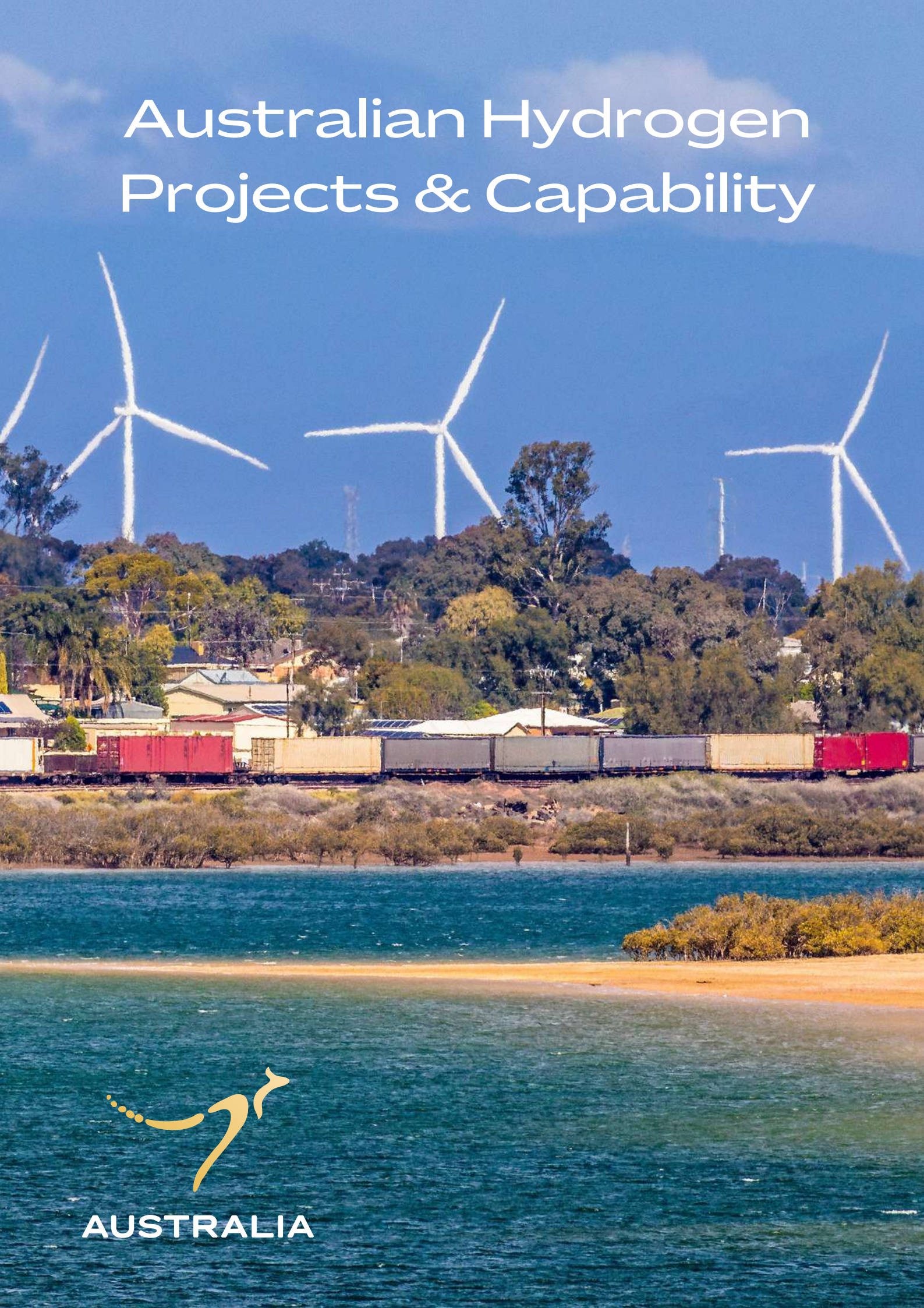
Australian Hydrogen Projects & Capability



AUSTRALIA

Australian hydrogen: powering a net zero future

Australia is set to be a global hydrogen leader with a thriving domestic hydrogen industry delivering cost-effective hydrogen for local use and export as either an energy carrier or in the form of goods manufactured using hydrogen.

We have extensive world-class renewable and non-renewable energy resources that can form the basis of low cost and large-scale production of low emissions hydrogen. We also have the technical skills and a long history as a trusted, reliable energy and resources exporter to become a global hydrogen leader.

According to the International Energy Agency's 2023 World Energy Outlook, in terms of anticipated hydrogen production, Europe and Australia account for almost 30% and 20% respectively of all announced electrolytic hydrogen projects in 2030.

Australia's low-emission hydrogen production via water electrolysis could reach close to 6 Mt by 2030, which would make Australia the second largest net-exporter of low-emissions hydrogen by 2030 and on track to be the largest by 2050.

There are major opportunities for:

- Investment in export-scale projects
- Provision of and investment into innovative hydrogen technology
- Sourcing and joint manufacturing of green metal
- Collaboration on hydrogen transport solutions

Since the release of Australia's National Hydrogen Strategy in 2019 there is now a A$127 billion pipeline of announced hydrogen investment in Australia. This includes over 15 projects that have passed final investment decision (FID) and over 80 renewable hydrogen projects announced.

Australia's hydrogen investment pipeline of A$230 to A$300 billion represents approximately 40 percent of all global renewable hydrogen projects announced to date. Australia is proactively developing international supply chains through multiple international partnerships, including with Germany and the Netherlands.

In 2022 Australia became the first country in the world to export clean hydrogen.

Australia is projected to be the largest exporter of low-emissions hydrogen by 2050

Australia's hydrogen investment pipeline represents 40% of all global hydrogen projects announced to date

15 Australian hydrogen projects have passed FID and 80 more projects are announced

International collaboration

Australia is proactively developing international supply chains through multiple international partnerships, including with Germany and the Netherlands.

Germany

Australia and Germany have had bilateral cooperation in the energy space since 2017 and a formal energy partnership since 2021.

The Hydrogen Accord signed in June 2021 underpins collaboration designed to establish a supply chain in green hydrogen between Australia and Germany. Three initiatives underpin the accord:

- Facilitating industry-to-industry cooperation on demonstration projects in Australian Hydrogen Hubs.
- A Hydrogen Innovation and Technology Incubator (HyGATE) to support real-world projects along the hydrogen supply chain.
- Exploring options to facilitate trade of Australian hydrogen and its derivatives produced from renewable energy sources, including through H2Global.

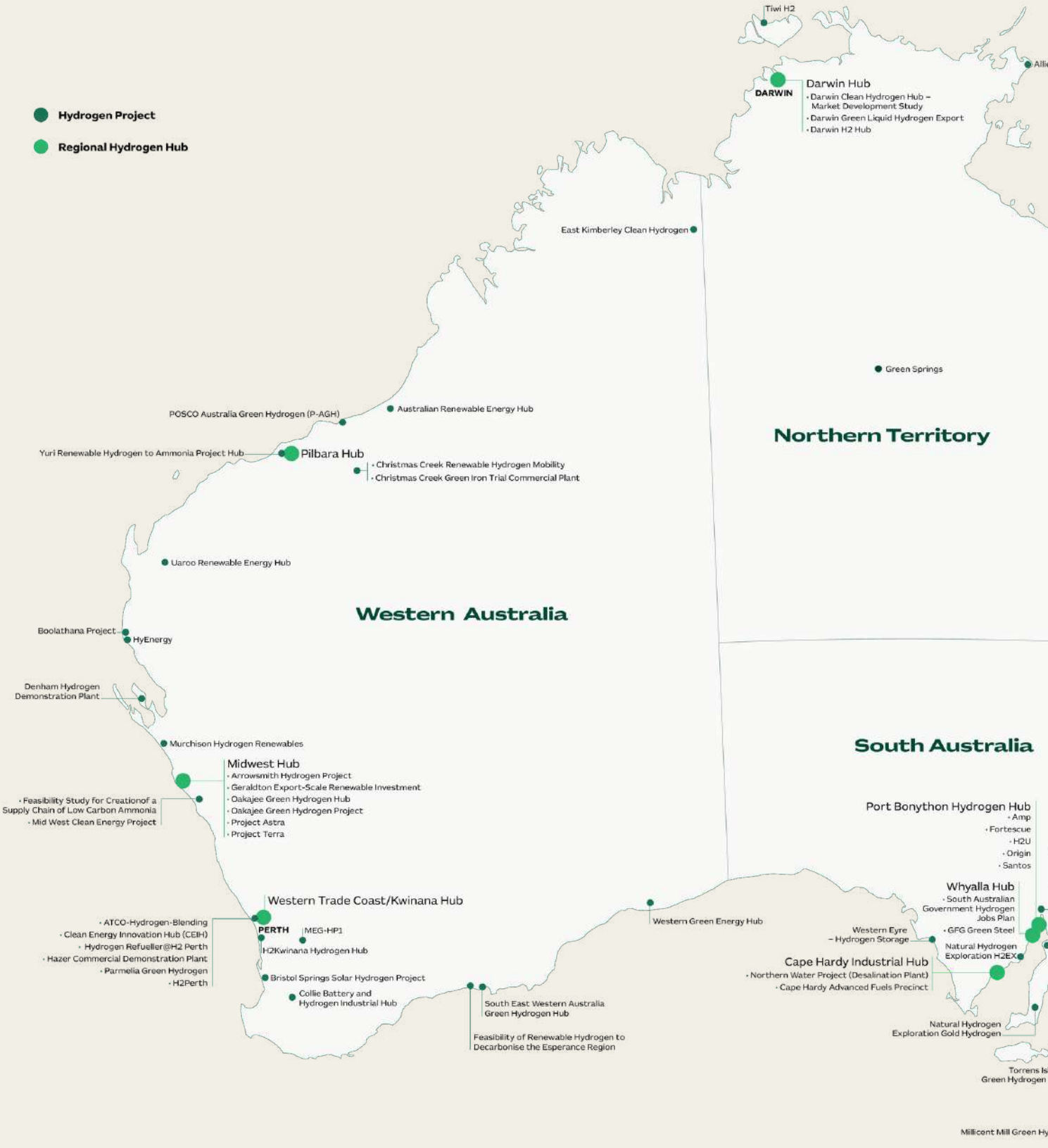
In January 2023, the final HySupply report was launched. It highlights the feasibility of a supply chain between Germany and Australia for hydrogen and its derivatives. It also outlines actions for both commercial stakeholders and government on how to progress the industry.

The Netherlands

In January 2023, Australia and the Netherlands signed an MoU to advance energy supply chains in green hydrogen.

The MoU covers hydrogen trade policy, standards and certification schemes; port infrastructure and supply chain development; innovative hydrogen technologies, including shipping, equipment and services; and government policies about safety, social licence and regulations for hydrogen.

Initial outcomes will include testing the interoperability of hydrogen certification schemes, policy sharing around standards and regulations and business to business exchanges.



Hydrogen projects in Australia

View a live map of hydrogen projects in Australia by scanning the QR code

Information is sourced from HyResource, an online website hosted by CSIRO in association with partner organisations. Data current as of April 2024. Austrade does not accept any liability for any loss arising from reliance on this information, or from any error or omission.

ABOUT THE ORGANISERS

Australian Government
Australian Trade and Investment Commission

The Australian Trade and Investment Commission (Austrade)

The Australian Trade and Investment Commission (Austrade) is Australia's federal trade and investment agency. We work to accelerate the growth of exports and attract productive foreign direct investment.

At Austrade, government policy becomes a reality through the creation of commercial outcomes. Our network of experts, in more than 100 offices at home and around the world, help give Australian businesses the competitive edge in the global marketplace. Last financial year, we worked with Australian businesses to secure over 1,400 export outcomes with an estimated value of A$3.7 billion and facilitated 165 foreign direct investment projects valued at A$9.5 billion, creating or safeguarding more than 12,500 jobs.

