net zero emission mining WA conference

Program

13 OCTOBER 2021
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Front cover image credit: Ryan Kelly - Gold Fields Australia.
Countries from around the world adopting the Paris Agreement target of net zero greenhouse gas emissions by 2050 creates enormous opportunity for Western Australia.

The rapid global deployment of clean energy technologies required to achieve this target creates a significant demand for minerals.

Here in Western Australia we produce over 50 different commodities placing us at the forefront of a significant economic opportunity to support this global energy transition.

With this opportunity comes challenges to ensure the increased resources demand meets the rising environmental, social and governance expectations of investors and the community.

To achieve these targets will require transforming the energy systems powering our mines and how they operate.

This will be extremely challenging requiring all stakeholders, including governments, industry and investors, to take action each year to adopt these essential clean energy technologies.

Companies are rising to this challenge and setting their own ambitious targets.

Equally the McGowan Government has laid out its commitment to working with all sectors of the economy to achieve net zero greenhouse gas emissions by 2050, as stated in the Western Australian Climate Policy.

Key to achieving this is the Minerals Research Institute of Western Australia’s Net Zero Emission Mining Challenge, which aims to reduce the carbon footprint, lower energy costs and improve the energy efficiency of our State’s mining sector.

By bringing together industry, government and the research community this conference will showcase what has been achieved to date, and challenge what technology solutions are needed going forward.

We can build on our outstanding global reputation of not only being leaders in mining, but leaders in how to decarbonise the industry.

In doing so we are taking action to reduce climate-related risks, while also positioning the State as a preferred supplier to global markets and a sought-after destination for investment.

I hope you have an enjoyable and insightful day.

Hon. Bill Johnston MLA
Minister for Mines and Petroleum; Energy; Corrective Services
WELCOME FROM
OUR CHAIR

The Minerals Research Institute of Western Australia has a long history of supporting research which aims to find the solutions required for the medium to long term knowledge and technology needs of the State’s minerals industry; in turn, ensuring it can deliver economic and social benefit for Western Australia.

The challenge of meeting community and investor expectations of decarbonisation is substantial for the mining sector given the energy intensive nature of our operations. We are fortunate in Western Australia to be home to companies who are leading the deployment of wind and solar power generation in off-grid environments.

However, we need to build a common understanding of opportunities across the industry to enable us to accelerate the transition to a low carbon global economy.

While there is no one size which fits all, there is already significant activity occurring in industry and planning underway for what is needed next. It is important we collaborate and share our learnings, both successes and failures, to enable all those in the mining sector to commence the development of transition plans without having to reinvent the wheel.

There is no one technology solution to enable mining operations to maintain, let alone grow, production levels while also reducing greenhouse gas emissions. It will require improving energy productivity and adoption of renewable sources of energy; process improvements; electrification and technology innovation.

MRIWA is proud to be hosting this inaugural conference in which we seek to demonstrate what has been done to date, and to explore what else is needed to achieve the target of net zero emissions.

We hope that by stimulating this discussion, we can build capability and understanding in industry regarding how to improve emissions mapping and measurement, where efforts can be directed in the short to medium term, and what is needed to develop business cases to support investment in clean energy technologies.

Going forward, we seek to ensure Western Australia stands to benefit from the opportunity the global transition to a low carbon economy will bring.

Thank you for joining us today and I hope this is the start of many conversations to come.

Miriam Stanborough
Chair, MRIWA Board
ABOUT US

The Minerals Research Institute of Western Australia (MRIWA) seeks to stimulate high impact applied minerals research which will advance Western Australia.

Engaging industry in research

MRIWA supports research undertaken in Australia and internationally to expand the technology base necessary for development of the industry.

We currently collaborate with over 100 industry and research stakeholders to focus efforts on those areas most likely to deliver tangible economic, environmental and social benefit for the State.

Our research portfolio

We invest in six research programs across the mining value chain. Our investments are guided by our Research Priority Plan, which describes the medium to long term knowledge and technology needs of the State’s minerals industry.

Our research priorities are intended to be those issues industry, the research sector and the MRIWA Board agree present real and significant challenges inhibiting Western Australians from benefiting from the minerals sector to its fullest extent and where resolution of these challenges will create opportunities and deliver value.

