

BLUEPRINT FOR MENTAL HEALTH AND WELLBEING

Developed an industry framework providing site-level strategies to reduce the risks of mental illness.

2015

ENDURING VALUE: UPDATED

Updated Enduring Value to ensure its relevance to mining operations and the expectations of our stakeholders.

Carey Mining is a 100 per cent Indigenous-owned supplier of mining services.

Industry focus on First Nations leadership

Australian mining is working hard to diversify career and leadership pathways for Indigenous Australians.

Rio Tinto has doubled the number of Indigenous leaders across its operations since August 2020 as part of its $50 million Indigenous Leadership Program. At BHP, more than 120 Indigenous Australians are now in leadership roles.

Indigenous entrepreneurs are also integral to the mining supply chain – 1.6 per cent of mining suppliers are Indigenous Australians, the highest share of any sector.

These Indigenous-owned businesses supply the mining industry with goods and services as diverse as stationery, coffee, civil and construction services, fencing and cultural awareness training.

Aboriginal-owned Carey Mining in Western Australia is one such supplier. Established in 1995, Carey Mining began its operations in the Goldfields region of Western Australia before expanding its mining and civil services to operations in the Pilbara and the Northern Territory.

2016

CUMULATIVE ENVIRONMENTAL IMPACT ASSESSMENT GUIDE

Produced guide for mining professionals when approvals require cumulative environmental impacts to be considered.

2018

SUSTAINABILITY IN ACTION

Published an industry guide and case studies demonstrating the application of the UN Sustainable Development Goals.

2020

MCA CLIMATE ACTION PLAN

Launched a 10-point climate action framework and three-year rolling workplan to support the industry's decarbonisation ambitions.

2020

TOWARDS SUSTAINABLE MINING

Adopted the TSM accountability framework that helps companies assess and communicate site-level management.

2020

RESPECTING HUMAN RIGHTS

Released guidance to assist mining companies identify and manage modern slavery risks associated with the COVID-19 pandemic.

2021

MCA CLIMATE ACTION PLAN PROGRESS REPORT

Established a baseline against which future climate actions can be measured and reported on.

2021

RESPECT@WORK

Developed an industry code and toolkit establishing protocols on preventing and responding to workplace sexual harassment.

2021

AUSTRALIAN MINING COMMITMENT TO NET ZERO

Established an industry ambition to decarbonise mining operations by 2050.

Critical minerals

Australian mining

Safe, environmental and socially responsible extraction

Aluminium (Bauxite)

Resources	▶	5292 Mt
Rank (world share)	▶	2 (18%)
Export value 2020-21	▶	$12 b

FORECAST

World consumption of aluminium has increased substantially over the last 20 years, underpinned by rapid demand growth from higher incomes, rising urbanisation and greater car ownership in emerging economies in Asia.

Commodity Insights forecasts primary aluminium demand to rise rapidly – from 65.1 Mt in 2019 to 94.7 Mt by 2030. This represents overall growth of 45.5 per cent over the forecast period.

USES

TURBINES · CANNING · AIRCRAFT

Copper

Resources	▶	93.4 Mt
Rank (world share)	▶	2 (11%)
Export value 2020-21	▶	$11.5 b

FORECAST

World copper consumption has doubled on average every 25 to 30 years as a result of growing incomes, increased access to electricity and rapid advancements in technology. This pattern will accelerate with copper-intensive goods and infrastructure set to play an increasing role in the global economy.

Commodity Insights forecasts global demand for refined copper to rise to 2030, from 23.5 Mt in 2019 to 31.1 Mt in 2030.

USES

ELECTRIC CARS · COMPUTERS · ELECTRICITY GRID

Gold

Resources	▶	10,795 t
Rank (world share)	▶	1 (21%)
Export value 2020-21	▶	$28.4 b

FORECAST

Gold prices and consequently investor demand have been driven higher by expansionary monetary policies over the last 15 years. Once considered purely a safe haven asset, gold is now delivering superior long-term investment returns to bonds and other asset classes.

Monetary expansion, and the government debt that underpins it, is likely to continue for some time, which will support higher gold prices and investor demand.

USES

INVESTMENT · MEDICAL DEVICES · JEWELLERY

Lithium

Resources	▶	5702 kt
Rank (world share)	▶	2 (29%)
Export value 2020-21	▶	$1.1 b

FORECAST

The main driver of a forthcoming surge in demand for lithium ion batteries will be car manufacturers releasing more electric vehicle models and the rising use of renewable energy requiring greater use of energy storage technology.

Commodity Insights forecasts lithium demand to rise rapidly to 2030, from 313 kt of lithium carbonate equivalent (LCE) in 2019 to 1465 kt LCE by 2030, representing overall growth of 368 per cent.

