



PORT KEMBLA HYDROGEN HUB

INVESTMENT PROSPECTUS - July 2024



www.portkemblahydrogenhub.com.au



VISIT OUR WEBSITE

Global Leader

Port Kembla is a global leader in the **transition** to a **net zero** future powered by **hydrogen** and **renewable energy**.

Australia's first heavy vehicle **hydrogen refuelling station** is enabling a range of **zero emissions** vehicle trials.

Port Kembla has **5GW+ (1,500 tonnes/day)** of potential **green hydrogen production capacity** based on surplus **recycled water** feedstock.

Offshore wind offers the potential for up to **2.9GW** of **renewable energy** generation.
Australia's first hydrogen capable power station

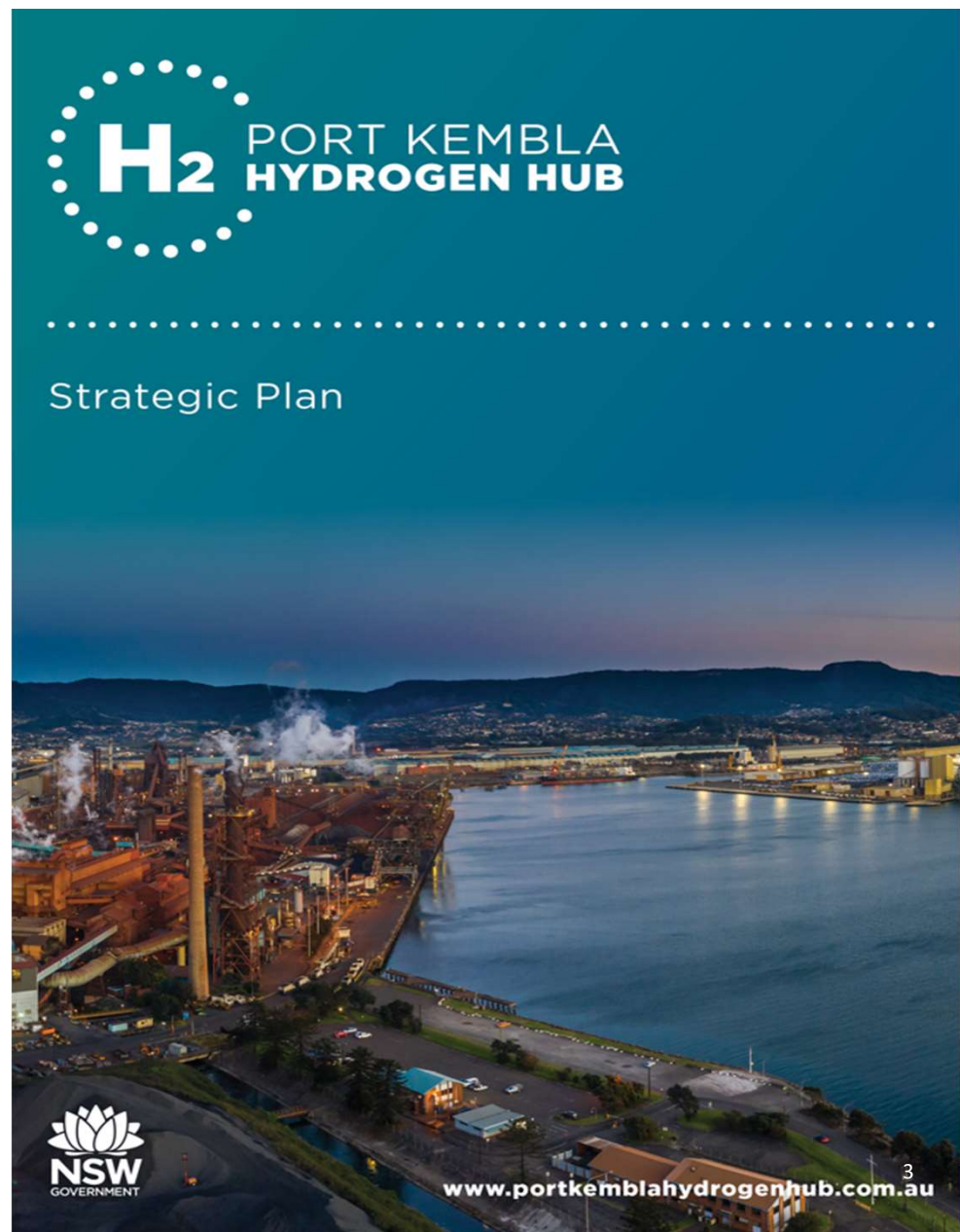


Hydrogen Hub Vision

Port Kembla - Australia's first **5GW+ green hydrogen hub** to service domestic and export markets by 2030

The ambitious **Vision** of creating Australia's first **5GW+ green hydrogen hub** is being realised with over **\$750m+** in supportive **major energy projects** to be completed by the end of 2024 and nearly **1.7GW** of **green hydrogen projects** proposed.

Port Kembla's superiority as a **hydrogen hub** is driven by significant **opportunities** for **green hydrogen** usage in **industry, heavy road transport, power generation, gas network injection and exports.**



H₂ PORT KEMBLA HYDROGEN HUB

Future Mobility Day #6
27 June 2024

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Key Strategies

The **Vision** of creating Australia's first **5GW+ green hydrogen hub** is being achieved through the implementation of the following **key strategies**:

Strategy #1 - Facilitate major energy projects that create new renewable energy infrastructure to enable large scale green hydrogen production and usage

Strategy #2 - Support technology demonstration projects that leverage existing infrastructure, build scale, develop new skills and link industry with research

Strategy #3 - Educate the community to generate public trust and confidence in green hydrogen and to help build the social licence to operate.

BOC and **ATCO** have proposed plans for large scale **green hydrogen** production at Port Kembla. These projects complement the existing **Coregas** facility that produces low carbon **grey hydrogen**.

Coregas launches Australia's first hydrogen refuelling station for heavy transport vehicles



JULY 25, 2023



PRESS RELEASE

GE Technology to Power Australia's First Dual-Fuel Gas and Hydrogen Power Plant

June 16, 2021

Major Energy Projects

By the end of 2024, **\$750m+** of supportive **major energy projects** will transform the world class **Port Kembla Hydrogen Hub ecosystem**. These projects include:

- **Coregas H2 Station** that opened in **July 2023** is Australia's first hydrogen **heavy vehicle refueller** and is enabling a range of **heavy vehicle trials**
- **Jemena Port Kembla Gas Pipeline Duplication** completed in **January 2024** has delivered increased hydrogen capable **gas network capacity**
- **EnergyAustralia Tallawarra B** and upgraded **Tallawarra A** are Australia's first dual fuel **hydrogen capable power stations**
- **Squadron Energy LNG Import Terminal** will deliver Australia's first **gas importation facility**

Hydrogen Hub Ecosystem

Port Kembla has a world class hydrogen hub ecosystem. Recycled water from a co-located wastewater treatment plant is already used for pure and by-product hydrogen production.

Pure hydrogen is produced at Port Kembla by Coregas from the steam methane reforming of natural gas. By-product hydrogen from coal pyrolysis is generating electricity to help power steel making at the BlueScope Port Kembla Steelworks.

The opportunity is to utilise electrolyser technology and the recycled water feedstock to produce green hydrogen. Based on available recycled water feedstock, there is 5GW+ (1,500 tonnes/day) of potential hydrogen production capacity.

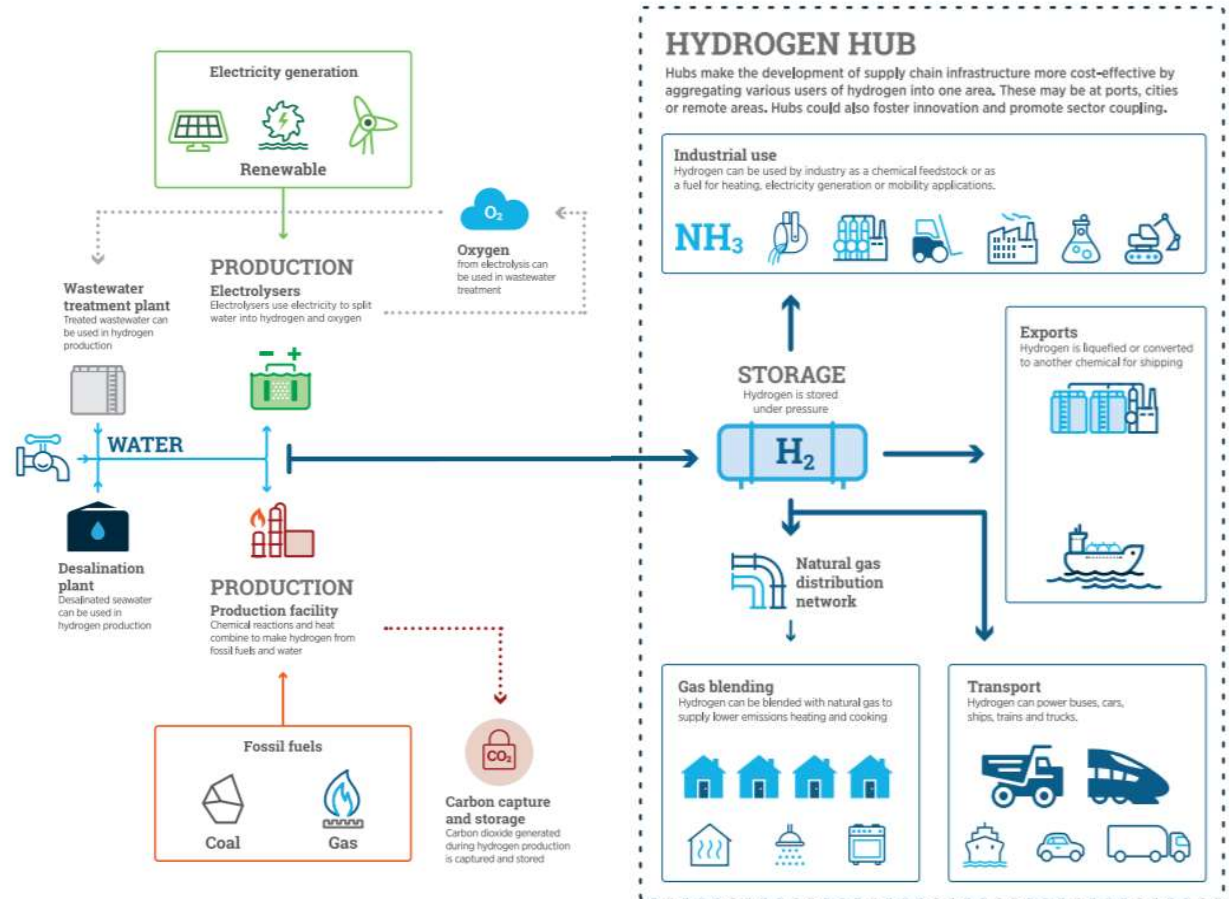


Image: National Hydrogen Strategy Report – COAG Energy Council 2019

Strategic Location

Port Kembla is a major industrial seaport on the **east coast of Australia**. It is **strategically** located just over an hour by road south of **Sydney** and its **International Airport**. Port Kembla is part of **Wollongong**, a **modern vibrant city** with a population of over **200,000 people**.