Net Zero Emission Mining Challenge

MRIWA Challenges are campaigns targeting specific focus areas which seek to stimulate and amplify activities of high value to the State.

Our Net Zero Emission Mining Challenge aims to reduce the carbon footprint, lower overall energy costs and improve the energy efficiency of the Western Australian mining sector through harnessing collective efforts, enabling decarbonisation to become an opportunity for the sector, not a cost.

The Net Zero Emission Mining WA Conference is one of several initiatives MRIWA has implemented to address the Challenge.

Seeking an opportunity to collaborate and find solutions?

At MRIWA we are keen to understand the complex problems you face and explore opportunities where we can stimulate innovation and attract investment in high value research activities which will resolve those issues.

Contact rpm@mriwa.wa.gov.au for more information.
KEY NOTE – OUR MINISTERIAL PANEL

We are delighted to host members of Western Australia’s Ministerial Taskforce on Climate Action to discuss key issues and available government support to help industry achieve net zero emission mining.

Hon. Bill Johnston MLA


He has been a Minister for the McGowan Labor Government since March 2017, and has previously held the portfolios of Commerce, Industrial Relations, Electoral Affairs, and Asian Engagement.

So far, his achievements include securing additional funding for MRIWA, cutting red-tape for the mining industry, introducing the Work Health and Safety Bill (industrial manslaughter provisions) and assisting in revolutionising Western Australia’s energy system.

In Opposition he served as Shadow Minister for State Development and Energy from 2012, and Shadow Minister for Mines and Petroleum from 2013. He was a Member of the Economics and Industry Standing Committee and Deputy Chair of the Inquiry into Domestic Gas Prices from 2010 to 2011. Prior to entering Parliament, he was the State Secretary of WA Labor from 2001 until 2008, with responsibility for all State and Federal election campaigns.

Hon. Alannah MacTiernan MLC

The Hon. Alannah MacTiernan is Western Australia’s Minister for Regional Development, Agriculture and Food and Hydrogen Industry.

As Minister for Planning and Infrastructure from 2001 to 2008, she was responsible for major projects across the State which required a change of thinking that was more than just building infrastructure but was a whole vision of a networked city, including the Mandurah rail line, the Forrest Highway, the Geraldton port and rail expansion and the Armadale town centre and Champion Lakes developments.

The Minister understands the unique role of government as an enabler of development and is committed to growing economic opportunities in our regional areas as well as bringing WA’s agricultural sector into the 21st century through innovation with a focus on long-term planning and investing in research science. She champions opportunities to support infrastructure development, innovation, accelerate emissions reduction, and create new long term job opportunities, particularly in regional Western Australia.

Since coming to office in 2017, Minister MacTiernan has been instrumental in driving the establishment of a renewable hydrogen industry in Western Australia.
Hon. Amber-Jade Sanderson MLA

The Hon. Amber-Jade Sanderson is Western Australia’s Minister for Environment, Climate Action and Commerce.

First elected to WA Parliament in 2013 for the East Metropolitan Region, she then went on to win the lower house seat of Morley in 2017. In the McGowan Government’s first term, she served as Parliamentary Secretary to the Premier; Minister for Public Sector Management; State Development, Jobs and Trade; Federal-State Relations; Parliamentary Secretary of the Cabinet.

The Minister was crucial in delivering Western Australia’s Voluntary Assisted Dying laws. As the Chair of the Joint Select Committee on End of Life Choices she oversaw extensive community consultation, a year-long parliamentary inquiry and debate, and finally the passing of the Voluntary Assisted Dying Bill.

Before entering Parliament, she was Assistant Secretary at United Voice.

Professor Peter Klinken AC

Professor Klinken is a leading Western Australian medical research scientist, highly regarded for his work in advancing the understanding of genes involved in leukemia, cancer and anaemia. His many research achievements include the discovery of a gene that suppresses the growth of tumours.

After obtaining his PhD from The University of Western Australia, he undertook research at the US National Institutes of Health in Washington and the Walter and Eliza Hall Institute in Melbourne.

His previous roles have included Professor in Clinical Biochemistry at The University of Western Australia; Director of Research at the Royal Perth Hospital; and the Director of the Harry Perkins Institute of Medical Research (previously the Western Australian Institute for Medical Research).

