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WESTERN AUSTRALIA IT'S LIKE NO OTHER.



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Western Australia It's Like No Other

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Acknowledgement of Country

The Government of Western Australia acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal and Torres Strait Islander communities and their cultures, and to Elders past, present, and emerging.

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On the cover

Rottneet Island Wadjemup

Photograph by

Tourism Western Australia

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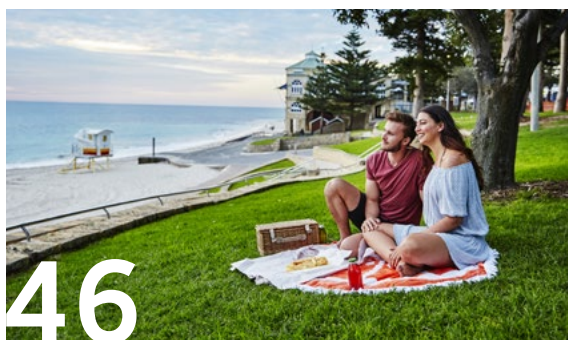
Tourism



Ausbiotech



Health and Medical Life Sciences



International Education

Premier's Foreword

A State like no other

Western Australia continues to be world-leading when it comes to our economic performance, our management of the pandemic and our plan for jobs.

The State Government's Reconnect WA strategy is about building a stronger, more diversified economy which supports jobs and benefits Western Australians.

The new Western Australia tourism brand campaign, 'Walking On A Dream', frames these exciting opportunities and everything that makes our unique State like no other.

My Government's missions and trade delegations, led by Ministers and I, have been successful in showcasing Western Australia.

It's an easy story to tell. Western Australia is safe. It's a safe investment destination. A safe place to do business. A safe place to live, work and study.

Our safe State has been built on solid financial foundations and a stable and strong economy.

It gives us the capacity to invest in the future of Western Australia – investing in training and skills, strengthening our health system, delivering cost of living relief and taking sensible action to tackle climate change.

We continue to attract new industries to support local jobs, diversify our economy and secure the future for generations of Western Australians.

We don't need to look far for examples of just how much is going on in Western Australia and in our overseas offices. This publication provides a window to the many projects underway.

As the worst of the pandemic is over, we are now embarking on a new era for Western Australia.

There is always more to do, but this Government has the plans to keep WA strong, long into the future.

The Hon Mark McGowan BA LLB MLA

Premier; Treasurer; Minister for Public Sector Management; Federal-State Relations



Deputy Premier's Foreword

When dreams become reality

Tourism Western Australia now has a bold new identity.

The 'Walking On A Dream' campaign perfectly captures what all Western Australians already know – that our State really is so good it's like a dream come true.

This inspiring campaign gives Western Australia a fresh new profile in an increasingly competitive, global travel marketplace.

We're telling the world that Western Australia truly has it all. Our dreamlike State offers breathtaking landscapes, unique experiences and an unparalleled sense of space and freedom. Life is wonderful in Western Australia.

Tourism has played a vital role in reconnecting the State with the rest of the world.

It's been a year of transition as we emerge from the pandemic and once more venture out beyond our borders.

We've also rolled out the warmest of welcomes to visitors returning to our State.

The Western Australian Government has worked hard on a range of initiatives as part of the Reconnect WA strategy.

New flight routes to major international hubs including Johannesburg and Rome have contributed to Western Australia's increasing visitor numbers.

It's the people who make Western Australia such a unique and amazing place to live and visit. Every new arrival enriches our lives and culture.

Western Australia's unique Aboriginal culture plays an important role in the 'Walking On A Dream' campaign.

We have worked with the State's Aboriginal tourism sector and elders. Our aim is

to make Western Australia a premier destination for Aboriginal tourism.

Tourism is a gateway to Western Australia and has an important role in telling the world that our State is a truly unique place to visit, live, work, study and invest.

We continue working to diversify our economy by attracting investment and creating new industries and local jobs for Western Australians.

As you will see across the following pages, Western Australia is a unique travel, lifestyle and investment destination. Let's tell the world.

Hon Roger Cook MLA

Deputy Premier; Minister for State Development, Jobs and Trade; Tourism; Commerce; Science





Western Australia Premier Mark McGowan, QANTAS Chief Executive Officer Alan Joyce and Tourism Western Australia Managing Director Carolyn Turnbull.

Reconnecting with the world

Direct flights from Perth connect Western Australia to international markets

Two new direct international flights to Perth will make it easier to visit, study, invest and work in Western Australia.

In June, the Western Australian Government announced new direct flights between Perth and Rome and Perth and Johannesburg. These new routes are supported by the State Government through Tourism WA, as part of the \$195 million Reconnect WA package.

The Rome service is the first ever non-stop connection between Australia and continental Europe and elevates Perth's position as the Western gateway to Australia. In 2019, nearly 150,000 visitors from Continental Europe

spent \$408 million in Western Australia. This included 11,000 visitors from Italy who spent \$29 million in the State. "This new service brings with it a whole host of benefits to the WA tourism and hospitality industries – it will support local businesses and help reconnect operators with visitors from across Europe," said Deputy Premier and Tourism Minister Roger Cook.

A new 11-hour, non-stop flight to South Africa will launch from November 1. Qantas will operate three return flights per week between Perth and Johannesburg – reconnecting South Africa to Western Australia with a direct route for the first time since 2020.

The Johannesburg service is expected to be popular as it removes connection to Perth via Sydney, Singapore or the Middle East.

"Having direct connections with Johannesburg will drive visitors to WA and increase business, investment and study opportunities from South Africa to Western Australia." In 2019, South Africa was the 14th largest international market in Western Australia by number of visitors, with 20,000 visitors spending an estimated \$32 million in the state. Read more about Western Australia's aviation announcements on Tourism WA's corporate website, www.tourism.wa.gov.au

Walking On A Dream

A new \$15 million tourism brand shows Western Australia as a dream destination.

The Western Australian Government, through Tourism WA, has launched a new global tourism brand to raise the State's global profile and attract visitors.

'Walking On A Dream' was unveiled in September, and invites travellers to enjoy the wondrous and dreamlike experiences on offer in Western Australia.

The new \$15 million tourism brand shines a spotlight on Western Australia's vast, otherworldly experiences, from stunning landscapes and pristine beaches, to the many unique natural attractions available in our State.

"This unique, new tourism identity for Western Australia will make our State truly shine in a crowded global marketplace and elevate WA as a destination of choice for travellers both interstate and internationally," said Western Australia Premier Mark McGowan.

"WA's wonderful landscapes and heritage, which are unique to each region, are illustrated in the brand campaign and it's expected these dreamlike experiences - which are a reality here in WA - will appeal to visitors from across the country and around the world.

"It's also excellent to have the backing of world-famous electronic duo Empire Of The Sun, led by WA-raised front man Luke Steele, who has re-recorded their hit single 'Walking On A Dream' exclusively to support the new brand.

"A thriving tourism sector is a vital part of our Reconnect WA strategy, which is all about re-engaging WA with the world to build an even stronger, more diversified economy, for the benefit of all Western Australian businesses and operators.



Monkey Mia, Shark Bay World Heritage Area.
Tourism Western Australia



Charles Knife Gorge, Cape Range National Park.
Tourism Western Australia

[CONTINUED FROM PAGE 7]

"The WA Government, through Tourism WA, is pleased to have worked closely with the WA tourism industry to develop such a unique, visionary new tourism brand for our State."

Walking On A Dream kicked off with an initial series of promotional videos highlighting globally recognised destinations. These include Ningaloo Reef on the Coral Coast, the vineyards of Margaret River in Australia's South West, the iconic Perth city skyline and the Bungle Bungle Range of the Kimberley's Purnululu National Park.

These first videos are just the beginning, with the Walking On A Dream concept to be used for all Tourism WA marketing activities for at least the next five years, to promote destinations and experiences from across all five of the State's tourism regions.

This has already started with the relaunch of Tourism WA's consumer website, westernaustralia.com, which gives the Walking On A Dream creative treatment to promote destinations all across the State. The new-look site includes more than 4,000 pages

for users to explore, 10 million words across six languages, and attracts more than 2.5 million visitors on average each year.

In line with the WA Government's **Jina: WA Aboriginal Tourism Action Plan 2021-2025**, which aims to make Western Australia the premier destination for Aboriginal tourism, the creative concept draws inspiration from the State's unique Aboriginal culture, with two Western Australian born Aboriginal performers, Rika Hamaguchi and Ian Wilkes, starring in the central 60 second hero brand video.

The new brand campaign was developed in close consultation with travel industry stakeholders from across Western Australia's five tourism regions, including the State's Aboriginal tourism sector and Aboriginal Elders from across many communities.

"The 'Walking On A Dream' brand has been developed in close consultation with WA's Aboriginal tourism community," said Deputy Premier and Tourism Minister Roger Cook.

"It is inspired by WA's unique Aboriginal culture in an artistic,

authentic way, in line with our Jina Plan objective to make Western Australia the nation's premier Aboriginal tourism destination.


"The past few years have been unlike anything the tourism sector, and the world, have ever experienced before. Every country, every State is trying to rebuild and refresh their tourism industry.

"It is the toughest and most competitive tourism market the world has ever seen.

"This new campaign will ensure that Western Australia stands out as one of the world's most unique, memorable and most desirable places to visit, now and well into the future."

The new tourism brand is part of the Western Australian Government's \$195 million Reconnect WA strategy to restore the State's links to the rest of the world.

In the year before COVID-19, the tourism industry contributed 100,000 jobs and \$13.5 billion in visitor spend to the State economy.



\$17.7 million National Parks tourism experience development package announced

The Western Australia Government is investing \$17.7 million to develop new, environmentally sensitive tourism experiences and accommodation options in and around the State's National Parks to expand regional tourism.

Western Australia's national parks hold strong appeal for the State's tourism industry, with significant potential to create new visitor experience options and create jobs in regional Western Australia.

The \$17.7 million National Park Tourism Experiences Development Package includes:

- \$6.5 million for accommodation sites around the State, to encourage the development of eco lodges, retreats and other unique accommodation offerings;
- \$7.6 million to work with industry to develop proposals for new tourism experiences in national parks and nearby towns; and
- \$3.6 million to employ tourism development staff to improve local tourism offerings and assist private operators with a range of development initiatives, including workshops, tools and one-on-one coaching.

- The funding package will create bookable touring options for local, interstate and international visitors to enjoy - boosting the density and diversity of experiences regional Western Australia has to offer.

"Western Australia's incredible natural beauty is one of our State's best tourism drawcards," said Western Australia Premier Mark McGowan.

"This package will enable more people to get out and enjoy the natural wonders of our State in a low-impact way, ensuring these beautiful natural assets are not only protected, but enjoyed.

"Some of WA's regions have enjoyed their strongest ever tourism seasons over the past two years and this package will help drive the next phase of growth as we continue to reconnect with the world.

"The package will provide terrific benefits and create local jobs in the tourism and hospitality industries, as we work to bring even more visitors to enjoy the wonders of Western Australia."

Stay up-to-date on the National Parks package initiatives through Tourism WA's corporate Facebook or LinkedIn, search @Tourism Western Australia.

Boranup Karri Forest
Tourism Western Australia

2027 and 2029 Rugby World Cup tournaments coming to Australia

The men's and women's Rugby World Cups are coming to Australia in 2027 and 2029.

Last year, the Western Australia Government, through Tourism WA, threw its support behind the bid for the men's tournament to be held in 2027, with Tourism WA to work with Rugby Australia on opportunities for the women's cup two years later.

Host cities and venues for the 2027 men's event will now be finalised following World Rugby's decision.

"This is another huge milestone in Western Australia's major events strategy," said Deputy Premier and Tourism Minister Roger Cook.

"The WA Government has been working closely with Rugby Australia to ensure WA plays a major role in this truly international sporting

championship in 2027, and we look forward to working with Rugby Australia on the 2029 women's tournament too.

"Securing a global spectacle of this kind and bringing matches to WA will showcase to the world that Perth is a vibrant, desirable and exciting travel destination, and one of the sporting capitals of the nation.

"The benefits flow through to our tourism and hospitality industries and the wider economy, helping to create jobs and investment opportunities for WA businesses."

The two international tournaments are expected to attract a significant number of visitors and provide extensive international media exposure.

When Perth last hosted the men's tournament in 2003 at the old Subiaco Oval, more than 3,400 interstate and almost 15,000 international visitors came to Western Australia and generated \$41 million in visitor spend for the State.

The 2027 and 2029 Rugby World Cups will be significantly larger in terms of revenue, jobs, trade and investment.

The Australian bid team estimates the events will generate \$2.8 billion in direct and indirect expenditure to the country's economy and create 14,000 jobs nationwide.

Keep up-to-date with the latest announcements on Tourism WA's corporate website, tourism.wa.gov.au.

Under a Western Australian sky

In April 2023, thousands of visitors from around the world will gather in Western Australia to view the solar eclipse

At 11:29am on Thursday, 20 April, 2023, tens of thousands of visitors from around the world will turn their gaze to the skies of Western Australia.

A lucky few in the State's North West Cape region will witness a total solar eclipse. Others throughout the State will see a partial eclipse.

Everyone who gazes upon this stunning, natural phenomenon for around 62 seconds will experience a special moment in time that will live with them for the rest of their lives.

A total 13 Western Australian Government agencies, led by the Department of Jobs, Tourism, Science and Innovation (JTSI), are working together to bring this global event to the State.

Partner agencies have joined forces to ensure visitors enjoy a safe experience, maximise legacy benefits for regional Western Australia and optimise the State's global tourism positioning on the world stage.

The State Government has approved \$21 million funding to ensure Western Australia is ready to successfully host an event on this scale.

Road infrastructure will be upgraded to cope with the volume of visitors driving to the region to witness the special moment.

Communications networks will also be upgraded to manage the increase in mobile phone traffic.