USES

ELECTRIC CARS · SMART PHONES · MEDICATION

# of critical minerals makes Australia a global supplier of choice.

Nickel

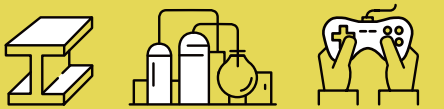
Resources	▶	21.2 Mt
Rank (world share)	▶	1 (24%)
Export value 2020-21	▶	$3.8 b

FORECAST

The market use of nickel will diversify over the next decade from high-grade steel required for skyscrapers and transportation networks to meet global demand for battery-grade nickel.

The battery industry's market share of nickel consumption will rise to 26 per cent by 2030, according to Commodity Insights. This will underpin nickel demand growing from 2.4 Mt in 2019 to 3.9 Mt in 2030, or 67 per cent over the period.

USES



STEEL **FOOD PROCESSING** **ELECTRONICS**

Rare earth elements

Resources (oxide)	▶	4.03 Mt
Rank (world share)	▶	6 (4%)
Production (oxide)	▶	19 kt

FORECAST

Demand growth is expected for most rare earth elements over the next decade, mainly supported by the manufacture of permanent magnets in offshore wind turbines and in the drive trains of most electric vehicles.

The International Energy Agency forecasts global neodymium demand in particular to rise significantly over the next 10 years, increasing between 73 per cent and 113 per cent to 2030.

USES

5G NETWORK **MEDICAL IMAGING** **SPEAKERS**

Uranium

Resources	▶	1147 kt
Rank (world share)	▶	1 (31%)
Export value 2020-21	▶	$606 m

FORECAST

More than 30 countries rely on low cost, zero emissions nuclear-generated electricity to underpin baseload power requirements and tackle climate change.

Commodity Insights forecasts global uranium demand to rise from 79.7 kt in 2019 to 99.5 kt in 2030, largely driven by China which plans to increase nuclear generation capacity to 70 GW by 2025, and Japan, which is increasing output to around three times its 2019 level by 2030.

USES

CLEAN ENERGY **MEDICAL CARE** **NAVAL VESSELS**

"Securing resilient and sustainable supply chains for critical minerals, including rare earths, is now a priority for many governments and manufacturers around the world."

AMANDA LACAZE
CEO & Managing Director
Lynas Corporation

SUSTAINABLE DEVELOPMENT GOALS

Australian mining

1.2 Reduce at least by half the number of people living in poverty

A strong, productive mining industry has delivered substantial increases to wages and household income to all Australians. Industry taxes and royalties also fund essential services, such as roads, schools and hospitals.

2.1 End hunger and ensure access to safe, nutritious food year round

Mining works with community organisations, particularly in regional and remote areas, to address food insecurity. The industry also partners with other land users, including farmers, as part of its role as land stewards.

3.4 Reduce non-communicable disease and promote mental health

The safety, health and wellbeing of workers, families and communities is the industry's first priority. Mining led the way keeping workers and communities safe throughout the COVID-19 pandemic, and continues to invest in the mental wellbeing of its workforce.

The minerals industry uses the UN Sustainable Development Goals to collaborate, support and m

9.4 Upgrade infrastructure to make industries sustainable

The minerals industry is undergoing an ordered transition that aligns with its ambition of net zero emissions by 2050. MCA members have identified 39 abatement activities to reduce emissions, including renewable energy, battery storage and energy efficiency.

10.2 Empower social, economic and political inclusion of all

Mining is a significant stakeholder in the economic aspirations of First Nations landholders and communities. Many mining companies have built strong and lasting relationships with Traditional Owners over decades.

11.4 Protect and safeguard the world's cultural and natural heritage

The mining industry supports strong protections for significant cultural and natural heritage. Miners work with communities throughout a mine's life, investing in cultural heritage projects behind the mine gate and beyond it. Many companies also invest in national heritage preservation efforts.

12.4 Environmentally sound chemical and waste management

12.6 Encourage sustainable practices into reporting cycle

Complementing mining company sustainability reporting, Australia's minerals industry will also report on site-level social and environmental management through the Towards Sustainable Mining accountability framework.

13.2 Integrate climate change measures into national policies

13.3 Improve awareness and education on climate change

The minerals industry is implementing a technology-led transformation to achieve its ambition of net zero emissions by 2050. This follows the launch and first year progress report of the MCA's Climate Action Plan.

4.3 Equal access to education
4.4 Increase skills attainment

The minerals industry invests millions of dollars every year in skills and training for its current and future workforce. The industry's commitment to increase the number of apprenticeships will mean 5000 more workers will have a trade qualification for life.

5.1 End all forms of discrimination
5.2 Eliminate all forms of violence
5.5 Ensure equal opportunities

Through committed leadership, the minerals industry is taking significant action to eliminate workplace sexual harassment. The industry is also committed to boost the number of women across its workforce and in leadership positions.

