



**H2 FUTURE MOBILITY  
DAY #7**  
- 15 January 2025



[www.portkemblahydrogenhub.com.au](http://www.portkemblahydrogenhub.com.au)



VISIT OUR WEBSITE



The Department of Primary Industries and Regional Development acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for Elders past, present and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally and economically through thoughtful and collaborative approaches to our work.



# Future Mobility Day #7 Program

- BlueScope Visitor Centre
- 15 January 2025

12.00pm

Welcome, Nigel McKinnon, DPIRD  
- H2 Future Mobility Strategy

12.10pm

Hydrogen Diesel Hybrid, Mel Whyte, Wasco  
- Hydra Energy Conversion Technology

12.30pm

Drive Session Commences  
- Converted Freightliner 2021 Coronado 114  
6x4 Prime Mover



# Hydrogen Hub Vision

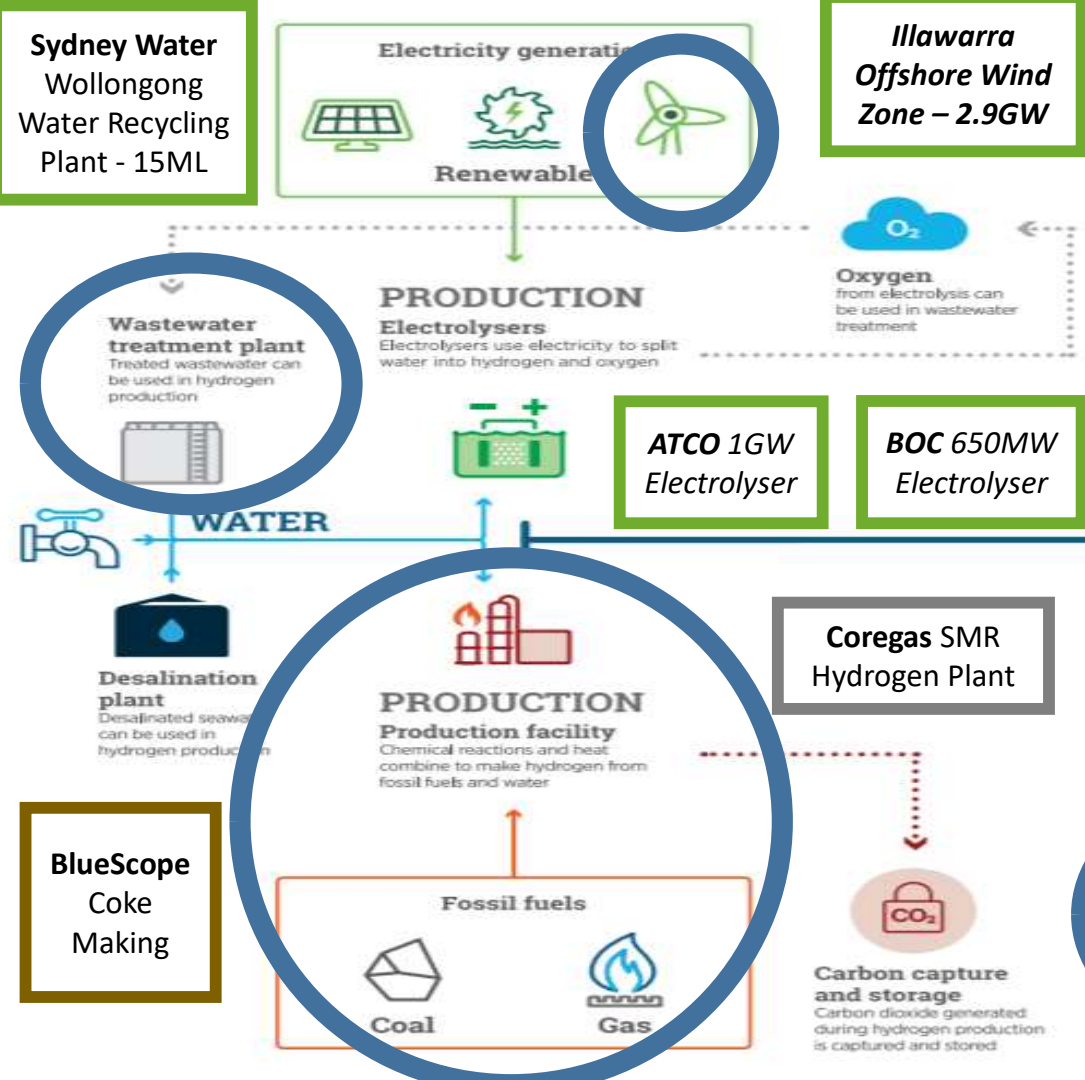
Port Kembla - Australia's first **5GW+ green hydrogen hub** to service domestic and export markets by 2030

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.

