



Australian Government  
Australian Trade and Investment Commission

# Australian hydrogen project showcase

March 2023



AUSTRALIA

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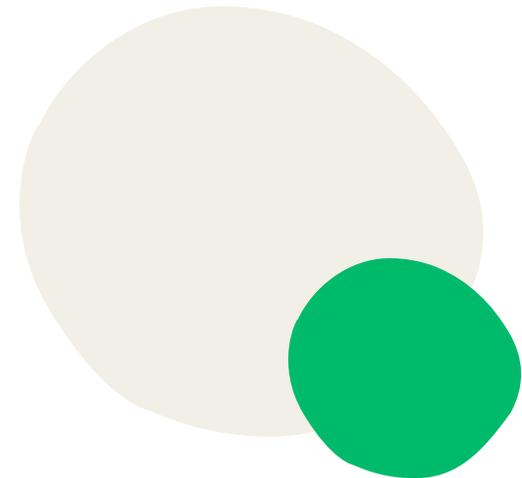
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# Contents

Australian Government support	<b>4</b>
Map of hydrogen projects in Australia	<b>5</b>
Overview of active and prospective projects	<b>6</b>
Hydrogen project summaries	<b>8</b>



# Australian Government support

The Australian Government is committed to developing a hydrogen economy. Australian energy ministers share a vision for a clean, innovative, safe and competitive hydrogen industry that benefits all Australians and is a major global player by 2030.

Australia's [National Hydrogen Strategy](#) provides a framework for governments and industry to work together to build Australia's hydrogen industry.

The Commonwealth, State and Territory Governments will continue to work with industry to overcome any barriers to development. This work focuses on 3 areas:

- Building demand
- Achieving low-cost hydrogen production at scale
- Reducing hydrogen delivery costs.

Committed Australian, State and Territory Government support for the hydrogen industry is now over A\$6.3 billion.

CSIRO, 'HyResource': [Australia and New Zealand – HyResource \(csiro.au\)](#)

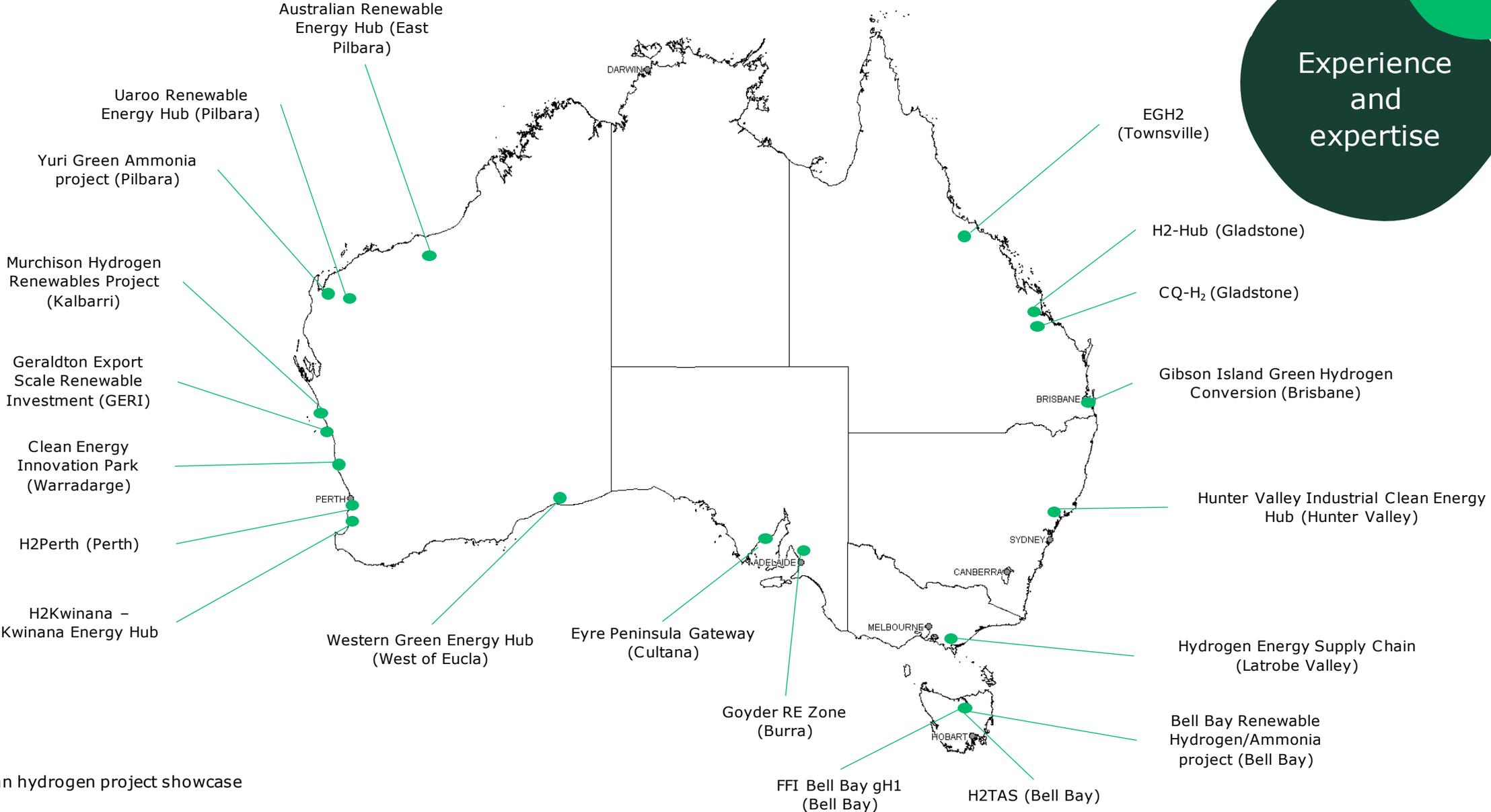
DISER, 2021, 'State of Hydrogen 2021', [State of Hydrogen 2021 | Department of Industry, Science, Energy and Resources](#)

Australian governments and industry leadership has contributed to an announced pipeline of at least \$127 billion of hydrogen and ammonia projects.

## Clean Hydrogen

Australia's National Hydrogen Strategy supports all production pathways and technologies that are capable of producing clean hydrogen. Clean hydrogen is hydrogen produced using renewable energy or using fossil fuels with substantial carbon capture and storage (CCS). This gives the emerging hydrogen industry flexibility to pursue the pathways that best meet customer preferences as global markets emerge.