State Development, Jobs and Trade Minister Roger Cook said: "Exmouth and the broader North West Cape will be one of the only land-based places in the world where people will be able to view the Total Solar Eclipse in full.

"An event of this size presents logistical challenges, particularly for telecommunications, roads and infrastructure, and this extra funding will help ensure the event runs as smoothly as possible."

In August, the Western Australian Government announced Local Capability Fund Grants to support Gascoyne and Pilbara businesses.

Grants up to a maximum of \$25,000 are available to support local businesses to help prepare them for an influx of visitors.

Minister Cook, who is also the Tourism Minister, said: "With thousands of tourists

expected to flock to the region, it's important that the State Government supports local businesses who will see an influx of customers."

"This Total Solar Eclipse round of the Local Capability Fund is not just a boost for business, but will also ensure tourists visiting the region have a truly memorable experience."

With all eyes on the State, the solar eclipse presents a rare opportunity to showcase the very best we have to offer.

The solar eclipse also provides a platform for Western Australia's historic and modern scientific capability, the strong foundation the State has for current priorities such as space industries and how STEM skills are so essential to human progress.

"A Total Solar Eclipse is an extraordinary astronomical event that presents a unique tourism opportunity for Exmouth and the broader North West Cape," said Minister Cook.

"This will be great for tourism operators and local businesses, with thousands of international and domestic visitors travelling to the Coral Coast region.

Expanding globally

New Investment and Trade Offices

Since the opening of the State's border earlier this year, the Western Australian Government, through the Department of Jobs, Tourism, Science and Innovation (JTSI), has led 9 international missions to Singapore, Indonesia, Germany, the Netherlands, the United States, Italy, Ireland, the United Kingdom, Qatar, France, India, Oman and South Korea.

As part of Deputy Premier Roger Cook's missions to Germany and India, the State Government announced the establishment of 2 new investment and trade offices as part of the Invest and Trade WA network. Western Australia's ability to attract foreign investment, grow trade opportunities and showcase our industry capabilities, will be strengthened

with the opening of new international offices in Frankfurt and Chennai.

Invest and Trade WA will also be establish offices in Vietnam and Malaysia to strengthen our presence in these important markets.



Frankfurt skyline.

"As a global financial and technology hub, Frankfurt is a gateway to exciting investment and trade opportunities for Western Australian companies."

— Deputy Premier and State Development, Jobs and Trade Minister, Roger Cook

Frankfurt, Germany

The Western Australia Government announced in June this year a new international office in Frankfurt, the first Invest and Trade WA office to be established in Europe.

Expected to be open in early 2023, the setup and operations of the Frankfurt office will be overseen by State Agent General John Langoulant AO, who is based in London.

Frankfurt is one of 4 new spoke offices to be established by the Western Australian Government in 2022-23 to strengthen investment and trade opportunities within the State's key markets. The network currently has offices located in London, Singapore,

Jakarta, Shanghai, Mumbai, Dubai, Tokyo and Seoul.

Establishing an office in Frankfurt reflects Germany's importance as a source of foreign direct investment in Australia (valued at AUD \$20.1 billion in 2021), with growing opportunities for Western Australia in a range of sectors such as clean energy (with a focus on renewable hydrogen), batteries and critical minerals.

Frankfurt is also an ideal location to leverage opportunities in other industry sectors such as the creative industries, information technology, telecommunications, biotechnology and life sciences.



Chennai city skyline.

Chennai, India

In July, the Western Australian Government announced a 'Gateway to South India' with the opening of an Invest and Trade WA office in Chennai, India.

Deputy Premier Roger Cook and International Education Minister David Templeman visited the South Indian port city of Chennai during an 8-day mission across 4 Indian cities, which also included Delhi, Mumbai and Visakhapatnam.

This mission to India was the largest of its kind undertaken by the State Government and included more than 110 business delegates across key sectors including mining, international education, energy, innovation, primary industries, tourism and creative industries.

It attracted significant government, industry and media attention as the delegation pursued opportunities

aligned to key sectors within the State's economic development framework.

The new office will help strengthen business and people-to-people ties with the region.

The capital of Tamil Nadu, Chennai is a thriving centre for manufacturing, software development and finance. The new office will provide a vital trade link between the State and South India, supporting Western Australian businesses pursuing opportunities within the region.

The Chennai office will be within the India-Gulf region of the Invest and Trade WA network, which also includes Mumbai and Dubai.

The setup and operations of the Chennai office will be overseen by our Investment and Trade Commissioner for India-Gulf, Nashid Chowdhury.

"International education was the biggest component of the delegation and it was great to showcase Team WA to so many people across India. With India being a key market for our education providers, we look forward to more Indian students becoming a part of the Western Australian community".

— Minister for International Education, David Templeman

Key facts:

- Germany is the State's 13th largest trading partner, with \$3.1 billion of goods traded in 2021. Last year, Western Australia accounted for 17 per cent of Australia's total trade in goods with Germany.
- In 2021, India was Western Australia's seventh largest trading partner with total trade valued at \$4.6 billion, accounting for more than 17 per cent of total trade between Australia and India.
- The State exported \$3.2 billion of goods to India in 2021, above the annual average of \$2.4 billion over the past 10 years.



Mission to the United Kingdom and Europe

Deputy Premier leads UK and Germany investment and trade mission

Deputy Premier Roger Cook led an investment and trade mission to the United Kingdom and Germany in June, which began with Western Australian companies showcasing their capabilities at technology event London Tech Week.

Ten Western Australian Government-sponsored companies attended the event:

- Functionly Pty Ltd
- Nimby.ai Limited
- Resonance Health
- Bruno Health (Ascend Health Group)
- Due
- uDrew
- PlanCare
- Powerledger
- Exodus Space Systems
- Customa

These companies were offered the opportunity to access the world's leading innovation thinkers, investors and policy makers, form valuable connections and build their networks.

The investment and trade mission included a wide range of events where Western Australian industries, including tourism, health and medical life sciences, advanced manufacturing, space, batteries and critical minerals, were championed among target audiences.

These included the Tourism WA European Roadshow, a meeting with the Australia-UK Chamber of Commerce and roundtables on the UK-Australian Space Bridge, skilled worker attraction and healthcare technology.

Following London, the mission shifted to Germany's financial hub, Frankfurt, a new 'spoke' in the expanding State Government's international investment and trade office network.

"Frankfurt will be the newest location in the Western Australian Government's network of international investment and trade offices.

"As a global financial and technology hub, Frankfurt is a gateway to exciting investment and trade opportunities for Western Australian companies.

"The Western Australian Government is committed to growing the strong relationship between our State and Germany, which is underpinned by common values, strong people-to-people connections, and substantial trade and investment links."

Germany is an important trade and investment partner for Western Australia, with \$3.1 billion of goods traded in 2021 and significant investment from German companies in key Western Australian projects. Western Australia accounted for 57 % of Australia's goods exports to Germany in 2021.

The mission to Frankfurt also included a visit to the European Space Operation Centre, before concluding in Munich.



Deputy Premier Roger Cook with Dr Emil Dardak, Vice Governor of East Java.

Celebrating close ties with East Java

Western Australia and East Java re-affirm relationship

Western Australia and East Java re-affirmed their close relationship in May, when the Deputy Premier met his counterpart, Dr Emil Dardak, Vice Governor of East Java, to discuss mutual priorities to strengthen cooperation over the next five years.

Established in 1990, the sister-state relationship between Western Australia and East Java has developed into a wide reaching partnership across a range of sectors including trade, investment, education, health and agriculture.

Deputy Premier Roger Cook led an investment and trade mission to East Java in May, the first official visit to Indonesia since the COVID-19 pandemic.

"I visited East Java to re-establish our close relationship and work together to identify mutual priorities that will shape

our engagement over the next five years under a renewed sister-state agreement.

"I toured the Millennial Job Center in Malang, where we talked about our mutual interest in skilled workforce development.

"I also visited Singhasari Special Economic Zone, East Java's special economic zone for tourism and digital technology development, to understand the developer's vision and the opportunities it presents for Western Australian businesses and education providers."

Following this successful visit, the Deputy Governor and KRAT David Santoso, the Chief Executive Officer of the Singhasari Special Economic Zone, made a reciprocal visit to Western Australia in June. This provided an opportunity to explore cooperation in creative

industries, the start-up sector, energy transition and education, including engagement with the creative industries sector in the South West region to explore shared projects.

In 2021-22, Indonesia was Western Australia's ninth largest trading partner, with total trade valued at AU\$4.1 billion.

Western Australia accounted for 33% of Australia's merchandise exports to Indonesia and exported \$3.3 billion of goods to Indonesia in 2021, well above the annual average of \$2.1 billion over the past 10 years.

The Investment and Trade Office in Jakarta is part of Invest and Trade Western Australia, which provides support to Western Australian businesses looking to attract investment or expand into international markets.

WA and Zhejiang celebrate 35 years of sister-state relationship

Western Australia and Zhejiang province celebrated 35 years of our sister-state relationship this year by reaffirming this important agreement.

On 31 May, Premier Mark McGowan and Zhejiang Governor Wang Hao co-hosted the virtual opening ceremony that included cultural performances, memoranda of understanding signings, speeches and gift exchanges.

The Invest and Trade WA Perth and China hubs organised the successful event at the Perth Convention and Exhibition Centre to celebrate the renewed agreement.

The renewed agreement that was signed at the opening ceremony includes opportunities to work together to achieve economic outcomes in primary industries, technology, new energy and health and medical life sciences. In addition, it commits to continue supporting people-to-people exchanges between

schools, business councils and government agencies.

The 35th anniversary celebration also included two WA-Zhejiang 'Sector Connect' Events focusing on health and medical life sciences, and primary industries.

The reaffirmation of the sister-state relationship directly supports objectives in Western Australia's Asian Engagement Strategy 2019-30: Our future with Asia and Reconnect WA.

To learn more, please visit the **Invest and Trade website**.

- Zhejiang Province is the major receival port for Australian iron ore of which Western Australia supplies the majority. This was one of the reasons Zhejiang Province was chosen as our sister-state in 1987.
- The sister-state relationship was expanded on 15 November 2004 in a signing ceremony with Dr Geoff Gallop, then Premier and His Excellency Mr Xi Jinping, who was the Chairman of

the Standing Committee, Zhejiang Provincial People's Congress of the People Republic of China. His Excellency Xi Jinping is now the President of China.

- There are five sister city relationships formed with Zhejiang namely: Bunbury and Jiaxing (2000); Manjimup and Jiashan (2010); Geraldton and Zhoushan (2012); Shire of Margaret River/Augusta and Haining

(2014); and Shire of Collie and Haiyan County (2016).



Premier Mark McGowan pictured with Director General Rebecca Brown.



Director General visits the regions

With the opening of State and International borders earlier this year, there was significant momentum and opportunity for travel and engagement.

Our Director General Rebecca Brown spent 4 days in the Mid-West region of Western Australia from 29 April to 2 May, exploring all aspects of the JTSI portfolio.

Rebecca's attendance at the Shore Leave Festival was a great opportunity to visit and engage on a range of areas including tourism, space, super yachts, boat building and maintenance, the resources sector, hydrogen, industrial land, infrastructure, innovation, investment and trade activities.

A tour of the Geraldton Port, both land and water, included an update on key activities such as the expansion to support diversification of commodities and volume groin through the port; expansion of jetty to realign Abrolhos operators from the fishing boat harbour and closer

to the town centre; and building of significant marine facilities.

Other highlights included discussions on Space and the Square Kilometre Array; a visit to the HMAS Sydney Memorial and Museum, Port Gregory and the Pink Lake, the Meanarra Hill and the Kalbarri Skywalk; Kalbarri's recovery plans from Severe Tropical Cyclone Seroja; and a walk through the Oakajee Strategic Industrial Area.

The tour of Port Gregory and the Pink Lake was a great example of developing key

tourism sites of high quality that are culturally appropriate. It was a great insight into both how we can leverage these investments, but also the impact on the ground Tourism WA officers in the regions can have working with traditional owners, local government, RTOs, other government agencies, CCIs and local industry.

Overall, Rebecca said it was an immense experience and great opportunity to step out into the regions and see what is going on and what is possible.



Engaging with renewable and sustainable markets

Invest and Trade WA supported a Ministerial mission to South Korea and Singapore, driving further opportunities for Western Australia in an increasingly competitive global investment and trade environment.

Promoting the renewable hydrogen industry and building new partnerships was the focus of the first leg of Western Australia's investment and trade mission in September.

Led by WA Hydrogen Industry Minister Alannah MacTiernan, the delegation spent 3 days in South Korea participating in the 2022 Global H2 Conference and meeting with international industry leaders wanting to invest in WA.

Minister MacTiernan was supported by Western Australia's Investment and Trade Commissioner for North East Asia, Nicole Fasana.

"WA is well placed to become a global clean energy

producer and exporter due to an abundance of natural resources and progress to transition to a clean energy future," said Ms Fasana.

"There are huge opportunities in renewable energy, critical minerals and battery development in the North East Asia region. WA and Korea are well positioned partners."

The mission to South Korea was an opportunity to attract investment in renewable energy, hydrogen production and downstream processing.

It also included green iron, iron ore and steel, and provided a platform to further develop awareness on research and development, in particular

stimulating domestic demand, fuel cells and steel production.

Korea is seeking hydrogen supply and decarbonisation of systems, and WA is aiming to become a large-scale producer and exporter of renewable hydrogen – together making a complete, stable and secure supply chain.

Concluding the first leg of the mission, the delegation continued to Singapore where Western Australia had a presence at the Food and Hotel Asia (FHA) Food and Beverage Edition 2022 exhibition. Invest and Trade WA supported the Department of Primary Industries and Regional Development's presence at this event.



Minister for Agriculture and Food, Alannah MacTiernan attending the Food and Beverage Edition 2022 exhibition.