Port Kembla has a **30+ year** demonstrated track record in **hydrogen production** and nearly a century of **heavy industry** expertise. Low carbon **hydrogen** made from **natural gas, recycled water** and **renewable energy** at Port Kembla is already used for **transport mobility** and **industrial applications** around Australia.

Port Kembla has **5GW+ (1,500 tonnes/day)** of potential **green hydrogen production capacity** based on available surplus **recycled water** feedstock. **Offshore wind** offers the potential for large renewable energy generation.



Strategic Alignment

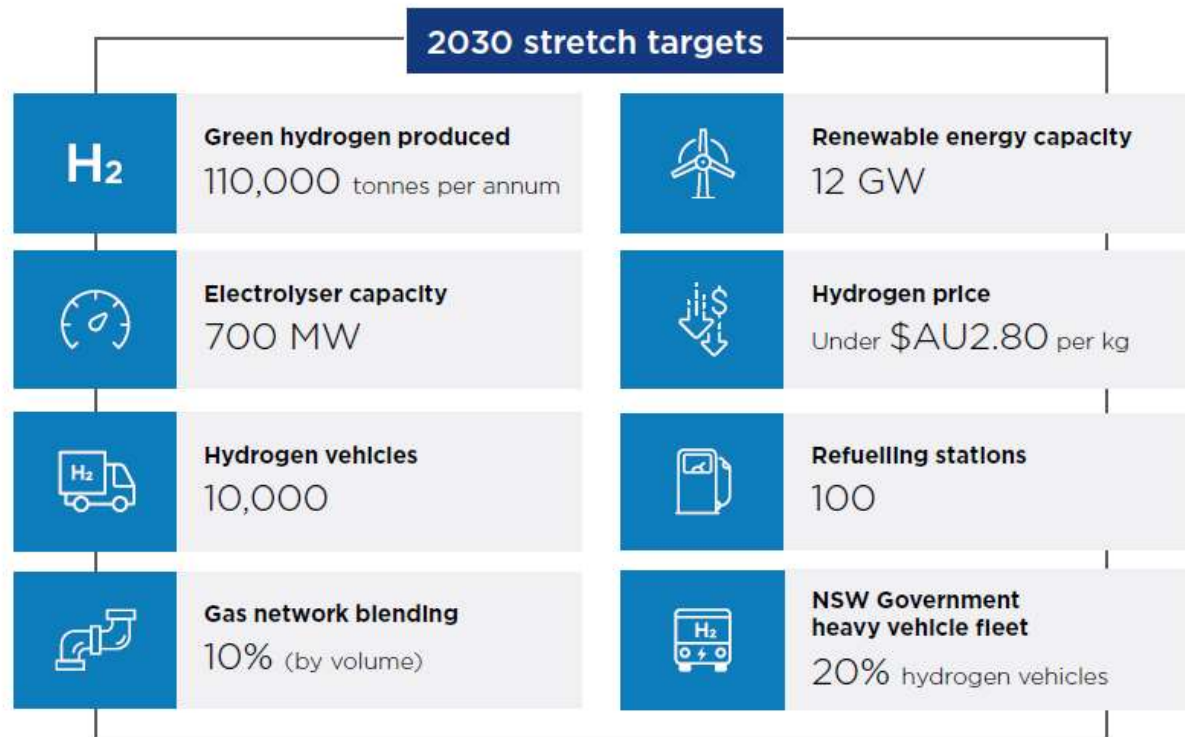
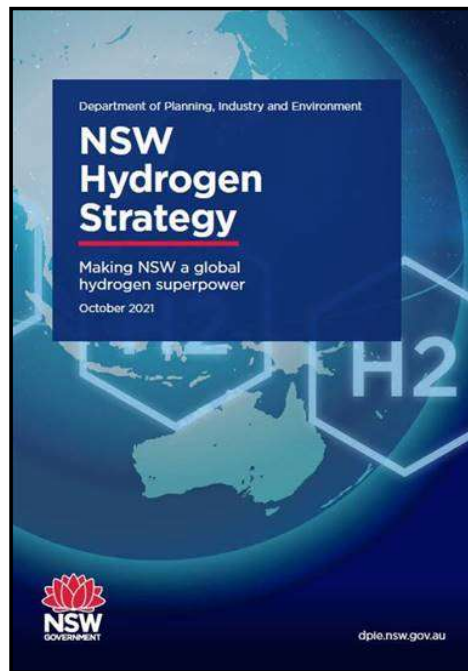
The **Vision** and **Key Strategies** of the **Port Kembla Hydrogen Hub** are consistent with the principles of the **National Hydrogen Strategy (2019)** and **NSW Government** policy initiatives including the **NSW Hydrogen Strategy** released in September 2021.



NSW Hydrogen Strategy (2021)

NSW - global hydrogen superpower

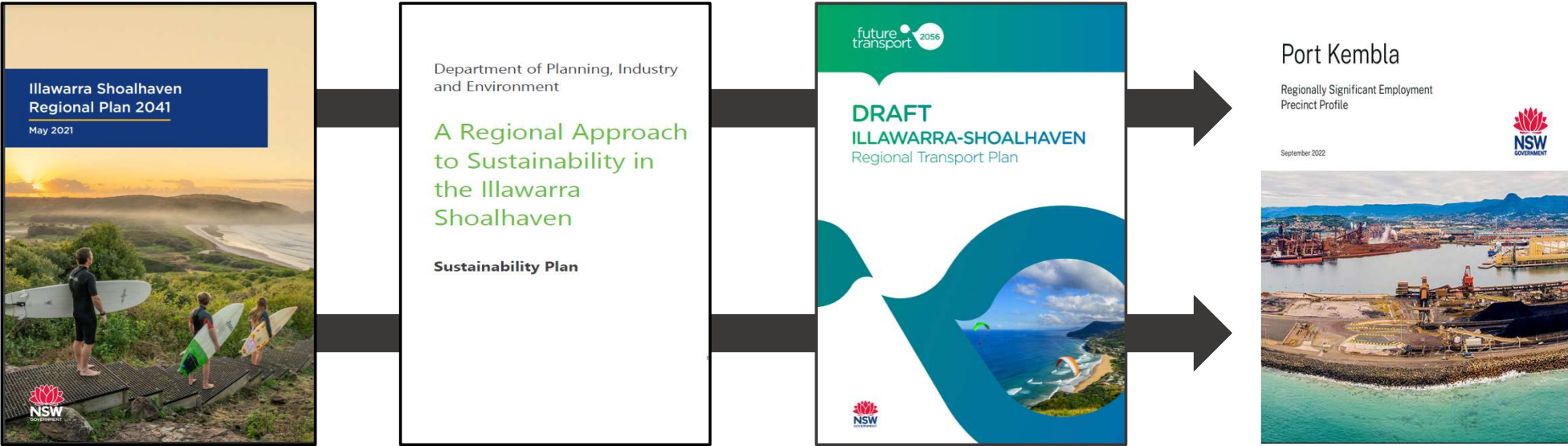
The **\$3 billion NSW Hydrogen Strategy** builds on the principles of the **National Hydrogen Strategy (2019)** and related **NSW Government** policy initiatives and sets out a range of **stretch targets for 2030** including **green hydrogen** production, **electrolyser** capacity and hydrogen **price** under **\$AUD2.80/kg**.



Regional Strategies

The **Port Kembla Hydrogen Hub Vision and Key Strategies** also align with **Illawarra Shoalhaven Regional Plan, NSW Ports - Port Kembla Master Plan, Port Kembla Precinct Profile and Regional Transport Plan.**

These plans cite the key role of **green hydrogen** in the region's **decarbonisation** journey and transition to a **zero emissions** future.

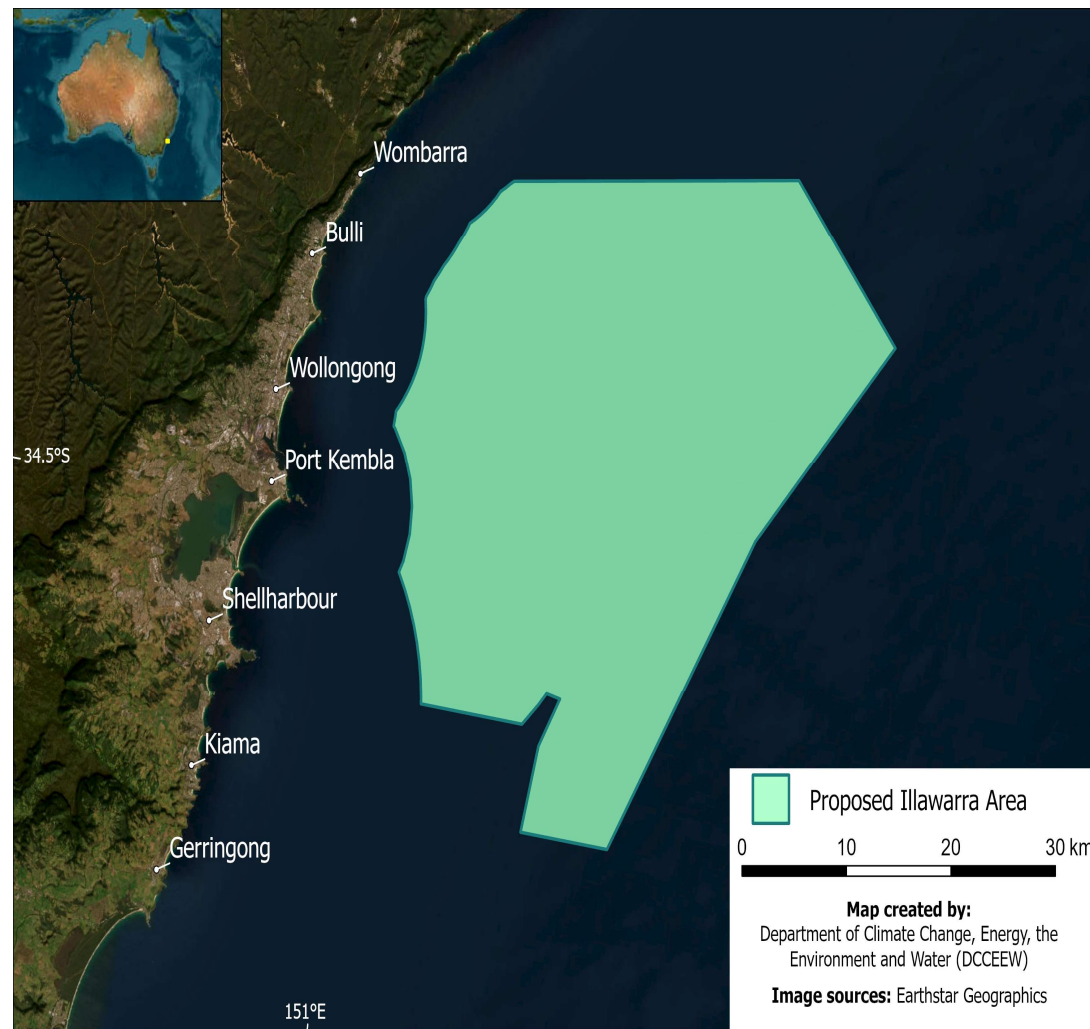


Renewable Energy and Offshore Wind Zones

The **NSW Government** has declared the Illawarra region a **Renewable Energy Zone (REZ)**. An **EOI process** in 2022 generated **44 projects** representing **\$43 billion** in potential investment. **Projects** included **green hydrogen** production and **renewable energy generation** from both **onshore** and **offshore wind farms**.