# Key hydrogen projects in Australia



# Overview of active and prospective hydrogen projects

Project name	Company	Location	Power Source	Plant Size (MW)	Scalable Plant size (MW)	Output	Volume (TPA)	Market	Open to investment	Seeking offtake	Status
Clean Energy Innovation Park	ATCO	Western Australia	Wind	10	TBC	Hydrogen	1267	Domestic	Yes	Yes	FEED
Australian Renewable Energy Hub	bp	Western Australia	Wind + Solar	26,000	26,000	Hydrogen & Ammonia	Hydrogen 1.8 million Ammonia 1.0 million	Domestic & Export	Yes	Yes	Under development
Geraldton Export-Scale Renewable Investment (GERI)	bp	Western Australia	Wind + Solar		TBC	Hydrogen		Domestic & Export	Yes	Yes	Planning
H2Kwinana - Kwinana Energy Hub	bp	Western Australia	Grid sourced renewable energy		75 – Stage 1	Hydrogen	75MW min	Domestic & Export	For Discussion	For Discussion	Feasibility
Murchison Hydrogen Renewables Project	Copenhagen Infrastructure Partners	Western Australia	Grid sourced renewable energy	3000	n/a	Hydrogen & Ammonia	Hydrogen 300,000 Ammonia 2,000,000	Export	Yes	Yes	Feasibility
Edify Green Hydrogen (EGH2)	Edify	Queensland	Renewable electricity	20	1000	Offtake dependant	730,000	Domestic & Export	Yes	Yes	Under development
FFI Bell Bay gH1	FFI	Tasmania	Wind + Hydro	250	TBA	Ammonia	250,000	Domestic & Export	Yes	Yes	Feasibility
Gibson Island Green Ammonia Conversion	FFI	Queensland	Grid sourced renewable energy	550	TBA	Ammonia & Fertiliser	70,000	Domestic & Export	Yes	Yes	Feasibility

# Overview of active and prospective hydrogen projects

Project name	Company	Location	Power Source	Plant Size (MW)	Scalable Plant size (MW)	Output	Volume (TPA)	Market	Open to investment	Seeking offtake	Status
Uaroo Renewable Energy Hub	FFI	Western Australia	Wind + Solar + BESS	250 +	TBA	Hydrogen + electrons	TBA	Domestic & Export	Yes	Yes	Feasibility
The Hunter Valley Industrial Clean Energy Hub	FFI	New South Wales	Wind + Solar	250	TBA	Hydrogen & Ammonia	Hydrogen 25,000 Ammonia 150,000	Domestic & Export	Yes	Yes	Feasibility
Eyre Peninsula Gateway™	H2U	South Australia	Wind + Solar	100	1500	Ammonia + hydrogen	140,000 – 800,000	Domestic & Export	Yes	Yes	Under development
H2-Hub™ Gladstone	H2U	Queensland	Wind + Solar	1500	3000	Ammonia	800,000 – 1,700,000	Domestic & Export	Yes	Yes	Under development
Hydrogen Energy Supply Chain (HESC)	Japan Suiso Energy (JSE), J-Power, Sumitomo Corporation	Victoria	Renewables (H2 from Coal)	TBA	TBA	Liquefied hydrogen and gaseous hydrogen	30,000-40,000	Domestic & Export	Yes	Yes	Commercial demonstration phase to start
Goyder Renewable Energy Zone	Neoen	South Australia	Wind, Solar	Expansion under development	n/a	Offtake dependant	Offtake dependent	Domestic & Export	Yes	Yes	Under development
Bell Bay Renewable Hydrogen/ Ammonia	Origin	Tasmania	Renewables (undefined)	500	n/a	Ammonia	1200 tpd Ammonia	Domestic & Export	Yes	Yes	Feasibility

# Overview of active and prospective hydrogen projects

Project name	Company	Location	Power Source	Plant Size (MW)	Scalable Plant size (MW)	Output	Volume (TPA)	Market	Open to investment	Seeking offtake	Status
CQ-H <sub>2</sub>	Stanwell	Queensland	Renewable electricity	280	2,100	Hydrogen + Liquid Hydrogen	36,500 – 292,000 (0.29mmtpa)	Domestic & Export	Yes	Yes	Pre-FEED
Western Green Energy Hub	WGEH Pty Ltd	Western Australia	Wind + Solar	50,000	50,000	Hydrogen + Ammonia	3.50mmpta	Domestic & Export	Yes	Yes	Under Development
H2TAS	Woodside	Tasmania	Wind, Hydro	<300	1700	Ammonia + Local Hydrogen	550 tpd Phase 1 Ammonia	Domestic & Export	Yes	Yes	Under development
H2Perth	Woodside	Western Australia	Natural gas, solar, wind	250	3000+	Ammonia + potentially liquid hydrogen	2700 tpd Phase 1 Ammonia	Domestic & Export	Yes	Yes	Under development
Yuri Green Ammonia Project	Yara	Western Australia	Wind, solar	400 (2010)	1500	Ammonia	2,000 – 5,000,000	Domestic & Export	Yes	Yes	Feasibility



# Project summaries

# ATCO: Clean Energy Innovation Park

ATCO's Clean Energy Innovation Park (CEIP) will establish Australia's first commercial scale renewable hydrogen supply chain, including a 10MW electrolyser capable of producing up to 4.3 tonnes of hydrogen per day, along with storage and delivery to end users.

The CEIP will be co-located with the 180MW Warradarge Wind Farm in Western Australia's Mid-West, which will provide the renewable energy to power the electrolyser. Hydrogen generated will then be transported via truck to end users which could include industry, transport or blending into WA's gas distribution network.

## Project stakeholders

ATCO, Australian Gas Infrastructure Group (AGIG)

## Investor interest

Interested in talking to parties capable of partnering for export scale projects.

## Offtake interest

Interested in talking to parties capable of partnering for export scale projects.



### Project status

FEED



### Power source

Wind



### Plant size

10 GW



### Location

Warradarge, WA



### Near port/industrial precinct

No



### Estimated CAPEX

AUD ~\$50m



### Land requirement

30,000 km<sup>2</sup>



### Output

Pure hydrogen



### Output volume

4 TPD



### Open to investment

For additional phases and greenfield export project



### Seeking offtake

Open to additional offtake



### Timelines

Operating Q1 2024



### Market

Phase 1: 100% local consumption



### Government support

ARENA \$28.7m

# bp: Australian Renewable Energy Hub (AREH)

AREH plans to generate 26GW of combined solar and wind power in Western Australia. AREH offers a major decarbonisation opportunity for the Pilbara, an industrial region identified for having significant potential for emissions reductions through the greening of iron ore mining and processing, green steel production and diesel fuel displacement. At full scale, AREH is expected to be capable of producing around 1.6 million tonnes of green hydrogen or 9 million tonnes of green ammonia for domestic and export markets.

Situated on a 6,500-square kilometre site in the East Pilbara region, AREH will accommodate 26GW of wind turbines and solar photovoltaic panels. Outstanding wind and solar resources and large project scale will result in competitively priced renewable energy with a high-capacity factor.

AREH plans to make a significant contribution to Australia and the wider Asia Pacific region's energy transition.

### Project stakeholders

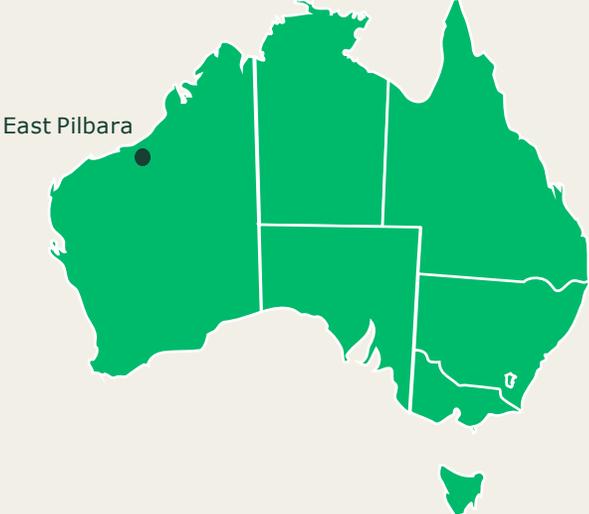
bp, Intercontinental Energy, CWP Global, Macquarie Capital and Macquarie's Green Investment Group

### Investor interest

Interested in talking to parties capable of partnering for export scale projects

### Offtake interest

Large scale export customers  
Australian hydrogen project showcase



### Project status

Under development



### Power source

Wind + solar



### Plant size

26 GW Renewables



### Location

East Pilbara, WA



### Near port/industrial precinct

Port Hedland



### Land requirement

6,500 km<sup>2</sup>



### Output

Hydrogen + Ammonia



### Output volume

Hydrogen: 1.6m TPA  
Ammonia: 9m TPA



### Seeking offtake

Yes



### Timelines

First green electrons delivered end 2027



### Market

Domestic + Export

# bp: Geraldton Export-Scale Renewable Investment (GERI)

bp is progressing plans for a green hydrogen project "GERI". GERI will be a phased development with an electrolyser, powered by green electrons, that we see supplying green hydrogen and clean energy to help decarbonise existing industry and supply chains, whilst potentially delivering a range of new low-carbon opportunities for the Mid West and beyond.