On show were 24 Western Australian agrifood businesses, including grains, canola oil, nougat, honey, seafood, fruit and vegetables and coffee, alongside beer, wine, cider and spirits.

A collaboration between Curtin University's Perth and Singapore campuses led to a study at a satellite Regenerative Agriculture event looking at market sentiment to inform trade intelligence.

The cross promotion between 2 sites supported the regions' mutual interest in regenerative agriculture and showcased the State's capabilities in food sustainability and strong supply chains.

Western Australia's Investment and Trade Commissioner for ASEAN, Krista Dunstan said,

"Sustainable, premium produce from Western Australia into Singapore has been thriving. Western Australia is recognised for its premium crops, meat, dairy, beer, wine, spirits and high-quality food and beverages."

The mission to Singapore fostered discussions on industry innovation and driving business growth leading to new export and product opportunities.

This latest investment and trade mission was part of the Western Australian Government's \$195 million Reconnect WA package, assisting local businesses to rebuild international business relationships and supply chains impacted by the COVID-19 pandemic.

"WA and South Korea are a perfect match when it comes to the development of the global renewable hydrogen industry."

"South Korea is seeking hydrogen supply and the decarbonisation of systems, and WA is well-positioned to be an optimal large-scale producer and exporter of renewable hydrogen – together making a complete, stable and secure value chain."

—Minister for Agriculture and Food, Alannah MacTiernan.



WA Government-led delegation at Biotechnology Innovation Organisation (BIO) International Convention.

Building industry connections in the United States

Western Australia was on the ground in the United States in June, promoting the State's growing health and medical research, innovation and ICT, and life sciences industries.

Innovation and ICT, and Medical Research Minister Stephen Dawson led the 13 day mission, which included the Biotechnology Innovation Organisation (BIO) International Convention in San Diego, California.

BIO is the world's largest biotech conference with more than 70 countries participating, representing more than 1100 biotechnology companies, academic institutions, state biotechnology centres.

At BIO2022, Minister Dawson led a Western Australian delegation of 13 organisations, including Recce Pharmaceuticals, Adarsh Australia, Linear Clinical, The University of Western Australia, Argenica, Yuuwa Ventures, Neolixir, Telethon Kids Institute, PYC Therapeutics, SynGenis Pty Ltd, Perron Institute and Black Swan Pharma.

Throughout the mission, Directors from the MTPConnect

WA Life Sciences Innovation Hub played a key role in attracting investment opportunities to Western Australia, and actively promoted the AusBiotech 2022 conference to be hosted in Perth in October.

An international partnership between the Texas Medical Centre and Biodesign Australia was announced, to work collaboratively to provide founders and entrepreneurs with access to talent, clinical trial activity, expanded funding opportunities and market access and will be headquartered in Western Australia.

The mission also included meetings with key HMLS industry leaders in Northern California's 'Silicon Valley', to build partnerships around biodesign and to better understand what makes this a world renowned region for innovation and commercialisation.

A key outcome from the mission was an in-principle agreement to vary the Microsoft Common Use Agreement with Western Australia. Supporting the Government's Digital Strategy, which aims to change the way our community interacts with government, and ensuring Western Australia's cyber security capabilities are world-leading.

Minister Dawson said the mission to the United States was essential to maximising growth in these vital sectors, which all have an important role to play in the diversification of Western Australia's economy.

"The mission provided opportunities to promote Western Australia as a vibrant, significant and continually growing leader in the burgeoning local, national and international health and medical research, innovation and ICT and life sciences sectors," he said.

Local innovation to help children

Researchers from the Telethon Kids Institute and Perth Children's Hospital, in conjunction with PainChek Ltd, are developing a new app for children with disabilities, to help them communicate when they are in pain.

Associate Professor Jenny Downs - Head of Child Disability Research at Telethon Kids Institute - said the app used artificial intelligence to interpret facial muscle actions that showed pain from images of the face. The app then evaluates the images and clinician observations of the child's behaviour.

Professor Downs said the new tool had the potential to reduce unpleasant experiences associated with many illnesses and health care procedures.

"It is critical to have tools to be able to support children who cannot speak for themselves," she said. "It is especially distressing for parents

whose child has difficulty communicating their pain to people who they do not know and who are more vulnerable when they are in hospital."

Professor Downs said the app builds on the work done by research company PainChek Ltd in developing tools to detect pain in elderly people with dementia. This app is now widely used in aged care centres around the world. The company more recently developed an app for infants, which is currently being evaluated, developing artificial intelligence suitable for children.

"If the app is successful, it could be used in settings other than acute health care," Professor Downs said. "For example, it may be useful for parents to understand if their child is experiencing acute pain at home and testing this will be an important future study."

The research is one of 17 projects funded under the Western Australian Government's inaugural \$8 million Future Health Research and Innovation



Professor Jenny Downs - Head of Child Disability Research at Telethon Kids Institute. Credit: Telethon Kids Institute

Fund initiative. Professor Downs said the funding was essential for the project to get off the ground.

"We know that children with disabilities experience many more hospitalisations and procedures than children in the general population, and that they are more vulnerable because of their communication difficulties," she said. "This funding will enable us to develop an app to guide their clinical care and enable the best pain management."

Medical Research Minister Stephen Dawson said the innovation seed fund would help drive prototype development and fast-track ideas to the market.

"This vital investment supports local innovators but will also help drive health and medical innovation to improve the health and wellbeing of the Western Australian community," he said.

"As a government, we want to improve the sustainability of the WA health system and position WA as a key player in health and medical research innovation."



Professor Anthony Kicic. Credit: Telethon Kids Institute.

Lifesaving in Western Australia

The idea of using naturally-occurring viruses that selectively kill or target life-threatening bacterial infections, seems like a plot from a science fiction novel.

But Associate Professor Anthony Kicic, from the Telethon Kids Institute, is doing exactly that.

Professor Kicic is unlocking the potential of bacteriophages, which are viruses that kill or prey on superbugs. Considered the most abundant organisms on the face of the earth, they are found everywhere in the environment such as in water and soil and can be extracted from them.

"Bacteriophages are good viruses that are predators of specific bacteria that do not infect host cells, cause host cell damage or trigger an immune response," Professor Kicic said. "They get inside the bacteria and replicate making little miniature clones of themselves which then burst out of the bacteria, effectively killing them".

Professor Kicic said researchers are looking at using bacteriophage therapy or phage therapy as an alternative to antibiotics in cystic fibrosis (CF) patients who are suffering from life-threatening lung infections.

He said treatment with bacteriophage could not only save lives but also improve quality of life.

"Bacteriophage treatment has been shown to be successful in eliminating infections in people with cystic fibrosis on a compassionate basis, where antibiotics have no effect," he said. "Larger scale studies are now needed."

Professor Kicic, who is also Head of Airway Epithelial Research at the Wal-yan Respiratory Research Centre, said funding from the Western Australian Government was critical in establishing the first phage

bioreactor facility in the state.

He was a recipient of the State Government's \$8 Innovation Seed Fund which supports medical and research projects.

"This has been an exciting step to put WA in the global arena for phage therapy," Professor Kicic said.

Medical Research Minister Stephen Dawson said the innovation seed fund would help position Western Australia as a key player in health and medical research innovation.

"The McGowan Government has moved to establish an innovation seed fund to drive prototype development and fast track these ideas to market," he said.

"The Innovation Seed Fund provides an opportunity to diversify the WA economy and create health and medical innovation jobs."

It's time to tell our story

Professor Peter Klinken AC, Chief Scientist of Western Australia

Two continents. 4 countries, 10 cities, 21 days..... Same story: The western world is embracing Australia and what Western Australia has to offer.

This was the clear message I received while travelling across the Northern Hemisphere, seeking new opportunities to promote our State.

I was privileged to accompany Ministers Cook and Dawson on separate delegations to the US and Europe. The purpose of these trade missions and events in recent months has been to position our State on a global stage.

While we are often viewed as a mining State, Western Australia has so much more to offer. The resource sector has contributed enormously to our State, and the nation, for decades.

Now we are building on that success and really diversifying our economy.

The resource sector will remain the bedrock of our economy, but we now have a unique moment where we can turn that strength into other world-leading opportunities.

Western Australia is among the most technologically advanced resource sectors in the world. This technology is now being adapted and applied across other sectors including remote operations, robotics, automation, the global space industry and defence.

Speaking with Governments and some of the world's largest organisations, it became clear to me that this is a story that must be told. The world needs to hear the Western Australian story and what we have to offer.

In my view, Western Australia is the best placed jurisdiction in the world to undergo an orderly energy transition to a renewable, sustainable future. This was one of the key reasons why some of the world's most recognisable companies indicated that Western Australia has all the credentials to become a global Data Centre hub.

Our overseas partners see Western Australia as a safe place to do business, well regulated with low sovereign risk, a stable environment in which to establish operations and lay foundations for the future. The Europeans, in

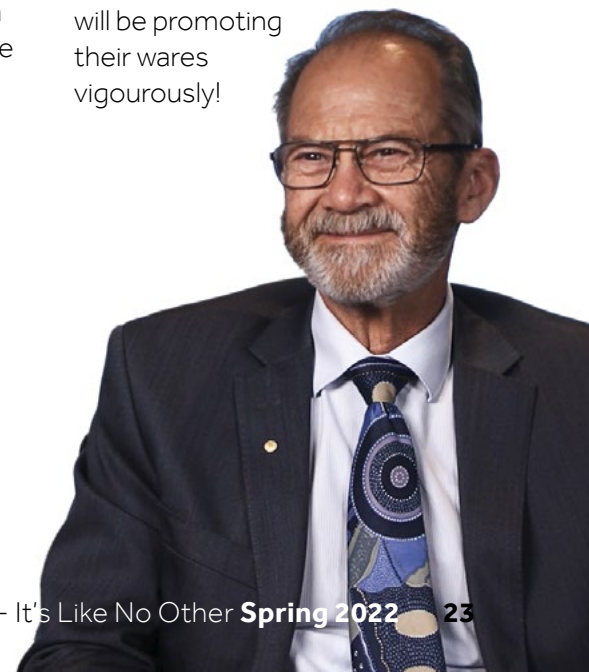
particular, were most impressed by Western Australia's respect for Indigenous culture.

Other sectors such as life sciences, high-tech manufacturing, tourism and education are just some of the areas that can contribute to Western Australia's continued growth.

Our challenge is to tell our compelling story. Unless we do, no one else will.

We have a lot going for us here in Western Australia. Opportunities abound, but only through continuous engagement can we connect our strengths with the rest of the world.

We must have a clear narrative and follow up with actions. You can be guaranteed that our competitors will be promoting their wares vigorously!





World-leading robotics and automation mega precinct

Western Australia is leaping further ahead as a leading developer of automation and robotics with the Australian Automation and Robotics Precinct being built north of Perth.

The exciting new precinct is a world-leading facility for testing, research, development and training in autonomous, remote operations and robotic systems and equipment and beyond.

Users will have access to test beds, laboratories and design co-labs, and a common user facility operations building, opening in 2023.

At 51-hectares, it will form one of the biggest test facilities of its kind in the world.

The Western Australian Government is developing the precinct, launched in October 2021, through DevelopmentWA's Industrial Lands Authority, with a funding injection of \$20 million.

In August 2022, Western Australian-founded CORE Innovation Hub was appointed

to operate and activate the precinct; leading an industry-driven collaboration model.

Together with industry partners, CORE will steer project curation and showcasing; industry event staging; and promoting skills and ideas exchanges between innovators, customers, TAFEs and universities.

Strong interest in the State's new precinct has been shown by a broad range of local sectors – from mining and resources, remote operations and drone and robotics suppliers, to research, education and technology innovation – and several sectors have already used the site for testing and research.

Innovation and ICT Minister Stephen Dawson said CORE delivering the project was an important step in ensuring

Western Australia becomes a leading developer and adopter of automation and robotics.

"CORE Innovation Hub brings experience in managing innovative facilities, building collaborative ecosystems and driving transformation across the mining and resources, energy, oil and gas, space and defence sectors," Mr Dawson said.

The precinct is set to deliver at least 70 construction jobs and, once complete, up to 5,000 ongoing jobs in robotics, automation and remote operations Lands, Minister John Carey said.

"This Government is focused on supporting innovative businesses who will help transform and future-proof our economy, while creating skilled local jobs for the future," he said.



Premier's Science Awards 2022

Tahlia Prior, recipient of the Shell Aboriginal STEM Student of the Year award.

Aboriginal and Torres Strait Islander people were Australia's first scientists. They have lived close to 65,000 years in Australia using their knowledge of the environment, astronomy, engineering, forensic science, chemistry, land management and ecology.

At the Premier's Science Awards each year we recognise Aboriginal or Torres Strait Islander undergraduate or postgraduate students who demonstrate excellence in STEM studies with the Shell Aboriginal STEM Student of the Year award.

We sat down with this year's joint winners Tahlia Prior and James Hill to find out why STEM and cultural connections are so important to them.

Tahlia Prior is a proud Ballardong Whadjuk Nyungar, Wajarri Yamaji woman and a final year Civil Engineering student at Curtin University. She has excelled academically in

Elder and Traditional Owner community representation, and in connecting with industry partners and opportunities.

"I chose engineering because I want to be a part of the change that builds respectful and collegial relations with Traditional Owners of the lands we build on," she said.

"To quote my aunty – civil engineering is not only about building safe infrastructure, we're also building on Whadjuk all the way to Yawuru lands. We need to respect the Knowledges of those lands and bring them at the forefront of all projects.

"It's about building relationships with peoples from the beginning of projects so we can truly respect the intimate Knowledges of peoples' lands we are building on."

Ngarrindjeri man James Hill is a PhD student at The University of Western Australia and Telethon Kids Institute who is investigating how negative attitudes and actions (stigma) relate to the disproportionately

poor mental health outcomes of trans and gender diverse young people.

"I got into STEM because of my desire to help and give back to my community," he said.

