4 April 2024

Greetings from Port Kembla. This **Port Kembla Hydrogen Hub Update #25** contains information on the following key projects and initiatives:

- **Port Kembla Hydrogen Hub** - 2023 Review
- **TAFE NSW** - **Hydrogen** Fundamentals **Microskill Course** released
- **Business Illawarra** and **UOW** work together on **clean energy roadmap** - 4 March 2024
- **Albion Park Rail** business to fit **electric trucks** with Port Kembla steel - 27 February 2024
- **$300M Tallawarra B power station** officially opens - 21 February 2024
- **Port Kembla** trucking company ready to hit the **- hydrogen – gas** - 2 February 2024

Previous editions of the **Port Kembla Hydrogen Hub Update** newsletter are available here.

Port Kembla Hydrogen Hub - 2023 Review

https://portkemblahydrogenhub.com.au/

The Port Kembla Hydrogen Hub had a busy year in 2023 hosting a total of 19 delegation visits. Ten of these visits involved international groups all with an interest in an aspect of the hydrogen economy.

The Port Kembla Hydrogen Hub Committee met quarterly with regular updates given by State and Commonwealth Government representatives on their respective hydrogen strategies and programs. Presentations on a range of hydrogen related topics were also given by both members and guest presenters including the relatively new area of electric aviation powered by hydrogen.

The Hydrogen Hub also staged two H2 Future Mobility Day events to showcase both fuel cell electric and hydrogen powered internal combustion engine technologies. Two H2 Training + Safety Day events were also held covering important topics around hydrogen vehicle refuelling and first responder protocols in the event of a hydrogen powered vehicle accident.

The Coregas H2Station event in July 2023 was a landmark event for the Port Kembla Hydrogen Hub. With a daily refuelling capacity of 400kg, the Coregas refueller is larger than all the other operating refuelling stations in Australia combined. The presence of such a facility in the region has enabled two heavy trials already with several more in development.

With funding from both Wollongong City Council and the NSW Government, Inside Industry commenced staging Clean Energy Tours in September. These Tours are a key element of the Hydrogen Hub's Education Program and are open to members of the public, schools and community groups. A total of 14 Clean Energy Tours were held in the first three months of operation with some 264 people participating. The Tours showcase the developing hydrogen ecosystem at Port Kembla and are 2 hours in duration.

2023 Review

Committee	
Quarterly Meetings	4
Events	
H2 Future Mobility Day events	2
H2 Training + Safety Day events	2
Coregas H2Station Open	1
Delegations	
International	10
Domestic	9
Hydrogen Hub Update Newsletter	
Editions	6
Clean Energy Tours (Sept - Nov)	
# Tours	14
# Guests	264

TAFE NSW - Hydrogen Fundamentals Microskill released

https://www.tafensw.edu.au/microskills

With an increased focus on reducing carbon footprints, hydrogen energy is a key component in the transition to sustainable energy sources in Australia. This course is specifically tailored to enhance your understanding and confidence in handling hydrogen, a player in the future of energy. By diving into the fundamental properties, advantages, applications, and risks associated with hydrogen, this course provides a comprehensive knowledge base for those involved or interested in hydrogen energy.

At the end of this module, you should be able to:

- Identify hydrogen as a fuel source, including its properties, benefits, and challenges.
- Identify the diverse range of applications where hydrogen is suitable for use.
- Identify potential risks and hazards associated with the use of hydrogen.
- Know how to act safely when interacting with hydrogen.

As you progress through the course, interactive questions and regular check-ins will help your understanding. Upon successful completion of the assessment quiz and feedback activity, you will receive a Certificate of Completion.

Duration: 1 hour
Delivery: Online (self-paced)
Access period: 6 months access from the day of enrolment

Proudly developed in partnership with Coregas.

Business Illawarra and UOW work together on clean energy roadmap

Date: 4 March 2024

https://www.illawarramercury.com.au/story/8539848/illawarra-clean-energy-roadmap-plans-from-business-illawarra-and-the-university-of-wollongong/

Business Illawarra's Illawarra Clean Energy Expo held at BlueScope in August 2023. Picture by Robert Peet

Offshore wind farms, green steel and energy storage are all on the agenda for a new Illawarra Clean Energy Industry Roadmap being researched by Business Illawarra in partnership with the University of Wollongong. The project aims to describe how to keep the economic opportunities created by the clean energy boom within the region and will be led by Associate Professor Dr Tillmann Boehme from UOW's Business and Law Faculty.

Executive Director of Business Illawarra, Adam Zarth, said that while there was strong consensus that the clean energy sector was a major economic opportunity for the region, there needed to be a plan for how to maximise the benefits for local employers and the wider community.
"Renewable energy generation and storage are increasingly important sectors for the region and this research will help our members better understand these opportunities now, and moving forward," said Mr Zarth.

"These opportunities have been recognised by the federal government which has invested in an Energy Futures Skills Centre and a Renewable Energy Training facility here in Wollongong."
Among the subjects likely to be discussed in the report is the proposed offshore wind zone. It was announced by Chris Bowen at the Business Illawarra Clean Energy Summit held at BlueScope in August 2023. The community is currently waiting for the results of a consultation and the next steps of the project.

The University of Wollongong's Vice-Chancellor and President Professor Patricia Davidson, said that the project would look at a range of areas of opportunity for the Illawarra including workforce and employment, supply chains, governance and financing mechanisms and overall economic benefits arising from clean energy projects in the region. The roadmap will be released in July.