Land has been allocated at the Oakajee Industrial Area, in Western Australia's Mid West. The region is known for its abundant wind and solar renewable resources, making GERI's location ideal for producing green hydrogen.

We are working with the State and Federal Government to advance the development of shared infrastructure such as a new port and transmission to enable supply of clean energy domestically and internationally.

Renewable energy and hydrogen from Project GERI could help decarbonise industry across the Southwest of WA, supplying domestic customers and complementing the bp Kwinana Energy Hub.

## Project stakeholders

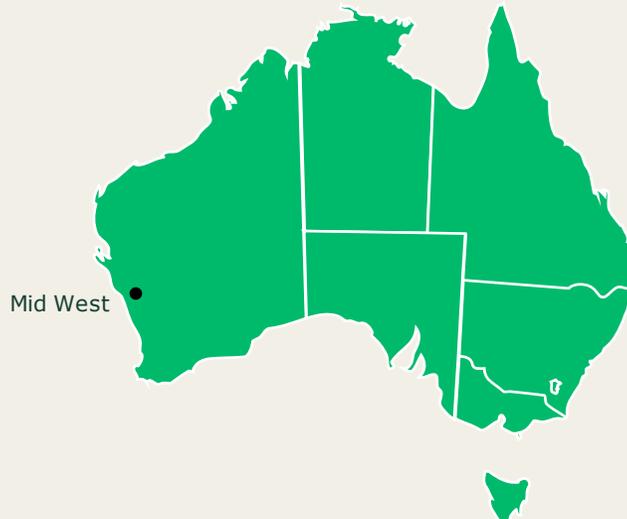
bp 100%

## Investor interest

Interested in talking to parties capable of partnering for export scale projects

## Offtake interest

Large scale export customers



## Project status

Planning



## Power source

10GW Wind + solar



## Plant size

GW scale renewables



## Location

Oakajee, WA



## Near port/industrial precinct

Shared infrastructure proposed



## Industrial Land

Oakajee Industrial Area



## Output

Hydrogen, Power



## Timelines

Phased through to 2030s



## Market

Domestic + export

# bp: H2Kwinana - Kwinana Energy Hub

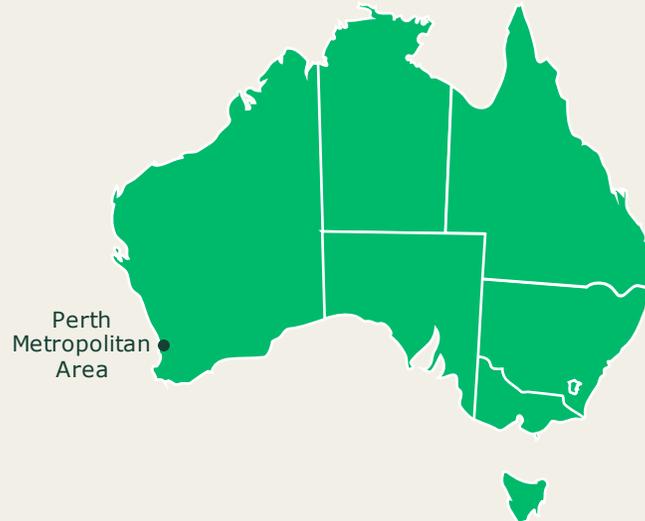
bp is transitioning its former oil refinery in Kwinana into an integrated energy hub.

Subject to internal and Government approvals, the site plans to host a biorefinery that will produce and supply reduced carbon fuel products, including sustainable aviation fuel (SAF), renewable diesel and bio-Naphtha.

The H2Kwinana project proponents are undertaking a feasibility study, supported by the WA Government, investigating the repurposing of part of bp Australia's Kwinana site into a hydrogen hub. The hub will include installation of an electrolyser of at least 75 megawatts, hydrogen storage, compression and truck loading facilities, and upgrades to bp's existing on-site hydrogen pipeline. The hydrogen produced will support domestic and export demand, including hydrogen supply for bp's renewable fuels production, energy hub customers, on-site gas blending and hydrogen for heavy duty transport.

## Project stakeholders

H2Kwinana - bp, Macquarie Capital and Macquarie's Green Investment Group



### Project status

Feasibility



### Power source

Grid connected - green power



### Plant size

Stage 1 at least 75MW, with growth potential.



### Location

Perth Metropolitan Area, WA



### Near port/industrial precinct

Kwinana



### Land requirement

Secured



### Output

Green hydrogen



### Output volume

Min 75MW electrolyser



### Market

Domestic + Export

# Copenhagen Infrastructure Partners: Murchison hydrogen project

The Murchison Hydrogen Renewables Project is located on Murchison House Station, in the mid-west region of Western Australia, approximately 650km north of Perth.

The project will use a combined 5 GW of onshore wind and solar generation, plus 3GW electrolysis to produce 100% renewable green hydrogen and ammonia. 2 million tonnes of green ammonia will be produced per annum for export, as well as the potential for domestic green hydrogen or ammonia offtake.

The project has been granted Lead Agency Status by the Western Australian Government and aligns with State and Federal government hydrogen strategies for the creation of a new green hydrogen industry.

### Project stakeholders

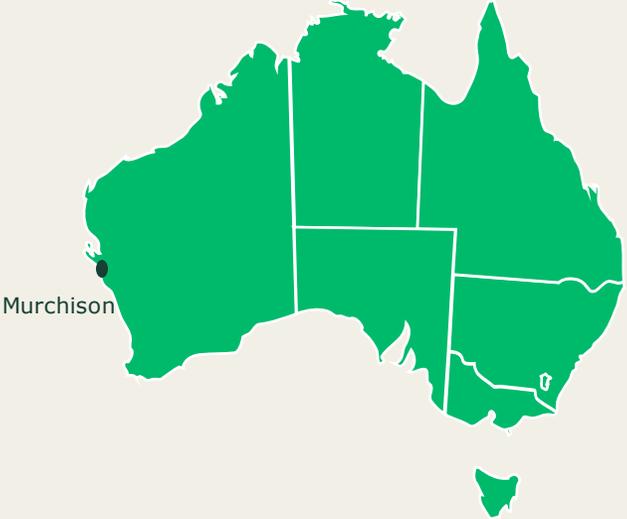
Copenhagen Infrastructure Partners, Hydrogen Renewables Australia (HRA) Pty Ltd

### Investor interest

Danish fund manager CIP is developing the project

### Offtake interest

Large-scale ammonia buyers leading the energy transition



**Project status**  
Pre-FID



**Output**  
Green ammonia



**Power source**  
Wind + solar



**Output volume**  
2m tonnes green ammonia (~300,000 tonnes H2)



**Plant size**  
Solar 1.5 GW  
Wind 3.7 GW  
Electrolysis: 3GW



**Open to investment**  
Yes



**Location**  
Murchison, WA



**Seeking offtake**  
Yes



**Near port/industrial precinct**  
Will develop own loading facility



**Timelines**  
Construction: 2025  
Commercial operation: 2030



**Estimated CAPEX**  
AUD >\$12b



**Market**  
Domestic + export



**Land requirement**  
80,000 - 100,000 HA

# Edify Energy: Edify Green Hydrogen (EGH2)

Edify Energy is a leading Australian renewable energy company with extensive experience in project development, project design and engineering, financing, construction management and asset management of renewable energy and storage projects across Australia. Edify has developed, financed and delivered into operation six large-scale solar farms (771MWp) and a 25MW / 50MWh battery to date (~AUD \$1.5B deployed) with a strong pipeline of projects under development.