"It's important that opportunities like this exist for Aboriginal and Torres Strait Islander STEM students because even a few generations ago, this wouldn't have been possible.

"I think we're pretty deadly at what we do and it's important to recognise the progress we've made and the opportunities that are now available to us.

"There's a lot of goodwill and support out there, so if you're thinking about getting into STEM studies, I would say go for it."

The Premier's Science Awards recognises and celebrates the outstanding scientific research and engagement taking place in Western Australia.

You can find out more about the other 2022 Premier's Science Awards winners at jtsi.wa.gov.au/scienceawards



State's leading minds are changing the world

Local entrepreneurs and businesses have pitched their world-leading innovations for Western Australia's Innovator of the Year (IOTY) 2022 awards. First launched in 2006, the awards showcase the State's brightest innovators, helping them realise the full potential of their innovative creation.

The awards are funded through the Western Australian Government's \$16.7 million New Industries Fund, which supports new and emerging businesses to diversify the State economy and create new jobs.

The Western Australian Government is committed to

raising the profile of innovation in the State and supporting the delivery of government initiatives to advance the growth of our innovation-based industries. We have a proud history of innovation - creating solutions that meet business and community challenges.

Innovation and ICT Minister Stephen Dawson said: "The 2022 WA Innovator of the Year program provides a platform for the State's brightest technology minds to transform an idea into a real business."

The awards attract leading industry sponsors including Rio Tinto, primary sponsor of the 2022 WA IOTY awards, Woodside Energy, Business News and Wesfarmers as platinum award sponsors;

Griffith Hack, Wrays, Biodesign Australia and The Centre for Entrepreneurial Research and Innovation (CERI) as gold sponsors; and Murfett Legal, Moore Australia and PwC Australia as silver sponsors.

Twelve finalists were chosen in both the Rio Tinto Emerging and Rio Tinto Growth categories and a further 12 finalists across the three Platinum Award categories: Business News 'Great for the State', Wesfarmers Wellbeing and Woodside Energy. A prize pool of \$140,000 will be shared by six recipients, with the category winners to be announced in December and celebrated across the globe.

Visit wa.gov.au/IOTY for more information about the awards.



Caption (L-R):
Xsights with the digital XIoT health tag; Directors Dr Maud Eijkenboom and Dr Angela Fonseca, Lixa.

Western Australia's 2022 Innovator of the Year finalists and their initiatives

Rio Tinto Emerging Innovation Category

- **Ex Planta Pty Ltd** for unlocking the power of synthzetic biology – Isoflavonoids 2.0
- **Neurotologix Pty Ltd** for developing remote patient monitoring for dizziness and vertigo.

*Also nominated for Wesfarmers Wellbeing Category

- **Protective Pty Ltd** has applied next generation technology to develop a Broken Neutral Protection Device to improve the lives of the world's workforce.

*Also nominated for Woodside Energy Category

- **SpeedSignature** is a web application able to describe running gait characteristics to offer coaches unique insights into athlete performance and rehabilitation.
- **Walk to Beat Pty Ltd** designed a Smart Walking Stick for Parkinson's sufferers that gives users a vibratory cue to prompt them to step forward coming out of the freezing episode.

*Also nominated for Wesfarmers Wellbeing Category.

- **Xsights Digital Pty Ltd** has developed the XIoT Health Tag for livestock health and welfare monitoring.

*Also nominated for a Business News 'Great for the State' Category.

Rio Tinto Growth Innovation Category

- **Assuro** offer a range of products and services that make bank guarantees and bonds easy.

*Also nominated for a Business News 'Great for the State' Category

- **Heat Trap Solutions Pty Ltd** for their safety shower continuous recirculation technology that tackles three significant concerns of people living and working in hot environments: safety, comfort and productivity.

- **Pixelcase Group Pty Ltd** for AI vehicle management through a product called Aero Ranger that works in 90 countries.

- **Sentient Hubs** for their Dynamic Master Planning Platform that offers the capability to understand economic unknowns, such as unintended consequences and unforeseen impacts, leading to better supported decisions and ultimately, better outcomes.

*Also nominated for a Business News 'Great for the State' Category

- **Vedi** (formerly known as VetDB) is powering veterinary care through trustworthy data and seamless technology.

*Also nominated for Business News 'Great for the State'

- **Vitruvian** for their Vitruvian Trainer+ that delivers an efficient workout through a device that allows for an adaptive and personalised resistance experience.

Wesfarmers Wellbeing Category

- **Lixa** for developing Neo X, a platform technology mitigating antimicrobial resistant bacterial infections.
- **Cardiac Pump Pty Ltd** for inventing a triphasic blood pump for open heart surgery.

Woodside Energy Category

- **Axiom Sensing** for their Autonomous Soil Gas Monitoring Unit for Energy Transition Industries.
- **FoundAt Pty Ltd** for their FoundAt Augmented Reality Based Data Management

Business News 'Great for the State' Category

*Finalists mentioned in above categories.



Australian Space Automation, AI and Robotics Control Complex (SpAARC)

Space Automation, AI and Robotics Control Complex (SpAARC)

Perth is now home to a world-class facility that trains, tests and controls remote and autonomous operations in space and other harsh environments. SpAARC is also a world-recognised commercial facility for innovation, security and collaboration.

SpAARC was established through a \$4.5 million investment by the Australian Government (through the Australian Space Agency Space Infrastructure Fund); \$3.5 million investment by the Western Australian Government and \$5 million investment by Fugro Australia Marine Ltd.

SpAARC will support numerous new space robotics projects, including NASA's return to the Moon; on-orbit service assembly and manufacturing; lunar surface operations and in-situ resource utilisation; and the support of

gateways and space stations.

SpAARC is sited within the Telstra telecommunications exchange building on Wellington Street and falls under the Perth City Deal, a \$1.5 billion investment to re-energise the Perth CBD.

Recently, SpAARC has employed a number of highly experienced international employees with significant space experience to assist its space operations. These employees include two senior engineers each with more than 15 years' NASA experience

and a systems engineer from Surrey Satellite Technology Ltd. This significantly increases both SpAARC's and Western Australia's space industry capability, elevates the local space sector and promotes Western Australia globally.

SpAARC has also partnered with Intuitive Machines (US). Intuitive Machines has been contracted by NASA to undertake a number of lunar missions through the Commercial Lunar Payload Services program. Intuitive Machines is likely to be the first commercial company to

land on the Moon with launch due early 2023. SpAARC will provide operational support for Intuitive Machines' lunar missions over the coming years.

SpAARC can provide US-based space companies extended operations during their downtime, and also offers a backup facility in another hemisphere if something goes wrong.

SpAARC is now operational and is currently undertaking subsea remote operation activities. An official launch of SpAARC is due early November 2022.

It is anticipated that high-level members of Intuitive Machines, NASA, Australian Government and the Western Australian Government will be in attendance.



LeoLabs Australia

LeoLabs, the world's first and only supplier of commercial radar tracking services for objects in Low Earth Orbit is establishing a new radar site in Western Australia.

LeoLabs provides space situational awareness services for objects in low earth orbit, which allows tracking and monitoring of satellites and space debris. Space debris is a significant collision risk to all space vehicles and LeoLabs' technology supports collision avoidance for civil and defence space purposes.

It is currently constructing its first space radar tracking facility (West Australian Space Radar; WASR) in Australia, and JTSI supported LeoLabs identify the site near Bunbury in the South West of Western Australia. WASR is due to be operational later this year.

With LeoLabs' WASR, existing infrastructure, collaborations and research, Western Australia will have an increasing role in safe and sustainable space operations and developing innovative solutions to mitigate the space debris problem and facilitate space traffic management.

Western Australia already hosts a variety of space infrastructure providing space situational awareness (SSA) and is part of the US surveillance network for space debris.

Western Australia also has international collaborations and research focused on technologies to detect, track and monitor objects in space.

Existing SSA infrastructure includes:

- World-leading joint US-Australian Space Surveillance Telescope and C-Band Space Surveillance Radar System located at the Naval Communications Station Harold E. Holt in Exmouth.
- EOS SSA optical telescope in Learmonth.
- Curtin University's FireOpal is a world-class optical space tracking system developed in partnership with Lockheed Martin.
- Swedish Space Corporation's SSA optical telescope at the Mingenew Space Precinct.
- ExoAnalytic Solutions optical SSA telescopes in Shires of Cunderdin and Toodyay.
- UWA's Zadko Observatory is located 70 kilometres north of Perth hosts the following SSA ground infrastructure:
 - › UWA Zadko Telescope for SSA (with the European Space Agency), astronomy, gravitational wave research and tracking launch
 - › French based ArianeGroup two SSA optical telescopes
 - › US based Slingshot Aerospace SSA optical telescope
 - › Polish Space Agency SSA optical telescope
 - › JAXA optical telescope
 - › United States Air Force Academy - Falcon telescope for SSA research and STEM.

Construction starts on deep space antenna at New Norcia

The Western Australian Government celebrated construction of the European Space Agency's (ESA) new space antenna at New Norcia with the laying of the first stone at a ceremonial event on 16 June this year.

The event was attended by Federal Science Minister Ed Husic, representatives from the Australian Space Agency, space and science sectors, university officials and WA Parliamentary Secretary Sabine Winton MLA.

WA Science Minister Roger Cook was unable to attend the event because he was in Europe visiting ESA's European Space Operations Centre in Darmstadt, Germany, during that same week.

Construction of the new ground station at New Norcia has resulted in approximately \$29 million in contracts to local Western Australian businesses for site works and associated construction.

The expansion of ESA's New Norcia capability will support the State Government's aim to grow the space sector and will help promote Western Australia to other international space organisations as a leading location to establish space communication and operation facilities.

ESA is an intergovernmental organisation of 22 member states dedicated to the exploration of space. ESA's New Norcia station hosts a 35m deep-space antenna, DSA 1, which is designed for communicating with deep-space missions.

DSA 1 was inaugurated in March 2003 by the then Premier Hon Dr Geoff Gallop, who had the honour of officially switching on the antenna.

On the completion of ESA's new deep space antenna (DSA 4) at New Norcia, Western Australia will host two of ESA's four deep-space antennae (the other antennae are sited in Spain and Argentina), representing the significant role Western Australia has in supporting ESA's future space activities.

Western Australia has more than 60 years' experience in the space industry with its geographic location, dry environmental conditions, radio quiet zones and clear skies providing an attractive setting



for major space projects since the late 1950s. From 1961 to 1975, ground stations in Western Australia played key roles in NASA's Mercury, Gemini and Apollo missions.

The State Government and the Western Australian space sector looks forward to expanding collaborations with ESA and playing a greater role in the global space sector into the future.

ESA's New Norcia facility played a key role in NASA's Double Asteroid Redirection Test (DART) mission to collide a robot spacecraft into an asteroid to determine whether spacecraft can protect the Earth from future asteroid impacts. The New Norcia facility was the prime receiving station for telemetry from the DART spacecraft, which impacted with asteroid Binnu on 27 September 2022.

Seismic survey set to supercharge the State's mining industry

A \$12-million-dollar seismic survey is set to uncover more of Western Australia's hidden mineral resources and potentially deliver billions of dollars of economic benefits to the State.

The Western Australian Government's WA-Array project will be one of the largest seismic surveys of its kind undertaken anywhere in the world.

Deploying 165 sensors at 40 kilometre intervals, the survey will map the entire State over a 10-year period by relocating the stations annually across nine regional areas.

The survey's data will be used to develop a three-dimensional model of the State's subsurface geology.

Mines and Petroleum Minister Bill Johnston said the WA-Array project would unlock a new generation of resource discoveries in a State already known for its exceptional mineral reserves and development opportunities.

"Western Australia has no shortage of minerals, but most of our known deposits are near the surface or were otherwise easy to find," he said.

"The WA-Array project will provide exploration companies with leading-edge data that will help them pinpoint the location of deeper-lying resources.

"Maintaining WA's impressive rate of mineral discovery will be a major factor in our ability to keep up with global demand."

The program roll out will prioritise regions with the greatest resource potential. All survey data will be rigorously assessed before being progressively released and made freely available to industry and others seeking new resource discoveries.

Minister Johnston said seismic data has already contributed to significant resource discoveries in Western Australia.

"A great example is Chalice Mining's Julimar deposit where seismic data indicated high

prospectivity in a previously underexplored area," he said.

"Julimar is the world's largest nickel-sulphide discovery in the past 20 years, the largest platinum group element discovery in Australian history and Australia's first major palladium discovery.

"I'm confident the WA-Array project will help deliver more outstanding results of this kind."



Installing a seismic station at Brookton, Western Australia.



Lynas Rare Earths, Mt Weld.

Construction begins on new rare earths plant in Western Australia

A new rare earths processing facility is set to put Western Australia at the centre of the global critical minerals industry.

Construction began in April on the Lynas Rare Earths plant in Kalgoorlie. The new facility will create around 290 construction jobs and 128 once in operation.

Once operational, the site will process rare earth materials from Lynas's Mount Weld mine in Western Australia. This processing is currently undertaken at Lynas's plant in Malaysia.

Total cost of the project is estimated at \$500 million

and includes upgrades to the firm's Malaysia plant.

Rare earths are a group of 17 elements in the periodic table. They are critical components in things we use every day. A smartphone contains 8 different rare earth materials.

Cars, electrical appliances and green technologies, including electric vehicles, all rely on rare earth components.

At the moment, China is the

world's largest processor of rare earth materials, accounting for around 80% of global supply.

The new Lynas processing facility is a game changer for Western Australia.

Rare earths have become more strategically important to many sectors, especially the global defence industry.

Supply security has become an increasingly important issue for Australia and our global

partners, with rare earths present in military hardware including missile systems.

The Lynas facility in Kalgoorlie will establish a vital foothold for Australia in this global rare earths processing and supply chain, as demand from the defence industry continues to increase.

In June, it was reported that Lynas was awarded a contract by the United States (US) Department of Defence to build a processing facility in the US.