With 30 active free trade agreements and treaties worldwide, we continue to forge new pathways for exporters and foreign investors, and through helping achieve net zero and supporting First Nations business we are strengthening Australia's economic security and prosperity. Our local knowledge, commercial expertise and trusted relationships with decision-makers make the difference.

Go further, faster with austrade.gov.au.

Government of Queensland

With abundant solar and wind resources, world-class port infrastructure, sustainable water resources and a highly-skilled workforce, the state of Queensland is ideally placed to be Australia's largest producer of renewable hydrogen.

Worldwide demand for hydrogen is expected to exceed 500 million tonnes by 2050 and Queensland is on track to supply domestic and export partners with a reliable and safe supply of renewable hydrogen from Australia's 'Sunshine State' by 2030.

Queensland* has the potential to produce more than 10 million tonnes per year of renewable hydrogen across the state, with much of this to come from regional ports including Gladstone and Abbot Point. These projects are underway, supported by international partners from Japan, Korea, Singapore and Germany.

The state's renewable hydrogen credentials are well established with more than 50 renewable hydrogen and ammonia projects taking shape. These are being achieved with more than A$300 million invested across Queensland to help accelerate key projects.

Investment has helped to drive projects like the Sumitomo Green Hydrogen Production and Rio Tinto Decarbonisation Pilot Project which will demonstrate hydrogen fuelled calcination at Rio Tinto's Yarwun alumina refinery. Also, the Central Queensland Hydrogen (CQH2) project, a large-scale renewable hydrogen production facility near Gladstone is progressing, expected to scale up to deliver 800 tonnes by the early 2030s.

This activity is all underpinned by the Queensland Energy and Job Plan, which includes an A$4.5 billion Queensland Renewable Energy and Hydrogen Jobs Fund to establish partnerships with the private sector to develop renewable hydrogen projects.

The Queensland Government is working on the next generation hydrogen industry strategy to be released later in 2024, which will provide a clear pathway for the industry to support increased demand for Queensland's renewable hydrogen well into the future.

With strong export credentials and infrastructure to match, Queensland has outstanding potential to be one of the world's largest producers and exporters of renewable hydrogen. The 'Sunshine State' is firmly placed to supercharge renewable energy supply, commercialisation and supply-chain growth, reinforcing its globally competitive position.

For more information, visit: https://www.energyandclimate.qld.gov.au/hydrogen.

Queensland Government Australia

*Report: www.energyandclimate.qld.gov.au/hydrogen/enabling-queenslands-hydrogen-production-and-export-opportunities-report

Government of New South Wales

NSW combines its natural advantages and extensive industrial infrastructure with world-leading incentives to create a clear pathway to cost-competitive hydrogen and projects of global scale.

The NSW advantage: ready infrastructure and a deep talent pool
NSW is a world-leading location for hydrogen industry development and investment. State infrastructure includes deep water import and export ports, existing ammonia production, Australia's largest integrated steelworks and three major interstate highways. NSW is Australia's most populous state with a large, highly skilled workforce to enable large scale projects. The state is leveraging its world-class, abundant renewable energy resources by supporting the development of generation and transmission infrastructure for dedicated Renewable Energy Zones.

World-leading policy: A$3 billion NSW Hydrogen Strategy
The NSW Hydrogen Strategy is the state's plan to become a global hydrogen superpower. Delivering 60 cross-sectoral actions and providing a clear policy pathway to achieve competitive green hydrogen production, including incentives of up to $5/kg. The Strategy includes:

- A$1.5 billion in NSW network charge discounts.
- A$1 billion in incentives in the NSW Renewable Fuel Scheme.
- A$109 million awarded for three green hydrogen hubs in the Hunter, Port Kembla, and Moree.
- A$25 million for a Hydrogen Centre of Excellence.
- A$10 million to establish freight refuelling infrastructure.

These strategy initiatives are designed to drive innovation, support industry growth, and contribute to a large-scale hydrogen industry the state.

Further NSW support: from innovation to operation
NSW's commitment to a sustainable future is underscored by substantial investments and resources aimed at advancing hydrogen projects from innovative ideas to operational realities. These initiatives represent a strategic push to position NSW as a leader in clean technology, low carbon manufacturing, and renewable energy production, ensuring achievement of our net zero ambitions.

Below are the key programs propelling this vision forward:

- Up to A$25 million accelerating Clean Tech Innovation in NSW.
- Up to A$100 million expanding the state's Low Carbon Product Manufacturing capacity.
- Up to A$150 million to increase local Renewable Manufacturing, including electrolysers.

Additionally, a comprehensive Hydrogen regulatory guide and planning resources are available to streamline the development and implementation of hydrogen projects.

For more information, visit: www.energy.nsw.gov.au/business-and-industry/ways-get-started-business/hydrogen-nsw.

NSW GOVERNMENT

Investment NSW

Government of South Australia

South Australia offers a unique combination of sun and wind, is close to significant mineral resources, including Australia's richest copper resource, superior magnetite iron ore resources and proximity to the world's second largest proven graphite reserves.

South Australia has what the world wants. What the world demands. South Australia is open for business.

South Australia is leading the clean energy transition, 75 per cent of the state's electricity is now generated from renewable resources. The Government of South Australia has brought forward the state's renewable energy target by three years, that means the electricity generation would be sourced from net 100 per cent renewables by 2027.

The South Australian Government is keen to support the development of South Australia's renewable energy ecosystem and is showcasing the state's path to decarbonisation through numerous projects and supportive policy initiatives.

The State Prosperity Project is a co-ordinated initiative to unlock the full potential of renewable energy, critical minerals and green steel manufacturing to reindustrialise this region and herald a new era of prosperity for South Australia.

The State Government's Hydrogen Jobs Plan features a world leading hydrogen production, power plant and storage facility at Whyalla in South Australia's Upper Spencer Gulf for operation in early 2026. Hydrogen is a sought-after energy source of the future – and our vast expanses of available land and high-quality wind speeds and solar capacity, combining progressive regulation and targeted investment, means South Australia is primed to become a first-mover, low-cost hydrogen supplier.

The South Australian Government is also exploring Northern Water, a large-scale desalination plant and pipeline network, which would unlock Australia's largest copper deposits, critical minerals and realise the full potential of hydrogen in South Australia.

Come and say hi to the Government of South Australia team at World Hydrogen Summit 2024 where representatives from Trade and Investment, Energy and Mining, Infrastructure and Transport and Hydrogen Power SA are available to answer questions about partnership and off-take opportunities, investing in or developing renewable energy projects in South Australia.

While at the South Australian Government booth, you're invited to immerse yourself with South Australia's Virtual Reality installation which will transport you to the other side of the world to experience all that the state has to offer.

For more information, visit: www.hydrogen.sa.gov.au/industry/hydrogen-developments

SOUTH AUSTRALIA

Government of South Australia

Government of Western Australia

Western Australia's (WA) vision is to be a significant producer, user and exporter of renewable hydrogen.

Government support through various grant programs has supported a growing capability in the renewable hydrogen sector, including construction of a 10MW electrolyser to produce renewable hydrogen for Yara Fertilisers liquid ammonia plant in the Pilbara.

Extensive work has also been undertaken to develop hydrogen hubs in the Pilbara, Mid West and Kwinana, which are intended to improve competitiveness by co-locating hydrogen demand and supply, and attract investment through provision of key infrastructure. Major investments include a $140 million agreement between the State and Australian governments to build the Pilbara Hydrogen Hub, a major centre for hydrogen production and export. The WA Government has also committed $60 million to develop the Mid West Hydrogen Hub and the Australian Government has announced $70 million in funding for H2Kwinana.

Domestically, renewable hydrogen can be leveraged to decarbonise existing industries such as mining, as well as enable WA to harness new economic opportunities, such as becoming a producer and exporter of green commodities including green metals such as green iron and green alumina.

WA's key advantages include:

- High-intensity renewable energy resources – with one of the highest solar irradiance levels in the world and excellent wind resources.
- Land and existing infrastructure – with an area one-third of the Australian continent, low population density, world-class industrial and export infrastructure, WA is an ideal location to develop large-scale renewable energy generation.
- Stable and responsible governance – politically stable with legislative frameworks that support social, cultural, and environmental interests while facilitating economic development.
- Skilled workforce – WA has a technically skilled workforce, expertise across the energy sector and relevant research capabilities.
- Established industry with strong international partnerships – many of the world's largest mining and oil and gas companies have a local presence in WA and are looking at transitioning to a hydrogen future.
- Proximity to global markets – WA is Australia's western gateway to Asia and has a long term partnership with major Asian economies, in particular in the energy sector.

For more information, visit: www.wa.gov.au/organisation/department-of-jobs-tourism-science-and-innovation/the-western-australian-renewable-hydrogen-industry.

GOVERNMENT OF WESTERN AUSTRALIA

Invest & Trade WESTERN AUSTRALIA

WESTERN AUSTRALIA IT'S LIKE NO OTHER.

THE AUSTRALIAN DELEGATION AT WHS 2024

RESEARCH INSTITUTIONS

ECOSYSTEM PARTNERS

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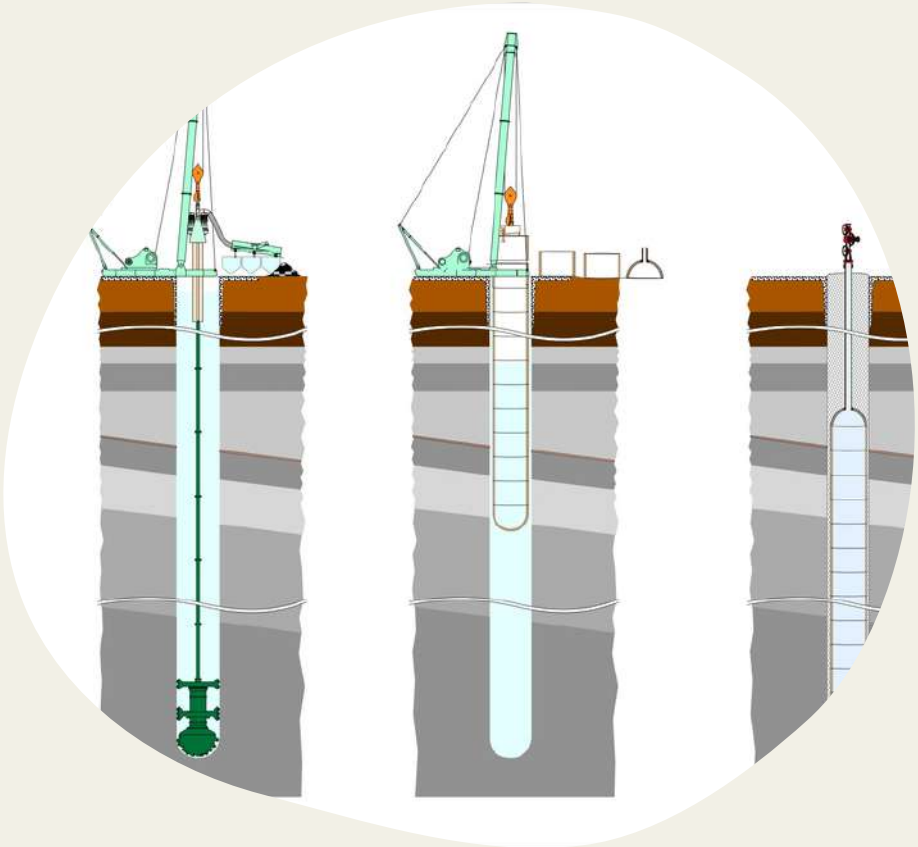
ARDENT UNDERGROUND
HYDROGEN STORAGE

Ardent Underground provides safe large scale, cost effective compressed hydrogen storage using blind boring technology to construct an underground cavity which safely stores 10–100 tonnes of hydrogen per shaft.

The application of blind bored shafts draws on existing know-how from the mining industry and the completed storage safely contains hydrogen at high pressure without the risk of contamination.