Appointed as Chief Scientist of Western Australia in 2014, Professor Klinken provides independent scientific advice to the WA Government and plays an active role supporting science, technology and innovation in Western Australia aiming to ensure prosperity for future generations.

Professor Klinken was appointed a Companion of the Order of Australia (AC) in the June 2017 Queen’s Birthday Honours.
MEET OUR SPEAKERS

Ms Nicole Roocke  
Chief Executive Officer  
Minerals Research Institute of Western Australia (MRIWA)

Appointed CEO of MRIWA in November 2018, Nicole spent the previous 15 years at the Chamber of Minerals and Energy of Western Australia coordinating industry input on a variety of government regulatory and policy issues and facilitating collaboration within the resources sector.

Nicole holds a Master of Science in Industrial and Organisational Psychology from UWA and a Master of Risk Management from UNSW.

Mr Darren Hill  
General Manager Commercial and Business Development  
Horizon Power

Darren Hill is tasked with delivering clean, innovative energy solutions that meet customer needs and ensure business sustainability through growth in our regional communities. These goals are delivered through a strong framework for planning, asset investment and project delivery.

With qualifications in Information Technology and Electronic Engineering he has extensive experience in strategic leadership across telecommunications, gas and electricity utilities.

Darren is also a Director on the Board for the International Microgrids Association and Boundary Power, a company that delivers renewable energy solutions and asset management services.

Mr Graeme Ovens  
VP Operations Australia  
Gold Fields

Graeme is a mining professional with over 40 years’ experience in gold mining across Australia, having worked in NSW and Western Australia. He has a Post Graduate Diploma in Mining Engineering from UNSW and has a strong processing background. In more recent times Graeme has worked in general operations management and being involved in the development of several new large throughput mines in NSW and WA.

Graeme previously worked for Barrick Gold before joining Gold Fields in early 2014 initially as General Manager at St Ives before being appointed Vice President Operations for Australia in 2017.
Mr Ray Chatfield
Global Technical Manager
Alcoa

Ray Chatfield is the Global Technical Manager for Energy for Alcoa’s six alumina refineries. Energy is Alcoa’s largest annual commodity spend in their refineries.

Ray has over 35 years’ experience in alumina refining with Alcoa based in Australia and the USA, focussing on refinery continuous improvement programs, creep, brownfield and greenfield expansion studies.

For the past decade he has managed Alcoa’s energy continuous improvement program. He also investigates alternative energy opportunities and leads the refining decarbonisation team.

Mr Jai Thomas
Assistant Coordinator, Strategic and Consumer Policy
Energy Policy WA

Jai Thomas oversees Energy Policy WA’s work program on customer and retail policy, contribution to national energy policy, whole-of-government initiatives relating to energy, and the regulation of emerging energy service models.

Prior to this, Jai held the role of Program Director – Energy Transformation, and was responsible for the day-to-day delivery of the energy transformation work program on behalf of the Energy Transformation Taskforce, including leading the development of the Distributed Energy Resources Roadmap.

Jai is an energy sector professional with expertise in electricity regulation and distributed energy projects, and has held regulatory and project delivery roles at both Horizon Power and Western Power.

Mr Mike Houlahan
Chief Financial Officer
Horizon Power

Mike Houlahan is Horizon Power’s Chief Financial Officer, leading the Finance and Corporate Services division, holding responsibility for finance, corporate strategy, environmental sustainability, procurement and supply chain portfolios.

Mike leads the exploration and realisation of strategic growth opportunities to deliver cleaner, greener energy solutions for regional growth and development. These include electric vehicles and their infrastructure, strategic opportunities for the use of hydrogen, increasing customer involvement in highly distributed energy systems. Mike led the development of Horizon Power’s approach to Climate Change and roadmap, focusing not only on emissions reduction and climate resilience, but also community resilience.

Mike is a director of Boundary Power, Horizon Power’s joint venture with Ampcontrol.
Ms Kylah Morrison
General Manager – Western Australia and South Australia
METS Ignited

Kylah has over 14 years’ experience working in the oil and gas industry, for indigenous organisations, not-for-profits, and running start-ups. From 2016 to 2019 Kylah championed regional economic development through the local Chamber of Commerce and as Founding Chairperson of the Pilbara Universities Centre.

Living and working for nine years in Karratha, Kylah has a deep understanding of risks and challenges faced by remote and regional Australia. She holds a Master of Engineering Management, as well as being an AICD graduate.