Edify Green Hydrogen (EGH2) is a 1 GW green hydrogen production facility to be built out in stages to meet the needs of growing domestic and export markets, together with a behind-the-meter solar photovoltaic and battery storage facility.

The project is strategically located within the Lansdown Eco-Industrial precinct with existing infrastructure including adjacent gas pipeline, water access, high-voltage powerlines and both road and rail access direct to the deep-water Port of Townsville.

## Project stakeholders

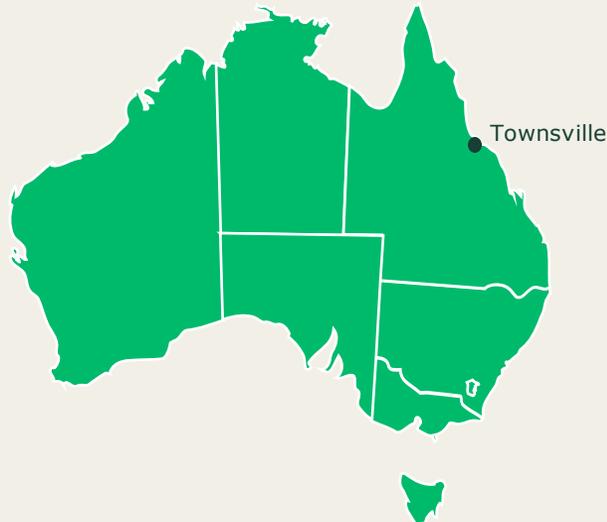
Edify Energy, Port of Townsville, Townsville City Council

## Investor interest

A motivated partner (industrial or financial) who shares a vision of the potential, both domestic and international, of EGH2 and their strategic location in North Queensland.

## Offtake interest

As EGH2 can be delivered in many stages of different MW capacities up to 1GW, there is flexibility with respect to offtake arrangements.



### Project status

Under development



### Power source

Renewable electricity (behind the meter)



### Plant size

Demonstration: 20MW  
Full capacity: 1 GW



### Location

Townsville, Qld



### Near port/industrial precinct

Lansdown Eco-Industrial Precinct



### Estimated CAPEX

Demonstration: \$80m  
1GW: \$1.2b



### Land requirement

107 HA



### Output

Hydrogen / offtake dependant



### Output volume

Up to 150,000 tpa



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

FID: H2 2023  
Construction: H2 2023  
COD: H2 2025



### Market

Domestic + export

# FFI: Bell Bay gH1

Fortescue Future Industries Pty Ltd (FFI) is investigating the potential development of a 250-megawatt (MW) renewables-based hydrogen plant at the Bell Bay Advanced Manufacturing Zone with associated green ammonia production capacity of around 250,000 tonnes per annum. The produced ammonia would supply Australian domestic and international markets.

FFI, IHI Engineering Australia and IHI Corporation have signed a MoU for investigation into establishing green ammonia supply chains between Australia and Japan. The parties are to jointly assess the economic and technical feasibility of supplying green ammonia produced in Bell Bay and transported to Japan for blending into existing power generation.

FFI had signed an Option Agreement with Tasmanian Ports Corporation Pty Ltd (TasPorts) to exclusively negotiate all land and operating access requirements for the project.

## Project stakeholders

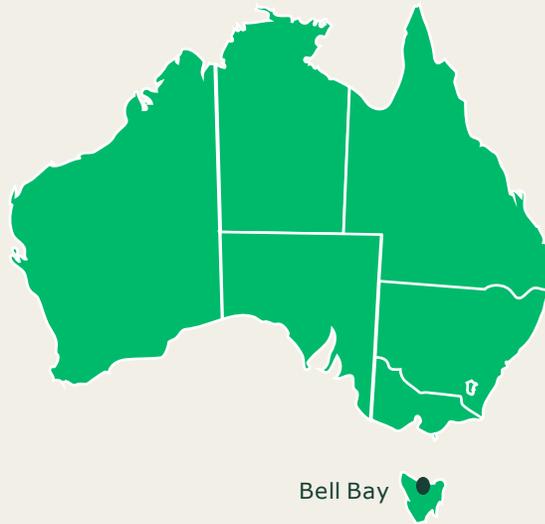
Fortescue Future Industries

## Investor interest

Interested in export component and offtake.

## Offtake interest

Industry – factory or manufacturing plant heating gas or mobile applications – marine, rail or road transport.



### Project status

Feasibility



### Power source

Wind + Hydro



### Plant size

250 MW



### Location

Bell Bay, TAS



### Near port/industrial precinct

Bell Bay Advanced Manufacturing Zone and port



### Estimated CAPEX

TBA



### Land requirement

25 ha – stage 1+2



### Output

Green Ammonia



### Output volume

250,000 TPA



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

FID: 2023



### Market

Domestic + Export

# FFI: Gibson Island Green Hydrogen Conversion

The Incitec Pivot Gibson Island site in Brisbane manufactures nitrogen based fertiliser products, including ammonia, urea, ammonium sulphate and carbon dioxide using natural gas as the principal site feedstock. Gibson Island despatches approximately 550,000 tonnes of fertilisers each year.

Subject to a positive FID, the project envisages that Fortescue Future Industries would construct an on-site water electrolysis plant and develop and operate the hydrogen manufacturing facility, with Incitec Pivot operating the ammonia manufacturing facility. The electrolysis facility would produce up to 70,000 tonnes of renewable hydrogen per year and be a complete replacement of Gibson Island's current natural gas feedstock. The renewables-based green hydrogen would then be converted into approximately 400,000 tonnes of green ammonia for Australian and export markets.

## Project stakeholders

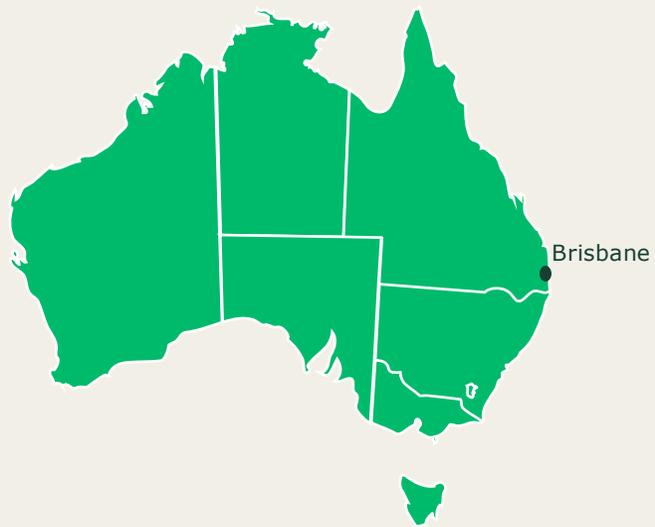
Fortescue Future Industries,  
Incitec Pivot Limited

## Investor interest

Interested in export component and offtake.

## Offtake interest

Industry – factory or manufacturing plant heating gas or mobile applications – marine, rail or road transport.