The agreement reduces the US's reliance on China for these strategic minerals that make missiles and military equipment.

Becoming a direct supplier to the US military raises Lynas's global profile in the rare earths sector.

Construction of the new Lynas plant also further strengthens the WA Government's strategy of diversifying the State economy by supporting new industries and creating local jobs.

"This is an exciting moment for Kalgoorlie and the Western Australian economy, as we take an important step in diversifying our economy and creating new jobs," said Mines and Petroleum Minister Bill Johnston.

"Western Australia is in a prime position to establish our place at the centre of the global critical minerals supply chain for generations to come.

"The McGowan Government and Lynas Rare Earths have worked with local contractors and workers to bring this vision

to fruition for the benefit of our State and to benefit communities in the Goldfields."

In March, Lynas announced an agreement with Japan Australia Rare Earths (JARE) to continue working on 'future development opportunities'.

Lynas CEO & Managing Director, Amanda Lacaze said: "JARE has provided excellent support to Lynas Rare Earths since 2011.

"This letter of agreement reflects our joint commitment to the growth of our business and to the development of the Japanese rare earth supply chain."

Lynas Rare Earths is expected to open in 2024.

Land Forces 2022

Defence West once again had a successful attendance and participation at Land Forces 2022, held at the Brisbane Exhibition and Convention Centre on 4-6 October.

Land Forces is the region's premier international land defence exposition, showcasing equipment, technology and services for the armies of Australia and the Indo-Asia Pacific.

The WA Government is proud to support the State's expanding defence industry at Land Forces 2022, which provides a unique opportunity for engagement with key Defence and defence industry decision makers.

More than 20 WA-based organisations joined us on the Defence West stand this year - the largest contingent we have hosted at Land Forces. In addition 8 WA SMEs had their own stand and a further 10 SMEs were roving. WA's representation at Land Forces has gone from strength to strength since first attending in 2018 with 4 SMEs.

Our leading WA business showcased a range of capabilities including; advanced manufacturing, artificial intelligence, robotic, autonomous systems, cyber security, communications, landing craft, logistics and data management.

The WA Government has committed \$350 million to support defence expansion in Western Australia.

Identified as a priority sector in the WA's Government's economic development framework - Diversify WA - the growth of the defence industry is important to ensuring the State has a strong and diversified economy, with secure, quality jobs.

Defence West previously attended Land Forces for the first time in 2018, and again in 2021.



Technology on target

Innovation and strategic locale key to SME Blacktree's SATCOM success.

Western Australian defence industry SME Blacktree Technology is on the rise after being awarded a \$36 million, five-year sustainment contract to support Defence's Ultra High Frequency (UHF) Satellite Communication (SATCOM) System.

The Narrowband Systems Support Contract (NSSC) will see Blacktree supply engineering and maintenance services, logistics, training and a 24-7 help desk as part of a full-scope sustainment agreement to deliver narrowband voice and data SATCOM services. This is in addition to Blacktree's ongoing manufacturing activities for Australian and export markets.

For Blacktree, being based in WA is essential to maintaining its advantage as a supplier to Defence. "Being near the key UHF SATCOM Defence Communications facilities allows us to be very responsive, which is a critical capability for Defence," Blacktree Co-Founder and Director Joel Nevin said.

The NSSC follows Blacktree's proven track record delivering mission critical, bespoke

communications systems for both military and commercial use. "For companies such as Blacktree, having any type of sustainment contract provides baseline revenue from which you can grow. This particular sustainment activity was aligned to our skill set, so winning the contract and now actively delivering the services is incredibly facilitative."

The NSSC project alone will engage 14 additional Blacktree employees and subcontractors across the company's offices in Perth and Canberra, along with a presence in Darwin. "Our team now comprises just under 50% veterans, some of whom are active Reservists," Ms Nevin said.

Specialising in a wide range of new and legacy communications technologies, Blacktree has been able to leverage several State government grants throughout its twenty-three year history, including a \$10,000 2021 Defence Science Centre (DSC) APR. Intern Voucher, and a \$9,500 2020 Defence West Defence Ready Initiative grant to develop Defence and university linkages within the organisation.

Ms Nevin said the DSC APR. Intern Voucher was "key" to kicking off a significant research and development activity which Blacktree then self-funded to the next step, and that the Defence West Defence Readiness Initiative Grant enabled Blacktree to purchase test equipment for their electronics workshop.

"Those investments are often difficult to self-fund because they can require such a large capital spend, so it would've taken longer to get to that point. Having the grant funding allowed us to achieve our goals sooner, which is excellent," Ms Nevin said.

Looking to the future, Blacktree aims to capitalise on its strategic Indo-Pacific location to continue its manufacturing, sustainment and research and development activities.

"We are working with defence customers in Australia and overseas which allows us to identify opportunities for ongoing research and development at our facility in WA," she said.



Minister for Defence Industry;
Veterans Issues, Paul Papalia

Western Australia's flagship 2022 defence event featured:

- Australian and international speakers from government, industry and academia, including Australia's Minister for Veterans' Affairs and Defence Personnel, Matt Keogh; Vice Admiral (ret.) Shekhar Sinha, who served in the Indian Navy for 42 years; BAE Systems Australia Chief Operating Officer Darren Kirkby; and the Indonesian Institute of Sciences Dr Dewi Fortuna Anwar.
- Two newly appointed Australian Defence Force Chiefs – Chief of Army, Lieutenant General Simon Stuart; and Chief of Navy, Vice Admiral Mark Hammond – making their first formal addresses; and Chief of Air Force represented by Commander Defence Space Command, Air Vice-Marshal Catherine Roberts, AO, CSC.
- 35 organisations showcasing their capability, innovation and leading technology, while seeking partnerships to deliver world-class, globally competitive defence and security products and services.
- Special displays from 13th Brigade including personnel, equipment and vehicles such as the Bushmaster Protected Mobility Vehicle and a remarkable drone display by WAPOL
- More than 600 delegates from defence and security sectors attended the two-day conference.

Strategic State

Bigger and better – Western Australia's flagship defence and security conference not only expanded in length and attendance this year; it advanced the State's defence and security capabilities to an international audience.

The emerging security relevance of the Indian Ocean and Western Australia's strategic position were prime focus when influential national and international defence leaders descended on Perth for the Indian Ocean Defence and Security Conference (IODSC) in August.

Recognising the security challenges facing communities that depend on the Indian Ocean for transit and trade, and the State's geostrategic location at the heart of a changing security landscape, made the first post-pandemic conference more relevant than ever. Coinciding with the commencement of the Defence Strategic Review, the presence of the review chairs, Professor Stephen Smith and

Sir Angus Houston, elevated the significance of discussions.

The emergence of Western Australia's resource sector innovators in the defence and security sectors took centre stage for the first time; showcasing how technological innovation and advances in the commercial sector may help increase security globally.

Discussion around AUKUS in its broadest context was also on the agenda, as well as cyber security, the importance of technology and innovation advancement, and growing sovereign capability and the defence industry.

"With the announcement of the Defence Strategic Review, it is timely that we have this opportunity to discuss the strategic importance and capability of WA," Premier Mark McGowan said.

"WA is well positioned to support broader bilateral and multilateral exercises and is the centre of national and international defence planning for the Indo-Pacific region.

"As Australia's gateway to the Indian Ocean, there is no better location than Perth to discuss the defence and security issues impacting countries across the whole Indo-Pacific region,"

— Western Australian Defence Industries Minister, Paul Papalia.

Western Australia: Global critical minerals powerhouse

With more than 50 different minerals, Western Australia is one of the most resource-rich regions in the world.

This bounty includes a range of critical minerals that are essential to clean energy technologies such as rechargeable batteries, electric vehicles and wind turbines.

Western Australia is well-positioned to meet the growing global demand for these minerals, as it is one of the only mining jurisdictions with commercially viable reserves of all the raw materials required to manufacture new battery technologies. It is already the world's largest supplier of lithium, and is a major exporter of nickel, cobalt, manganese and rare earths.

The State's vast mineral reserves are supported by a number of major processing projects. Three of the world's largest lithium producers - Tianqi Lithium (China),

Albemarle (United States) and SQM (Chile) are currently partnering with Australian companies IGO, Mineral Resources and Wesfarmers to operate battery-grade lithium hydroxide facilities in WA.

While these downstream projects power ahead, Lynas Rare Earths and Iluka Resources are set to establish Western Australia as one of the few jurisdictions outside of China to offer processed rare earths.

Mining giant, BHP Nickel West commenced operations at its battery-grade nickel sulphate plant in Kwinana, Western Australia, in 2021.

Current investors are also planning to produce battery-grade vanadium, graphite, high-purity alumina, manganese sulphate, cobalt sulphate, and precursor cathode active materials, with significant funding already committed to many of these ventures.

Minister for Mines and Petroleum Bill Johnston said the accelerating transition to green energy is prompting a global rush to secure critical mineral supply chains.

"While geopolitical risks continue to increase, Western Australia remains a reliable, ethical and cost-effective supplier of these critical resources and value-added products," he said.

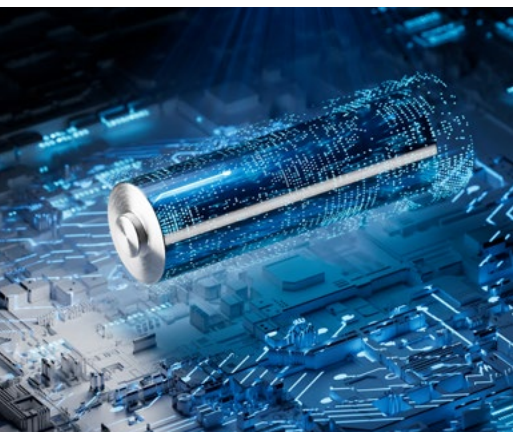
"We have a proven track record and remain a reliable investment partner for those seeking to diversify and de-risk their supply chains."

WA's comparative advantages include its political and economic stability, leading-edge technology, research and development, highly-developed environmental and workplace safety standards, and legal and regulatory certainty.

Minister Johnston said the Western Australia Government will continue to leverage the State's ongoing success to attract further downstream investment.

"There are significant economic opportunities in Western Australia and we look forward to welcoming you and your businesses to our State."

The WA Government's **Future Battery Industry Strategy**, and its **Battery and Critical Minerals Prospectus** are available online at [wa.gov.au](https://www.wa.gov.au).



Opening of Gudai-Darri Mine

Rio Tinto officially opened its Gudai-Darri mine on 21 June 2022, which is located 110km from Newman in the East Pilbara region of Western Australia. JTSI facilitated the State Approvals for both the rail and mine project over a number of years.

In January 2019, approval was granted to Rio Tinto under the Iron Ore (Mount Bruce) Agreement 1972 and the Iron Ore (Hamersley Range) Agreement 1963 to develop and construct the Gudai-Darri Mine, with an initial capacity of 43 million tonnes per annum (Mtpa) and a 166km railway connecting the mine to Rio Tinto's existing Pilbara rail network.

Development of the mine supported more than 3,000 jobs during the construction and design phase with the operation requiring around 600 permanent roles.

Gudai-Darri features some of the most advanced cutting-

edge technology, including a robotic ore sampling laboratory which provides visibility of the ore grades out of the mine within minutes.

There are autonomous trucks, trains and drills, which are standard across many of Rio Tinto's Pilbara mines, and a digital replica of the processing plant which allows teams to quickly test different situations digitally before implementing.

A total of A\$3.2 billion in goods and services were sourced within Western Australia during the construction phase of the Gudai-Darri Project with contracts valued at A\$1.5 billion awarded directly to WA-registered businesses.

Rio Tinto is building a 34-megawatt solar farm consisting of 83,000 solar panels that will power about one-third of Gudai-Darri's electricity needs. The solar farm was approved under the Iron Ore (Hamersley Range) Agreement 1963.

"Once the new solar farm is complete, it will be able to power one-third of Gudai-Darri's operational needs with renewable energy. This will reduce carbon dioxide emissions by 90,000 tonnes a year, which is the same amount produced by 6,000 Australian homes each year."

— Minister for Mines and Petroleum and Energy Bill Johnston

"This multi-billion-dollar investment in Western Australia is great for the economy and its 40-year mine life will support thousands of jobs into the future."

— WA Premier Mark McGowan



Battery and critical minerals – transforming our economy

Battery and critical minerals. What are they? Why are they so important? And how are they transforming Western Australia's economy?

Critical minerals are vital to the well-being of the world's economies, however, geological scarcity, geopolitical issues, trade policy and a range of other factors have increased the intensity in which countries are looking to secure these valuable commodities.

Australia's critical mineral list includes a diverse range of minerals which are essential to a variety of applications, such as renewable energy, defence, telecommunications, electronics and aerospace. Western Australia has deposits of almost all of these minerals, and arguably the most prominent are battery minerals and rare earth elements.

Battery minerals, such as lithium, nickel, cobalt, manganese, graphite, high purity alumina and vanadium, are used to manufacture rechargeable batteries for use in electric vehicles and energy storage systems.

Rare earth elements are a set of metals that are largely used to manufacture permanent magnets, which have applications in electric motors, wind turbines and defence technologies.

Now is a pivotal time for the industry, as companies and governments around the world race to secure new sources of supply in order to meet their decarbonisation and economic development ambitions.

Driving this global phenomenon is unprecedented demand growth, particularly for electric vehicles and renewable energy technologies, as well

as growing concerns from end users around the geographic concentration of processing.

Western Australia is well placed to capitalise on this once in a generation opportunity, and is establishing itself as a reliable, ethical and cost-effective supplier of battery and critical minerals and materials.

Western Australia is a major supplier of battery and critical minerals, accounting for around half the world's lithium supply, and a major producer of nickel, cobalt, manganese and rare earths. However, this is more than just a mining story.