This unique solution to hydrogen storage delivers significant advantages over aboveground pressure vessels, and significantly contributes to lower the cost of green hydrogen, enabling the transition to zero emissions.



Aurecon Australasia

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Aurecon is an Australian design, engineering, and advisory company.

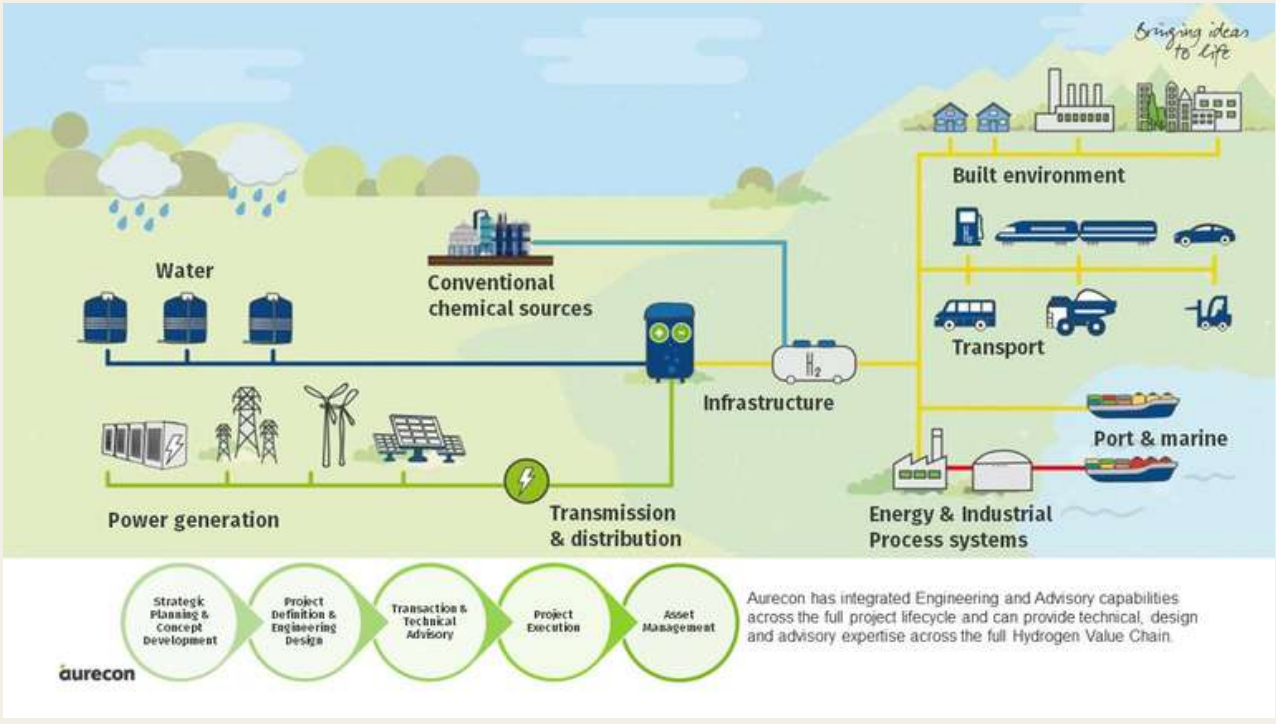
Their purpose is bringing ideas to life, to imagine and co-create with their clients a better future for people and the planet. Their strength lies in how they bring together design, engineering, and advisory capabilities to provide their clients with integrated solutions across the entire asset lifecycle. This extends from shape, plan, and frame to design and deliver, operate and optimise, close and transform.

Aurecon designers, engineers, scientists, and advisors work with their clients across markets and asset types, to tackle some of the world's most complex challenges.

The owner managed company has a strong presence across Australia, New Zealand, and Asia.

Aurecon works with clients who are active across the full spectrum of the energy supply chain. Their work sees them engage with a wide range of stakeholders from technology providers and industry through to communities, regulators, and policy makers.

Aurecon's unique blend of advisory and engineering services coupled with their engagement across the energy supply chain allows them to provide significant value supporting organisations in their energy and hydrogen transitions.



Carbon280

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Hydrilyte® is well suited for large scale hydrogen storage applications, including:

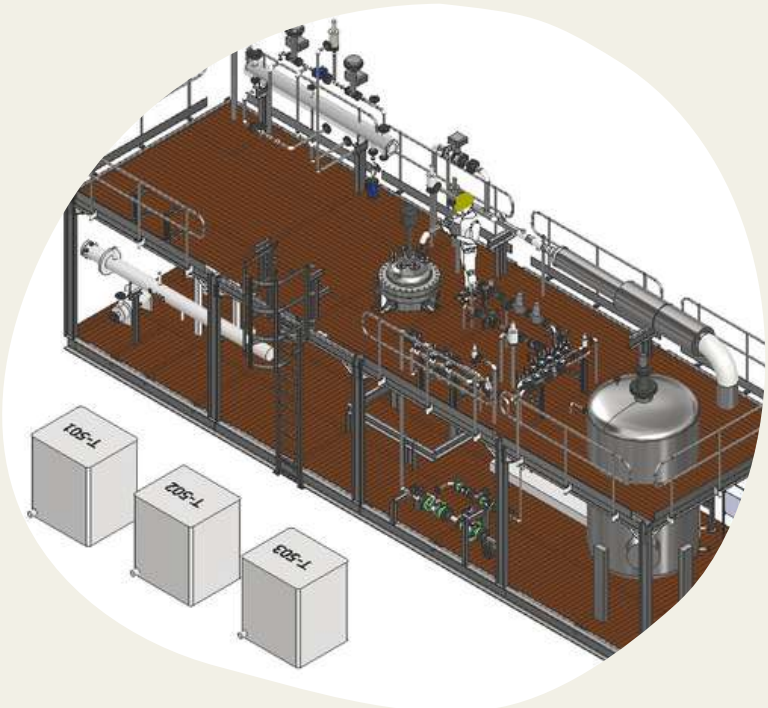
- Industrial hydrogen and green steel
- Energy Export
- Renewable firming
- Hub & spoke distribution e.g. refueller supply
- Hydrogen purification

Unique Selling Points:

- Safe & non-toxic (easy and cheap to handle right through the supply chain).
- Liquid. Can be stored & transported using existing liquid fuels infrastructure (trucks, trains, ships, pipes).
- Lowest round trip energy costs of the major material carriers (NH3, MCH, BT).
- Variable density Hydrilyte(50) 43kgH2/M3; Hydrilyte(80) 79kgH2/M3 (Stoichiometric values).
- No purification required (unlike NH3 and LOHCs, no PSA mass loss concerns to deliver high purity hydrogen).
- No catalysts (lower CAPEX and OPEX and no concerns about thermal cycling – plant can be put into standby).

Carbon280

- Perth based company with wholly owned subsidiary in US (Delaware Inc)
- US$5M seed round Dec. 2022, led by Woodside Energy, supported by Hive Energy.
- TRL6 technology pilot due for start-up Jan 2025 in Perth.
- Seeking partners/investors for TRL7/8 commercial demonstrator(s) (CD) 2025 to 2027 with an opportunity for equity via a Series A.



CIP - Murchison Hydrogen Renewables

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MURCHISON GREEN HYDROGEN

The Murchison Green Hydrogen Project is a pioneering endeavour set to redefine the energy landscape of Western Australia and beyond. Located on Murchison House Station in the mid-west region of Western Australia, the project represents a significant move towards a sustainable future.

Harnessing approximately 6 gigawatts of onshore wind and solar generation, the project will drive 3 gigawatts of electrolysis to produce 100% renewable green hydrogen and ammonia - an ‘energy of the future’ and a clean alternative to traditional fossil fuels. The proposed location provides access to highly complementary wind and solar resources that enable high plant utilisation rates, stable production volumes and low levelised cost of electricity and ammonia.

With an annual production capacity of two million tonnes of green ammonia for export, alongside the potential for domestic green hydrogen or ammonia offtake, the project is positioned to be a front runner in the emerging green hydrogen industry. Having complete pre-FEED, the project is on a timeline to reach FID in late 2025 with first production expected in 2028.

Shortlisted for the Australian Hydrogen Headstart program and granted Lead Agency Status by the Western Australian Government, the project aligns with state and federal government hydrogen strategies for the creation of a new green hydrogen industry.

The Murchison Green Hydrogen Project is being developed by Copenhagen Infrastructure Partners (CIP), a global leader in renewable energy investments, and embodies CIP’s commitment to meaningful contributions to the green transition.

Deloitte Touche Tohmatsu

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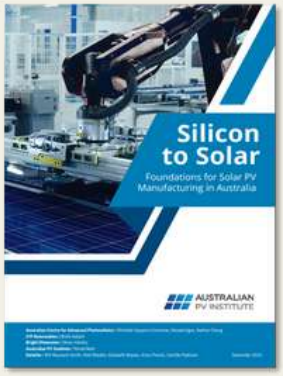
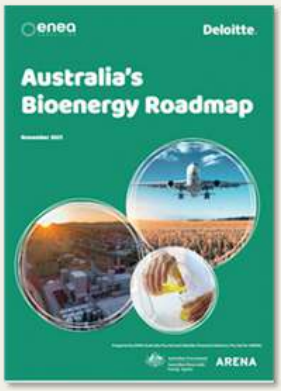
Deloitte.

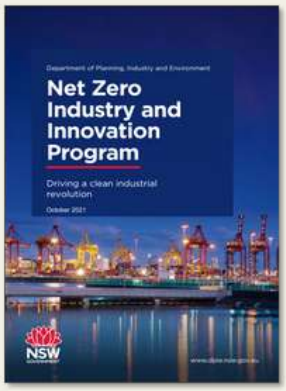
Deloitte is a leading provider of professional services to governments and private sector companies. Their climate and sustainability team have a large energy team with deep capabilities in the hydrogen sector. Deloitte is a full-service provider delivering their clients with economic advice to inform robust public policy design, financial and economic modelling to inform final investment decisions and program support to move an idea from concept to delivery.

Deloitte's clients include government agencies, major multi-nationals, industry groups, financiers and technology start-ups looking to accelerate the opportunities in the new energy space. They are currently supporting multiple clients move their hydrogen export projects to FID utilising their cross-border teams.

Deloitte is passionate about the energy and climate transition and provides thought leadership to inform market development. Recent publications have addressed: Global Hydrogen Trade Development, The Economics of Climate Change, Implications of the Inflation Reduction Act, Roadmaps for Bioenergy, Sustainable Aviation Fuel and Decarbonisation of the Alumina Sector.







Endua

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ENDUA

Industries are facing mounting pressure to decarbonise and transition towards cleaner energy solutions. We need solutions that help off-grid industries like mining and remote infrastructure that can power communities. Yet there are problems in that transition that haven't been tackled because they're more difficult to solve. There are places and situations where solar, hydro and wind won't work all of the time or for all use cases. This presents one major hurdle; renewable storage solutions aren't focused on the long term.

Commercial and industrial operators can't rely on a traditional grid as meeting decarbonisation commitments means storing enough renewable power to satisfy 100% of operational needs. We need power that is renewable and available whenever we need it.

By harnessing hydrogen technology, Endua is solving that long duration storage problem by providing multiple days of reserve power to off-grid and diesel dependent operations.

The Endua power bank offers an end-to-end system using renewable energy to split water into hydrogen and oxygen, then converted back into clean electricity on demand via a hydrogen fuel cell.

The storage can be expanded at marginal cost - just one tenth the cost of current batteries - which is the number one criteria for multi day energy storage systems. There is an underserved opportunity and long duration storage is the missing piece of that puzzle. At Endua our ambition is to capture the full potential of renewables to make it easier, and faster, to reach a net zero future.

Energy Estate

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HyNQ
The 1.3GW HyNQ hydrogen to ammonia project, located in Abot Point, North Queensland is led by Energy Estate along with Idemitsu and IHI of Japan and Queensland government-owned CS Energy.