### Project status

FEED



### Power source

Grid sourced renewable energy



### Plant size

550 MW



### Location

Brisbane, QLD



### Near port/industrial precinct

Gibson Island and Port of Brisbane



### Estimated CAPEX

TBA



### Land requirement

n/a



### Output

Green Ammonia & Fertiliser



### Output volume

Hydrogen: 70,000 TPA



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

FEED: 2022  
COD: TBD



### Market

Domestic + Export

# FFI: The Hunter Valley Industrial Clean Energy Hub

Fortescue Future Industries (FFI) and AGL Energy have agreed to undertake a feasibility study to repurpose infrastructure at the Hunter Valley's Liddell and Bayswater coal-fired power station sites to generate green hydrogen.

The Liddell coal generator is due to close in 2023 with Bayswater running into next decade. Successful repurposing of these sites will supercharge NSW to meet its target of halving its emissions by 2030, and prove the role of green hydrogen in decarbonising energy and industry in Australia.

Pending the feasibility study's outcomes, initial green hydrogen production through new wind and solar could be 250MW, generating 25,000 tonnes of green hydrogen per year. The site has the existing capacity to reach gigawatt scale dependant on feasibility.

## Project stakeholders

Fortescue Future Industries,  
AGL Energy

## Investor interest

Interested in export component  
and offtake.

## Offtake interest

Industry – onsite energy hub,  
factory or manufacturing plant,  
heating, gas network or mobile  
applications – marine, rail or  
road transport.



### Project status

Feasibility



### Power source

Wind + Solar



### Plant size

250 MW



### Location

Hunter Valley, NSW



### Near port/industrial precinct

Liddell Power Station &  
Port of Newcastle



### Estimated CAPEX

TBA



### Land requirement

n/a



### Output

Green Hydrogen &  
Ammonia



### Output volume

Hydrogen: 25,000 TPA /  
Ammonia: 150, 000 TPA



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

FS: End 2022



### Market

Domestic + Export

# FFI: Uaroo Renewable Energy Hub

Fortescue Future Industries (FFI), has lodged environmental documents with the West Australian (WA) Environmental Protection Authority (EPA) for the potential development of the Uaroo Renewable Energy Hub in the state's Pilbara region.

Uaroo and Emu Creek Pastoral Stations are located 120 kilometres south of Onslow, in the Pilbara region of Western Australia.

Subject to a final investment decision, the Uaroo Renewable Energy Hub could provide stationary renewable electricity and energy to power Fortescue Metals Group's (Fortescue) mining operations in the Pilbara to support the Company's decarbonisation targets, with the opportunity to expand and support export as well.

## Project stakeholders

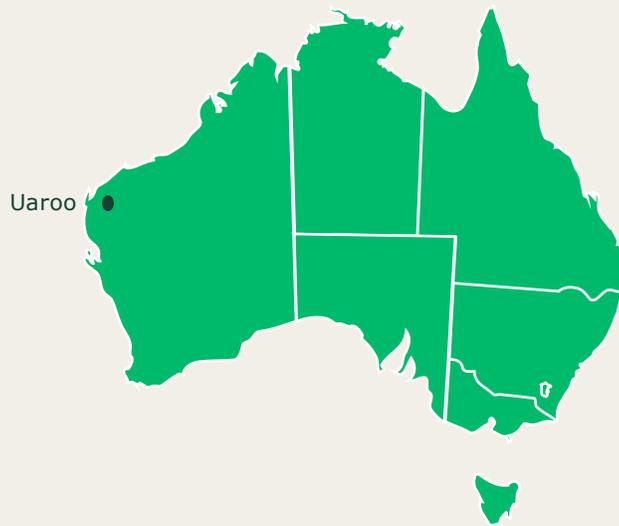
Fortescue Future Industries

## Investor interest

Interested in export component and offtake.

## Offtake interest

Industry – factory or manufacturing plant heating gas or mobile applications – marine, rail or road transport.



### Project status

Feasibility



### Power source

Solar: 3.3 GW

Wind: 2.0 GW Wind



### Plant size

250 MW +



### Location

Pilbara, WA



### Near port/industrial precinct

Ashburton & Dampier / Pilbara mining operations



### Estimated CAPEX

TBA



### Land requirement

10,000



### Output

Green Hydrogen

Green Electrons



### Output volume

TBA



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

TBA



### Market

Domestic + Export

# H2U: H2 Hub Gladstone

The H2-Hub is an industrial scale green hydrogen/ammonia production facility located at Yarwun, Queensland, near the port of Gladstone, integrating up to eight industrial scale process trains. The project will initially establish three process trains (Activation Stage) focused on import replacement and early stage exports. The project will later expand to eight process trains as the export market demand grows during the expansion stage.

H2 Hub Gladstone is one of two projects operated by H2U, the other being the Eyre Peninsula Gateway in SA. The site at Yarwun has been secured by a sale of land agreement with the Queensland Minister for Economic Development. The facility will be connected by pipeline infrastructure to fisherman's wharf at Gladstone port.

## Project stakeholders

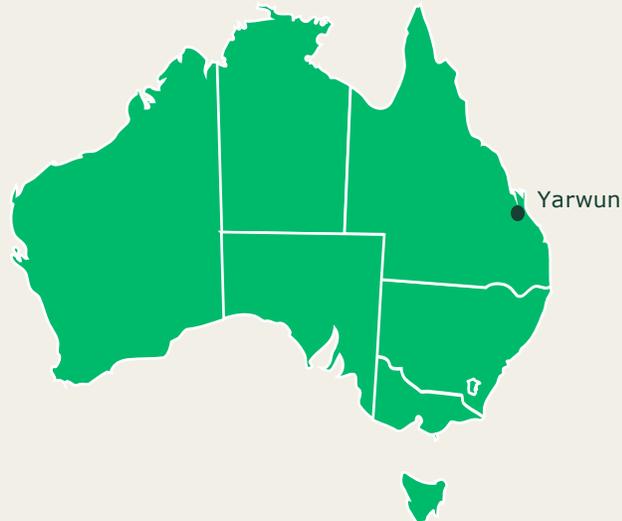
H2 Investments, Hydrogen Utility Pty Ltd, Mitsubishi Heavy Industries

## Investor interest

Seeking a partner that can provide a strategic alignment and value to the project through market access, technology, risk management, or provide joint services, or capital aggregation.

## Offtake interest

Partners in the energy, transport and manufacturing sectors interested in long term price certainty and a 10-15 year offtake.



### Project status

Development



### Power source

Wind + solar



### Plant size

Activation stage:  
1,500 MW

Expansion stage:  
3,000 MW



### Location

Yarwun, Qld



### Near port/industrial precinct

Port of Gladstone



### Estimated CAPEX

AUD \$4.77b



### Land requirement

TBA



### Output

Renewable ammonia + hydrogen



### Output volume

**Activation stage:**  
2,400 TPD ammonia +  
100 TPD hydrogen

**Expansion stage:**  
4,800 TPD ammonia +  
120 TPD hydrogen



### Open to investment

At this stage, 60% is available for additional equity investment



### Seeking offtake

Yes



### Timelines

Activation stage: Q4 2025

Expansion stage: CY 2035



### Market

~70% export, ~30% domestic

# H2U: Eyre Peninsula Gateway

The Eyre Peninsula Gateway project is located in Cultana, South Australia. It is to be established in two stages; initially through the Green H2/NH3 Supply Chain Demonstrator (Demonstrator Stage), a commercial scale facility designed to meet existing domestic industrial use for ammonia in the region. Stage two will support export market development activities.