Western Australia is well on its way to transforming its world-leading mining sector into a globally significant mineral processing and chemical manufacturing hub. Billions of dollars of private sector investment have been committed to Western

Australian lithium, nickel and rare earth processing facilities. These projects, which are the first of their kind in Australia, will see Western Australian minerals processed into high purity chemicals for export to international markets.

This future-facing industry has created thousands of high-quality jobs for Western Australians, with many more thousands to come. Further investments are in the pipeline across the State, including production of battery-grade vanadium, graphite, high purity alumina, manganese, cobalt and precursor cathode active materials, with significant funding already committed to many of these ventures.

The Western Australian Government is supporting this economic transition through the Future Battery and Critical Minerals Industries Strategy, which was launched in 2019. The Department of Jobs, Tourism, Science and Innovation is responsible for implementing the strategy and is working across government, industry and research institutions to bring the Government's vision of hosting a world-leading, sustainable and value-adding industry to fruition.

With the advanced manufacturing of battery chemicals well underway in the State, the opportunity to manufacture batteries right here in Western Australia is a step

closer. The Western Australian Government is currently undertaking a prefeasibility study to investigate downstream battery industry opportunities, such as cell manufacturing, battery assembly and recycling. The study is an important step to understanding the opportunities and challenges of developing these industries, and sets the groundwork to begin detailed discussions with global battery manufacturers who are weighing up where to build the next gigafactory. For more information, visit:

www.wa.gov.au/government/publications/western-australias-future-battery-industry-strategy

Industry milestones

- Tianqi Lithium Energy Australia brought Australia's first lithium hydroxide facility online in May this year.
- The Premier visited the plant in Kwinana, with Tianqi Lithium Energy Australia Joint Venture partners – Tianqi and IGO – reporting continued success in producing battery-grade lithium hydroxide right here in Western Australia.
- Other remarkable milestones in our industry in recent times include first product from Train 1 of the Kemerton Lithium Hydroxide Plant delivered by joint venture partners Albemarle Corporation and Mineral Resources Limited. Train 2 is said to be progressing well, with completion scheduled for late next year.
- Liontown Resources welcomed Ford as an off-take partner alongside Tesla and LG Energy Solutions for its Kathleen Valley lithium project in the Goldfields.
- Also in the Goldfields, Lynas Rare Earths announced a further \$500 million would be invested to expand the Mount Weld rare earths project. Lynas has identified significant mineralisation at Mount Weld with help from the Government's Exploration Incentive Scheme.
- Across to the State's Mid-West, and Iluka Resources is about to begin construction of another Australian first following its final investment decision in April to develop a fully integrated rare earths processing facility in Eneabba. The \$1 billion facility will enable Iluka to process tailings from its existing minerals sands project, and other third-party sources, to a high-value rare earth oxide. This represents a further processing step beyond that planned at Lynas' Kalgoorlie facility.
- Further investments are in the pipeline across the state, including production of battery-grade vanadium, graphite, high purity alumina, manganese sulphate, cobalt sulphate and precursor cathode active materials, with significant funding already committed to many of these ventures.

World Hydrogen Summit

Western Australia's renewable hydrogen potential was on display when a delegation from Perth and London travelled to Rotterdam in the Netherlands for the World Hydrogen Summit 2022.

Staff from the Department of Jobs, Tourism, Science and Innovation (JTISI) joined Hydrogen Industry Minister Hon Alannah MacTiernan MLC in Europe to make valuable connections in the green hydrogen sector and identify opportunities to promote Western Australia to the world.

The delegation, which also included Western Australian Agent General John Langoulant

AO, New Energies Executive Director Anthony Sutton and Senior Trade and Investment Manager (London office) Charlotta Kemp, supported Austrade's 'Team Australia' stand at the World Hydrogen Summit (9-11 May).

The London office staff organised a successful State reception at the stand, with 60 guests attending including the Australian Ambassadors to Germany and the Netherlands, senior Austrade and Department of Foreign Affairs and Trade staff, Agents General and senior managers from other state offices and representatives from Australian and global energy companies including FFI, Woodside, Shell, Engie, H2 Korea, AirLiquide, Linde and Hazer Group.

Western Australian Agent General John Langoulant AO gave welcome remarks at the State reception, followed by Minister MacTiernan who

informed the diverse group of guests about the strong pipeline of opportunities in Western Australia's burgeoning hydrogen sector. A networking session with canapés and fine Western Australian wines and chocolates wrapped up the event.

The Minister also presented and participated in a panel session at the formal Summit proceedings on 10 May.

The State Government's comprehensive Renewable Hydrogen Strategy, combined with the Joint Declaration of Intent, means Western Australia is well placed to benefit from Germany's strong demand for green hydrogen.

The mission also served as the State Government's first face-to-face meetings with the Port of Rotterdam since a Memorandum of Understanding was signed in November last year between Western Australia and Europe's largest sea port.



Minister for Hydrogen Industry, Alannah MacTiernan.



Energy leaders

Every two years, energy experts and industry from around the world come together in Stavanger, Norway to set the agenda for the world's energy future at the Offshore Northern Seas (ONS) conference and exhibition.

Taking place from 29 August to 1 September 2022, this year's event attracted over 60,000 visitors from more than 80 countries, including top leaders in government, business and academia. With more than 700 speakers sharing their insights and expertise, the focus of ONS 2022 pivoted away from its traditional oil and gas agenda and featured presentations on topics aligning with global decarbonisation, climate action and renewable energy goals.

The 2022 theme was 'TRUST', with the opening session highlighting the ambition for

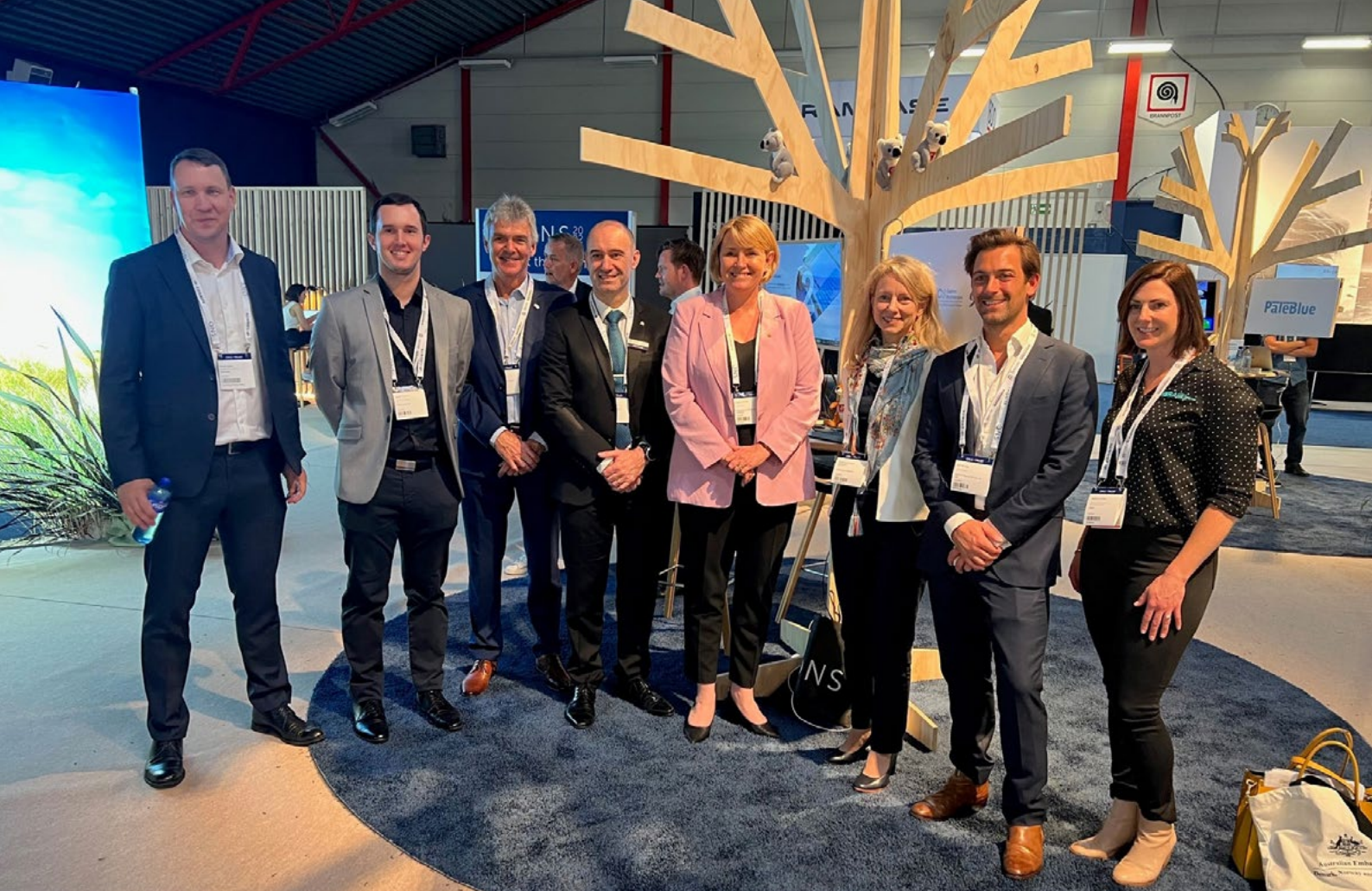
a fair, clean and transparent energy sector with low carbon emissions. Opening addresses included HRH the Crown Prince Haakon Magnus, Ukrainian President Volodymyr Zelenskyy, Norwegian Prime Minister Jonas Gahr Støre, and Tesla CEO, Elon Musk amongst other notable leaders in the energy sector.

The Western Australian Government's LNG Jobs Taskforce, through the Department of Jobs, Tourism, Science and Innovation, and its Europe, UK and Israel Office, partnered with National Energy Resources Australia (NERA) to lead a delegation known as 'Team WA'.

On day 2, the conference saw an Australia-Malaysia market session take place, with the Australian keynote speakers sharing their experience, insight and projects relating to Western Australia's energy sector, including:

- Her Excellency Ms Kerin Ayyalaraju, Australian Ambassador to Norway, Denmark and Iceland
- Rebecca Brown, Director General, Department of Jobs, Tourism, Science and Innovation
- Voula Terzoudi, Technology Partnerships Manager, Woodside Energy
- Francis Norman, CEO and Managing Director, Centre of Decommissioning Australia
- Tore Moe, Local Energy Advisor Australia, Norwegian Energy Partners.

As the only Australian jurisdiction attending ONS 2022, Western Australia was front and centre on the world energy stage. 'Team WA' had a unique advantage to promote WA's energy capabilities and attract international investment, workers, students and researchers.



Rebecca Brown with the Australian Ambassador to Norway and Austrade Nordic with the LETs Pitch winners from WA and NERA.

Our State has talent

The Western Australian Government was proud to partner with industry and talented local businesses representing the State on the world energy stage in Norway at the Offshore Northern Seas (ONS) 2022 Conference & Exhibition.

In the lead up to ONS, the Department of Jobs, Tourism, Science and Innovation, through the LNG Jobs Taskforce, partnered with National Energy Resources Australia (NERA) for 'LETs Pitch WA' - a supply chain development program aiming to accelerate the growth of local low emissions technology businesses.

The program began in May 2022, when 11 program finalists pitched their low carbon technologies to a panel of expert judges, with 3 winners selected and invited to participate in 'Team WA' at ONS:

- **KC8 Capture Technologies:** A solvent process for carbon capture from post combustion flue gasses, at a higher efficiency and lower cost than technologies currently in use.
- **9 Tech Solutions:** A multimodal hydrogen battery energy storage and refuelling system capable of facilitating rapid uptake of renewables, while simultaneously providing a liquid fuel supplement for the uptake of hydrogen vehicles.

- **Oceania Marine Energy:** The goal of delivering the world's first carbon-free ammonia bunkering vessel through providing low and zero-carbon fuel to the difficult to abate iron ore shipping fleet out of the Pilbara.

The 3 winners were amongst 16 up-and-coming global companies chosen to showcase their technologies at the brand-new ONS 'Scale-Up Arena' - a space dedicated to providing scale-ups with valuable networking opportunities. Prepared with their pitch training, the winners formed relationships with energy industry experts from around the world, and were exposed to new opportunities through corporate ventures and private equity companies.

Visit to Norway

- 'Team WA' included government, industry, academics, technology companies and select innovative Western Australian small to medium enterprises with expertise in the low emissions technology space, including: The State Government through the Department of Jobs, Tourism, Science and Innovation and its Europe, UK and Israel office, Development WA, Woodside Energy, INPEX, Chevron Australia, Shell Australia, National Energy Resources Australia, Centre of Decommissioning Australia, Future Energy Exports Cooperative Research Centre, Curtin University, RemSense Technologies, Diversified Communications Australia, 9 Tech Solutions, KC8 Capture, and Oceania Marine Energy.
- The team was accompanied and supported by HE Kerin Ayyalaraju, Australian Ambassador to Norway, Denmark and Iceland, Simon Gunn, Investment Director at Austrade Nordic, and Sarah Rose, Global Talent Manager at the Australian High Commission in the UK.
- 'Team WA' hosted a successful networking function at the Western Australia stand, with over 150 attendees, reconnecting with old friends and forming new, valuable connections with industry experts from across the globe.



Clean energy transition – Western Australia's vision

The Western Australian Government is committed to working with all sectors of the economy to achieve net zero emissions by 2050, and effectively transitioning into a leading low-carbon economy powered by clean energy.

"Our vision is that by 2035, Western Australia will be at the forefront of a cleaner, greener, technologically applied economy," Director General, Department of Jobs, Tourism, Science and Innovation, Rebecca Brown said.

"The Western Australia Government is working with business and industry to develop sectoral emissions reduction strategies that will identify cost effective and technically feasible abatement solutions, and accelerate investment in low carbon technologies."

"An important component is to support decarbonisation

of heavy industry, such as mining, and oil and gas."