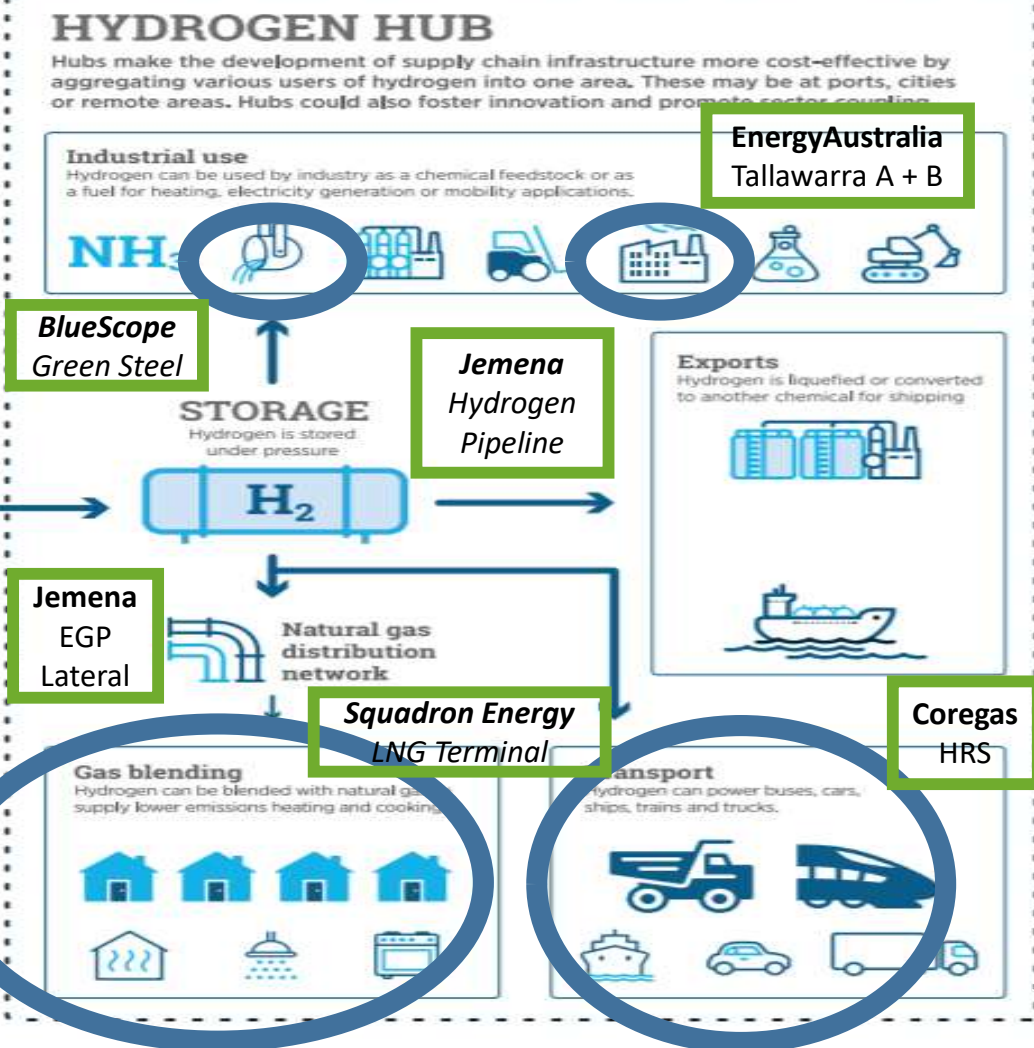
**Port Kembla's** superiority as a **hydrogen hub** is driven by significant **opportunities** for **green hydrogen** usage in **industry, heavy transport, power generation, gas network injection** and **exports**.



# Hydrogen Ecosystem



**94 million tonnes of hydrogen produced globally (2021)**  
**40 million tonnes of by-product hydrogen produced**  
**Less than 1% is produced using electrolysis + renewables**



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

More than **\$750m+** of recently completed supportive **major energy projects** have transformed the **Port Kembla Hydrogen Hub ecosystem**. These include:

- **Coregas - Hydrogen Refuelling Station** has enabled Australia's first zero emissions **heavy vehicle trials**, including the **Remondis** hydrogen refuse truck
- **Squadron Energy - LNG Terminal** at Port Kembla is Australia's first **gas importation** facility with potential to **support gas exports** in the future
- **Jemena - Port Kembla Pipeline Duplication + Eastern Gas Pipeline upgrades** have delivered increased **network capacity** to **east coast gas markets**
- **EnergyAustralia** - construction of **Tallawarra B** and the **Tallawarra A upgrade** have delivered Australia's first **dual fuel capable power stations**.