6.4 Increase water efficiency
6.B Strengthen community participation in water management

The industry is committed to water stewardship, working hard to reduce and improve its water use. In some communities, the mining industry has water share arrangements or uses treated waste water for site operations.

7.2 Increase renewable energy
7.A Enhance global clean energy research and tech partnerships

A decarbonised future depends on the critical raw materials safely and responsibly produced by Australia's minerals industry. Mining is leading the uptake of renewable energy, such as wind, solar and batteries, to reduce emissions.

8.1 Sustain economic growth
8.2 Achieve higher productivity through technology
8.7 Eradicate forced labour and end modern slavery

Australia's minerals industry is part of national efforts to address modern slavery risks across global operations and supply chains.

easure social, economic and environmental outcomes important to communities.

14.1 Prevent and reduce marine pollution of all kinds

Protecting marine environments is part of mining's commitment to excellence in environmental stewardship. In the development and operation of ports and shipping, industry works hard to minimise habitat disturbance, monitor environmental impact and work with local authorities to ensure the protection of marine environments.

15.1 Ensure conservation of water ecosystems in line with obligations
15.2 Take action to reduce natural habitat degradation, biodiversity loss and threatened species

The minerals industry practices responsible land stewardship throughout the mining lifecycle. The minerals industry also invests millions of dollars every year in voluntary conservation programs across Australia.

16.5 Substantially reduce corruption and bribery in all forms

Innovative partnerships are assisting industry to strengthen its approach to addressing bribery and corruption risks. The industry supports the Bribery Prevention Network which helps businesses to detect, prevent and address bribery and corruption risks throughout their supply chains.

17.17 Encourage and promote effective public, public-private and civil society partnerships

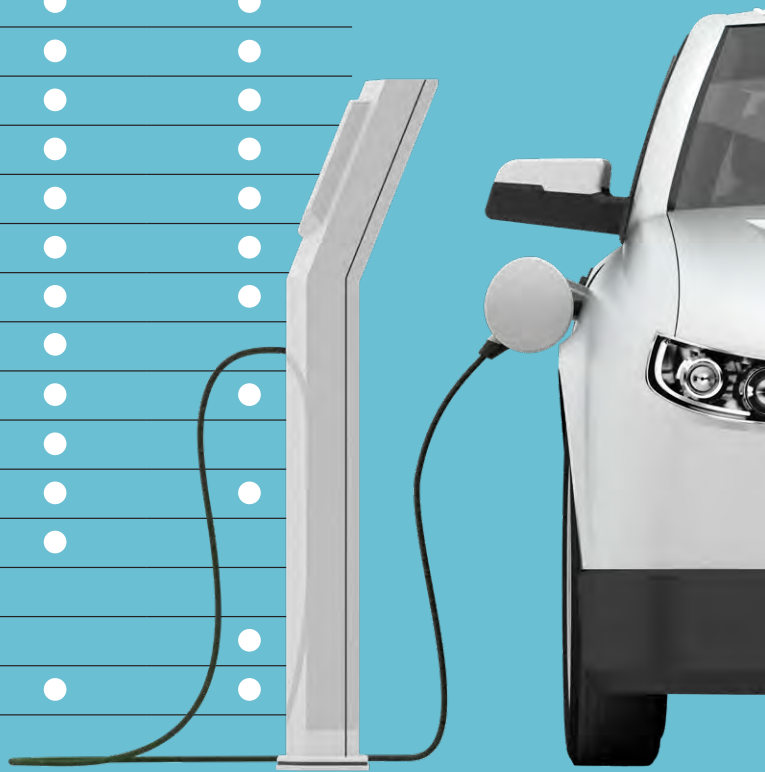
Partnerships with communities, NGOs and governments help mining contribute to a better life for all. These range from collaborative research with universities to providing health and education services, or utilities such as gas and water, in partnership with remote communities.

There's more to
Australian Mining

Australia's minerals

Building a sustainable future

	WIND TURBINES	SOLAR PANELS	HYDRO POWER	NUCLEAR ENERGY	CARBON CAPTURE USE & STORAGE	ELECTRIC VEHICLES	BATTERY STORAGE
Aluminium	●	●	●	●	●	●	●
Coal	●	●	●	●	●	●	
Cobalt	●		●	●	●	●	●
Copper	●	●	●	●	●	●	●
Gold	●	●				●	●
Graphite				●		●	●
Iron ore	●	●	●	●	●	●	●
Lithium						●	●
Manganese	●	●	●	●	●	●	●
Mineral sands	●	●		●		●	
Rare earth elements	●			●	●	●	●
Silver		●				●	
Nickel	●	●	●	●	●	●	●
Silicon	●	●	●	●	●	●	
Uranium				●			
Vanadium	●			●	●		●
Zinc	●	●	●	●	●	●	●



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