The project, which has recently completed its pre-FEED, will create a major export opportunity and has extensive behind the meter solar PV and wind capacity.

The project will be located at the existing export terminal, repurposing infrastructure into a decarbonisation platform to accelerate the energy transition.

e2SAF
Energy Estate, via the recently launched e2SAF, is developing large scale (200,000 tpa) sustainable aviation fuel projects under the AtJ and FT pathways and will also utilise MtJ once this pathway is certified.

e2SAF has projects under development in Texas and California targeting the US market and Queensland and New South Wales targeting the Australian and Asian market.

Additional opportunities have been identified in Canada and North Africa.

Ferron Energy

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From the first discovery of fire, people have satisfied their energy needs by burning organic carbon-based materials such as wood and fossil fuels such as coal, gas and oil.

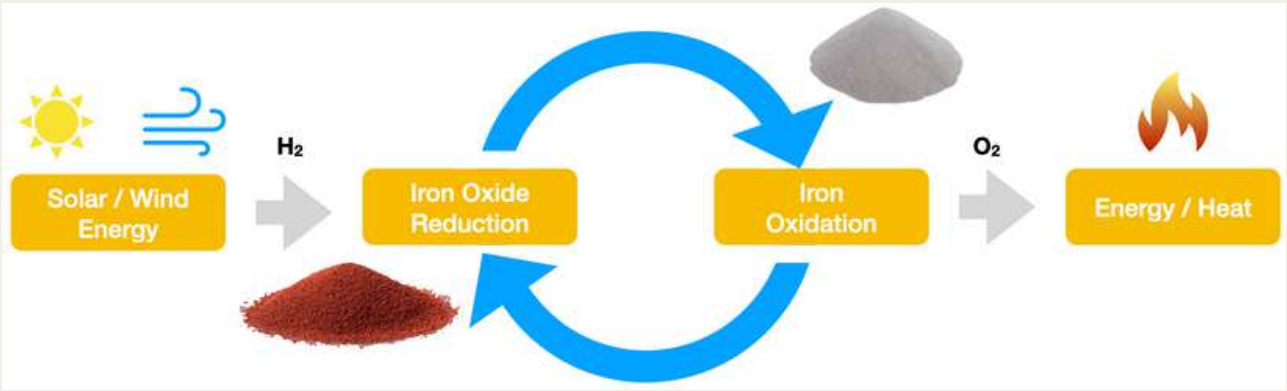
Even in the post-industrial revolution world, people rely mainly upon burning fossil fuels to create industrial heat or super-heated steam to drive steam turbines to generate electricity.

Renewables such as wind and solar power account for less than 20% of energy generation and are not suited to the provision of high temperature industrial heat as well as suffering from intermittency in power delivery.

What is needed to reach Net Zero by 2050 is a clean, recyclable fuel that can utilise our collective knowledge on combusting solid fuels while leveraging our existing conventional infrastructure to store and transport the fuel safely, simply, and economically.

Ferron Energy utilises iron powder as a carbon free fossil fuel replacement. Iron burns cleanly in air, liberating energies similar to fossil fuels but without CO2 emissions leaving only iron oxide ash as by-product. This ash is collected and reacted with green hydrogen to regenerate the ash back to iron fuel with water as the by-product. The burn and regenerate process may be repeated indefinitely creating a true clean circular solution.

Based in Australia Ferron Energy is ideally positioned to leverage Australia's rich iron ore reserves, abundance of sunshine enabling the provision of green hydrogen for the fuel recycling process. Ferron Energy believes iron is the energy carrier of the future.



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FIRST MODE

First Mode is a global carbon reduction company developing creative, clean energy solutions for heavy industry's toughest problems.

First Mode started by removing the diesel engine from a colossal mining truck and replacing it with a hybrid hydrogen and battery powerplant.

A world-first, and the world's largest. But First Mode is not stopping there. They are also working on providing critical mine site infrastructure for hydrogen production, battery recharging, and hydrogen refuelling.

Today, First Mode is starting at the source, the mining industry, and tomorrow the larger supply chain, to completely eliminate the use of diesel and speed the clean energy transition.

Fortescue

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Fortescue is an integrated green technology, energy and metals company that is committed to eliminating emissions and developing the green solutions required for the world to step beyond fossil fuels.

Fortescue's iron ore operations include the Chichester and Western Hubs and their Iron Bridge magnetite mine in the Pilbara, Western Australia. Globally, they have an early-stage iron ore project underway in Gabon, Africa and they continue to conduct exploration into new fields.

By 2030, Fortescue's aim is to have their Australian iron ore operations running on green energy and achieve real zero terrestrial emissions (Scope 1 and 2). Separately, they have a net zero Scope 3 emissions target by 2040, addressing emissions across their entire value chain.

Through their energy business, Fortescue is working on developing a pipeline of global green energy projects, including in the USA, LATAM, Europe, Africa and Australia, where they have reached Final Investment Decisions on their first three projects.

To support funding of Fortescue's projects, they have established a green energy investment accelerator platform, Fortescue Capital, that is headquartered in New York. Through Fortescue WAE, they are developing zero emissions battery systems that will enable them to decarbonise their mining fleet. Fortescue Hydrogen Systems is leading their work on hydrogen production systems, including electrolysers, product development and supply chain, as well as manufacturing.

Gamma Energy Technology

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Gamma Energy Technology is an independent energy consulting service, offering a range of technical and support services.

Gamma Energy Technology specialises in high-level reviews, pre-feasibility studies through to detailed analysis of individual technologies to ensure they don't try and break the laws of physics. They also carry out electricity grid modelling.

They are uniquely placed to model power generation systems examining the role different technologies will play in the decarbonisation process. Their focus on total systems costs and ensuring the 'lights stay on' even during a Dunkelflaute is key to their work.

Understanding the value proposition of new and emerging hydrogen generation and storage technologies and how they compete with the existing decarbonisation options is important. Gamma Energy Technology's MEGS modelling tool explores the lowest total system cost opportunities in a decarbonised future.

A free web version of the UK power grid is available by visiting modelling.energy/#ESx. This website has been developed for both the general public and as an educational tool, as well as a detailed breakdown for those who require more detailed additional information.

Gamma Energy Technology's MEGS modelling approach could be applied to generation portfolios, countries, or regions. It can also focus on the role and value of hydrogen and other generation technologies.

Gamma Energy Technology's recent project with the IEA GHG team has highlighted important learnings for hydrogen, for both producers and users.

Gascoyne Green Energy

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www.ggenergy.au

Gascoyne Green Energy

Gascoyne Green Energy (GGE) is a Western Australian renewable energy company with an exclusive opportunity to advance a large-scale tier one project on Boolathana Station. The 148,000ha pastoral landholding is in one of the world's highest renewable resource regions. GGE has secured an Exclusivity Agreement with the pastoralist and Traditional Owner consent to progress further detailed studies.

Boolathana has a verified elite wind resource @ 49.7% net capacity factor (CF*) and outstanding solar @ 34.1% CF. Bejaling, situated on Boolathana's 23km coastline is suitable for an on-site export facility due to low swell profile and deep-water access, confirmed by the Western Australian Government's Gascoyne Development Commission in 2010 and 2023-24.

Optimisation modelling demonstrates the viability of a green energy project on Boolathana. At capacity Boolathana can produce 15+GW of green energy using a balance of 55.5% wind and 44.5% solar infrastructure.

Boolathana's scalability, energy yield, geography, environmental and social impacts work to reduce overall project expenditure. Its wind profile will allow WTG installation in linear and close-set configuration, further reducing power transmission costs. All desalination, electrolysis, production and export of clean energy commodities such as H2, NH3, E-fuels, E-methane or green steel can also occur on-site.

GGE is seeking a development partner to progress its project.

H2H Energy

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H2H Energy is a leading manufacturing and deployment specialist focussed on mobile and relocatable hydrogen refuelling infrastructure for the transport sector, with refuelling systems operating in multiple locations across Australia and New Zealand.

H2H's designs are informed by proprietary modelling software and are configured specifically to client requirements, with both slow and fast refuelling options. H2H's 35 and 70 MPa refuelling systems support a range of applications including refuelling operations in heavy haulage, road and maritime public transport systems, commercial and private vehicle fleets.

H2H also has vast experience in fuel cell electric vehicle prototype testing and evaluation, which involves constantly relocating their refuelling system and hydrogen supply.

H2H has a core interest in supporting the hydrogen fuelled motor racing industry as it evolves.

Hazer Group

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HazerGroup™

Hazer Group Ltd is an ASX-listed (ASX:HZR) Hydrogen technology company undertaking the commercialisation of the HAZER® Process, a novel low-emission hydrogen and graphite production process.

The process enables the effective conversion of natural gas and similar feedstocks, into hydrogen and high-quality graphitic carbon, using iron ore as a process catalyst. The carbon in the gas feedstock is converted to a saleable and versatile graphitic carbon product rather than a waste CO2.

In January 2024 Hazer successfully achieved first production of hydrogen and graphite from its Commercial Demonstration Plant; a major milestone in the company's history.

The Hazer technology enables the decarbonisation of traditionally hard-to-abate sectors such as power generation and heavy industry including steel making, petroleum refining and chemicals manufacturing, by making use of existing energy supply chains and infrastructure.

The company has developed global relationships with blue chip industrial companies to support their decarbonisation strategies via deployment of the Hazer technology at commercial scale.

It currently has announced projects in Canada, France and Japan, with many more under development.

InterContinental Energy

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InterContinental Energy
The Trusted Partner in Hydrogen

Using upstream wind and solar, InterContinental Energy has been pioneering best-in-class green fuels hubs since 2014 with a portfolio of Tier 1 projects across Australia and the Middle East.

With a team of global multidisciplinary talents, the company thinks big to turn innovation into action and is committed to accelerating the energy transition through large-scale production of green fuels with partners.

As InterContinental Energy enters the next phase of growth as The Trusted Partner in Hydrogen at its 10th year milestone, two of the major highlights include:

- The continued equity investments from the Government of Singapore Investment Corporation (GIC), the leading global institutional investor, as well as new investment from Hy24, the world's largest clean hydrogen pureplay investor. The strategic capital investments help accelerate the deployment of InterContinental Energy's portfolio of projects and contribute towards the company's vision to scale up the green hydrogen economy.

- The Power to Hydrogen Node, P2(H2)Node™* (The Node) - InterContinental Energy's innovative engineering design that powers the delivery of Giga-scale green fuel projects. The Node serves as modular building block that is highly scalable to meet the long-term market demand of green hydrogen.

InterContinental Energy is focused on optimizing outcomes for all stakeholders, including First Nations and other communities, as well as collaborating with project partners to deliver value to its strategic investors.

*Patent Pending

Low Emissions Technology Australia (LETA)

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LETA
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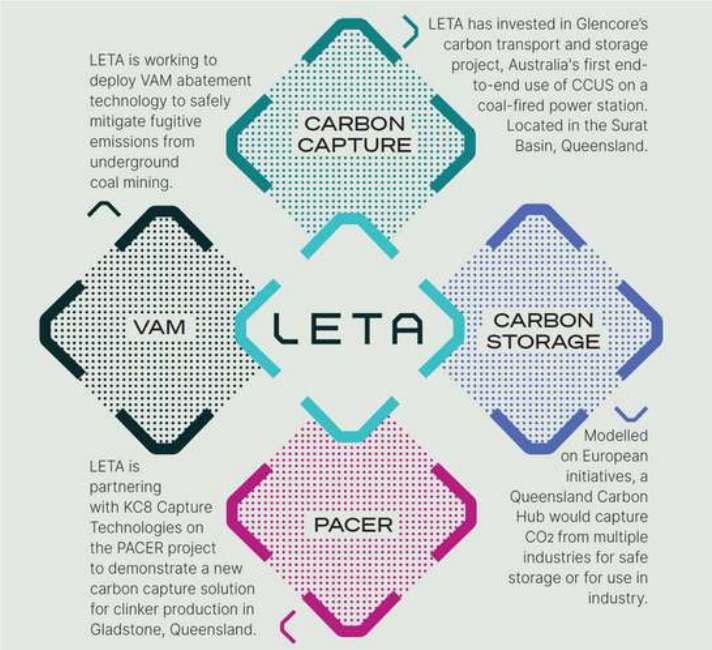

Low Emission Technology Australia (LETA) invests in technologies that reduce and remove carbon emissions from energy and other heavy industries.