The facility can be expanded to host a larger green hydrogen/ammonia production complex – integrating up to four industrial-scale process trains – an export terminal and connecting pipeline infrastructure, developed to supply the export market (Export Stage). The production precinct is located on industrial zoned land at Cultana on the Eyre Peninsula, South Australia and connected by a pipeline infrastructure corridor to the port precinct at Port Bonython.

## Project stakeholders

Hydrogen Utility Pty Ltd,  
Mitsubishi Heavy Industries

## Investor interest

Seeking a partner that can provide a strategic alignment and value to the project through market access, technology, risk management, or provide joint services, or capital aggregation.

## Offtake interest

Partners in the energy, transport and manufacturing sectors interested in long term price certainty and a 10-15 year offtake.



### Project status

Development



### Power source

Wind + solar



### Plant size

100MW – 1,500 MW



### Location

Cultana, SA



### Near port/industrial precinct

Connected by pipeline to Port Bonython



### Estimated CAPEX

AUD \$2.81b



### Land requirement

TBC



### Output

Ammonia + hydrogen



### Output volume

At completion:  
2,400 TPD ammonia +  
additional hydrogen up  
to 100 TPD



### Open to investment

At this stage, 60% is  
available for additional  
equity investment



### Seeking offtake

Yes



### Timelines

COD: Demonstrator  
stage: Q2-Q4 2023  
Export stage: Q3 2025



### Market

Domestic and  
(primarily) export

# Japan Susio Energy: Hydrogen Energy Supply Chain (HESC)

Australia's most advanced clean hydrogen project, the Hydrogen Energy Supply Chain (HESC) project in Victoria, has entered the commercial demonstration phase with the commitment of JPY220 billion (approximately AUD\$2.35 billion) in funding from the Japanese Government's Green Innovation Fund.

The funds will be delivered via the Japan Susio Energy (JSE) comprising Kawasaki Heavy Industries and Iwatani Corporation. A newly formed J-POWER and Sumitomo Corporation Joint Venture (JPSC JV) will supply 30,000 tonnes of clean hydrogen gas per year, to a JSE owned and operated liquefaction and shipping facility at the industrial Port of Hastings.

This major injection of capital enables JSE to design and build commercial scale facilities to liquefy and ship the hydrogen from Port of Hastings to the Port of Kawasaki in Japan, bringing significant economic benefits to Victoria and Hastings in particular.

## Project stakeholders

Japan Susio Energy (JSE),  
J-Power, Sumitomo Corporation

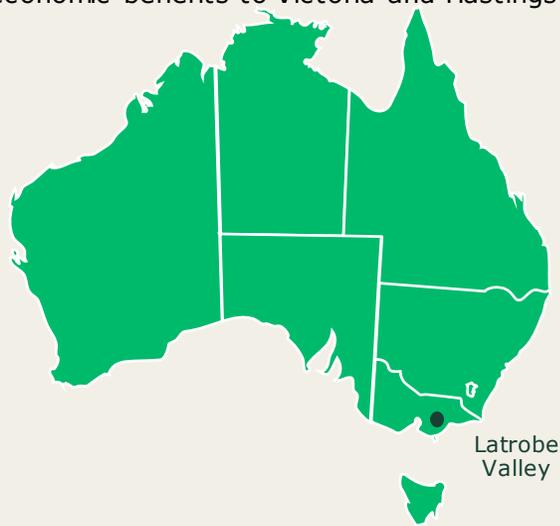
## Investor interest

Interested in talking to parties capable of partnering for both hydrogen and derivatives export and domestic-use industries.

## Offtake interest

Large creditworthy customer  
(e.g. electricity company)

Australian hydrogen project showcase



### Project status

Pilot complete and will proceed with the Pre-FEED/FEED of the commercial demonstration phase



### Power source

Renewables (H2 from coal gasification with CCUS.)



### Plant size

TBA



### Location

Latrobe Valley, VIC  
(Gasification)



### Near port/industrial precinct

The Port of Hastings, VIC  
(liquefaction/Loading for pilot phase)



### Estimated CAPEX

Commercial in confidence



### Land requirement

TBA



### Output

Liquefied hydrogen and gaseous hydrogen



### Output volume

30,000-40,000 TPA



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

Pilot: Complete (2022)  
Commercial demonstration:  
to start by late 2020's



### Market

Domestic + Export



### Government Support

Japanese Government:  
(approx. AUD\$2.35b)  
Australian, Victorian  
Governments: TBC

# Neoen: Goyder renewable energy zone

The Goyder renewable energy zone is located in Burra, South Australia. Goyder Renewables Zone is a large hybrid renewable energy project proposed for the area around Burra and is part of a new generation of projects that combine wind with solar and battery storage to provide renewable energy 24/7.

The Zone consists of 2 separate projects: Goyder North (north of Burra), and Goyder South (south of Burra).

Opportunities for hydrogen production and export from Port Pirie (100km away) and Port Bonython (150km away) supplied by renewable energy from Goyder are under consideration.

### Project stakeholders

Neoen Australia

### Investor interest

Neoen is particularly interested in investors for the non-wind and solar components of the project.

### Offtake interest

Domestic and export



### Project status

Under development



### Power source

Expansion Under Development

Wind: 1.2 GW  
Solar: 600 MW  
BESS: 900 MW



### Plant size

400 MW +  
(offtake dependent)



### Location

Burra, SA



### Near port/industrial precinct

No, but possible to export from Port Bonython



### Estimated CAPEX

Offtake dependent



### Land requirement

Under Agreement



### Output

Offtake dependent: H2, MCH or ammonia



### Output volume

Offtake dependent



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

FID: late 2023  
Construction: mid-2024  
COD: mid 2027



### Market

Offtake dependent but focus is on export

# Origin: Bell Bay Renewable Hydrogen

Origin Energy has completed a feasibility study in constructing a large-scale renewables-based hydrogen and ammonia plant with a planned production rate of 420,000 tonnes of ammonia per annum. The plant is proposed to be located in the Bell Bay Advanced Manufacturing Zone in Tasmania.

The feasibility study assessed the plant designed to enable flexible operation, with an estimated electrical load of more than 500 megawatts (MW).

While the main focus of the project would be the production of renewables-based ammonia for export, some of the produced hydrogen and ammonia would be made available for domestic use.

The project proponent is targeting Front End Engineering Design (FEED) studies to commence in 2023.

## Project stakeholders

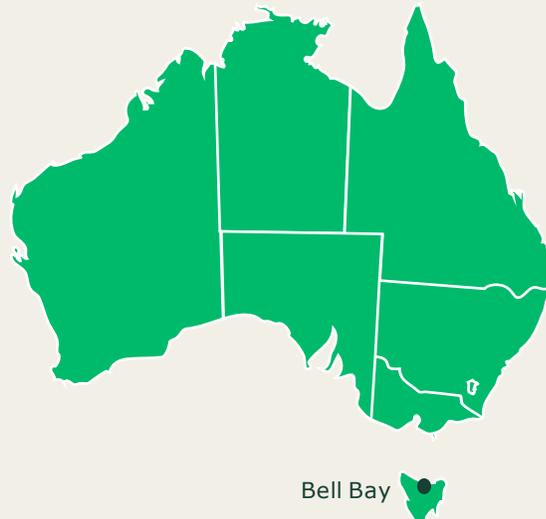
Origin Energy

## Investor interest

Seeking a partner that can provide value to the project through market access, technology, risk management, or provide joint services, or capital aggregation.

## Offtake interest

Customer with demand for hydrogen in their own operations or customer base initially. They would have an incentive to incur a price premium for renewable hydrogen.