In **August 2023**, the proposed **Illawarra Offshore Wind Zone** was announced by the Australian Government. Covering **1,461 square kilometres**, the Offshore Wind Zone has the potential to generate **4.2GW** in **renewable energy**.

NSW Ports have released **concept plans** for a dedicated **30 hectare precinct** to support the **offshore wind** industry's development at Port Kembla.



Green Hydrogen Project #1 - BOC

BOC has released plans to produce **green hydrogen** through **electrolyser technology** at their Port Kembla **industrial gas facility**.

The **initial phase** of the **project** involves **daily production capacity** of **4 tonnes** of green hydrogen using a **10MW electrolyser**.

The **BOC project** will support the **deployment** of up to **50 fuel cell electric heavy vehicles**, the largest deployment of its type in Australia. Long term plans include increasing **green hydrogen capacity** to **650MW** at the Port Kembla site.



Initial phase

4 tonnes

Renewable hydrogen produced per day

10 MW

Electrolyser capacity

110

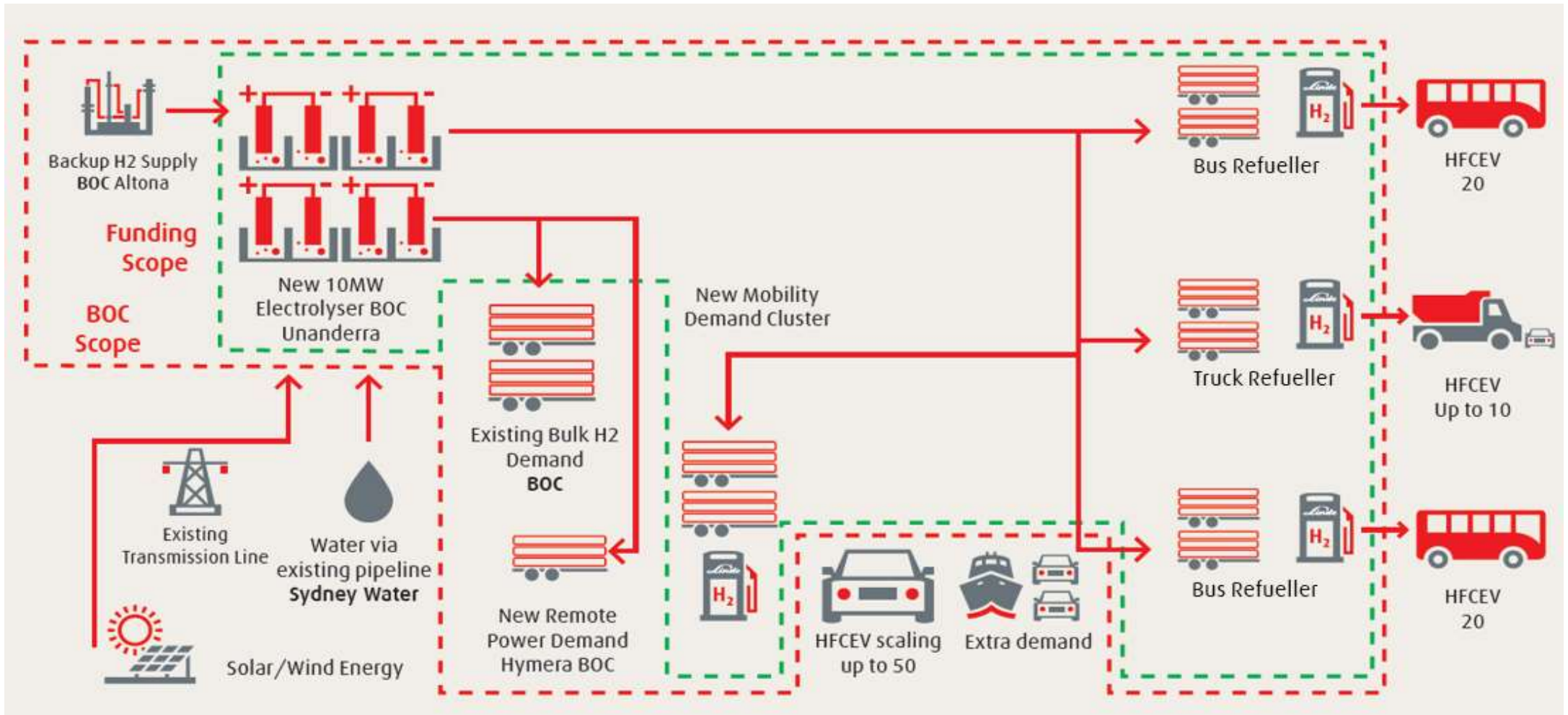
NSW jobs

Project aims

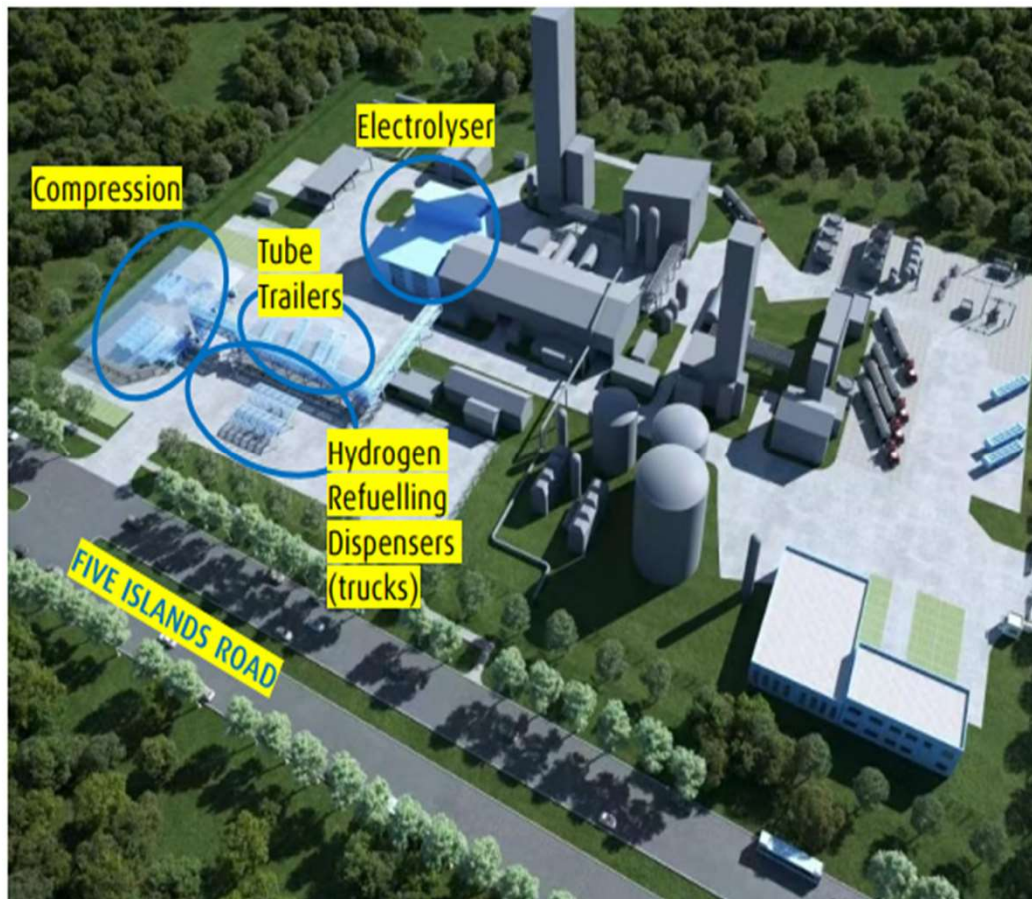
650 MW

Electrolyser capacity

Phase 1 Scope - BOC Port Kemba Green Hydrogen Project



BOC's Illawarra Hydrogen Technology Hub



Cost Estimate: \$140m
NSW Govt Funding: \$28.5m
2023

Daily Refuelling Capacity

BOC Truck Refueller:	800kg
Premier Bus Refueller:	1,500kg
Total	2,300kg

Green Hydrogen Project #2 - ATCO

ATCO have commenced a **feasibility study** to establish a **1GW green hydrogen** production facility at **Port Kembla**. The **study** is being funded by an **ARENA** grant as part of the **German-Australia HyGate** initiative.

The proposed **ATCO project** includes a green **ammonia plant** with **annual capacity** of **800,000 tonnes** with a focus on export to Germany.