Kylah is a Non-Executive Director for Province Resources.

Mr Nick Berry
Government Relations Manager
Fortescue Future Industries

Nick Berry commenced as Government Relations Manager at Fortescue Future Industries (FFI) in 2021.

He brings diverse government advisory, consulting, and strategic experience from both the private and public sectors spanning nearly thirty years, including as an officer in the Australian Regular Army, advisor to Federal Cabinet ministers and the Leader of the Opposition, risk and crisis management consultant to ASX100 and government clients and a senior executive in the NSW public service.

His interests are politics, reading, music and aviation and his passions are his beautiful wife and young children.

Mr Shane Bannister
APAC Business Development Manager
Tesla

Shane is responsible for Tesla’s Business Development throughout Asia Pacific and South East Asia specialising in microgrids, remote grids and fringe of grid applications, which enable a transition to reliable, cost effective sustainable energy.

Shane has experience gathered across a broad range of engineering, project management and business development roles throughout the Asia Pacific region gained following his Bachelor’s Degree in Electrical and Electronic Engineering in 2008.
Dr John Clout  
Professor of Practice in Pyrometallurgy  
Kalgoorlie Metals Research Laboratory,  
WA School of Mines, Curtin University

Dr John Clout is an internationally recognised expert in relating ore and concentrate properties to their high temperature process performance across several commodities (Fe, V, Ni, Au). He has worked in research (previously at CSIRO), WA mining operations as well as consulting to steelmills.

Dr John Clout has been appointed the Professor of Practice in Pyrometallurgy at the new Kalgoorlie Metals Research Laboratory, based at Curtin’s Kalgoorlie campus, where he will bring real-world experience to the laboratory’s teaching and research, aiming to make a significant contribution to carbon neutral metals production in WA.

Mr Dale Henderson  
Chief Operations Officer  
Pilbara Minerals Limited

Mr Henderson is an engineer with experience in both mine operations and development in the resources sector. This experience has included brown-fields and green-fields environments across a number of commodities in both metals and on-shore hydrocarbons.

He has worked for a range of major resource operators including: Fortescue Metals Group, Rio Tinto, Chevron, and Occidental Petroleum. Prior to joining Pilbara Minerals, Mr Henderson held leadership roles with Fortescue Metals Group in mine operations and project development.

Mr Henderson commenced with Pilbara Minerals in 2017 to lead the delivery of the operations and development objectives for the company.

Mr Mark Zwitser  
Director  
Latitude Partners

Mark Zwitser has worked across a broad range of senior industry roles with extensive experience throughout the investment cycle, from concept through to operation.

Mark is an experienced professional and has worked directly in a business development capacity for project sponsors as well as project finance banks, private equity investment funds and in an advisory capacity on opportunities based in Australasia, North America and London across the infrastructure, energy and oil and gas sectors.

Mark is passionate about working with people and organisations seeking to grow in complex environments.
Mr Peter Mann  
Energy and Emissions Practice Lead  
Partners in Performance

Peter Mann is a strategic advisor with 25 years’ experience across a wide range of industries and has conducted energy and GHG strategy reviews for oil and gas majors, power utilities, large miners, and renewable energy companies. He is regularly sought out to drive alignment amongst stakeholders with complex and conflicting objectives.

Prior to joining PiP, Peter worked with Boston Consulting Group, Worley Parsons and Montgomery Watson Harza (now Stantec).

Ms Megan Born  
Head of Analytics and Reporting  
Energetics

Leading Energetics’ Analytics and Reporting solution, Megan has accountability for quality of project delivery across all projects within the solution, overseeing inventory development, emissions forecasting and modelling for Science-based Target Initiative, decarbonisation strategies and scenario modelling for Taskforce on Climate-related Financial Disclosure (TCFD).

Megan’s expertise is in translating complex datasets into meaningful insights to assist clients with making data-driven decisions, from grid decarbonisation and Australia’s national emissions trajectory to scenario analysis and net zero pathways.

Ms Kaylene Gulich PSM  
Chief Executive Officer  
Western Australian Treasury Corporation

Commencing as CEO of WATC in February 2019, Ms Gulich has extensive experience in public policy, knowledge of financial markets and expertise in the Western Australian economy.