# Hydrogen Refuelling Stations

CSIRO Report - July 2023

- **5 Operational** Hydrogen Refuelling Stations in **Australia**
- Total **combined daily** capacity = **285kg**
- **20 new stations** planned including the **\$2m Coregas Port Kembla** facility assisted by a **\$500,000 NSW Government** grant



**Now Operational**  
**Daily capacity = 400kg**



# H2 Future Mobility is Now

Fleet Operator: [Remondis](#)  
Commence: October 2023  
Vehicle OEM: [Hyzon](#)  
Model: [Hyzon Refuse Truck](#)  
Vehicles: 1  
Powertrain: Fuel Cell Electric  
Fuel Cell OEM: [Hyzon](#)  
Configuration: 6 x 4  
H2 Storage: 25kg  
Bin Lifts: 1,200/shift  
Range: 200kms  
FC Power: 110kw  
Tank Pressure: 350 bar  
HRS: [Coregas H2Station](#)  
Refuelling: 15 minutes  
GVM: 22.5 tonnes



TRIAL #1  
HYZON FCEV REFUSE TRUCK





## Hydrogen / Diesel ICE Fuel System



July 2024



## What is it?



Wasco and technology partner *Hydra Energy* together bring a proven hydrogen-diesel, co-combustion retrofit 'on-board' Hydrogen fuel package to Australia. With this system we can accelerate the decarbonisation of back to base and long haul truck fleets and will help put in place hydrogen refuelling network infrastructure for future 100% hydrogen mobility.

Hydra is the first company to deliver a hydrogen-converted, heavy-duty truck to a paying fleet customer. Hydra is also in the process of building the world's largest hydrogen refuelling station as the first major milestone in its Western Canadian Hydrogen Corridor but also strategically accelerating it's 'hydrogen as a service' HaaS™ model through important North American licensing partnerships.

Wasco and Hydra bring a low cost, end-to-end greener trucking solution to fleet operators right now.



## Why do we need it?

Transitioning to 100% hydrogen fuel cell or internal combustion engine vehicles means hydrogen must be available at all times and in volumes required otherwise goods won't move.

The current cost and availability of 100% hydrogen fuel cell electric heavy haulage trucks, back to base trucks and bus fleets will mean that only fleet owners with the ability to raise large amounts of cash will be able to afford to participate.

Hydrogen fuel is currently difficult to source. By having an easy option to use hydrogen/diesel fuel or just diesel, fleet owners do not have to worry that hydrogen will not be available in places where their vehicles operate.

The ability to grow a refuelling network alongside existing diesel distribution network is an opportunity.



In time, transition from 'mainly diesel' to 'mainly hydrogen' and eventually 100% hydrogen is possible.

It is a gradual smooth change curve, not a sudden change.



## Who does it suit?

Hydrogen is ideal for routine heavy haulage trucking, back to base or point to point.

Scaling up locally produced, green or blue hydrogen for use as an energy source to directly reduce emissions associated with traditional energy sources is a vital part of the emissions reduction mix.

With this practical retrofit approach and unique ability to connect regional hydrogen supply and demand, specifically for commercial fleets and owner-operators, greenhouse gas (GHG) emissions can be reduced by ~20% per truck unit while maintaining the ability to operate 'as normal' while hydrogen production, distribution and availability networks grow.