PROJECT PARTNERS



ATCO

\$2 million hydrogen refuelling station opened – 28 July 2023

- Provides region with heavy vehicle refuelling solution with 400kg/day capacity
- Diesel equivalent refuelling times
- Remondis Refuse Truck - first vehicle to use facility
- Coregas Prime Movers (2) - delivery in 2024
- Utilises Haskel technology from UK
- Hydrogen price is \$13.50/kg price for FY24



Transport
Coregas Fleet



Coregas
Port Kembla Plant

Zero-emission hydrogen powered waste collection truck starts work in the Illawarra

REMONDIS Australia // 17 October 2023



A GREAT LEAP TOWARDS A **DECARBONIZED ENERGY FUTURE IN AUSTRALIA**

EnergyAustralia's Tallawarra B 316MW dual-fuel, gas and green Hydrogen power plant



1st natural gas + green Hydrogen dual-fuel peaker power plant in Australia



Utilizing GE's **decades of experience** in burning Hydrogen in gas turbines



Contributing to Australia's goals in delivering **up to 1GW dispatchable power** while ensuring transition to a lower carbon energy future



1st large scale heavy-duty gas turbine power project in Australia in 12 years



Supporting growth in renewables in the phase-out of coal-fired power generation



EnergyAustralia expects to contribute **AU\$300 million** to the economy and create **250 jobs** during the construction phase



1st GE 9F.05 gas turbine to generate reliable and affordable power in Australia



GE 9F Fleet ... **> 450 units** operating in 40 countries ... clocked over **24 million hours**



GE's F-class gas turbine portfolio is capable to burn H₂ from **5% to 100% by Vol levels**





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GE  91.17

PRESS RELEASE

EnergyAustralia Modernizes Tallawarra A Power Plant to Support Energy Transition in Australia

March 07, 2023

19

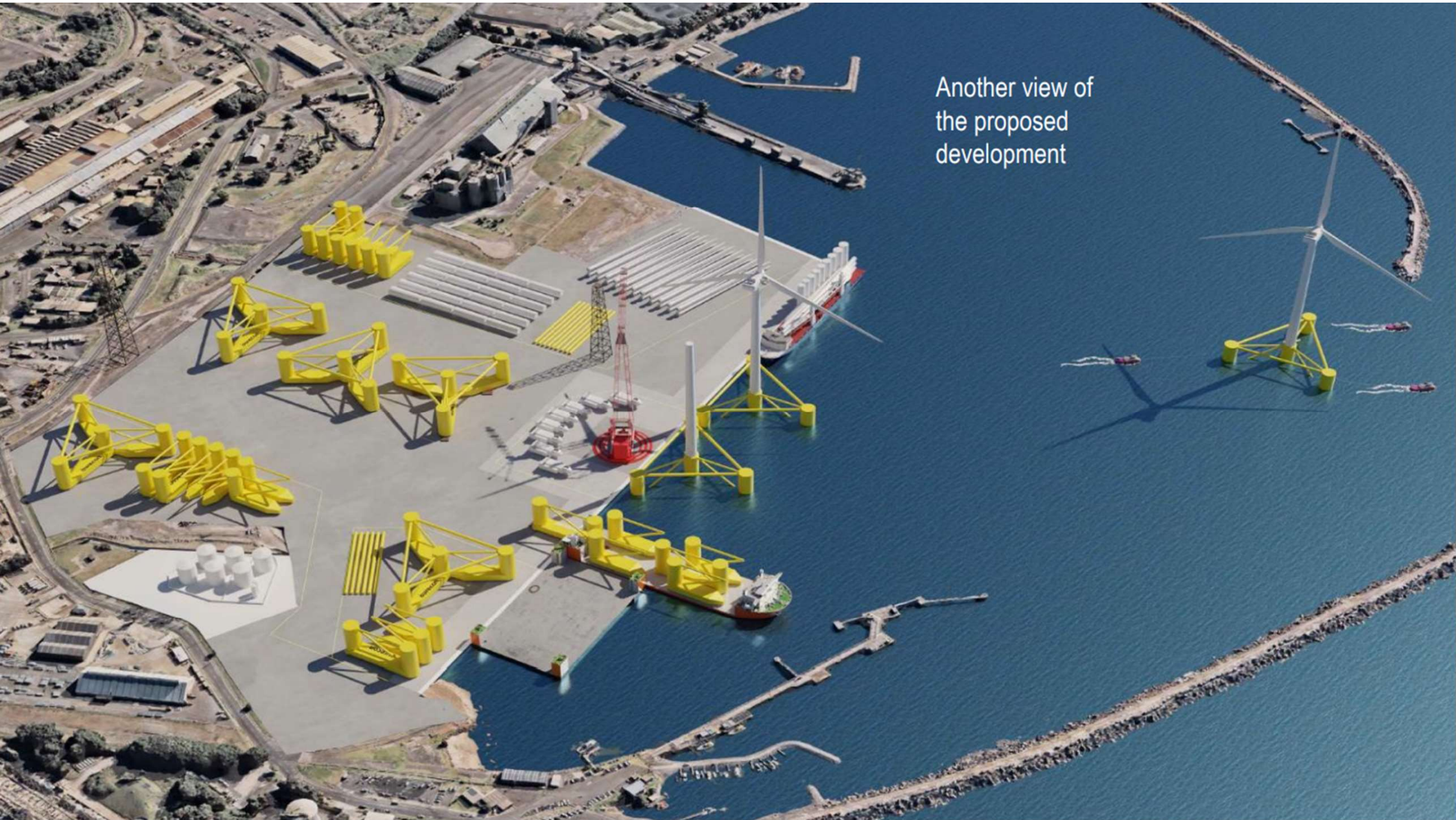
22 FEBRUARY 2023

Port Kembla lays foundation for offshore wind industry



Artist impression of the proposed offshore wind facility





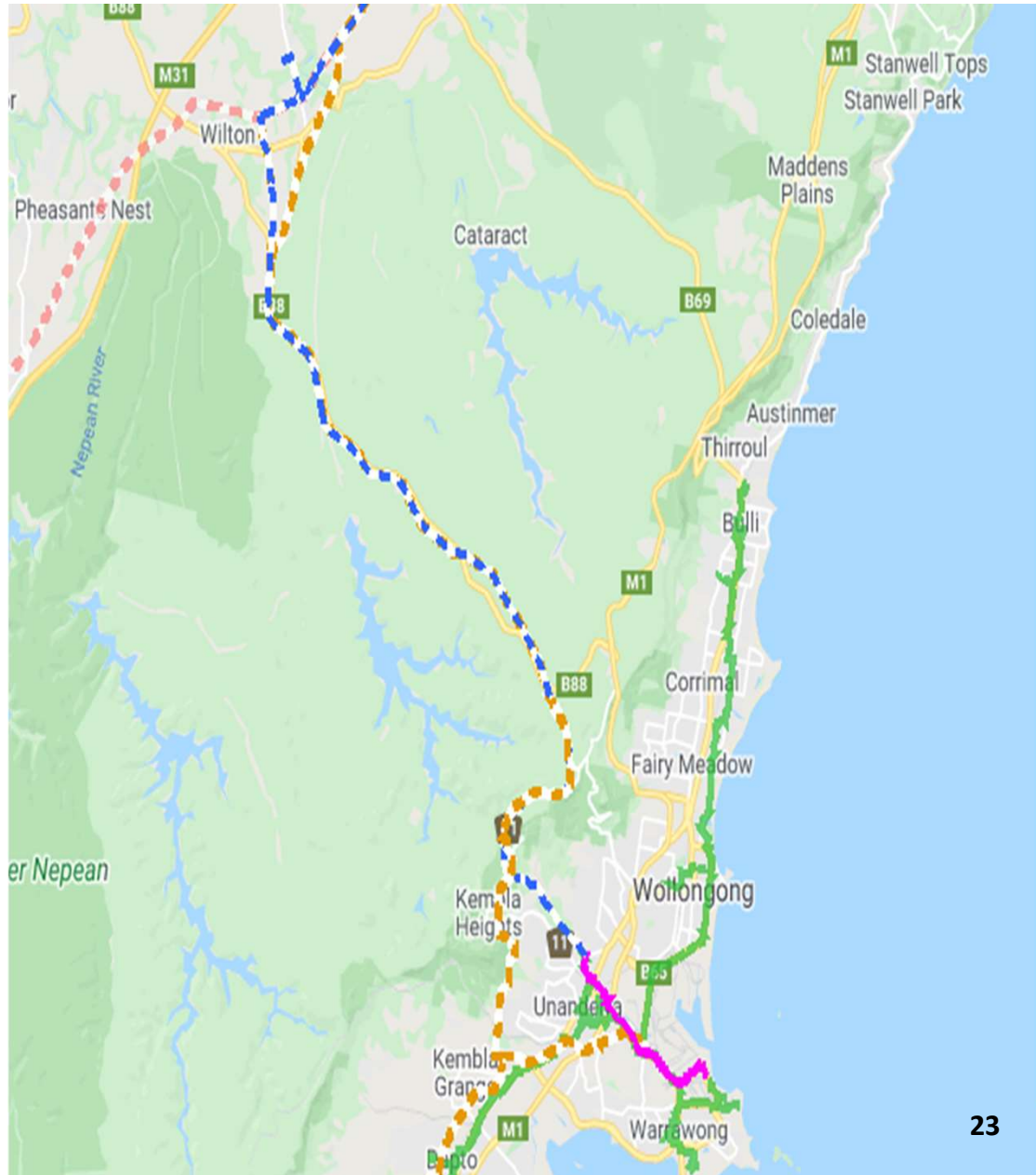
Another view of
the proposed
development

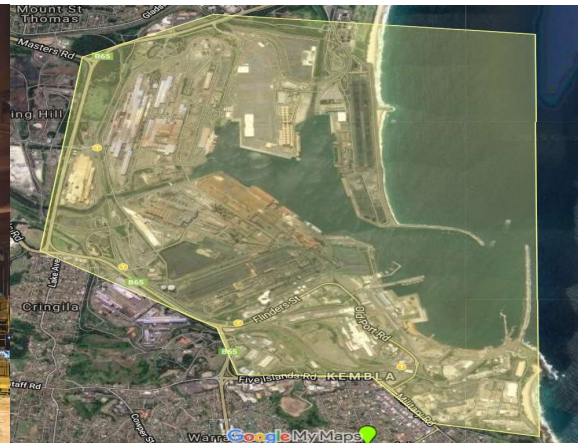
Port Kembla Hydrogen Pipeline

A key piece of **enabling infrastructure** for the **5GW+ Port Kembla Hydrogen Hub** is a **dedicated hydrogen pipeline**. The pipeline would act as a **large storage medium**, connecting **multiple production sites** and large scale **hydrogen users**.

The **hydrogen pipeline** would ensure **continuity of supply** and help **de-risk** individual projects.

The **NSW Government** is working with **Jemena** to assess options for the **reactivation** of an unused **40 kilometre high pressure steel pipeline**. A range of studies need to be undertaken to assess the **technical feasibility** of the proposed project.





Superior location for Australia's first 5GW+ scale hydrogen hub

WHY PORT KEMBLA

Advantage #1 - Feedstock: surplus recycled water from a co-located water treatment plant supports 5GW+ of electrolyser capacity with sufficient electricity infrastructure and renewable energy options for initial green hydrogen projects.