To support the State's ambitious climate agenda, the Western Australia Government's Energy Transformation Strategy also sets out:

- actions to accelerate the adoption of low carbon technologies;
- support for the reliability and affordability of the State's energy system; and
- initiatives to achieve long term emissions reductions.

"We are investing significantly in our science, innovation and technological capability to support the development of new clean energy industries that are sustainable and ethical," Ms Brown said.

"Through this investment, we are positioning Western Australia to play a central role in supporting global decarbonisation through the reliable and cost-effective supply of clean energy products."



Oat-standing investment opportunities in Western Australia

The stars are aligning for the oat industry in Western Australia. Not only is the State Government investing \$10.12m towards industry growth initiatives through the Processed Oat Partnership, but geopolitical tensions mean that food processors globally are starting to appreciate the tangible benefits of more secure supply chains.

For oat processors based in Western Australia, being close to where half of Australia's oat crop is grown provides supply security – a real advantage in a global trading environment where supply chain disruptions are the norm.

A shorter trip from farm to factory also reduces food miles and a company's carbon footprint, supporting the move toward more sustainable

production models that consumers are demanding.

Consumers are also becoming more informed about how oats are grown. As a result, Western Australian oats are in high demand globally because they are naturally sun ripened rather than applying chemical, as happens in other oat growing countries.

Underpinning these competitive advantages is Western Australia's world-renowned biosecurity according to Kerry Regan, Director of Grains at the Department of Primary Industries and Regional Development.

"Western Australia has rigorous biosecurity protocols which reduce the risk of pests and disease, giving oat growers and processors additional peace of mind," Ms Regan said.

In addition, State Government investment through the Processed Oat Partnership is

highlighting numerous industry investment opportunities. The partnership brings together leading oat players from across the supply chain including the Grain Industry Association of WA, the Department of Primary Industries and Regional Development, Australian Export Grains Innovation Centre (AEGIC), oat breeder InterGrain and oat processors.

"The Processed Oat Partnership is largely funded by the State Government but is, importantly, industry-led," Ms Regan said.

The Partnership is funding targeted breeding and agronomy research projects and supporting innovative oat product development and processing initiatives.

"Projects funded by the Processed Oat Partnership will lead to tangible short and long-term benefits for oat growers, processors and exporters," Ms Regan said.



Competitive advantages of Western Australian oats

- 50% of Australia's oat crop is grown in Western Australia
- Western Australia oats are naturally sun ripened
- Western Australia's grain handling system has a clean and green reputation internationally
- The Australian oat breeding program is managed by WA-based company InterGrain
- Western Australia's dry harvest climate minimises crop fungal contamination



Project Spotlight

India and Western Australia: primary industries

- Western Australia's agriculture and food sector is a world-class producer of safe, high-quality agriculture, food and fibre products.
- The State is well placed to meet the growing global demand for premium products that are sustainably and ethically produced, of known provenance and exceptional quality.
- India is already an important market for Western Australian grains, pulses, wool and sandalwood products, and an emerging market for premium food and beverage products including citrus, avocados, lamb, rock lobster, wine and honey.
- With India's population now almost 1.4 billion people, the interim Australia-India Economic Cooperation and Trade Agreement signed in April 2022 opens the door into the world's fastest growing major economy for Western Australian food and beverage producers.
- As part of the Western Australian business trade mission to India in July 2022, the WA Like No Other Showcase in Chennai saw world renowned Western Rock Lobster showcased courtesy of Geraldton Fishermen's Co-operative, along with premium wine from the famous Margaret River region, supplied by Howling Wolves.



Perth to host major international education conference

Education providers from Australia and New Zealand will attend ICEF ANZA 2023

One of Australasia's largest international education conferences is coming to Perth.

Organised by the International Consultants for Education and Fairs (ICEF), the 16th annual ICEF ANZA conference will be held in Perth in April 2023.

The conference will connect education providers from Australia and New Zealand with around 300 highly qualified education agents from more than 60 countries.

"Perth's successful bid to host the 2023 ICEF ANZA reinforces Western Australia as a preferred study destination for international students," said International Education Minister David Templeman.

"Western Australia has maintained a strong relationship with the international education community, which saw 53,000 international

students from more than 150 countries welcomed to the State before COVID-19.

"With our world-class universities, strong economy, wealth of job opportunities and desirable lifestyle, Western Australia is a study destination like no other."

The conference program will include dedicated one-on-one meetings between agents and education providers.

Seminars will look at the latest education market trends and issues and delegates will enjoy informal networking opportunities and an agent familiarisation program.

Perth's successful bid for the 2023 conference was secured in a collaboration between the Western Australian Government, StudyPerth and Business Events Perth.

"A world-class education, travel, lifestyle and employment destination – Perth is Australia's gateway to Asia, Africa, the Middle East and Europe," said StudyPerth Chief Executive Officer Derryn Belford.

"It is the ideal location for education providers and international student agents to meet, grow relationships and do business.

"WA's economy is the strongest in the country and, as a result, there's high demand for skilled workers across all sectors and plenty of jobs for international students and graduates.

"The skilled migration list now also has 331 occupations to choose from, following the addition of 194 new occupations by the Western Australian Government, which is another great reason for international students to choose Western Australia as a study destination."



\$16.8 million to attract international students

Initiatives to strengthen Western Australia's position as a preferred international education destination have been launched.

The funding is part of the Western Australian Government's strategy to attract international students to the State.

States and education providers across Australia compete to attract international students to enrol in their courses.

A new \$10 million Agent Incentive Scheme has been created to re-engage with the education agent network and increase awareness of Western Australia as a study destination.

The Scheme will provide payments of:

- \$500 per student to agents enrolling a confirmed international student in a school, ELICOS, higher education or VET provider
- \$1,000 per student for a confirmed undergraduate or postgraduate enrolment

at one of the five Western Australian universities

A further \$6.8 million will provide continued funding for the International Student Accommodation Subsidy (ISAS) and International Student ELICOS Bursary (IBES) programs.

These international student incentives will provide one-off payments of:

- ISAS - \$1,500 for up to 2,500 eligible students to offset accommodation expenses while studying full-time in Western Australia in Semester 2, 2022; and
- ISEB - \$1,500 for up to 2,000 eligible international students to offset fees when undertaking an approved ELICOS course in Western Australia. Each of these programs support

the Western Australian Government's commitment to international education and form part of the additional \$41.2 million in international education initiatives announced in the 2022-23 State Budget.

"Western Australia is the best place in the world to live and study," said International Education Minister David Templeman.

"It is vitally important the McGowan Government incentivises education agents, as well as students, to encourage them to consider and ultimately make the right choice to study in our State.

"Through the launch of each of these programs, we want to see thousands of students call Western Australia home and make the most of our world-class education institutions."



Life sciences like no other.

Western Australia offers a world-class health and medical life sciences ecosystem which features a highly skilled, collaborative medical research workforce, outstanding research infrastructure and multiple highly regarded medical research institutes.

Home to one of the largest medical innovation precincts in the Southern Hemisphere, Western Australia has the nation's fastest growing life sciences industry. Our scientific community is acclaimed worldwide for its expertise, providing a worldclass research base, entrepreneurial talent and commercialisation track record.

With a long tradition of medical science achievements, our experts are globally recognised for their discoveries, solutions and innovation. Drawing on 60,000 years of knowledge in traditional medicine, from the world's oldest continuing culture, Western Australia truly is like no other.



WESTERN AUSTRALIA
IT'S LIKE NO OTHER.

Western Australia Project Spotlight

The WA Project Spotlight provides a snapshot of some of the major projects that are either planned, under development or recently completed in Western Australia. Information is drawn from the WA Government's and companies' public statements.

Energy

Lithium Refinery and Concentrator at Mount Holland – Covalent Lithium Pty Ltd

\$1.9 billion – Under construction

1,000 construction jobs, 350 operational jobs

Covalent Lithium – a joint venture between subsidiaries of Wesfarmers and Chilean company SQM – has entered into a long term lease for a 40 hectare site in the Kwinana Strategic Industrial Area where it has commenced construction of a lithium refinery.

The project comprises a mine and concentrator at Mt Holland, and a refinery at Kwinana.

The Mt Holland Lithium Project will produce spodumene concentrate from the mine and concentrator, which will be transported to the refinery and processed to produce around 50,000 tonnes a year of battery grade lithium hydroxide.

Kemerton Lithium Hydroxide Processing Plant – Albemarle Corporation

More than \$1.0 billion – Under construction

1,800 construction jobs, 400 operational jobs

Construction of the largest lithium hydroxide processing plant outside of China started in 2019 at the Kemerton Strategic Industrial Area, 17km north of Bunbury.

The first two lithium processing trains were completed in early 2022 with a first production milestone marked mid-year. Plans for expansion to four trains are on track, doubling processing capacity to 100,000 tonnes a year. Kemerton processes high quality spodumene from the Greenbushes mine.

Lithium Hydroxide Plant – Tianqi Lithium Energy Australia

\$988 million – Operating and under construction

900 construction jobs, 200 operational jobs

Tianqi Lithium Kwinana (TLK), 25km south of Perth, is the first lithium refinery in Australia and in May 2022 became the first to produce battery-grade lithium, paving the way for a local and sustainable lithium chemical industry to meet the rapidly growing demand for rechargeable batteries driven primarily by the electric vehicle and energy storage

system industries. One tonne of battery-grade lithium can power approximately 22 electric vehicles. Each production train has the capacity to produce 24,000 tonnes of battery grade lithium per year, enough to power over 520,000 electric vehicles every year for the life of the refinery. Construction of a second train is expected to recommence in 2023 which when complete, will take total production capacity at TLK to 48,000 tonnes.

Pluto Train 2 and Scarborough Gas Field – Woodside Petroleum Ltd and Global Infrastructure Partners

\$16 billion – Under construction

3,200 construction jobs, 600 operational jobs

Pluto is currently a single train LNG project located within the Burrup Strategic Industrial Area in Western Australia's Pilbara region. The Pluto project exported its first LNG cargo in May 2012 and currently processes gas from two offshore fields – Pluto and Xena.

Woodside announced a final investment decision for Pluto Train 2 and the Scarborough Gas Field in November 2021. The first cargo is targeted for 2026.

The construction of a second gas processing train is within the existing footprint of the Pluto LNG plant which will support the export of around eight million

tonnes of LNG per annum. The project will also deliver around 1,400 petajoules of gas to the Western Australian market, through a new domestic gas production facility to be built within the existing Pluto site.

H2Perth – Woodside Petroleum Ltd

\$1 billion - Proposed
2000 construction jobs,
200 operational jobs

The proposed H2Perth project is a large-scale hydrogen and ammonia production facility that would be constructed on approximately 130 hectares of vacant industrial land to be leased from the Western Australian Government in the Kwinana Strategic Industrial Area and Rockingham Industry Zone. The project is planned as a phased development.

Electrolysis technologies and natural gas reforming would both be used to produce hydrogen, with 100% of carbon emissions abated or offset. Initial capacity of the electrolysis component is at 250 megawatts while the initial phase of the steam methane reformer will consume 40 terajoules per day of natural gas.

At expected full capacity, the project would be able to target hydrogen production of up to 1,500 tonnes per day, with the potential for electrolyser capacity to scale up to 3 gigawatts, depending on customer demand and renewable energy growth.

Mining and Mining Equipment, Technology and Services (METS)

Nickel Sulphate Plant – BHP Nickel West

The nickel sulphate plant is co-located at BHP's nickel refinery south of Perth in Kwinana and commenced operations in October 2021. The plant is one of the world's largest of its kind and a first for Australia, with an initial production capacity of 100,000 tonnes of nickel sulphate a year, intended for the electric vehicle market. The nickel sulphate plant adds to BHP Nickel West's suite of refined end products – Nickel Briquette, Nickel Powder and now Nickel Sulphate.

BHP Nickel West is a core partner of The Future Battery Industries Cooperative Research Centre (FBICRC) and is supporting its flagship project – the Cathode Precursor Production Pilot Plant, another first for Australia, it will help establish the technology and capabilities for Australia to design and build cathode precursor manufacturing facilities on a commercial and industrial scale. BHP Nickel West provided equipment for the precursor facility, repurposed from its nickel sulphate pilot plant.

Iron Bridge – Stage 2 – Fortescue Metals Group

Approximately \$5 billion
– Under construction
3,000 construction and
900 operational jobs

Iron Bridge will deliver 22mtpa of high grade 67% Fe magnetite concentrate product. Located 145 kilometres south of Port Hedland, Iron Bridge incorporates the North Star and Glacier Valley Magnetite ore bodies and represents one of the few large scale iron ore growth projects under construction globally.

The magnetite concentrate product will be transported through a slurry pipeline between Iron Bridge and Port Hedland. Low-cost power will be delivered to Iron Bridge through Fortescue's investment in the Pilbara Energy Connect program, including hybrid solar gas generation and battery storage.

First production is scheduled for the March 2023 quarter.

Western Range – Rio Tinto and China Baowu Steel Group

Approximately \$3 billion – Proposed
1,600 construction jobs and
800 ongoing operational roles

Rio Tinto and China Baowu Steel Group have agreed to form a joint venture to develop a new iron ore mine in the Pilbara. The construction of the Western Range mine is expected to begin in early 2023 following a number of approvals including from Rio Tinto shareholders, Australian

and Chinese Government regulatory agencies and the Western Australian Government.

The project will include construction of a primary crusher and an 18 kilometre conveyor system linking it to the existing Paraburdoo processing plant. Subject to approvals and construction, first production of iron ore is planned for 2025, ramping up to an annual production capacity of approximately 25 million tonnes.

Rio Tinto and Baowu will continue to work together to improve environmental performance across the steel-making value chain. Rio Tinto has worked closely with the Traditional Owners on whose country Western Range is situated, the Yinhawangka People, to jointly develop a Social, Cultural and Heritage Management Plan for the Western Range project. The codesigned management plan ensures the protection of significant social and cultural heritage values at Western Range.