Since 2006, they've been working to make proven low emission technology a part of the energy mix and taken a leadership role in developing decarbonising technologies around the globe.

LETA provides investment funding to assist to identify, develop and deploy technology that will abate carbon emissions throughout the entire coal value chain. In doing so, they not only address scope 1 emissions, they are investing into the decarbonisation of the hard-to-abate industries that utilise coal as a fuel source.

Since 2006, LETA has committed more than A$A350m to identify, research, and develop technologies that can make a real difference in how the industries produce energy, steel, and other materials so that carbon dioxide can be captured and permanently stored, prevented, or reused in other applications.

To date, LETA has funded feasibility and demonstration projects across various low emission technologies including the world's first carbon capture demonstration from a power plant, identifying storage locations in Australia and undertaking critical research into managing coal mining fugitive emissions.

A key focus for LETA is the evolution to clean energy technologies. They actively seek to partner with technology developers, OEM's and project operators to enable the development of low emission fuels such as hydrogen and ammonia through the use of carbon capture and storage.

Origin Energy

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Origin is a leading Australian integrated energy company with activities spanning exploration, production, generation, wholesale electricity and gas trading, domestic and export sales and a growing renewable energy portfolio.

Origin's ambition is to lead Australia's energy transition through cleaner energy and customer solutions.

Origin's Future Fuels business is focussed on developing a scalable domestic and export hydrogen business that aims to reduce and remove carbon from the energy supply chain and hard to abate sectors across domestic and international markets.

Origin Future Fuels has been assessing the potential of several renewable hydrogen concepts in New South Wales, Queensland, South Australia and Tasmania. The team looks to engage collaboratively with potential anchor offtake customers, both in Australia and overseas, who seek to decarbonise their businesses.

In New South Wales, Origin Future Fuels is progressing a proposed 50MW Hunter Valley Hydrogen Hub in partnership with Orica. The first phase of this project could be one of Australia's first at-scale hydrogen production facilities, with construction proposed to start in 2025 aiming for first production around 2026. Early planning has also commenced on future phases.

In Queensland, Origin Future Fuels and ENEOS Corporation are working together on a proposed Methylcyclohexane (MCH) Project – comprising a hydrogen production facility that could demonstrate scaled hydrogen transport through a liquid organic hydrogen carrier.

Origin is also developing potential nature-based carbon abatement solutions for customers.

Origin invites enquiries from co-investors and business customers to partner with us on the journey to a decarbonised future.

Pilot Energy

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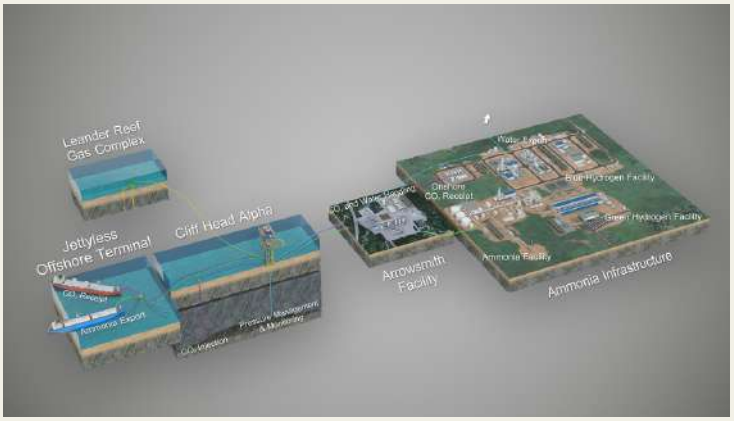

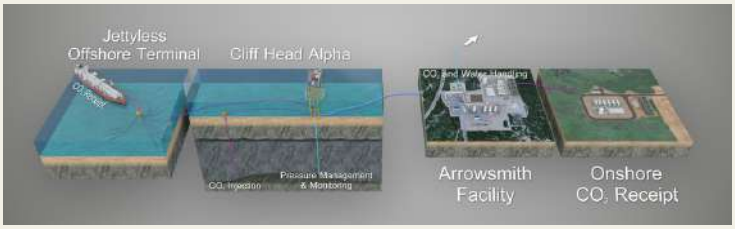

Pilot Energy is an ASX listed company (ASX:PGY) leveraging its existing oil and gas assets along with established infrastructure to advance the staged development of an integrated carbon capture and storage (CCS) to clean ammonia export project.

Pilot is taking a lead role in the energy transition in Western Australia via the development of its flagship Mid West Clean Energy Project (MWCEP).

The company's existing operations are ideal for transitioning to the provision of low-cost CCS and clean hydrogen and ammonia production. CCS is the key enabler to delivering the lowest cost clean hydrogen and ammonia.

Utilising Pilot's offshore facilities provides MWCEP a unique opportunity for offshore CO2 storage and clean ammonia export.

Pilot aims to provide permanent injection and storage of over 1 million tonnes of CO2 annually through 2050 as well as produce 1 million tpa of low-cost clean ammonia for export by 2028 with the potential to expand clean ammonia up to 2.5Mtpa by 2030.

Port of Newcastle

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PORT of NEWCASTLE
DIVERSIFYING FOR THE FUTURE

Port of Newcastle is the world's largest, and most efficient, coal export port. Currently, the Port handles 25 different cargo types, however, coal is over 95% of that volume from all commodities and products combined.

The Port has embarked on an ambitious diversification strategy that will see it introduce new and grow existing trade, removing the current reliance on one commodity. Future trade types include RoRo (passenger vehicle imports), container operations and clean energy.

With a 220-hectare site earmarked for development, the Port of Newcastle Clean Energy Precinct will be developed to produce 1.6GW of energy within five years of commencement of works and 3GW once all stages are completed.

With an existing deep-water shipping channel that is currently operating at 50% capacity, strong industry partnerships, and proximity to existing demand with access to global energy export routes, Port of Newcastle is the ideal location to develop a fully integrated clean energy hub and export industry.

Works on the Clean Energy Precinct are set to commence in 2024, with A$100 million provided by Australian Government to activate the Precinct.

Port of Newcastle is currently working with domestic and international partners to realise these opportunities.

Rux Energy

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Rux Energy is reinventing hydrogen storage. Rux is partnering with 11 leading Australian, UK and Singaporean universities and first adopters of hydrogen to solve one of the most significant barriers preventing the widespread adoption of hydrogen energy - safer and more efficient hydrogen storage and distribution.

Rux's hydrogen storage solution dovetails patented nano porous materials with next-generation carbon-composite tanks to enhance storage density and safety, enabling cost-effective, high-performance solutions for bulk hydrogen supply and storage for heavy transport (trucks, maritime, rail and aviation).

Rux takes a holistic approach to solving the storage, supply and distribution of hydrogen and the end-to-end scale manufacturing process around the systems integrated solution with a goal to deliver zero carbon products and services.

Rux is a member of the consortium that won a Clean Maritime Demonstration Competition (CMDC4), announced on 1 February 2024, for the Shoreside Power from Optimised Hydrogen Lifecycle (SPOHL) project that directly addresses the abatement of carbon emissions from port emissions, a major source of emissions, globally.

Rux’s partnerships include the University of Sydney, the University of New South Wales, the Australian Nuclear Science Technology Organisation, Cranfield University, Brunel University, the National Composites Centre, Freeport East UK, and several dozen industry partners across Australia and the UK to develop and trial the technology for our target hard-to-abate applications.

Rux welcomes collaboration with interested companies and organisations to participate in validation trials in industrial environments.

Siemens

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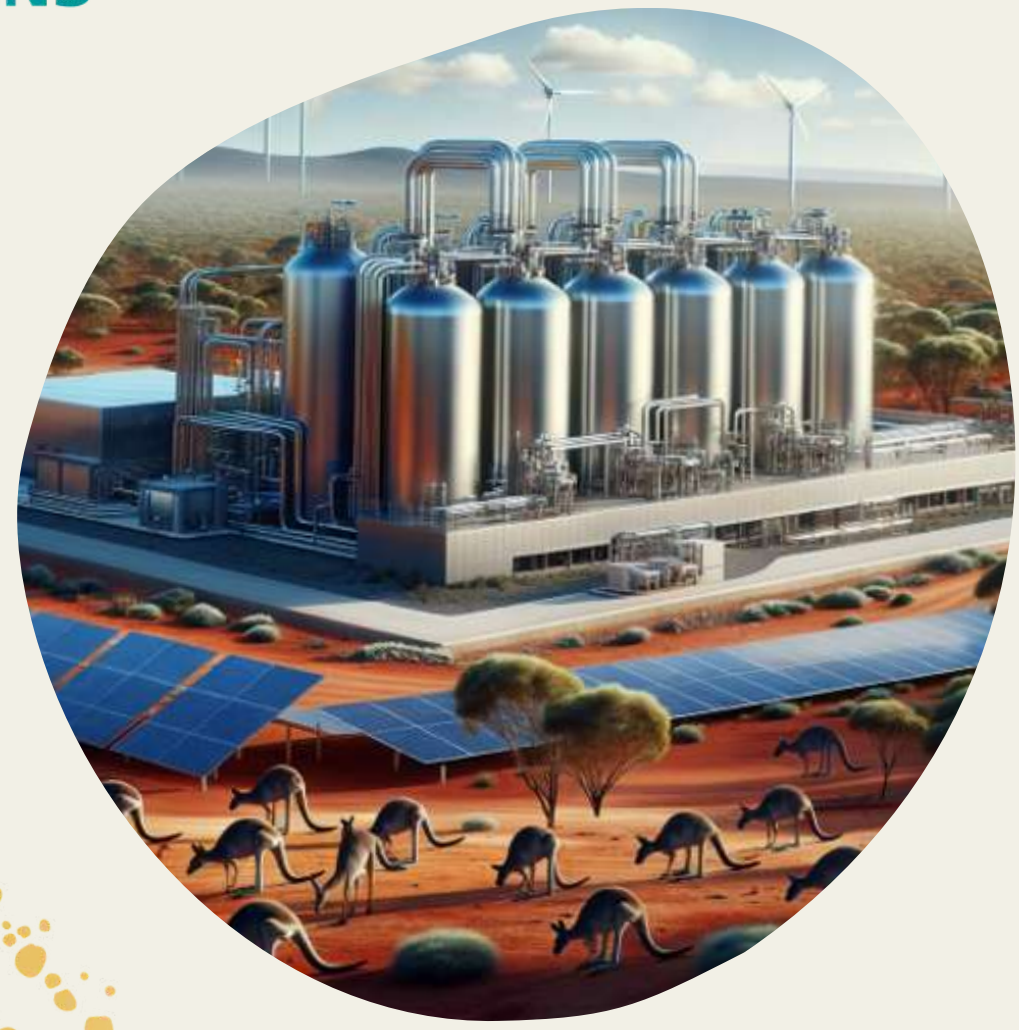
Siemens is a supplier of core components for electrification, automation, and digitalisation.

With their hydrogen-enabled portfolio, they are serving Process OEM, EPC, and end customers to build and operate equipment modules or entire plants along the hydrogen value chain – from H2 production, conversion, storage and transport to usage.

Transforming the everyday to create a better tomorrow - Siemens empowers their customers to drive sustainable growth and transform their industries with a more appreciative interaction of the planet's resources.