Advantage #2 - Demand: large scale potential uses in power generation, transport mobility, gas network injection, green steel production and export. Options for sector coupling to de-risk major projects and maximise existing and new enabling infrastructure.

Advantage #3 - Distribution: direct deepwater access for export with existing connections to North Asian markets; gas pipeline, road and rail access to major east coast markets that account for 80 percent of Australia's population and industrial base.

Advantage #4 - Ecosystem: heavy industrial precinct offers 24/7 operation, world class research, large skilled labour base, 30+ years of hydrogen production, handling and distribution experience with a supportive community and social licence to operate.

ADVANTAGE #1 - FEEDSTOCK



ADVANTAGE #1 - FEEDSTOCK

Feedstock: Large scale recycled water and renewable electricity options available to support 1,500 tonnes a day of hydrogen production.

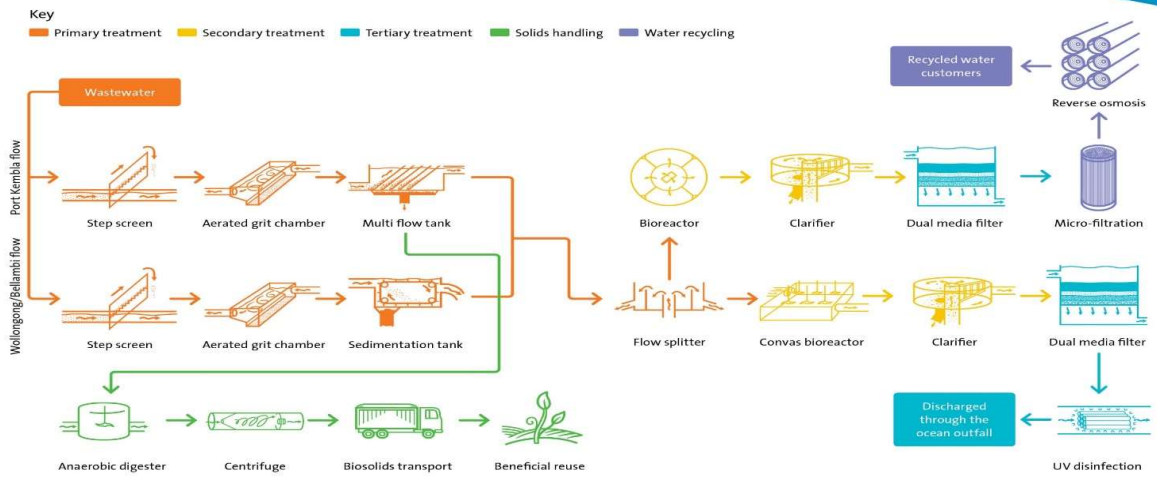
This figure equates to 5GW+ of green hydrogen electrolyser production capacity.

Recycled Water: Minimum supply of 15ML/day of recycled effluent water from the Wollongong Water Recycling Plant that is currently discarded through ocean outfall.

Renewable Energy: 132 KVA heavy voltage electricity network provides multiple renewable energy options for initial green hydrogen projects.

Proposed offshore wind projects could provide up to 4.2GW of renewable energy from 2030.

Wollongong Water Recycling Plant



Sydney WATER

ADVANTAGE #2 - DEMAND



Image: BlueScope Port Kembla Steelworks

ADVANTAGE #2 - DEMAND

Heavy Transport: Australia's first heavy road transport trial to be conducted at Port Kembla with some 7,000 prime movers involved in the region's freight task.

Industrial Processes: Large scale potential use in green ironmaking at the BlueScope Port Kembla Steelworks

Power Generation: Blended use in gas fired hydrogen capable Tallawarra A and B power stations

Gas Network Injection: Upgrades to the Eastern Gas Pipeline and Port Kembla Pipeline duplication provide opportunities for gas network injection to supply both NSW and Victorian markets

ADVANTAGE #3 - DISTRIBUTION



ADVANTAGE #3 - DISTRIBUTION

Road: service 80 percent of Australia's population and industrial markets within 24 hours through existing road networks. Port Kembla is connected to the Hume Motorway that links Sydney and Melbourne.

Gas Pipeline: Injection through the upgraded Eastern Gas Pipeline to service east coast residential and industrial users in Victoria and New South Wales.

Sea: Port Kembla is a major deepwater seaport that offers direct access to Japan, Korea and Singapore.

ADVANTAGE #4 - ECOSYSTEM



ADVANTAGE #4 - ECOSYSTEM

24/7 Operations - Port Kembla is a 1,400 hectare heavy industrial precinct that offers 24/7 unimpeded operations.

Hydrogen Experience - 30+ years of hydrogen production, storage and distribution expertise.

Heavy industry DNA - skilled labour pool of over 200,000 people. Community supports heavy industry including social licence to operate.

Innovation - collaboration opportunities with University of Wollongong (UOW) researchers. This includes UOW research centres such as the Future Fuels CRC and Facility for Intelligent Fabrication.

Manufacturing & Services

The **Port Kembla Hydrogen Hub** is supported by an **incredible array of engineering expertise and capabilities** from over **100 years** of heavy industry.

The University of Wollongong's **Facility for Intelligent Fabrication** links world class **research, prototyping, training and certification** to industry needs. Hydrogen pipeline specialists, the **Future Fuels CRC** are also located at the **University of Wollongong**.

With **30+ years** of hydrogen expertise, **Coregas** provided key technical services to the **\$500 million Hydrogen Energy Supply Chain** project in Victoria.

Wind tower fabrication, solar farm components and pilot electrolyser and gravitational energy systems are being assessed at the **BlueScope Port Kembla Steelworks**.



**Facility for
Intelligent Fabrication**

Research, prototyping, training and certification



ENABLING AUSTRALIA'S ENERGY TRANSITION

Initiatives focussed on sovereign manufacturing capability for renewable energy infrastructure

Plate Processing

- In operation
- Highly accurate laser and plasma processing capability

Plate Mill Modernisation

- Under assessment
- Increased efficiency and capability; additional heavy plate processing line

Wind Tower Fabrication

- Under assessment
- Industry advocacy to support third-party wind tower fabrication capability

PKSW Pipe and Tube Mill

- Under construction
- Ability to produce structural members for large-scale solar tracking assemblies

Solar Componentry

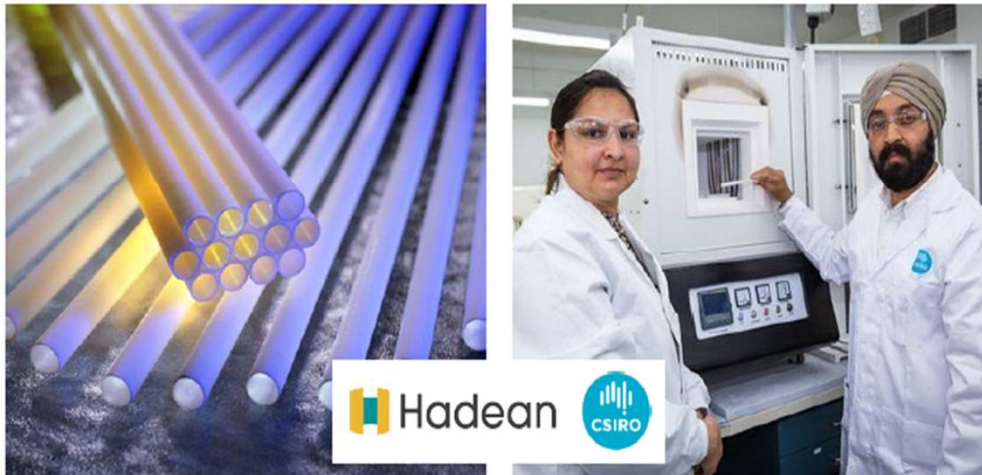
- Under assessment
- Heavy roll forming for large-scale solar tracking assemblies

PROMOTING DEVELOPMENT OF ALIGNED INNOVATION

Supporting the clean energy transition through hosting pilot plants on site at PKSW

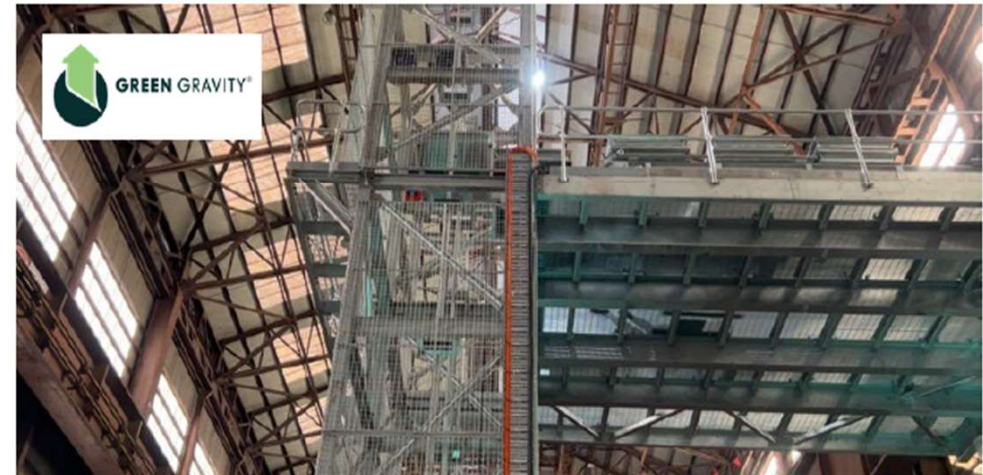
CSIRO (Hadean) Hydrogen Electrolyser

- In August 2023, CSIRO announced that it would spin out a new company, called Hadean Energy
- Hadean will build a pilot hydrogen electrolyser plant that uses 30 per cent less electricity
- Project is a collaboration between CSIRO, Hadean and BlueScope, to be built at Port Kembla Steelworks in 2024



Green Gravity Lab

- Green Gravity is a renewable energy start-up focused on gravitational energy storage
- Green Gravity Lab launched in July 2023 at Port Kembla Steelworks, repurposing an existing warehouse
- Pilot plant testing gravitational storage for renewable energy generation (to be installed in unused mine shafts)



Electrolyser Manufacturing - Hysata

Port Kembla is home to the Hysata 8,000 square metre **global headquarters**. The company's **revolutionary electrolyser** design brings higher efficiency to **green hydrogen** production.

The Hysata electrolyser features the world's highest **system efficiency at 95 percent** compared to the **industry average of 75 percent**.

Featuring simplified **balance of plant** that reduces the need for **expensive cooling**, the Hysata electrolyser **modular design** is easier to **manufacture and scale**.