She has previously held senior roles within the Department of Treasury, as both the Executive Director of the Economic business unit and the Executive Director for Infrastructure and Finance.

As well as being a member of CPA Australia and the AICD, Ms Gulich is currently a Director on VenuesWest’s Board and holds the position as Treasurer for IPAA WA.
Ms Zoe von Batenburg
Director Business Development and Transactions
Australian Renewable Energy Agency (ARENA)

Zoe von Batenburg is an Investment Director in the Transactions and Business Development team with the Australian Renewable Energy Agency (ARENA) and specialises in the identification and execution of investment opportunities.

Zoe leads ARENA’s low emissions metals investment focus area. Prior to joining ARENA, Zoe specialised in providing valuations and transaction advice in the financial services sector.

Mr Rob Wilson
Executive Director – Resources and WA
Clean Energy Finance Corporation

Robert Wilson is Head of Western Australia and Resources at the Clean Energy Finance Corporation, working to accelerate the development of clean energy investment opportunities in Western Australia.

Robert has extensive experience throughout the business investment cycle, from concept through to operations, as well as mergers and acquisitions, advisory and commercial experience across the renewables, infrastructure and resources sectors.

Robert has held leadership positions in the Macquarie Capital’s African infrastructure business and Atlas Iron, and worked on the establishment of Climate Investor One, a European climate fund focused on emerging markets. Robert holds a bachelor’s degree in mechanical engineering, and an MBA from the University of Cape Town.

Mr Matt Dusci
Chief Operating Officer
IGO Limited

Matt Dusci is a senior executive with over 25 years of experience across all facets of the resource industry, from exploration, project development, and operations. He has extensive international experience, having worked in Australia, South America, Africa and Asia.

Matt has held senior leadership positions within PMI Gold, Gold Field and WMC Resources. He joined IGO in 2014 and is currently Chief Operating Officer for the Company.
Ms Miriam Stanborough  
Chair  
Minerals Research Institute of Western Australia (MRIWA) Board

Miriam is a chemical engineer with more than 20 years’ experience in the minerals processing industry, across commodities including copper, uranium, gold, silver, alumina and mineral sands. Miriam has chaired the MRIWA Board since 2020 and holds a number of other Board positions, most recently being appointed Non-Executive Director on the Pilbara Minerals Board.

Miriam has also held roles in technical development, production management, project management, business improvement, HR and diversity strategy, and sales and marketing.

## OUR PROGRAM

### 8.00 – 8.45 Registrations and Coffee

### 8.45 Conference Opening

| Welcome and Housekeeping by MC | **Nicole Roocke**  
Chief Executive Officer  
**MRIWA** |
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<td>Welcome to Country</td>
<td>Aunty Marie Taylor</td>
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| Ministerial Address | **Hon. Bill Johnston, MLA**  
**Minister for Mines and Petroleum; Energy; Corrective Services**  
Facilitated by  
**Professor Peter Klinken AC**  
**Chief Scientist of Western Australia** |

### Keynote: Ministerial Panel Discussion

| **Hon. Bill Johnston, MLA**  
**Minister for Mines and Petroleum; Energy; Corrective Services** | **Hon. Alannah MacTiernan, MLC**  
**Minister for Regional Development; Agriculture and Food; Hydrogen Industry** | **Hon. Amber-Jade Sanderson, MLA**  
**Minister for Environment; Climate Action; Commerce** |

### 9.55 – 11.15 Session 1: Energy Utilisation

| Session Host – Horizon Power | **Darren Hill**  
General Manager Commercial and Business  
**Horizon Power** |
|---|---|
| The Agnew Story: the ambitions, realities and next steps | **Graeme Ovens**  
VP Operations Australia  
**Gold Fields** |
| Decarbonisation efforts in an on grid environment | **Ray Chatfield**  
Global Technical Manager  
**Alcoa** |
| Energy policy to support the mining sectors decarbonisation ambitions | **Jai Thomas**  
Assistant Coordinator, Strategic and Consumer Policy  
**Energy Policy WA** |
| Interactive delegate session: What is required to activate new energy opportunities? |  |