SIEMENS



Stanwell

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Central Queensland Hydrogen (CQ-H2) Project
Queensland Government-Owned Corporation and electricity generator Stanwell is leading an international consortium to develop the global-scale Central Queensland Hydrogen (CQ-H2) Project in Gladstone, Central Queensland. Its consortium partners include Japanese foundation partners Iwatani Corporation, Kansai Electric Power Company, and Marubeni, and Singapore's Keppel. The project aims to export renewable hydrogen via its carriers to Japan and Singapore and supply large industrial customers domestically to support local decarbonisation.

The CQ-H2 Project is undertaking its Front-End Engineering Design study with a commitment of A$117 million from government and consortium partners, including A$20 million from ARENA and A$15 million the Queensland Government. The CQ-H2 Project has now been shortlisted to submit a full application to the Australian Government's Hydrogen Headstart program.

The project includes a hydrogen production facility, a hydrogen pipeline, hydrogen liquefaction facility and ship loading facilities at Gladstone Port, and supply of hydrogen to an ammonia production facility. Operations are planned to commence in 2029 and scale up to 800 tonnes per day from the early 2030s. At its peak, the CQ-H2 Project will support more than 8,900 new jobs. The project will also deliver A$17.2 billion in hydrogen exports and A$12.4 billion to Queensland's Gross State Product over its 30-year life.

Star Scientific

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Star Scientific is a private research and development company based on the NSW Central Coast.

Star Scientific has developed the globally-patented, award winning catalyst, the Hydrogen Energy Release Optimiser, or HERO®.

HERO® turns hydrogen and oxygen into high-temperature heat, without burning the gases and therefore not generating GHGs.

The only other output is pure water. HERO® is a "true catalyst" that does not wear out. Our commercial pathways are process heat for industry and off-grid energy systems.

Sumitomo Australia

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Sumitomo Australia Pty Ltd

Sumitomo Australia Pty Ltd is a fully owned subsidiary of Sumitomo Corporation, a leading integrated trading and investment company based in Japan, who engage in diverse businesses through its global network.

Sumitomo's Energy Innovation Initiative (EII) seeks to realise a sustainable society by establishing sustainable energy cycles to achieve decarbonisation.

The development of the hydrogen and derivatives business is one of the EII's key areas of focus. Sumitomo expects hydrogen to be one of the key energy carriers of the future and promotes the development of hydrogen and hydrogen derivative value chain projects.

As a part of the EII, Summit Hydrogen Gladstone ('SHG'), a fully owned subsidiary of Sumitomo, is developing a renewable hydrogen venture in Queensland, Australia.

The Hydrogen Utility

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The Hydrogen Utility™
"The global shift towards green hydrogen and green ammonia as an energy source creates an opportunity for Australia to maintain its status as a major energy resources exporter whilst developing its core manufacturing capability." — Dr Attilio Pigneri, Founder and CEO, of The Hydrogen Utility™

H2U's Values
H2U is an independently owned specialist developer of green hydrogen infrastructure projects, based in Australia with a vision to operate throughout the Asia-Pacific.

They adopt the UN Sustainable Development Goals (SDG) as the basis of its Corporate and Social Responsibility (CSR) policies, as well as the guiding principles along which it focuses its business activities.

Contribution to Society
Green hydrogen brings the opportunity to create new, highly skilled jobs across a wide spectrum of engineering, technical, environmental and business disciplines. Much like for renewable energy, green hydrogen jobs will be created predominantly in regional communities, where green hydrogen infrastructure projects are more likely to develop as a function of renewable energy, and market access.

Contribution to the Environment
The impact on Clean Water and Sanitation (SDG6) is an important consideration in the production of green hydrogen. H2U's policy in this area is on sourcing water for their operations from secondary sources, such as wastewater, seawater, or high-salinity bore water.

They aim to be always a net contributor to clean water resources in the communities in which they operate, by either investing in water treatment plants sized more than their requirements or by acting as an enabling cornerstone off-taker to third-party desalination plants.

Contribution to Development
The opportunity to bring Decent Work and Economic Growth (SDG8) and promote in these communities opportunities for Quality Education (SDG4) is one of H2U's strongest motivations, and one that they are particularly proud to deliver in partnership with indigenous and traditional owners, striving to Reduce Inequality (SDG 10), and work towards the goal of No Poverty (SDG1).

Theia Energy

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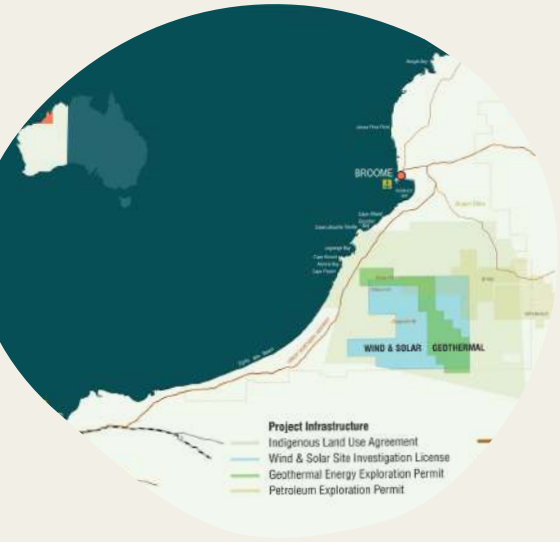

Theia Energy Pty Ltd (Theia Energy) is a private company based in Perth, Western Australia.

Theia Energy's vision is to produce affordable clean energy, providing energy security and a sustainable economy in the northwest of Australia.

Theia Energy aims to develop the Gingerah Energy Hub, harnessing the natural energy resources of the West Kimberley and build infrastructure for economic development in the northwest of Australia with the traditional owners of the land and the local community.

Since 2015, they have been active in the onshore Canning Basin which has provided them with deep geological knowledge of the basin and strong relationships with key stakeholders. The Gingerah Energy Hub will initially produce 1 mtpa of green ammonia from up to 3 GW renewable energy capacity from a mix of solar, wind and geothermal energy sources.

The project will have the potential for expansion into emission-free production of methanol (1 mtpa) and urea (3 mtpa). Theia Energy is open to expressions of interest from potential partners to develop this exciting project.

UGL

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UGL is a tier 1 Australian EPC contractor and a world class provider of design, construction, operations and maintenance services to the new energy, transportation, resources, utilities, communications and defence sectors.

UGL creates, enhances and sustains their clients' critical assets. Power infrastructure, networks and storage, and the new frontier of renewable energies such as wind, solar, BESS and hydrogen are essential services that keep our communities and industries going.

UGL's deep engineering skill optimises every stage of an asset's lifecycle, ensuring certainty with the lowest risk and whole-of-life cost. Their in-house engineers partner with global technology leaders to develop advanced solutions and position projects to transition as technology develops. This integration also drives better decision-making, fast-tracked problem-solving, optimized performance and seamless transitions from one phase to the next.

In operations and maintenance, UGL are leveraging planning, people, systems and process smarts to lower operational costs and increase service level performance. Their teams draw on their engineering experts to analyse and challenge UGL's work and extend the lifetime value of infrastructure.

UGL's expertise covers the following areas of the new energy sector; solar, wind and batteries. UGL has expanded its team to provide strong in-house capability for the design, construction and operations and maintenance of firming assets, such as hydrogen, ammonia and pumped hydro.

UGL is currently participating in a number of FEED studies of firming asset projects where they are leveraging UGL's current expertise in the renewables and utilities group to support the growing team in this sector.

Vireo Energy

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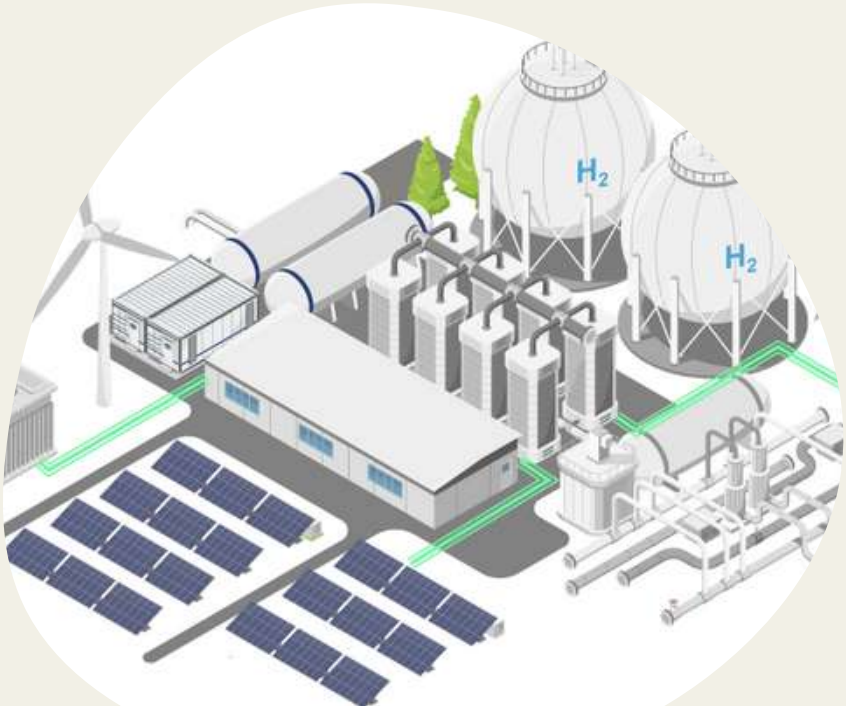
Vireo Energy has developed a sophisticated electrolyser process control system and software solutions to support the hydrogen industry.

Vireo Energy's control platform integrates real-time operational data, predictive forecasting, and control algorithms to deliver a smart, cost-effective hydrogen production process. Advanced algorithms anticipate market shifts and resource availability to ensure low-cost production. The solution systematically aligns production with offtake agreements and manages hydrogen storage, all while scheduling tube-trailer loading effectively. It includes the capability to manage battery backup for resilience and the capacity to feed solar energy back to the grid for added revenue.

The system is continuously adapting, utilising historical and live data to refine operation decisions to maintain cost-effective and reliable hydrogen production.

Vireo Energy has successfully completed the pilot phase of its control system on a small-scale electrolyser and is now poised to expand the technology to full-scale commercial deployment. The system has been proven effective at optimising hydrogen production in real-time, with similar benefits scaling to commercial operations. Vireo Energy has partnered with an international control system company, allowing for the delivery of a robust solution aligned with industrial control standards.

Vireo Energy’s roadmap for the near future includes expanding partnerships across the energy landscape, integrating their system into the operations of hydrogen facilities worldwide, and contributing to a reduction in carbon emissions. Through these steps, Vireo Energy envisages supporting its partners in building a network of smart, clean, and cost-efficient hydrogen facilities, helping catalyse a global shift towards clean hydrogen.



White Graphene

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White Graphene is a pioneering leader in the production of high-quality boron nitride nanomaterials.

Their commitment is to push the boundaries of innovation, delivering advanced materials that redefine industries and enable ground-breaking applications.

Boron nitride nanomaterials possess unique properties that are complementary to carbon or black graphene. It is a material consisting of hexagonal arrays of boron and nitrogen atoms that can be an incredibly strong tensile reinforcement in other materials.

These nanomaterials are electrical insulators and have very strong anti-corrosion and anti-erosion capabilities. They are impermeable to moisture and gas, including H2, and have exceptional thermal stability, and thermal conductivity properties.

White Graphene's facilities in Geelong (VIC) are unique in the world and allow for scale up manufacturing of different types of boron nitride nanomaterials. One material, endless possibilities.

Wood

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Wood is a global leader in consulting and engineering, delivering critical solutions across energy and materials markets.

We provide consulting, projects and operations solutions in 60 countries, employing around 35,000 people.