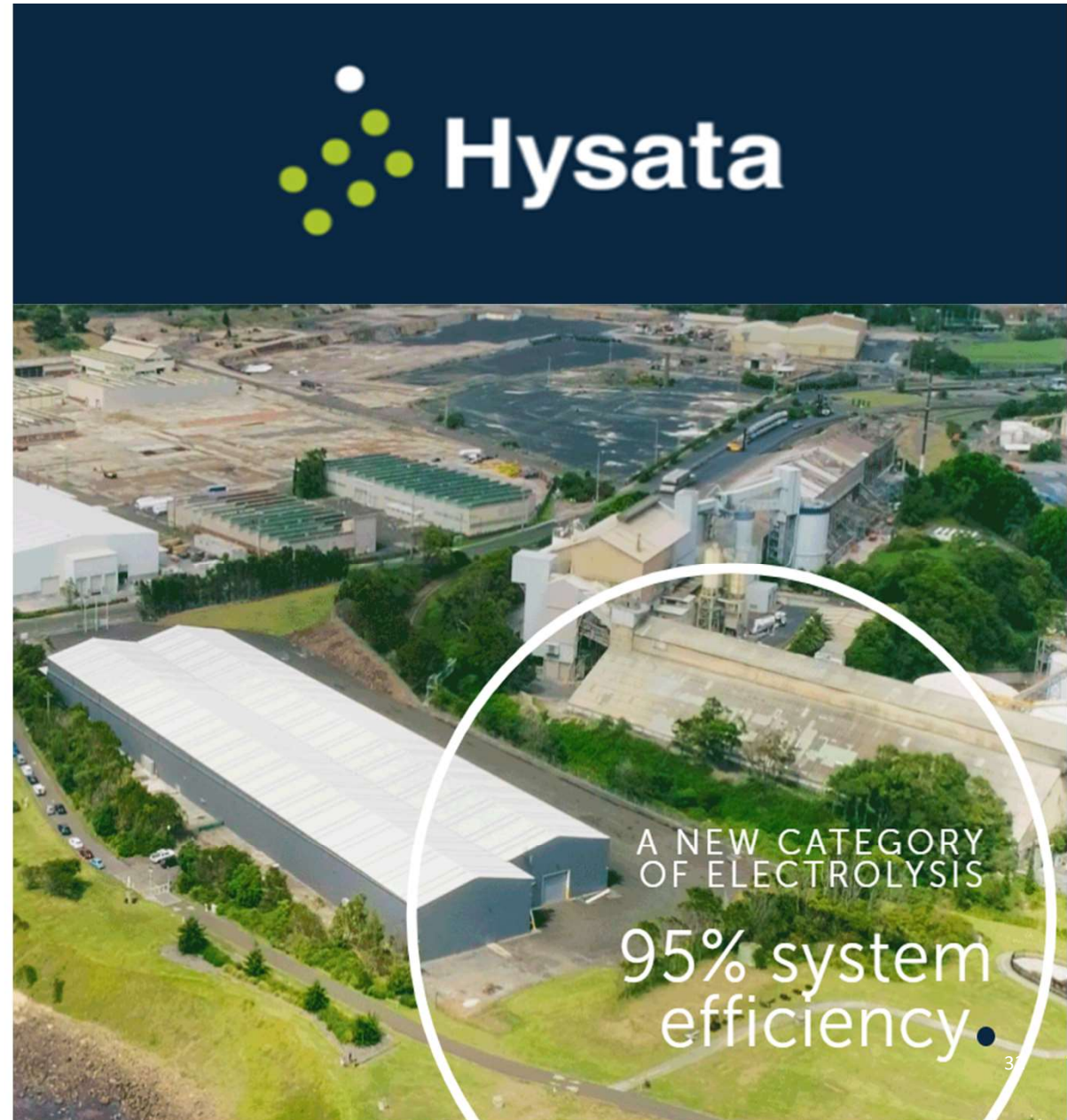
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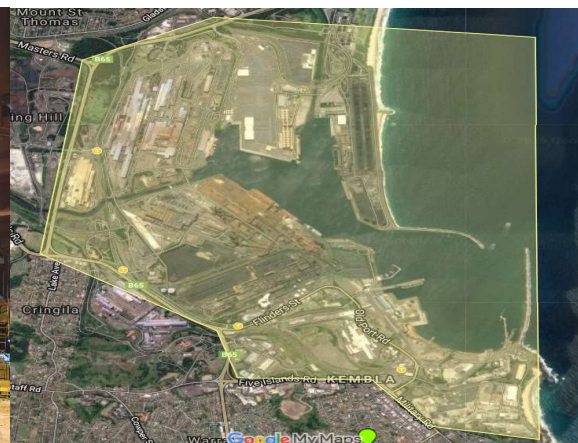
Partner with.



KIKO VENTURES

Vestas Ventures





Be part of this Global Opportunity

The **Port Kembla Hydrogen Hub** is playing a **key role** in the Australia's journey towards a **zero emissions future**.

Major projects span large scale **hydrogen** production, **power generation**, **green steel** production, **offshore wind**, **gas pipeline** and **terminal infrastructure**.

Contact us now to be part of this **exciting global opportunity**.

Contacts

Nigel McKinnon
Deputy Director
Department of Regional NSW
e| nigel.mckinnon@regional.nsw.gov.au
m| +61 418 259 055

Leanne Smith
Economic Development Manager
Department of Regional NSW
e| leanne.smith@regional.nsw.gov.au
m| +61 0428 881 598



ATTACHMENT A

- MAJOR ENERGY PROJECT SUMMARIES

Disclaimer

- The following one page project summaries are based on approved information from the project proponent or drawn from information already in the public domain.

LARGE SCALE HYDROGEN PRODUCTION FACILITIES

OWNER: Various TBA.

DESCRIPTION: Establishment of large scale hydrogen production facilities at 5GW (1,500 tonnes/day) combined capacity to service initially domestic markets scaling into exports by 2030.

STATUS: Concept stage.

TYPE: Electrolyser technology utilising renewable energy and recycled water feedstock (15ML/day capacity).

CAPACITY: Multiple GW scale sites giving 5GW combined capacity. Staged development based on domestic and export market activation pathways.

INVESTMENT: \$2.5bn+ estimate.

LOCATION: Wollongong LGA.

CONTACT: Nigel McKinnon, NSW Govt | 0418 259 055
nigel.mckinnon@regional.nsw.gov.au

Image: Asahi Kasei 10MW single stack alkaline electrolyser commenced operation in April 2020 in Fukushima Japan



PORT KEMBLA HYDROGEN EXPORT TERMINAL

OWNER: Consortium TBA.

DESCRIPTION: Construction of a dedicated facility for liquefied hydrogen exports including liquefaction plant, storage and pipeline infrastructure.

STATUS: Concept stage.

TYPE: Ship loading system and related dock side infrastructure. Liquefaction plant to convert gaseous hydrogen to liquid by reducing it to -253 degrees celcius. Hydrogen is 800 times more dense in liquid form making long distance transportation more viable. Gaseous hydrogen supplied by pipeline to Export Terminal.

CAPACITY: TBA.

INVESTMENT: \$300m estimate.

LOCATION: Wollongong LGA.

CONTACT: Nigel McKinnon, NSW Govt | 0418 259 055
nigel.mckinnon@regional.nsw.gov.au



Image: The first liquefied hydrogen carrier Suiso Frontier built by Kawasaki Heavy Industries launched in December 2019.

COREGAS HYDROGEN REFUELLING STATION

OWNER: Coregas.

DESCRIPTION: Installation of a Hydrogen Refuelling Station adjacent to the existing Coregas Hydrogen Plant at Port Kembla. Project includes associated civil works for heavy vehicle access.

STATUS: Facility known as H2Station commissioned in July 2023.

TYPE: Hydrogen Refuelling Station featuring a Haskel Geno technology.

CAPACITY: 400kg/day of compressed fuel cell quality hydrogen at 350 bar (5,000 psi) pressure. Project is linked to heavy vehicle trials with two fuel cell electric prime movers joining the Coregas NSW distribution fleet in 2024.

INVESTMENT: \$2m with NSW Govt (DRNSW) contribution of \$500,000.

LOCATION: Port Kembla, Wollongong LGA.

WEBLINK



COREGAS PORT KEMBLA HYDROGEN PLANT

OWNER: Coregas.

DESCRIPTION: Existing hydrogen production plant. Largest merchant facility in Australia producing marketable grey hydrogen in a range of certified purities for industrial, food production, scientific and transport mobility applications. This includes fuel cell grade hydrogen at 99.999% purity.

STATUS: Facility opened in 1989.

TYPE: Two Steam Methane Reformer trains using natural gas feedstock with on-site storage and compression facilities.

CAPACITY: Up to 2,000kg/day.

LOCATION: Port Kembla Steelworks, Wollongong LGA.

WEBLINK



Image: Coregas Steam Methane Reformer trains at Port Kembla



Image: Coregas tube trailer distributing compressed hydrogen

BOC PORT KEMBLA HYDROGEN PLANT

OWNER: BOC.

DESCRIPTION: Green hydrogen production plant to be established at existing Port Kembla site. Initial facility will have 10MW capacity increasing to 650MW. Project also involves an onsite hydrogen refuelling station.

STATUS: FEED stage underway. FID by late 2024.