### Panel Q&A Discussion

### 11.15 – 11.40 Morning Tea
## Session 2: Transformative Technology - New solutions

**Session Host:** METS Ignited  
**Positioning Western Australia for net zero emissions:** Nick Berry, Manager Government Relations, Fortescue Future Industries  
**Accelerating the transition to sustainable energy:** Shane Bannister, APAC Business Development Manager, Tesla  
**Carbon neutral metals production challenges:** Dr John Clout, Professor of Practice in Pyrometallurgy, Kalgoorlie Metals Research Lab, WASM Curtin  
**Mineral processing technology:** Dale Henderson, Chief Operating Officer, Pilbara Minerals

Interactive delegate session: What are the technology solutions we need to focus on in short-medium-long term?  
Panel Q&A Discussion

## Session 3: Innovation & Collaboration (Concurrent Masterclass Sessions)

**Business case development for the energy transition:** Mark Zwitser, Director, Latitude Partners  
**Obtaining senior leadership and board sign off for energy transition and emission reduction roadmap:** Peter Mann, Energy and Emissions Practice Lead, Partners in Performance  
**Quantifying net zero: scopes 1 to 3:** Megan Born, Head of Analytics and Reporting, Energetics

## Session 4: Funding and Financing

**How ESG considerations are transforming investment:** Kaylene Gulich PSM, Chief Executive Officer, Western Australian Treasury Corporation  
**ARENA’s low emissions investment priorities:** Zoe von Batenburg, Director Business Development and Transactions, Australian Renewable Energy Agency  
**Accelerating the energy transition in resources:** Rob Wilson, Executive Director - Resources and WA, Clean Energy Finance Corporation  
**IGO’s strategy on climate change:** Matt Dusci, Chief Operating Officer, IGO

Panel Q&A Discussion

## Closing

**Closing comments from MRIWA Chair:** Miriam Stanborough, Chair of the Board, MRIWA

**Conference Sundowner:** 16.50 – 19.00
As Western Australia’s regional and remote power provider, Horizon Power understands regional and remote WA like no other energy provider.

Operating across an area covering more than one quarter of the Australian continent, the diversity of environments and climates in our service area cannot be matched. But no matter where we are in regional WA, we find ways to overcome the challenges the unique and unforgiving landscape throws at us to deliver cleaner, greener energy solutions for our customers.

We are playing a pivotal role in Western Australia’s net zero carbon future as we explore new and innovative ways to deliver renewable energy solutions that are tailored to overcome the unique challenges faced by each of our customers, business and industry.

We are applying the knowledge gained through our ground-breaking trials, to work in partnership with our customers to provide truly tailored sustainable solutions for a clean energy future that works towards achieving net zero emissions targets.

Over a decade ago we led the development of low emission power generation in remote areas with the commissioning of the world-first solar diesel hybrid power station in the remote Marble Bar and Nullagine. Today we continue to build the power systems of the future, with the construction of Australia’s first green hydrogen demonstration plant in a remote microgrid, the Esperance Power Project harnessing wind and solar power to generate up to 46% of the town’s power from renewable energy, and a regional town powered by renewable energy through the orchestration of distributed energy resources.

As Australia’s only vertically integrated electricity utility, we operate across the full energy supply chain: generation, transmission, distribution and retail services. This, combined with our industry leading experience and expertise, puts us in a unique position to design energy solutions that consider the full supply chain.

Seeking out the right partnerships to make things happen is something that has become second nature to the business. We are ready to work together to explore new and innovative ways of safely and reliably integrating renewables, green hydrogen, and other storage solutions to decarbonise the energy system and meet your net zero emissions targets.
MEET OUR SPONSOR

With a long history of innovation and our reputation for ingenuity, Australia’s resources sector has consistently overcome the vast array of challenges that face the industry. Sustained investment has made our operations safer and more reliable, and advances in mining methods and technologies have paid dividends, paving a pathway for the future prosperity of our sector.

As the Industry Growth Centre for Mining Equipment, Technology and Services, METS Ignited has focussed its efforts over the past five years on commercialising these innovative technologies. There is huge demand for zero emission technology from the resources sector, and our industry is taking a ‘lead by example’ approach to addressing these challenges.

In early 2020 METS Ignited worked with State of Play, in partnership with the Future Battery Industries Co-operative Research Centre and Project 412 to undertake a series of research activities on electrification in mining. The State of Play: Electrification report published later that year triggered action from the industry, and the establishment of the Electric Mine Consortium.