Kalgoorlie Rare Earths Processing Facility – Lynas Rare Earths Ltd

\$500 million – Under construction

290 construction and 120 operational jobs

Lynas Rare Earths is constructing a Rare Earths Processing Facility in Kalgoorlie (Kalgoorlie Facility). The Kalgoorlie Facility will process rare earth concentrate from Lynas' Tier 1 Mt Weld mine,

one of the highest-grade rare earth deposits in the world, located near Laverton. Concentrate produced at Mt Weld contains highly sought-after rare earths required in the production of permanent magnet motors and used in the manufacture of a number of products including electric vehicles and wind turbines. Mixed rare earth carbonate produced at the Kalgoorlie Facility will be exported to global manufacturing supply chains, including to Lynas' planned rare earths separation facility, to be located in Texas, United States.

In July 2021, Lynas was awarded a \$14.8 million grant under the Federal Government's Modern Manufacturing Initiative – Round 1 which enables Lynas to commercialise an industry-first rare earth carbonate refining process to be installed at the Kalgoorlie Facility.

Lynas is targeting a July 2023 operation commencement date for the Kalgoorlie Facility.

As part of Lynas' 2025 growth plan, it recently announced an additional \$500 million investment to accelerate and increase the expansion of its Mt Weld mine. Lynas anticipates that the capacity expansion will generate up to 300 construction jobs and 100 ongoing operational jobs and together with the investment in the Kalgoorlie Facility, represents a significant investment in the Goldfields-Esperance region.

Yangibana Project – Hastings Technology Metals

\$658 million – Under construction

500 construction and 250 operational jobs

The Yangibana project, which comprises operations at both the Yangibana site and the Ashburton North Strategic Industrial Area (ANSIA) near Onslow, will expand WA's capability in downstream processing of rare earths minerals.

The \$658 million project is expected to create 500 construction jobs and 250 jobs once operational. As a significant project within WA, the State has been providing lead agency support, facilitated by the Department of Jobs, Tourism, Science and Innovation.

The company developing the project, Hastings Technology Metals, is on track to become Australia's second rare earth's producer, following Lynas' Kalgoorlie Rare Earths Processing Facility Project.

Once fully operational, the Onslow Rare Earths Plant will have a production capacity of around 15,000 tonnes per annum of mixed rare earth carbonate (MREC), containing 3,400 tonnes of neodymium and praseodymium.

Coolgardie Cathode Active Material Refinery Hub – Pure Battery Technologies

\$460 million – Proposed

350 construction jobs and 325 operational jobs

In March 2022, Pure Battery Technologies, in collaboration with Poseidon Nickel, secured a \$119.6 million Modern Manufacturing Initiatives grant from the Australian Government for their proposed battery cathode active material refinery hub in the Kalgoorlie region. Pure Battery Technologies are currently undertaking a feasibility study, feedstock characterisation, product evaluation as well as optimising infrastructure access.

Eneabba Fully Integrated Rare Earths Processing Facility - Iluka Resources

\$1 billion – Committed
300 construction and 270 operational jobs

Iluka Resources is about to commence groundworks for another Australian first following its final investment decision in April to develop a fully integrated rare earths refinery at Eneabba. First production is earmarked for 2025.

The \$1 billion refinery will be fed by Iluka's unique rare earths stockpile at Eneabba and other feed from within the company's portfolio. It has also been designed specifically with the capacity and capability to process feed supplied from potential third party sources. The refinery will produce separated light and heavy rare earth oxides, representing a further processing step beyond that planned at Lynas' Kalgoorlie facility.

The Eneabba refinery will be among few of its kind globally.

Space Industries

Square Kilometre Array – SKA Observatory

\$1.5 billion – Under development
350 construction and 230 operational jobs

The Square Kilometre Array (SKA) project will build the world's largest and most capable radio telescope. The SKA will expand the understanding of the universe and drive technological developments worldwide.

Australia's Murchison Radio-astronomy Observatory (MRO) will host the low frequency telescope, SKALow. The SKA-Low site is located 800 kilometres north of Perth in the Australian Radio Quiet Zone, to protect the telescope from radio interference from electronic devices.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) operates the MRO. SKALow will consist of 131,072 antennas (512 arrays – each comprising 256 antennas) spread across 65 kilometres.

Procurement of the SKA has begun and works on the ground are expected to begin in early 2023.

The Wajarri Yamaji have played an important role in enabling Australia to cohost the SKA. The Australian SKA Office and CSIRO are working with the Wajarri Yamaji to negotiate a land use agreement to access the site and realise the SKA project on Wajarri Yamaji country.

West Australian Space Radar (WASR) – LeoLabs

Under construction

In April 2022, LeoLabs started construction of its sixth radar site near Bunbury in Western Australia.

LeoLabs provides a commercial 'mapping platform for space' through its global network of space radars and cloud-based data solutions, which enable safe, secure, and sustainable space operations.

Placement of the WASR near Bunbury will significantly expand LeoLabs coverage of Low Earth Orbit (LEO) in the southern hemisphere. It also adds critical coverage in the IndoPacific region that addresses an important early orbit corridor for LEO from Asia, while maintaining additional coverage of polar and sun-synchronous orbits in the IndoPacific region.

WASR is due to be operational late 2022.

European Space Agency (ESA) – Deep Space Antenna, New Norcia

\$70 million

Under construction

In June 2022, ESA representatives met with representatives from the Western Australian and Australian government's to celebrate the active construction of a new deep space antenna in New Norcia. This will be the second 35 metre diameter deep space antenna at the site (50 per cent of ESA's deep space antennas

globally). This fourth antenna is being constructed in order to meet the rising demand for communication bandwidth as ESA launches a new generation of deep-space missions.

The new antenna is due to be operational in 2025.

International Education and Tourism, Events and Creative Industries

Perth City Deal

**\$1.7 billion – Committed
10,000 jobs**

The Perth City Deal is a partnership between the Commonwealth Government, WA Government and City of Perth, which will unlock economic benefits and opportunities for the Perth CBD.

The Perth City Deal will provide funding to enhance the presence of universities in the Perth CBD. This includes moving the Edith Cowan University law and business schools and the Western Australian Academy of Performing Arts into the Perth CBD; Curtin University building a CBD knowledge and innovation precinct; and Murdoch University creating a vertical campus and eSports Stadium linked with Singapore and East Asia.

Under this plan, more than 25,000 students and staff will be brought into the Perth CBD.

Other elements of the Perth City Deal are:

Funding for the Perth Greater CBD Transport Plan to upgrade cycling and walking infrastructure, bus stop accessibility upgrades and enhance Roe Street. The centrepiece of this plan is the new Swan River Causeway Bridge.

Investment in cultural infrastructure, including the Perth Cultural Centre Precinct, the Perth Concert Hall, development of the WACA cricket ground, upgrades to the East Perth Power Station and funding to undertake a prefeasibility study for an Aboriginal Cultural Centre to be located in Perth on the traditional lands of the Whadjuk Noongar people.

Funding to provide facilities, safety improvements and services for homeless people in the city.

The creation of an Australian Space Automation, AI and Robotics Control Complex (SpAARC).

Funding towards a WA Indigenous Business and Employment Hub in partnership with the Wirrpana Foundation.

Perth Surf Park – Aventuur

**\$93 million – Proposed
300 construction and
85 operational jobs**

Aventuur is leading the development of the Perth Surf Park on a 5.8 hectare site in Cockburn, adjacent to the Kwinana Freeway and the Cockburn Central train station.

The park is set to feature a

next-generation Wavegarden 'Cove' surfing lagoon, which will be the largest in the Southern Hemisphere. The park will also include amenities such as accommodation, a health and wellness centre, a co-working lounge, functions and event spaces, a high-performance surf academy, a beach club and restaurants.

The Perth Surf Park will provide residents and visitors to Western Australia with an innovative and world-class surf sports, recreation, leisure and entertainment hub close to the Perth CBD.

Early engagement with cultural advisers has identified opportunities for the inclusion of public art featuring the work of local indigenous artists, and the ability to reflect the stories and culture of the local Beeliar Whadjuk Noongar people through the park's landscape design.

Aventuur has entered into a long-term lease with the WA Government for the site in Cockburn, and a DA has been submitted for the park, with planning approval for the development expected to be received in late 2022.

Total Solar Eclipse

\$21 million – Committed

Exmouth has been identified as the best land-based town in the world to view the Total Solar Eclipse, which will occur on 20 April 2023 across the North West Cape. Much of Western Australia will experience a partial

solar eclipse as the Moon tracks in front of the Sun.

Thousands of tourists are expected to visit the Ningaloo coast with particular concentrations at Carnarvon, Coral Bay, Exmouth and Onslow – all either directly under or near the eclipse's 'path of totality'.

The WA Government has committed \$21 million to prepare for the Total Solar Eclipse. Funding will be used for upgrades in road and community infrastructure, improvements to telecommunications across the region, and event and waste management costs.

The eclipse will generate opportunities for tourism operators and other local businesses, with thousands of international and domestic visitors expected to travel to the Coral Coast region.

Primary Industries

Karratha Urea Plant – Perdaman Industries

**\$4.5 billion – Proposed
2,500 construction and
200 operational jobs**

The Perdaman Group is proposing to build a urea plant in the Burrup Strategic Industrial area with the capacity to produce 2.1 million tonnes a year of urea. The plant would be Australia's first worldscale urea plant.

The Perdaman Group has signed a 20year gas sale and purchase agreement with Woodside for an offtake of around 125 terajoules a

day, which would provide a supply of gas for conversion to urea.

Perdaman has also signed a 20year offtake agreement with Incitec Fertilizers Pty Ltd, to supply up to 2.3 million tonnes a year of granular urea fertilizer from the proposed urea plant.

Defence Industries

Biosecurity expertise tested in defence-relevant research

\$110,868 – Completed

In this Defence Science Centre funded project, researchers from Murdoch University demonstrated the need to develop 'just-in-time' training tools to enhance Australian maritime biosecurity effectiveness. A multidisciplinary team of researchers created a database of over 2000 unique marine species to test biosecurity experts and novices to determine how maritime biosecurity surveillance expertise in the Australian Navy could be enhanced. The researchers leveraged their collaboration and DSC funding success to develop a number of other defence-related research proposals, achieving over \$500,000 in additional funding, thereby building WA's future capacity for undertaking defence-relevant research.

Research into antibiotic-resistant bacteria leads to outcomes for the Australian Defence Force

\$300,000 – Operating

A University of Western Australia (UWA)-led team has progressed the development of a new treatment for antibiotic-resistant bacteria of biological warfare concern. Led by the DMTC-award winning Dr. Mitali Sarkar-Tyson, the group has developed a therapeutic that targets a protein found in strains of disease-causing bacteria. The group has utilised DSC CRG funding to develop sovereign industrial capability in medical countermeasures—funds from the group's most recent CRG project are being used to further develop this novel treatment to make it last longer in a human body and increase the treatments technology readiness level (TRL).

Stealth Technologies UAV/UGV collaboration to help humans in CBRN environments

\$150,000 – Operating

Led by WA SME Stealth Technologies in collaboration with the University of Western Australia (UWA) and the Defence Science Technology Group (DSTG), this DSC-funded project is integrating Defence algorithms that detect Chemical, Biological, Radiological and Nuclear (CBRN) sources into a combination unmanned aerial vehicle (UAV)/unmanned ground vehicle (UGV) platform. The autonomous tech will keep humans at a safe distance, while rapidly traversing a target area using sensors to map and monitor CBRN sources. The UGV component was developed by Stealth Technologies and deployed at Eastern

Goldfields Regional Prison as an autonomous perimeter security vehicle as part of a collaboration involving Stealth Technologies, the WA Department of Justice and aerospace giant Honeywell.

CIRA project engages WA SMEs to help solve space congestion

\$148,640 – Operating

A portable, self-contained demonstrator for space domain awareness using passive radar has been designed and developed as part of a DSC CRG project led by the Curtin Institute of Radio Astronomy (CIRA). The system will detect and track aircraft and objects in orbit via radio signals, providing a solution to the increasingly congested orbital environment around Earth. The project has engaged local WA suppliers in the design, manufacture and delivery of critical components of the system, including Geng Pty Ltd and Osborne Motor Bodies.

Health and Medical Life Sciences

Lixa

\$2.2 million – Launched

The new bio-med company Lixa, was launched in September 2022 to develop scalable antibiofilm technologies to treat antimicrobial resistance. Antimicrobial resistance is a multi-faceted problem and Lixa's unique technology is compatible with existing antimicrobials and is expected to be scalable across humans and animals

in emerging and developed countries. Lixa is aiming to start clinical trials in 2023.

OncoRes Medical and Adarsh Australia

\$9.255M - Committed

OncoRes Medical, a Western Australian medical device company, is collaborating with Adarsh Australia, an Australian manufacturer and fabricator, to develop high value WA based manufacturing facilities to support development and commercialisation of medical products.

This project will support critical manufacturing and late-stage commercialisation activities to be carried out in WA and enable translation from technology proof-of-concept through to TGA registration, Australian commercialisation and a US pivotal clinical trial.

Avicena

Western Australian diagnostic technology company, Avicena, has achieved a major regulatory milestone, with the Therapeutic Goods Administration (TGA) authorising its registration as a Class 1 In Vitro Diagnostic device (IVD).

The Avicena Sentinel is a fully automated laboratory instrument for running authorised* molecular diagnostic assays to rapidly and accurately identify respiratory pathogens like COVID or Influenza on a vast scale. The Avicena Sentinel is the highest capacity molecular diagnostic device of its kind, capable

of continuously processing more than 92,000 saliva LAMP tests per day, with results reported within 40 minutes.

*Authorised by the by the relevant regulatory body in each jurisdiction and authorised by Avicena Systems as being compatible with the instrument.



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