Woodside Energy

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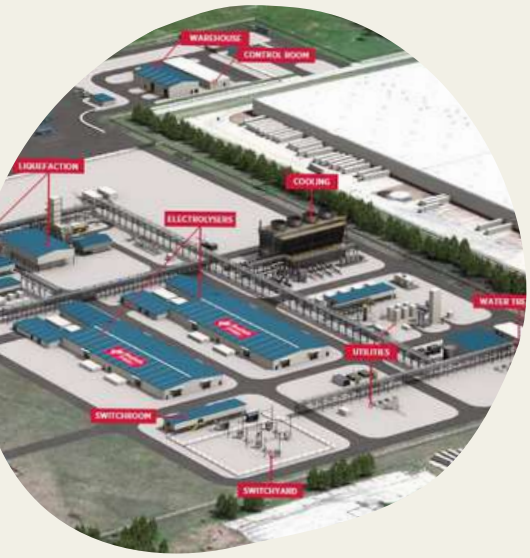

Woodside Energy is a global energy company founded in Australia, providing reliable and affordable energy to help people lead better lives.

Their global portfolio includes LNG, oil and gas assets across Australia, the Gulf of Mexico, the Caribbean, Senegal, Timor-Leste and Canada.

They are contributing to the energy transition by leveraging their track record of reliable operations, strong customer relationships and investing in new energy.

Woodside Energy is focusing on developing new energy products and lower carbon services, to help Woodside and their customers reduce emissions. In 2021, they set a Scope 3 investment target – aiming to invest A$5 billion in new energy products and lower carbon services by 2030.*

Woodside Energy have carbon capture and storage opportunities in Australia and are progressing hydrogen and ammonia projects in Australia, the United States and New Zealand.

*Includes pre-RFSU spend on new energy products and lower carbon services that can help their customers decarbonise by using these products and services. It is not used to fund reductions of Woodside's net equity Scope 1 and 2 emissions which are managed separately through asset decarbonisation plans.

RESEARCH INSTITUTIONS

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CSIRO
Australia's National Science Agency

CSIRO is among the world's largest and most diverse scientific research organisations, dedicated to addressing Australia's most pressing challenges.

Over nearly a century, CSIRO has been improving the lives of people everywhere with their science. They've advanced Australia with a range of inventions and innovations that have had significant positive impact on the lives of people around the world, like fast WiFi, polymer banknotes, and vaccines.

CSIRO engages with over 3,100 partners in industry and government, and work with 1400 international customers and collaborators from more than 87 countries.

They're creating new science, capabilities, and technologies across the emerging hydrogen value chain, supporting new Australian industries and large-scale emissions reduction.

CSIRO's partner-based Hydrogen Industry Mission supports a commercially viable Australian hydrogen industry through sharing knowledge, fostering international partnerships, developing demonstration projects and enabling science and technology.

Their hydrogen research covers the whole value chain, from production, through storage and distribution, to utilisation and includes the social, environmental and regulatory aspects of a hydrogen industry. They also conduct ground-breaking research in the area of natural hydrogen.

CSIRO is currently looking for international collaboration partners in hydrogen research.

Australian National University

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The Advanced Conversion Technologies for Hydrogen (ACT-H2) group at the Australian National University is investigating multiple projects linked to hydrogen production.

The group works closely with industry to develop novel electrolyser technologies, including cost-effective high-efficiency materials and associated deposition techniques for scalable manufacturing.

With support from the Australian Renewable Energy Agency (ARENA), the ACT-H2 group is also progressing the direct solar-to-hydrogen (DSTH) technology.

The DSTH technology is an innovative system that integrates solar cells and catalytic electrodes within a single module, bypassing energy conversion stages. The group is currently working to transition this technology from a successful laboratory prototype to a market-ready product.

Central Queensland University

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The Centre for Hydrogen and Renewable Energies (CHRE) was developed to provide world-class research, training and support to the emerging hydrogen and renewable energy industries in Central Queensland.

Their vision is to cultivate world-class expertise to empower their industry partners and new industry clients as they embrace the transition to hydrogen and other clean energy.

This will be accomplished by driving impactful research and development outcomes that directly align with commercial needs, while concurrently nurturing a highly skilled workforce and workforce pipelines though community and youth engagement initiatives.

Their overarching strategy is to champion the creation of a robust regional clean energy and hydrogen manufacturing value chain in Central Queensland, centred in the economic powerhouse city of Gladstone, to bolster and uplift local industries and drive further economic growth.

The Centre will feature a compact and versatile hydrogen production system that will enable hands-on immersive training, as well as provide a platform for solving practical research problems and testing new technologies. They are actively pursuing breakthrough solutions to support rural and remote communities in attaining energy self-sufficiency.

Through a pursuit of collaborative innovation, the Centre aims to serve as a dynamic hub for solving real-world research challenges and pushing the boundaries of ingenuity through the exploration and testing of new technologies.

Deakin University

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Rated in the top 1% of universities worldwide, Deakin University collaborates with industry, governments, and institutional networks to deliver a global research footprint. With more than 500 active partnerships in 57 countries, Deakin aspires to be Australia's most progressive and responsive university.

Hycel is Deakin's gateway to research and education in applications of hydrogen, delivering industry-led hydrogen innovations focussed on mobility, materials and manufacturing, training, and social licence. Hycel's technical program covers fuel cells and energy systems in mobility, and materials discovery and development for hydrogen production, storage, containment, purification, and green chemicals. Hycel's activities are also focussed on readiness of workforces and communities for the hydrogen transition by developing education, training and social licence offerings and pathways.

The newly commissioned Hycel Technology Hub is Australia's first purpose-built facility for hydrogen fuel cell research, testing, prototyping, and training. Hycel Technology Hub is equipped with the Greenlight Innovations G20 and G400 fuel cell testing stations, high pressure and flow hydrogen, and a heavy vehicle access bay. Hycel Technology Hub fuel cell research spans discovery through to implementation, from materials optimisation of componentry through to full vehicle integration. Incubator labs at Hycel are available to enable industry co-location. In addition, education facilities provide school, vocational, tertiary, professional and community training.

At Hycel, Deakin's renowned research capability in advanced materials and manufacturing, engineering, energy systems, IT, artificial intelligence, techno-economics, and social sciences are complemented by world leading infrastructure and equipment. Hycel delivers outcomes that meet the needs of industry and partners to advance the clean energy transition in Australia.

Future Energy Exports CRC

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The FEnEx CRC is a collaboration of 36 participants from industry, government and academia with resources of A$163 million to conduct industrial-scale research that supports decarbonizing LNG and growing clean hydrogen exports from Australia.

Its flagship project is the Kwinana Energy Transformation Hub (KETH), which will establish a common-user, industrial-scale LNG + green hydrogen facility for demonstrating and de-risking decarbonisation and liquefaction technologies.

The FEnEx CRC is a collaboration of 36 participants which includes major global companies (e.g. Chevron, INPEX, bp, Wood) and five international Universities located in Korea (Seoul National University), Germany, Japan and China.

Future Fuels CRC

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Future Fuels Cooperative Research Centre is the industry focused Research, Development & Demonstration (RD&D) partnership enabling the decarbonisation of Australia's energy networks.

They work with partners in a collaborative and connected research community embracing industry, academia and government to:

- Focus on the future of a crucial sector of the Australian energy economy.
- Deliver the full potential of low-carbon fuels in the energy supply mix.
- Find safe and reliable solutions to repurpose existing infrastructure and develop new infrastructure to transport future fuels.
- Inform coordinated national policy and regulation associated with low carbon fuels.
- Protect and extend the reliability and safe operative life of energy infrastructure.
- Enable the structures, protocols and linkages to maximise the value of global low carbon fuel developments for Australia.

Monash University

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Monash University is the largest university in Australia, and it has a global footprint that includes campuses in India, China, Malaysia, Indonesia, and Italy. Monash has committed to three global challenges: Climate Change, Geopolitical Security, and Thriving Communities. Its flagship Climate strategy, the Net Zero 2030 Initiative, was awarded the UN Momentum for Change Lighthouse award in 2018.

The Monash Energy Institute is the university's primary vehicle for promoting and facilitating Climate Change Mitigation and Energy Transition research.

The institute, in addition to coordinating its basic research strengths in novel solar PV and storage materials, green hydrogen and ammonia production and storage, and a full range of AI research strengths, drives impact by bringing deep energy industry expertise to help accelerate the growth of Australia's hydrogen industry.

Examples include high-impact initiatives such as the Monash-Geoscience Australia Hydrogen Economic Fairways Tool (and the Green Steel Mapper), which was awarded the 2023 Eureka Prize for Innovative Research in Sustainability, the Woodside Monash Energy Partnership (green hydrogen export), the Victorian Renewable Liquid Hydrogen Supply Hub, the Monash life-cycle assessment tool, the leadership of the Electricity Networks Program in the RACE for 2030 Cooperative Research Centre, the industry-funded Monash Grid Innovation Hub.

RESEARCH INSTITUTIONS

Swinburne University of Technology

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Swinburne University of Technology is home to the Victorian Hydrogen Hub (VH2), a dedicated hydrogen research initiative creating impact for industry both in Australia and overseas.

As many organisations begin to consider the role hydrogen will play in decarbonising our economy and how they can effectively capitalise on this opportunity, VH2 is the perfect research partner for industry to navigate this nascent sector.

Through collaboration with industry partners, VH2 has positioned itself as a leading hydrogen industry readiness centre in Australia to test, trial and demonstrate new hydrogen technologies, and to develop hydrogen capability.

To date, VH2's achievements include:

- the launch of a demonstration hydrogen refuelling station, in collaboration with CSIRO.
- the release of the Hydrogen Skills Roadmap, which provides a detailed analysis of the skills and training needed to support a future hydrogen economy.
- the provision of over A$2 million funding for PhD projects across the hydrogen value chain.
- Impactful real-world research for a variety of industry partners.

With research strengths across the hydrogen value chain, VH2 is pushing the boundaries of what hydrogen can deliver, with the aim to create a sustainable future for all. We invite you to join us on our journey.

University of Adelaide

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THE UNIVERSITY of ADELAIDE

150 YEARS

The University of Adelaide is dedicated to conducting world-class research.

Through the Institute for Sustainability, Energy and Resources (ISER), we lead globally transformative research that overcomes complexity, drives change, and creates value for a more sustainable future.

ISER provides a platform for research innovation, leadership, and partnership from our experts across all Faculties and Institutes.

As part of ISER, the Centre for Energy Technology (CET) has a goal is to accelerate the society's transition to carbon neutrality by developing innovative technologies for sustainable, secure and affordable energy.

CET collaborates with leading industry, government agencies and other research organisations to move us closer to this goal, drawing on our research capacity in sustainable power, fuels, networks and minerals.

University of Melbourne

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The Melbourne Energy Institute (MEI) delivers influential, interdisciplinary research on the transition to a clean energy system. They work with the community, industry and government on some of the world's most pressing energy challenges.

MEI has over 300 specialists across architecture, economics, engineering, health, law, planning, science, and social science. They include a former Chief Scientist of Australia, several recipients of Australia Day Honours, several Fellows of Learned Academies, and numerous Fellows of Professional Societies.

MEI researchers work together in four programs:

- Energy systems
- Power generation and transport
- Heavy industry and resources
- Energy materials

MEI works with many leading organisations in Australia and overseas and welcome all enquiries.

University of Newcastle

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The Centre for Ironmaking Materials Research (CIMR) is a centre of the University's Newcastle Institute for Energy and Resources (NIER), which occupies the site of the former BHP Newcastle Technology Centre.

The Newcastle Technology Centre (originally Central Research Laboratories) was established in 1957 as an iron and steel research facility. The Centre researched diverse topics across mineral exploration, mining, pyro and hydro metallurgy.

CIMR was established in 2010, as a founding industry-research collaboration, under the NIER industry-engaged model at the University of Newcastle. CIMR has established itself as a world-class research centre in the area of low-carbon iron and steelmaking technologies, carrying on the legacy of the BHP Newcastle Technology Centre.

A key focus of Centre research is to decrease the greenhouse gas emissions from ironmaking using Australian iron ores and assessing the feasibility of alternate green ironmaking technologies. CIMR has world class research facilities for ironmaking materials research.