### Project status

Feasibility study completed



### Power source

Renewable energy (undefined)



### Plant size

>500 MW



### Location

Bell Bay, Tasmania



### Near port/industrial precinct

Bell Bay manufacturing zone + port



### Estimated CAPEX

TBC



### Land requirement

TBC



### Output

Renewable hydrogen/ammonia



### Output volume

1,200 TPD ammonia



### Open to investment

Yes



### Seeking offtake

Yes



### Timelines

Offtake dependent



### Market

Export and domestic

# Stanwell: CQ-H<sub>2</sub> Project

The CQ-H<sub>2</sub> project is a large-scale renewable hydrogen supply chain project located in Central Queensland. The proposed project includes a large-scale renewable hydrogen production facility at Aldoga near Gladstone and a liquefaction plant at the Port of Gladstone. The proposed project will produce renewable hydrogen via electrolysis using 100% renewable energy supply.

As a Queensland State Government owned corporation, Stanwell has also received support of the Queensland Government for the delivery of the feasibility study. The intention for the project is to produce renewable hydrogen gas that will be liquefied at the port for shipping to Japan, as well as servicing local offtakers such as ammonia.

### Project stakeholders

Stanwell Corporation, Iwatani Corporation, Kawasaki Heavy Industries, Kansai Electric Power Company, Marubeni, APA Group



**Project status**  
Pre-FEED



**Power source**  
100% renewable



**Plant size**  
Phase 1: 280 MW  
Phase 2: 2,100 MW  
(Electrolyser size)



**Location**  
Gladstone, Qld



**Near port/industrial precinct**  
Gladstone state development area, Port of Gladstone



**Estimated CAPEX**  
Phase 1: AUD \$2.6b  
Phase 2: AUD \$9b



**Land requirement**  
~121 HA (for hydrogen production only)



**Output**  
Hydrogen  
Liquid hydrogen



**Output volume**  
Phase 1: ~100 tpd  
Phase 2: ~800 tpd



**Open to investment**  
Possible for phase 2



**Seeking offtake**  
Yes



**Timelines**  
FID: 2024  
Construction: 2024  
COD: 2027



**Market**  
Domestic + export



**Government support**  
ARENA, Japanese Ministry of Economy, Trade and Industry (METI), Queensland Government

# Intercontinental Energy: Western Green Energy Hub

The project is located on Mirning Traditional owner lands, primarily in the Shire of Dundas and also the City of Kalgoorlie, in Western Australia SE Goldfields. It involves an ultra-scale hybrid wind and solar development, planned to be built in phases to meet domestic and export hydrogen/ammonia demand.

The hybrid wind and solar project could produce up to 50 gigawatts (GW) of renewable-based power over 15,000 square kilometres.

At full operations the project could annually produce 3.6 million tonnes of renewable-based hydrogen or around 20 million tonnes of (renewable-based) ammonia. The output would supply both domestic and export markets as the 'green fuels' market continues to expand post-2030.

## Project stakeholders

Intercontinental Energy, CWP H1, Mirning People

## Investor interest

Interested equity investment and partners that can bring value added expertise....

## Offtake interest

Large scale green hydrogen or ammonia importer looking to decarbonise operations.



## Project status

Under Development



## Power source

Wind + Solar



## Plant size

50 GW



## Location

SE Goldfields,  
West of Eucla



## Near port/industrial precinct

Own Export



## Estimated CAPEX

~US\$70B



## Land requirement

15,000 km<sup>2</sup>



## Output

Green Hydrogen &  
Ammonia



## Output volume

3.5mtpa Green  
Hydrogen/ annum



## Open to investment

Yes



## Seeking offtake

Yes



## Timelines

FID: 2027  
FEED: 2025/6  
COD: from 2030  
onwards

## Market

Domestic + Export



# Woodside: H2TAS

Woodside has a proposed renewable ammonia and hydrogen production facility in the Bell Bay area of Tasmania. H2TAS is planned to be a phased development, targeting an initial capacity of up to 550 tonnes per day of ammonia. Ammonia would be produced through electrolysis, utilising a combination of wind and hydroelectric power. Woodside continues to evaluate the cost and schedule impacts of the renewable power solutions that would enable to project to progress. Woodside is operator and holds a 100% participating interest.

H2TAS is one of 19 Australian projects participating in the design trials for the Australian Government's proposed Guarantee of Origin Scheme for hydrogen.

## Project stakeholders

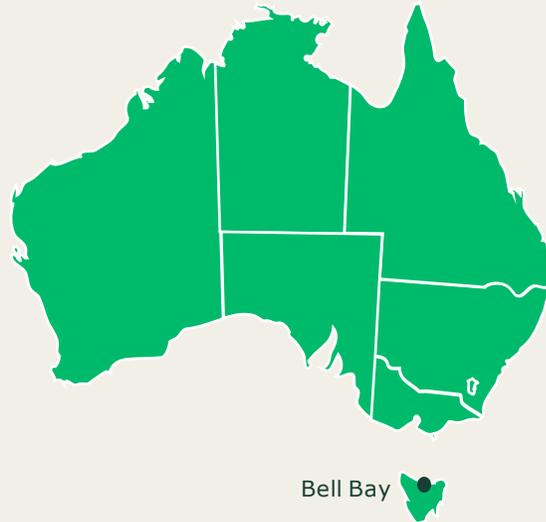
Woodside, Marubeni Corporation, IHI Corporation

## Investor interest

Large scale, creditworthy, willing to underwrite offtake or materially assist with reducing cost of supply

## Offtake interest

Large scale, creditworthy, ammonia customer (e.g., chemical company).



## Project status

Under development



## Power source

Wind + hydro



## Plant size

Up to 300 MW (phase 1), scalable to 1.7GW



## Location

Austrak Business Park, Long Reach, near Bell Bay, Tasmania



## Near port/industrial precinct

Bell Bay Advanced Manufacturing Zone



## Estimated CAPEX

Not public



## Land requirement

~70 Ha, Land access arrangements in place



## Output

Renewable ammonia + hydrogen



## Output volume

550 tpd of ammonia + hydrogen for local consumption



## Open to investment

Yes



## Seeking offtake

Yes



## Timelines

FID: End 2023



## Market

Export (primary) + domestic

# Woodside: H2Perth

H2Perth is a proposed hydrogen and ammonia production facility to be located in Perth, Western Australia. Phase 1 of the project is targeting up to 2,700 tonnes per day of ammonia produced through both gas reforming and electrolysis. It is targeting supply to local industry and international users. Subsequent phases have the potential to expand to 8,900 tpd by increasing the electrolysis component. Pre front-end engineering design commenced in May 2022. Woodside is operator and holds a 100% participating interest.

Woodside intends for H2Perth to be net zero from the start of operations, using a combination of renewable electricity, offsets and carbon capture, utilisation and storage technologies.

H2Perth is one of 19 Australian projects participating in the design trials for the Australian Government's proposed Guarantee of Origin Scheme for hydrogen.