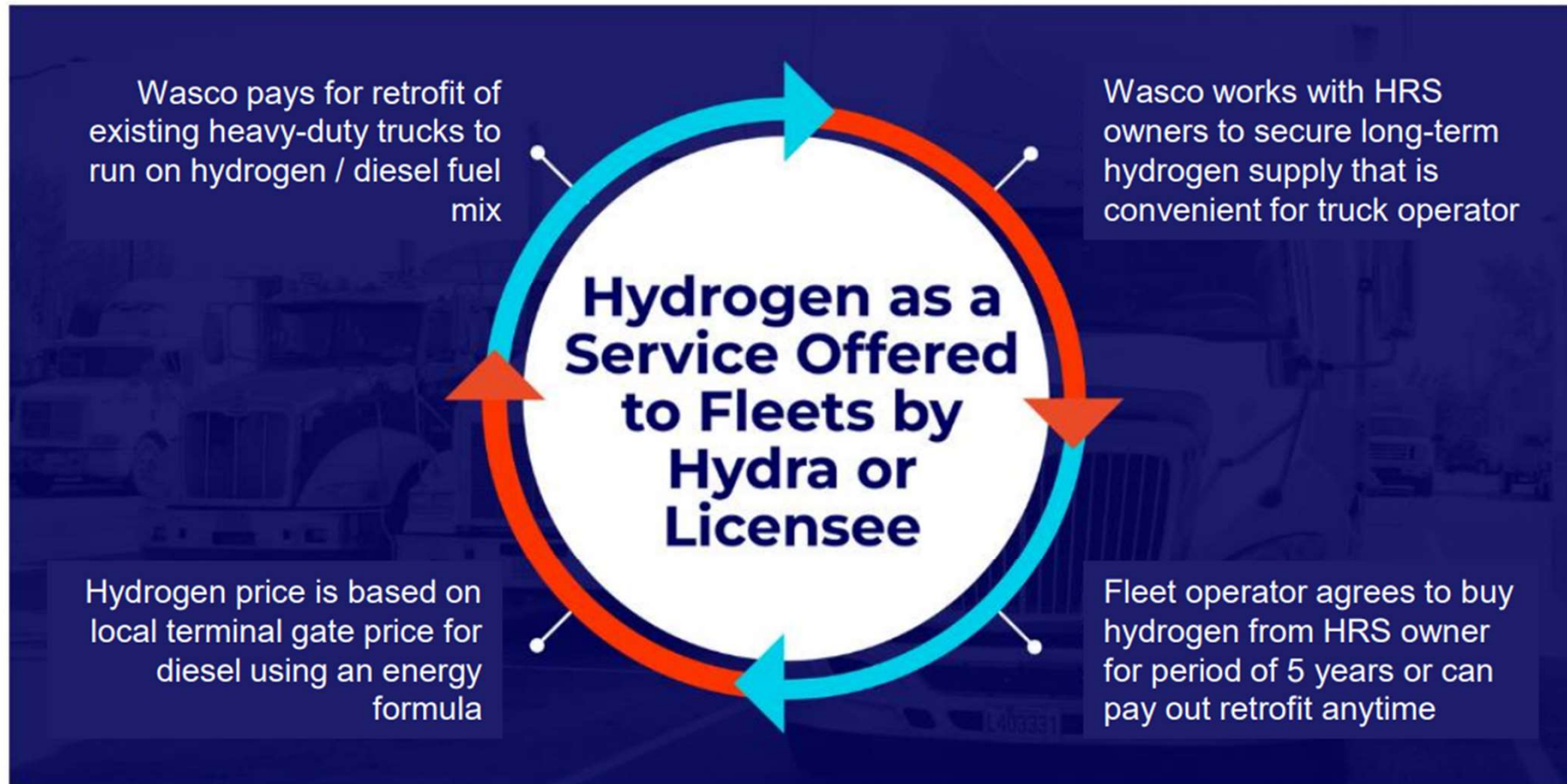


## What are the benefits?

- Significantly reduce GHG emissions (average ~18% in April 2024 trials in Brisbane)
- Light weight, onboard (behind the cab or under chassis)
- Refuels as quickly as diesel, if co-located this is a one-stop refill
- Is affordable to all fleet or unit owners, not just mass fleet owners
- Operators can continue to operate on 100% diesel as normal when hydrogen is not available
- Will encourage gradual roll out of hydrogen refuelling stations and upstream hydrogen supply
- Relatively low cost of installation and possible no upfront cost if HaaS™ is employed on a commercial 'pay as you go' model



# Hydrogen as a Service - HaaS™



# Scenario Application

Volume of onboard H<sub>2</sub> can suit the usual duty cycle of truck units so that diesel and H<sub>2</sub> refuelling is done at the same stop.

350bar hydrogen system fits current development plans for several Hydrogen Refuelling Stations planned for Brisbane area.

**At 18% average diesel displacement**

**With 400 litre diesel tank capacity & 20kg 350bar hydrogen onboard**

**Using normal diesel consumption of 50 litres per 100km**

**Distance travelled before hydrogen runs out is ~740km**

**18% less emissions during operation – or ~178kg CO<sub>2</sub>e over 740km**



*In this scenario if the truck travels 200,000km per annum at these conditions the CO<sub>2</sub>e reduction is ~50t*

*Figures are approximate only and will vary depending on duty and operating conditions*



**END OF  
PRESENTATION**





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# THANK YOU





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## Vehicle Inspection & Drive Session

Converted Freightliner 2021 Coronado 114 6x4  
Prime Mover