This action-based group of companies is setting the example, actively driving progress towards zero carbon operations. The group includes miners such as Evolution Mining, Blackstone Minerals, OZ Minerals, South32, Gold Fields, Barminco and IGO, as well as technology companies such as Dassault, Vivo Power, Energy Vault, Zero Automotive, Epiroc, Sandvik and 3ME Technology.

Our resources sector is pro-actively driving the demand for our technologies and innovations. This demand creates opportunity; for technology vendors, researchers and investors in partnering to solve our future industry needs. The flow on effects increase the value of our own national critical minerals and energy metals, and extends Australia’s potential to create more value in the downstream production of our own natural resources.

At METS Ignited, we are focussed on translating our local innovation into products and services that will benefit the global resources sector. The technology that will achieve zero emission mining can be delivered, by Australian technology companies, from within our national economy, for the benefit of our collective future.

Adrian Beer
Chief Executive Officer
INNOVATE TO GROW: NET ZERO EMISSION MINING

From July to September 2021, MRIWA collaborated with CSIRO to support 16 small to medium enterprises (SMEs) in the METS sector to enhance their innovation skills through the Innovate to Grow program.

Delivered by ed-tech company Practera, this targeted round of Innovate to Grow was aimed at SMEs working on net zero emission mining solutions to deliver equipment, technology and services for the Western Australian mining sector.

Businesses from across Australia spent the 10-week program being guided through an innovation framework and developing business solutions relevant to the MRIWA Challenge’s priority themes of:

- Data Driven Decisions
- Mining and Processing Technology
- Energy Utilisation

Meet some of our participants:

**Applied Geoscience**

www.appliedgeoscience.com.au

A data-driven approach using machine learning and artificial intelligence to support the Australian mining industry to achieve net zero. Data from the mining industry is catalysed and modelled to provide answers to the mining industry on resource estimation and further projection of Scope 1, 2 and 3 emissions. Geological, geochemistry and geophysical data runs the machine learning models to provide answers to approaches to quantify emissions rates.

**Circular Mine**

www.circularmine.com

The Circular Mine Consortium is making zero mine waste a reality for mining companies. You can now transform your tailings and waste rock into valuable resources such as soil, aggregates, construction materials which can be commercialised and supplied to the construction and agriculture industries. The Circular Mine Consortium are an international consortium with leading engineering, industrial and commercial capabilities in recycling and mine waste management operating in all major mining regions.
Onetide is a 100 per cent Australian owned and operated national award-winning Engineering Innovation Company. Designing and delivering novel engineering solutions for efficiency and safety optimization through championing sovereign capability and support of local SME’s.

We provide technical limit full-lifecycle as low as reasonably practicable greenhouse gas inventive solutions to the defence, mining, oil and gas, marine logistics, Disaster Relief, and renewable energy sectors.

Syrinx Environmental is a privately owned SME and research organisation specialising in net zero water, blue-green infrastructure and remediation technologies and services for the METS and other sectors. Their newest product is a ‘wetland-in-a-box’ (EnphytoBox®) which can sustainably treat various mining and industrial wastewater streams using green chemistry and phytoremediation. It is a modular and remotely deployable system with integrated IIoT capability suited to remote mining locations and closure sites, including tailings storage facilities. It is a net zero solution for waste and emissions that can generate water and biomass value-added reuse to support the circular mining economy.
SUSTAINABILITY – OUR COMMITMENT

At MRIWA, we are constantly challenging ourselves to explore new ways to improve. Reducing emissions and minimising our impact on the environment requires us all to take action.

In recognition of this, at our inaugural conference we have made several active purchasing decisions:

- Our lanyards are manufactured from a natural bamboo fibre, with no plastic card holders.
- Our event programs are printed on recycled paper and are fully recyclable.
- We have opted not to provide conference bags to minimise waste.
- Our speaker gifts will comprise of donations to the Friends of Kings Park Fund to support research and conservation projects.
- Our venue donates all excess food to OzHarvest.
- We have selected a venue with excellent public transport links.

For next year, we will be assessing what worked, and what didn’t, and where we can continue to advance our commitment in this space.

Have suggestions on things we could consider? Let us know at conference@mriwa.wa.gov.au
Have ideas on what you would like to hear?

Let us know at conference@mriwa.wa.gov.au