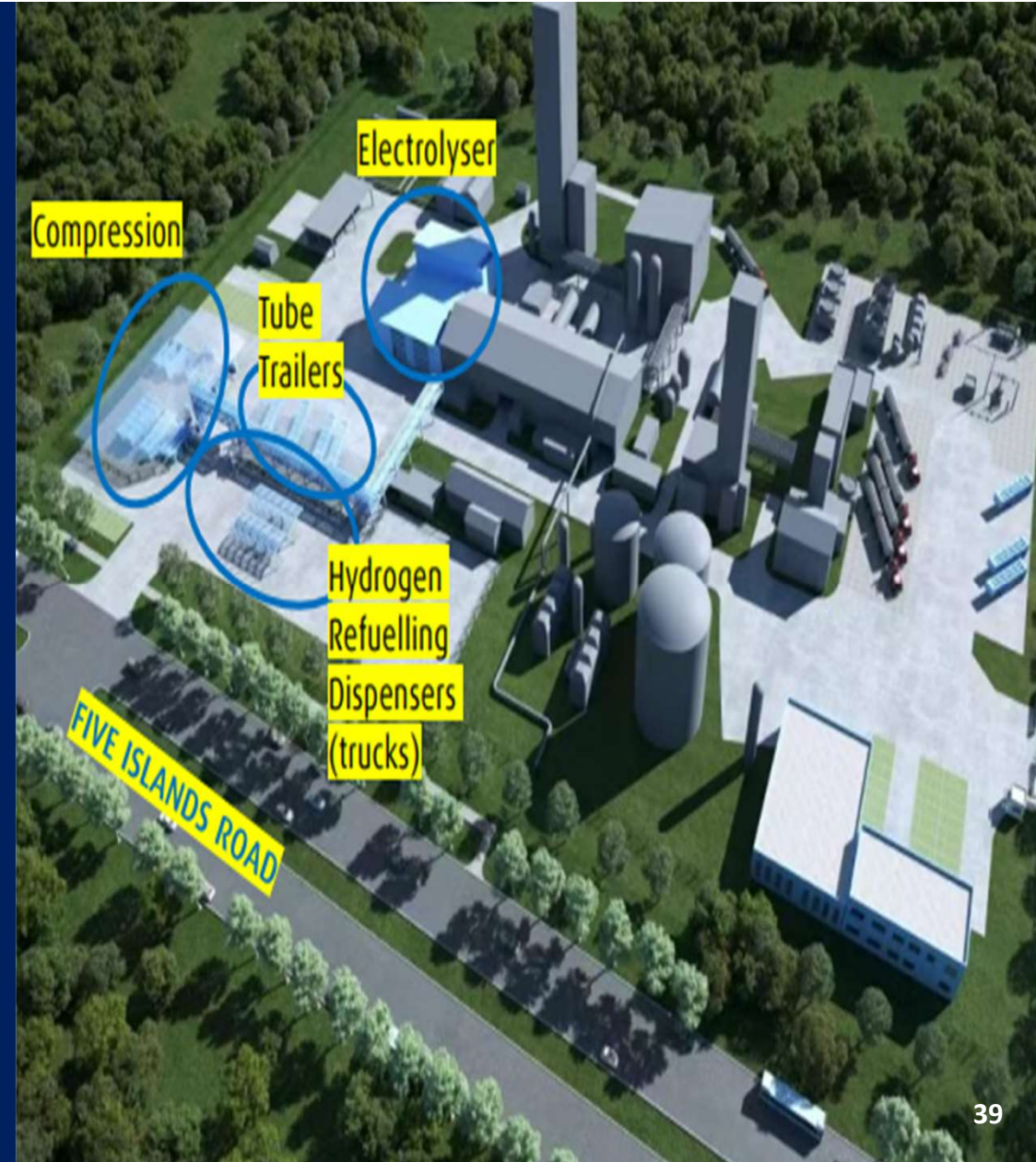
TYPE: Electrolyser technology with on-site storage and compression facilities. Project will create 140 construction jobs and 20 ongoing roles when operational.

CAPACITY: Up to 4,000kg/day of green hydrogen production capacity in Stage 1. Project supports the deployment of 40 FCEV heavy vehicles in the region.

LOCATION: Port Kembla, Wollongong LGA.

INVESTMENT: \$140m estimate with NSW Govt (DCCEEW) contribution of \$28.5m.

WEBLINK



ATCO PORT KEMBLA HYDROGEN & AMMONIA PLANT

OWNER: ATCO.

DESCRIPTION: Known as ScaleH2, the project involves the establishment of a 1GW green hydrogen production plant at Port Kembla with a focus on exports to Germany. Proposed project also includes an ammonia plant.

STATUS: Feasibility study underway with \$800,000 in ARENA funding support. FID to be made in early 2025.

TYPE: Electrolyser technology with on-site storage to support large scale exports.

CAPACITY: 1GW of green hydrogen capacity. Ammonia plant with 800,000 tonnes of annual capacity.

LOCATION: Port Kembla, Wollongong LGA.

INVESTMENT: TBA.

WEBLINK



TALLAWARRA A POWER STATION UPGRADE

OWNER: Energy Australia.

DESCRIPTION: High efficiency upgrade of Tallawarra A Power Station to modernise the turbine and make it hydrogen capable.

STATUS: FID approved. State Significant Development approval granted. Two month construction period scheduled to commence in April 2024.

TYPE: GE GT26 combined cycle gas turbine. High efficiency upgrade will make it 35 percent hydrogen capable.

CAPACITY: 480MW, increased from 440MW prior to upgrade.

INVESTMENT: \$90m estimate.

LOCATION: Wollongong LGA.

[WEBLINK](#)



TALLAWARRA B POWER STATION

OWNER: EnergyAustralia.

DESCRIPTION: Construction of a new gas fired power station known as Tallawarra B adjacent to the existing Tallawarra A Power Station.

STATUS: Final investment decision - May 2021. Two year build program. New power station commissioned in February 2024.

JOBS: 250 during construction phase.

TYPE: GE F class (9F.05) dual fuel open cycle gas turbine. Commitment to purchase 200 tonnes of green hydrogen @ 5 percent blend from 2025.

CAPACITY: 316MW planned.

INVESTMENT: \$300m estimate, \$83m public funding contribution - \$78m NSW Govt + \$5m Federal Govt.

LOCATION: Wollongong LGA.

WEBLINK



PORT KEMBLA ENERGY TERMINAL

OWNER: Squadron Energy.

DESCRIPTION: LNG import terminal with a Floating Storage and Regasification Unit (FSRU) and dedicated pipeline connection to Eastern Gas Pipeline (EGP).

STATUS: Planning approval in April 2019, modification in April 2020. Lease signed in November 2020 for 25 years. Construction commenced in May 2021 with practical completion by end of 2024. Operations to begin in 2026.

JOBS: 150 jobs during construction phase, 50 new jobs during operation & maintenance phase.

TYPE: Import terminal featuring FSRU.

CAPACITY: Supply up to 130 petajoules of natural gas annually which represents 75+ percent of the existing NSW demand.

INVESTMENT: \$300m estimate.

LOCATION: Port Kembla, Wollongong LGA.

WEBLINK



Image courtesy of Squadron Energy - Port Kembla Energy Terminal site with permanently moored FSRU with LNG carrier alongside to deliver its cargo

SHOALHAVEN HYDRO SCHEME

OWNER: Origin Energy.

DESCRIPTION: Construction of a new underground generation and pumping facility utilising the existing dam infrastructure and grid connection.

STATUS: Existing facility opened in 1977. Proposed expansion declared a Critical State Significant Infrastructure project. ARENA funded feasibility study and preliminary geotechnical works completed. EIS for expansion project currently on display.

TYPE: Pumped hydro system consisting of four water storage facilities and two existing power stations (Bendeela and Kangaroo Valley).

CAPACITY: 240MW existing + 235MW of planned new capacity giving combined capacity of 475MW on completion.

LOCATION: Shoalhaven LGA.

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Image courtesy of Origin Energy - Fitzroy Canal and Kangaroo Valley pipeline connection point

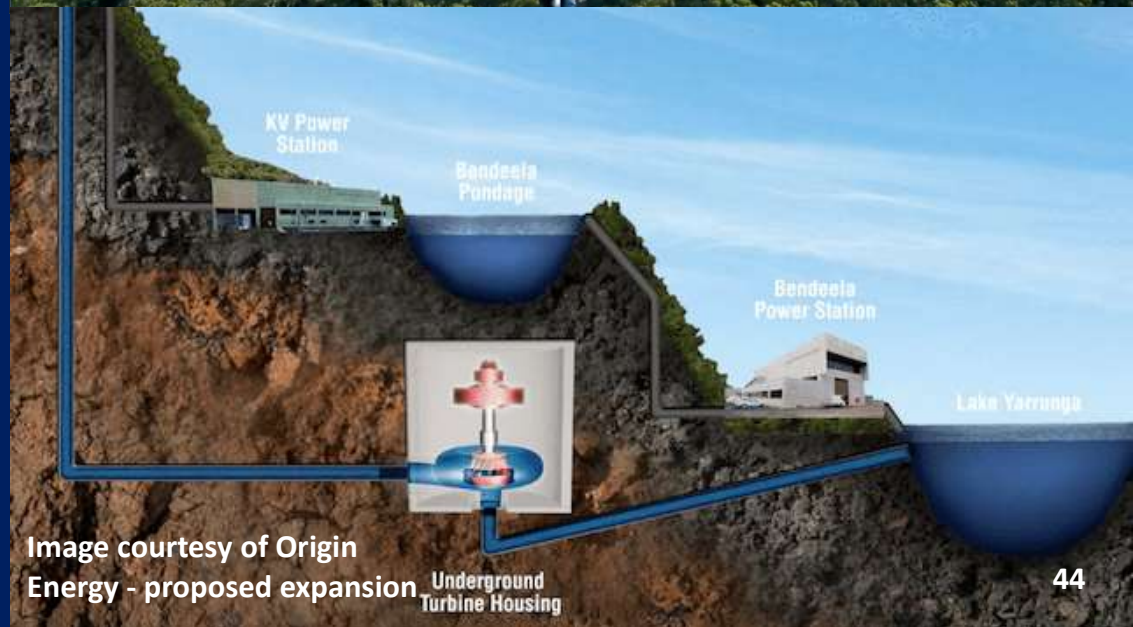


Image courtesy of Origin Energy - proposed expansion

Underground Turbine Housing

ILLAWARRA OFFSHORE WIND FARM

OWNER: Oceanex Energy.

DESCRIPTION: Construction of a large scale offshore wind farm to supply renewable electricity to the national grid and direct to customers.

STATUS: Feasibility stage. Construction is expected to commence in 2028, be completed by 2031 followed by a 30 year operations and maintenance phase.

TYPE: Offshore wind farm with up to 130+ 15MW floating wind turbines. Floating substation connected to the national grid by subsea transmission cable.

CAPACITY: 2GW proposed for the Illawarra Offshore Wind Farm. Illawarra is part of a portfolio of projects that includes Newcastle, Ulladulla and Eden offshore wind projects.

INVESTMENT: \$10bn estimate.

WEBLINK



Offshore Wind Farm	Foundation Technology	Major Port	Indicative Capacity	Distance to Shore	Distance to Port	Construction Period
Novocastrian	Floating	Newcastle	2,000MW	30km+	68km	2028-2031
Illawarra	Floating	Port Kembla	2,000MW	20km+	40km	2028-2031
Eden	Floating	Port Kembla	2,000MW	20km+	315km	2031-2034
Ulladulla	Floating	Port Kembla	2,000MW	20km+	99km	2032-2035

WOLLONGONG OFFSHORE WIND FARM

OWNER: [Green Energy Partners Australia.](#)

DESCRIPTION: Construction of large scale floating offshore wind project to supply renewable electricity to the National Electricity Market grid.

STATUS: Preliminary feasibility work commenced.

TYPE: Offshore windfarm with up to 200 floating wind towers developed in four phases.

CAPACITY: 3GW proposed with opportunity for another 5GW of capacity to support large scale hydrogen production.