University of NSW

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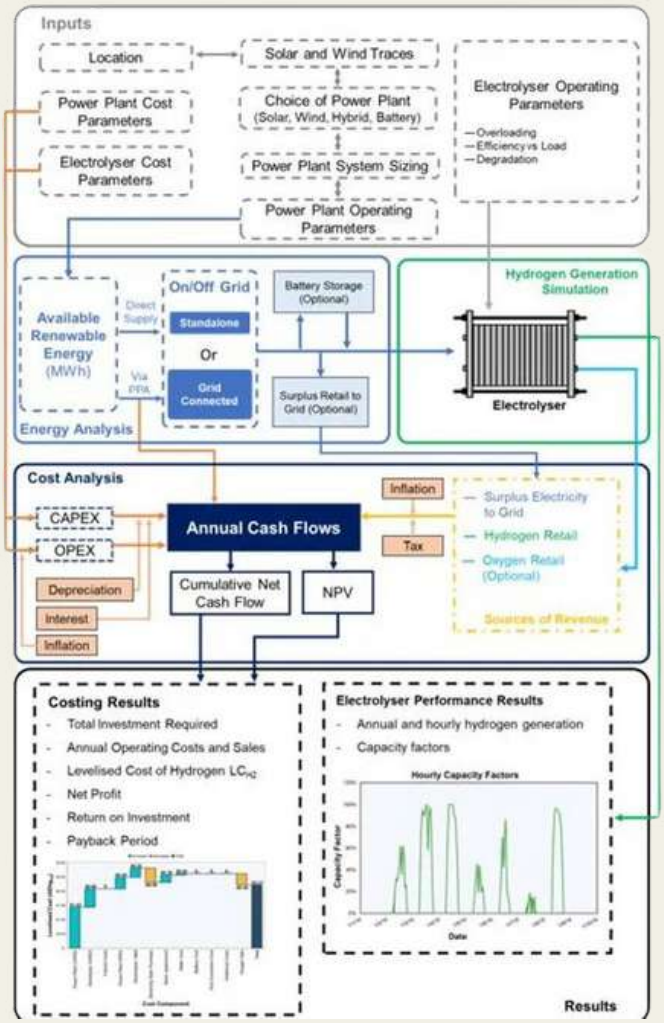
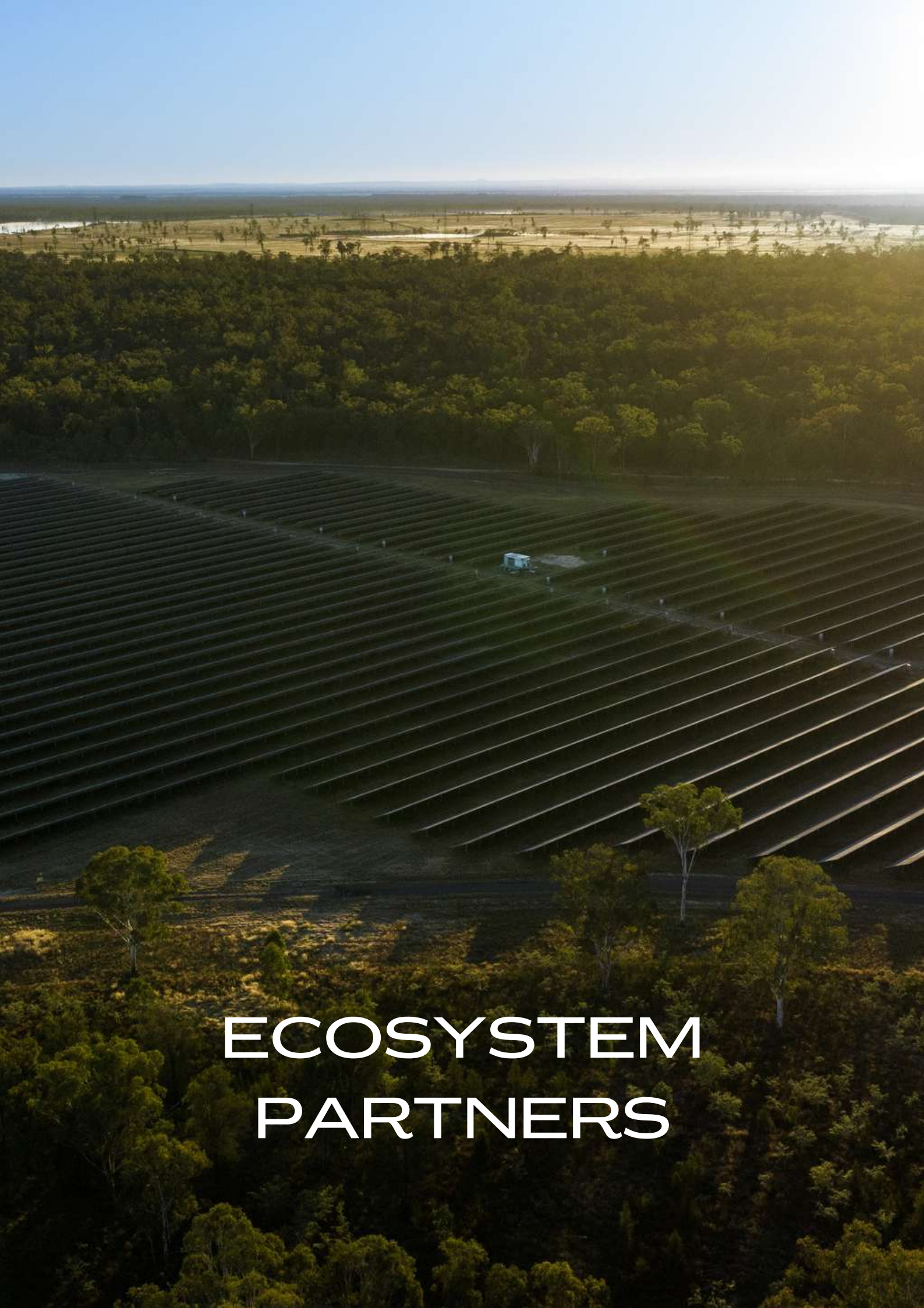
The Australian Research Council (ARC) Training Centre for the Global Hydrogen Economy (GlobH2E) is an international consortium of research institutions, industry partners, government agencies and hydrogen start-ups.

Established in 2020, and hosted at the University of NSW in Sydney, the training centre is engaging world-class PhD candidates and hydrogen researchers to develop technologies, business skills and supporting innovations to aid the world's transition to renewable energy.

The emerging global hydrogen economy is increasingly seen as a way to secure our energy future, while mitigating catastrophic climate change. GlobH2E will support the fledgling industry and the professionals who will lead it, through quality training and expertise.

GlobH2E
ARC Industrial Transformation Training Centre for the Global Hydrogen Economy





ECOSYSTEM PARTNERS

ECOSYSTEM PARTNERS

Australian Hydrogen Council

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The Australian Hydrogen Council is the peak body for the hydrogen industry, with members from across the hydrogen value chain.

They represent the emerging hydrogen industry and connect it with its stakeholders to collectively create a clean and resilient energy future that has hydrogen as a key part of the energy mix.

The AHC strategic goals are to:

- Progress Australia's establishment as a global hydrogen powerhouse.
- Advocate for policy settings that accelerate Australia's move towards clean and renewable hydrogen technologies.
- Support collaboration within the industry and with governments, academia and the public.
- Be the trusted, acknowledged and influential voice of the clean hydrogen industry.

ECOSYSTEM PARTNERS

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The Australian Renewable Energy Agency (ARENA) supports the global transition to net zero emissions by accelerating the pace of pre-commercial innovation, to the benefit of Australian consumers, businesses and workers.

They do this by providing grant funding to projects that can accelerate the uptake and supply of renewable energy technologies in Australia.

Commercialising renewable hydrogen is a key investment priority for ARENA and to date they have provided over A$300 million in funding to Australian hydrogen projects.

ARENA is also administering the A$2 billion Hydrogen Headstart program, on behalf of the Australian Government, which aims to catalyse large scale hydrogen projects in Australia.

ECOSYSTEM PARTNERS

Clean Energy Council

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The Clean Energy Council is the peak body for the renewable energy sector, and the leading industry advocate for renewable hydrogen in Australia.

The Clean Energy Council represents and works with over 1,000 leading businesses operating across solar, wind, hydro, energy storage, and renewable hydrogen sectors.

The Clean Energy Council delivers a wide range of market intelligence, policy and advocacy and industry development services to support the industry's growth and success, and it also works with members, governments and stakeholders to solve the technical, political and financial challenges faced by the industry.

The Clean Energy Council runs a large program of high-quality events throughout the year to bring industry and government together for knowledge sharing and networking.

The premier annual industry gathering for leaders across the renewable energy sector, the Australian Clean Energy Summit, will be held in Sydney from 16-17 July 2024, and is a must-attend event for anyone interested in investing or operating in the Australian clean energy market.

Follow them on Twitter via @cleannrgcouncil and on LinkedIn at linkedin.com/company/clean-energy-council

Department for Climate Change, the Environment & Water (DCCEEW)

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Australian Government
Department of Climate Change, Energy, the Environment and Water

The Department of Climate Change, Energy, the Environment and Water (DCCEEW) has been established to deliver on the Australian Government's climate change and energy agenda and protect Australia's environment and water resources.

They deliver policies and programs to:

- help address climate change and build a more innovative, future ready energy system.
- protect our unique environment, biodiversity and heritage.
- manage Australia's water resources for industry and regional communities.
- advance Australia's interests in the Antarctic and Southern Ocean.

They are informed by science. They are innovative and collaborative. They look to the future. The departments responsibilities are vast, including (but not limited to):

- development and co-ordination of international climate change policy
- international climate change negotiations
- water policy and resources
- national water infrastructure investment
- development and co-ordination of domestic, community and household climate action
- climate change adaptation strategy and co-ordination
- renewable energy target policy, regulation and co-ordination

Supporting the development of Australia's hydrogen industry, the department is leading a range of work, including a review of the National Hydrogen Strategy to ensure Australia remains on a path to be a global hydrogen leader by 2030, on both an export basis and for the decarbonisation of Australian industries.

And they oversee a range of support and investment programs targeting the hydrogen industry including the A$2 billion dollar Hydrogen Headstart program, the A$500 million Regional Hydrogen Hubs program, and the development of the Guarantee of Origin Scheme.

Department for Foreign Affairs & Trade (DFAT)

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Australian Government
Department of Foreign Affairs and Trade

The Department of Foreign Affairs and Trade (DFAT) promotes and protects Australia's international interests to support our security and prosperity.

They work with international partners and other countries to tackle global challenges, increase trade and investment opportunities, protect international rules, keep our region stable and help Australians overseas.

DFAT manages Australia's international presence – a network of over 120 embassies, high commissions, consulates-general and representative offices across five continents – and they have over 6,000 staff located in Australia and overseas.

These staff are the diplomats, negotiators, consular officers and advisers developing and delivering Australia's foreign, trade and development policy on behalf of Australia and Australians.

ECOSYSTEM PARTNERS

Gladstone Regional Council

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Gladstone Regional Council is at the forefront of the green energy transition and decarbonisation industry, situated in the heart of Queensland, Australia.

Their commitment extends beyond just embracing change; they are actively driving it. With a vision firmly rooted in sustainability and economic prosperity, they are dedicated to guiding our community towards a future that is both environmentally conscious and economically robust.

At Gladstone Regional Council, their mission is clear, that is to lead our community through the transition to a green energy industrial ecosystem. They understand the critical importance of balancing environmental stewardship with economic growth.

Central to their approach is the Gladstone Region Economic Transition Roadmap. Developed in close collaboration with industry experts, stakeholders, and community members, this roadmap serves as our guiding light, outlining the path forward for Council over the next decade.

Contact

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Australian Government

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Government of South Australia

Invest & Trade Western Australia

Western Australia IT'S LIKE NO OTHER.

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