## Project stakeholders

Woodside

## Investor interest

Large scale, creditworthy, willing to work with Woodside

## Offtake interest

Large scale, creditworthy, ammonia or liquid H2 customer



## Project status

Under Development



## Power source

Natural gas + grid electricity, with renewable electricity targets



## Plant size

65 TJ/d + up to 250 MW (Phase 1), scalable to 3GW+



## Location

Rockingham Industry Zone, Perth, Australia



## Near port/industrial precinct

Western Trade Coast (Kwinana Bulk Jetty)



## Estimated CAPEX

Not public



## Land requirement

130ha, land access arrangements in place



## Output

Ammonia and potentially liquid hydrogen



## Output volume

2,700 tpd ammonia (Phase 1), potential to increase to 8,900 tpd



## Open to investment

Yes



## Seeking offtake

Yes



## Timelines

FID: 2024

Construction: following FID

Operation: 2027



## Market

Export (primary) + domestic

(proposed onsite refuelling station for heavy and passenger vehicles)

# Yara: Yuri Green ammonia project

Yara Pilbara is partnering with leading French utility company ENGIE to develop the Yuri Green Ammonia Project (Project Yuri) in Karratha, in Western Australia's northwest. The initial phase of the project (Phase 0) is a hydrogen-to-ammonia plant integrated with the existing Yara Pilbara fertilisers plant.

Project Yuri will first deliver renewable hydrogen into Yara Pilbara's ammonia operations. The output of Phase 0 is hydrogen which will then be used in Yara's conventional steam methane reforming (SMR) ammonia plant. During Phase 1 and beyond, the output will be ammonia for use in current markets, vessel and rail fuel, power generation and downstream crop nutrition products.

## Project stakeholders

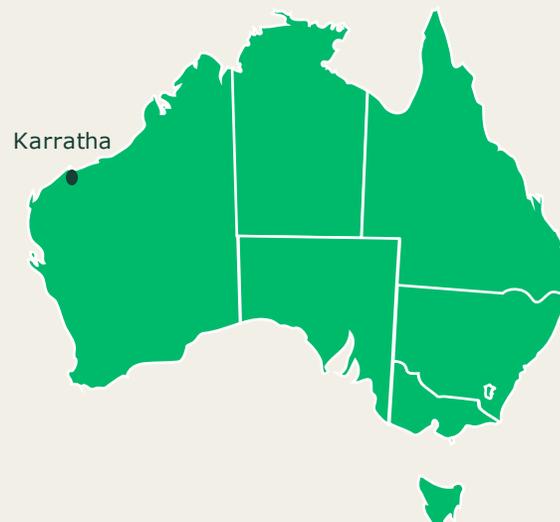
Yara, Engie

## Investor interest

A trading house with an existing significant presence in the market. Offtaker looking for equity investment in production.

## Offtake interest

Initial offtake will be for existing ammonia production. Beyond this seeking local or global customers with willing to pay green price premium.



## Project status

Phase 0 - Construction



## Power source

Phase 0: solar  
Phase 1-3: wind + solar



## Plant size

Phase 0: 10MW  
Phase 1: 1 GW  
Phase 2: 2 GW +



## Location

Karratha, WA



## Near port/industrial precinct

Burrup Strategic Industrial Estate/  
Port of Dampier



## Estimated CAPEX

AUD >\$2b per phase



## Land requirement

~50 HA



## Output

Ammonia + hydrogen



## Output volume

Phase 0: 640tpa (H2)  
Phase 1: up to 5m tpa



## Open to investment

Yes



## Seeking offtake

Yes, in negotiation



## Timelines

Phase 0 COD: 2024  
Phase 1 COD: 2027



## Market

Domestic first + export



## Government support

ARENA: \$47.5m  
WA Hydrogen Fund: \$2m

# Contact us

## Thank you for your interest

Austrade welcomes the opportunity to discuss these projects and can facilitate tailored introductions to project proponents in Australia.

Please speak with your local Austrade representative to discuss further. If you do not have a contact, please find your nearest Austrade investment specialist

here: [www.austrade.gov.au/international/invest/investment-specialists](http://www.austrade.gov.au/international/invest/investment-specialists)

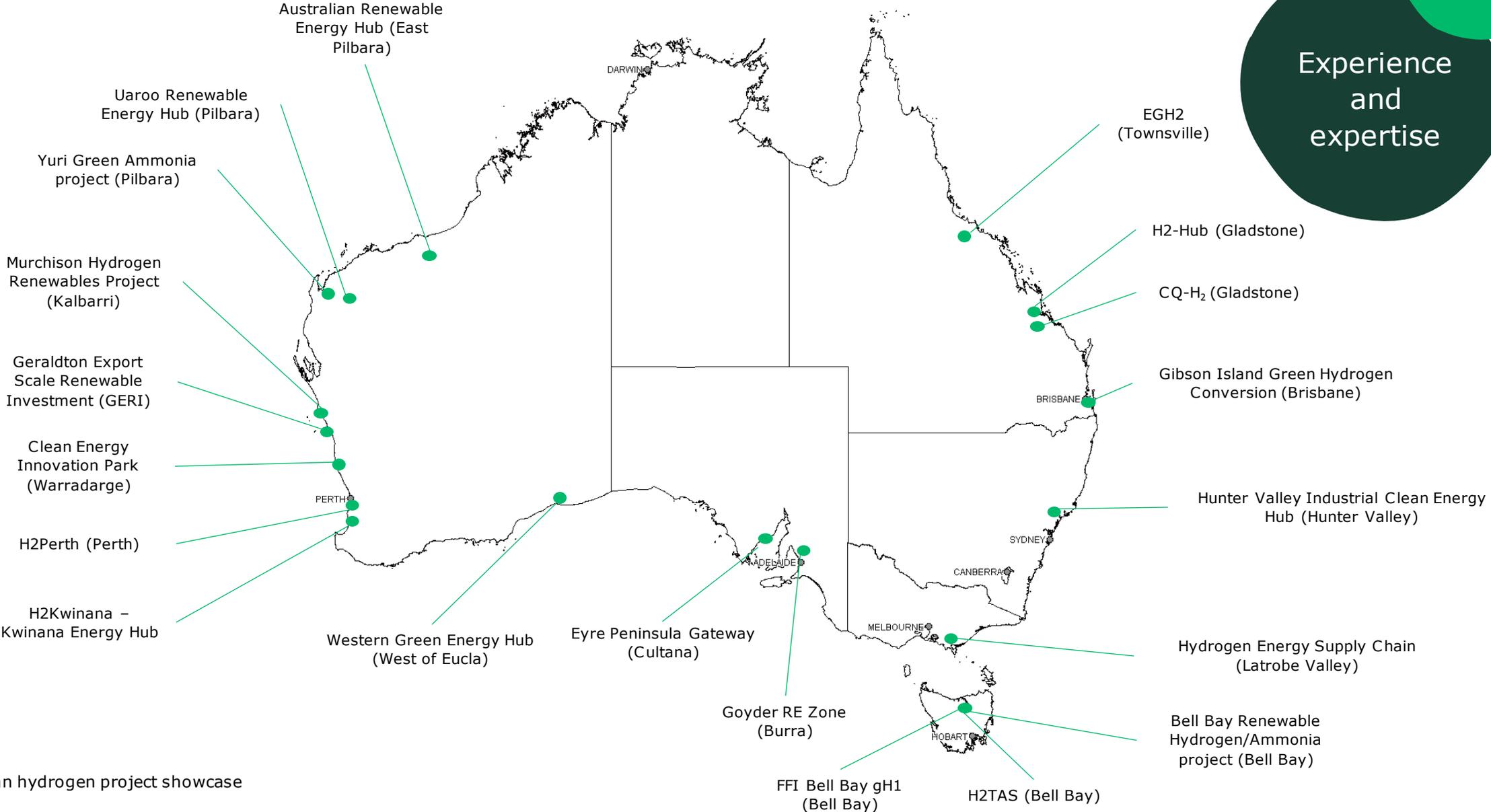
Alternatively please reach out to Joel Smouha (Senior Advisor, Hydrogen) who can connect you with your local representative.

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# Key hydrogen projects in Australia





AUSTRALIA