INVESTMENT: \$15bn estimate.

LOCATION: Wollongong LGA.

WEBLINK



Image courtesy of Orsted - offshore wind turbines and electrical substation

SOUTH PACIFIC OFFSHORE WIND PROJECT

OWNER: BlueFloat Energy.

DESCRIPTION: Construction of a large scale floating offshore wind farm in three stages: development - 5 years, construction - 2 years and operations and maintenance - 30 years.

STATUS: Early development stage.

TYPE: Offshore wind project with up to 105 floating wind turbines (15-20MW capacity) connected to offshore substations. Onshore grid connection via the Transgrid Dapto substation.

CAPACITY: 1.6GW proposed.

INVESTMENT: \$7.5bn estimate.

LOCATION: Illawarra-Shoalhaven coast.

WEBLINK



Image courtesy of BlueFloat Energy - quayside assembly of floating wind turbines

JEMENA PORT KEMBLA LATERAL PIPELINE DUPLICATION

OWNER: Jemena

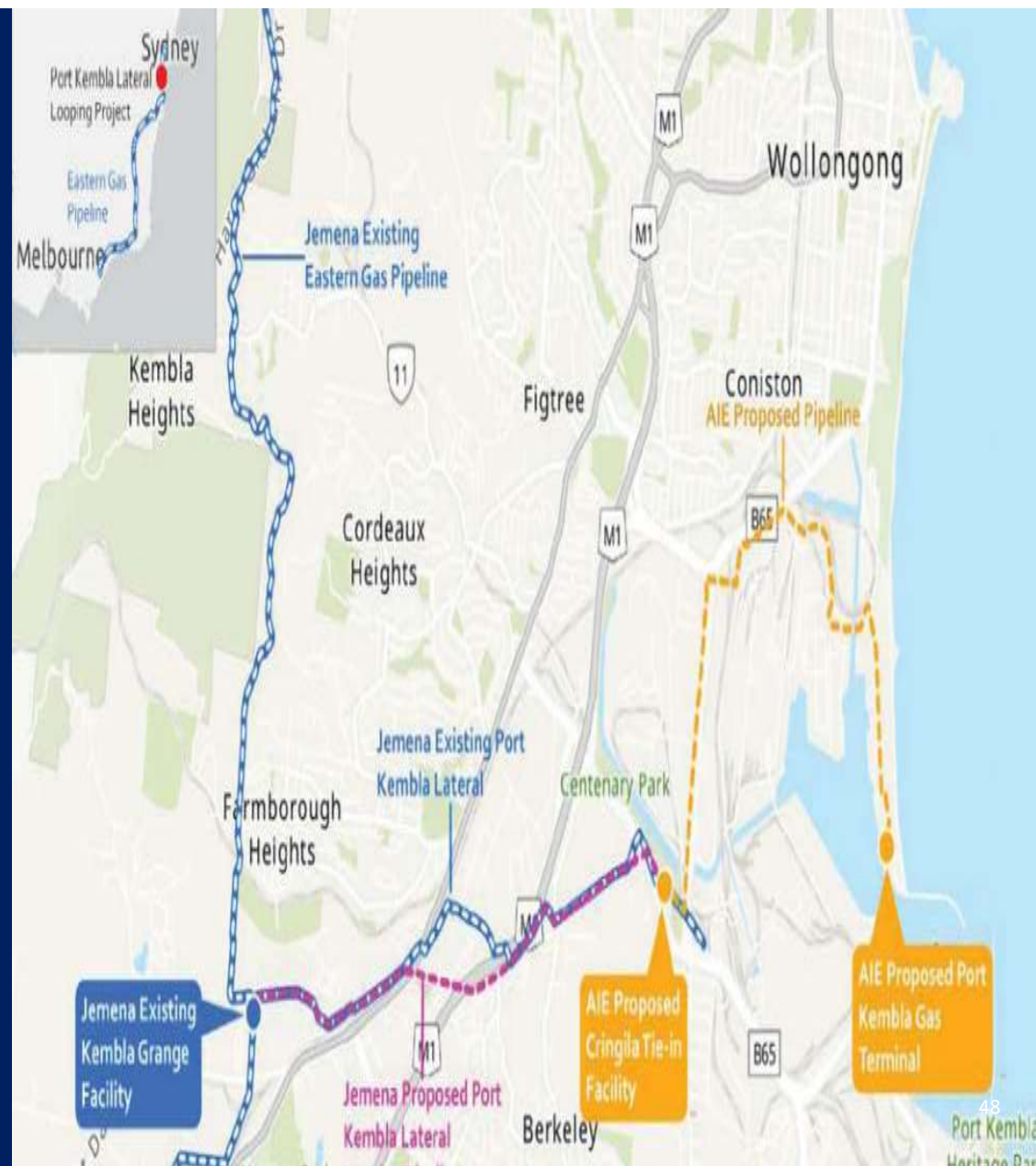
DESCRIPTION: Construction of a new 7.8 kilometre high pressure 450mm steel pipeline to connect the Port Kembla LNG Energy Terminal to Eastern Gas Pipeline. The new pipeline is 100 percent hydrogen compatible. Project involves construction of a new metering station at the Kembla Grange tie in facility.

STATUS: Construction commenced in Dec 2022 and project completed in Dec 2023.

INVESTMENT: \$70 million estimate. Further upgrades to the Eastern Gas Pipeline to increase capacity and make it bidirectional are planned.

LOCATION: Port Kembla, Wollongong LGA

WEB LINK



JEMENA PORT KEMBLA HYDROGEN PIPELINE

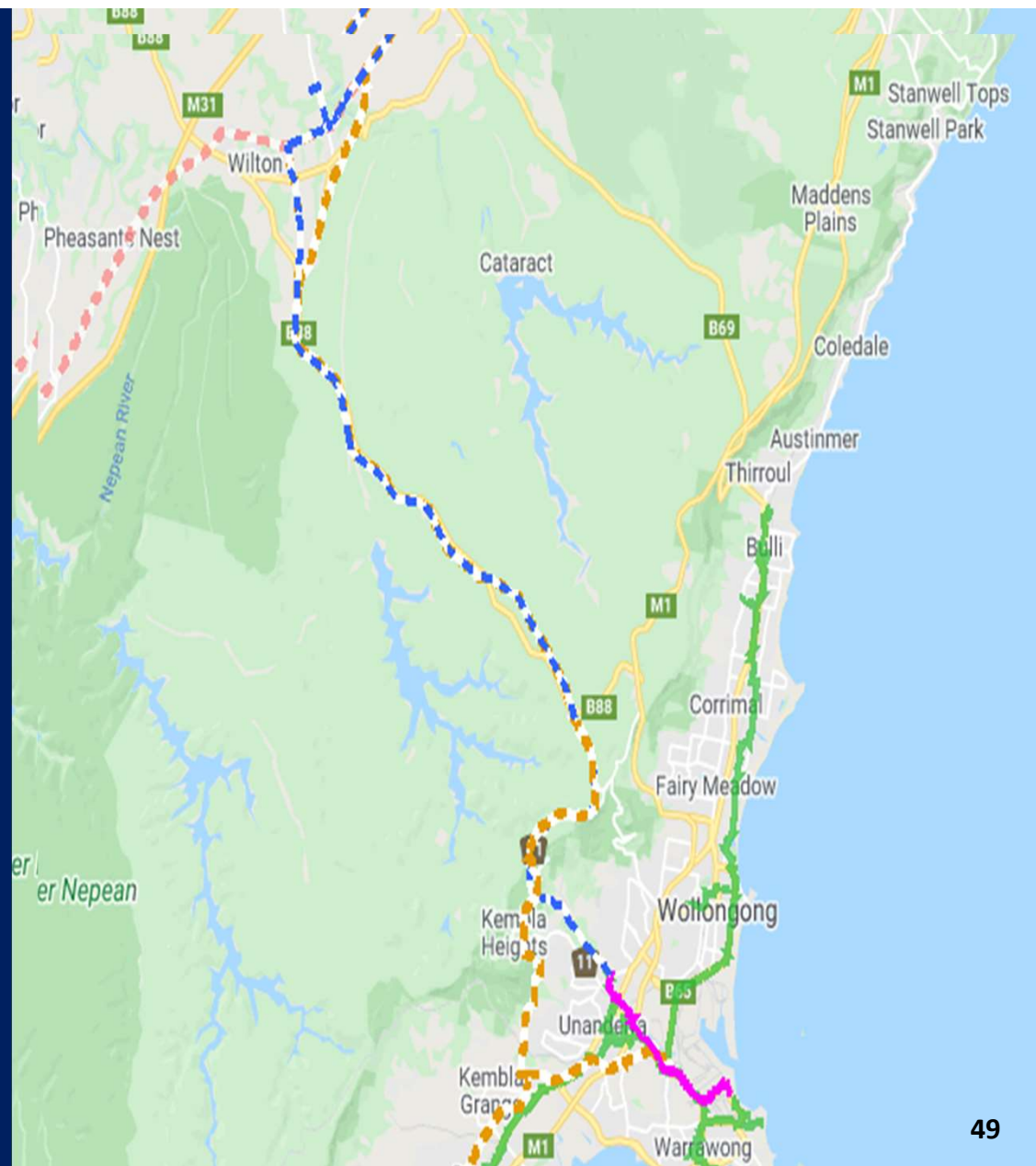
OWNER: Jemena.

DESCRIPTION: Existing 40.3 kilometre high pressure steel pipeline from Wilton to Port Kembla that is no longer in use for natural gas transmission. Repurpose pipeline for potential hydrogen storage. A range of studies would need to be undertaken to determine the technical viability of the project. Initial estimate of capacity is 1 GWh (300 tonnes) of hydrogen.

STATUS: Concept stage. Pipeline could link individual production sites with potential offtake locations within the Port Kembla precinct.

INVESTMENT: Concept stage.

LOCATION: Port Kembla, Wollongong LGA.



SHOALHAVEN BIOENERGY FACILITY

OWNER: Innovating Energy.

DESCRIPTION: Construction of a waste to energy facility at Nowra. Biogas produced from anaerobic digestion of food and farm waste streams is used to generate renewable electricity.

STATUS: Joint Venture agreement has been signed. Estimated 14 month construction phase. Expected to be operational by the end of 2024.

TYPE: Botres Global Bioenergy Plant utilising Schumann Tanks technology.

CAPACITY: 18,000 MWh per year initially. Additional waste streams will increase future planned capacity.

INVESTMENT: \$28m estimate with Federal Govt contribution of \$3m.

LOCATION: Shoalhaven LGA.

WEBLINK



Image courtesy of Botres Global showing a Bioenergy Plant