Albion Park Rail business to fit electric trucks with Port Kembla steel

Date: 27 February 2024

https://www.illawarramercury.com.au/story/8536826/illawarras-city-coast-services-leading-green-trucking-revolution/

Darryl Smith's company City Coast Services will fit out electric trucks with tipper trays for the Australian market. Picture by Adam McLean

An Illawarra engineering business is on the front line of the green trucking revolution, securing 70 jobs and investment in the Illawarra. City Coast Services, based in Albion Park Rail, will manufacture and fit hydraulic tipper bodies to trucks from Chinese electric vehicle maker Foton. City Coast Services CEO Darryl Smith said the partnership was a testament to the sophisticated manufacturing know-how in the Illawarra. "This is an example of a local company being able to add important value to an imported product, selling tipper bodies for a vehicle such as the Foton T5 EV is a great endorsement of the skills and expertise that we have locally."

The trucks are manufactured in China, however the tipper bodies will be made locally, and from Port Kembla steel from the BlueScope steelworks. The partnership secures the jobs of 70 workers with all works including high-end fabrication, welding and painting undertaken in house. The Foton T5 EV is the market leader in electric trucks in Australia, and the 200 units already sold in Australia are on delivery runs for major supermarkets, councils and energy companies. The City Coast fitted tipper

tray will be sold as a dealer-fitted option, for vehicles arriving through Port Kembla. The vehicles are sent to Albion Park Rail where the body is fitted before final delivery to dealers around Australia.

Mr Smith said the contract would spur further investments at the local company. "The volume of Foton T5 EV tipper bodies has allowed us to focus on production efficiencies and improved materials sourcing." Foton vehicles are distributed in Australia through its Western Sydney subsidiary Foton Mobility Distribution, which is led by UOW graduate Neil Wang. "The Wollongong/Illawarra area is like a second hometown for me, so I am particularly proud that a great local business such as City Coast Services is on board for this project," Mr Wang said. While emissions from power generation have fallen in recent years, transport emissions have remained stubbornly high, even increasing.

Hydrogen and battery electric powered trucks provide a zero-emissions alternative and are in operation around the world, but the long distances and distributed nature of Australian delivery networks has hampered the uptake of these vehicles, as well as specific subsidies encouraging businesses to invest in green trucks. In 2023, the federal government released the National Electric Vehicle Strategy, and announced the new fuel efficiency standard in February this year. The fuel efficiency standard will not apply to heavy vehicles, however the National Electric Vehicle Strategy will target increased uptake of zero emissions trucks through the roll out of charging stations, a hydrogen network and government procurement of green heavy vehicles. All the while, this partnership is proving that there is appetite and demand for electric trucks, made and used in the Illawarra.

$300M Tallawarra B power station officially opens

Date: 21 February 2024

https://infrastructuremagazine.com.au/2024/02/21/300m-tallawarra-b-power-station-officially-opens/

EnergyAustralia has announced that its $300 million Tallawarra B gas-fired power station has opened after more than two years of construction. Tallawarra B, a fast-start 320MW gas-fired power station,

is set to supply the New South Wales electricity system with a flexible capacity asset designed to support system reliability as more renewables enter the system and coal-fired power stations retire.

EnergyAustralia said the new Tallawarra B station complements its existing 440MW gas-fired power station, Tallawarra A. The Tallawarra stations are expected to provide flexible and reliable energy to homes and businesses during high demand periods in summer and winter, and when solar and wind generation is low.

EnergyAustralia Managing Director, Mark Collette, said, "Today is a major milestone. After more than two years of construction, we are delighted to see Tallawarra B operate and we acknowledge the remarkable work of many highly skilled engineers and tradespeople who have worked on this project. "We thank our contractor, GE Vernova, who worked with us to deliver this project through many challenges, including COVID restrictions. And we acknowledge the support of the New South Wales Government in making Tallawarra B a reality."

Mr Collette said that Tallawarra B is the first gas-fired power station built in New South Wales in more than ten years. "The new station will play a vital role in the energy transition, providing flexible and reliable energy during periods of peak demand or low supply. Tallawarra B enables and complements more renewables entering the system as coal-fired power stations retire."

Mr Collette said that gas will continue to play a vital role in firming renewables in the energy transition. "We are positioning both Tallawarra stations to play a long-term role in New South Wales' energy future and our own plans to achieve net zero by 2050. "Our ambition is for green hydrogen to be part of the fuel mix at Tallawarra A in 2025, enabling zero emissions flexible capacity. "We are also investing in Tallawarra A to ensure it is also gas/hydrogen-capable when the green hydrogen manufacturing industry in the Illawarra is of an appropriate size and scale."

Mr Collette said that a $90 million upgrade and overhaul of Tallawarra A will commence in April 2024. "This will increase the capacity and efficiency of the station from 440MW to 480MW while also enabling the use of up to 37 per cent hydrogen as a fuel when green hydrogen is commercially available."

GE Vernova Gas Power Chief Executive Officer – Asia, Ramesh Singaram, said, "Tallawarra B demonstrates the substantive role that gas technologies can play in reducing carbon emissions, ensuring reliable electrical supply, and fighting climate change. "We are committed to delivering reliable, stable, cost-effective energy that supports energy providers, like EnergyAustralia, to assist with developing a hydrogen supply chain and transitioning Australia to a lower carbon future."

EnergyAustralia's Tallawarra B – key facts

- Tallawarra B is Australia's first gas-peaking power station with total emissions offset over its operational life
- Tallawarra B is completing commissioning and has already demonstrated the fast start and flexible 320MW capacity in operation
- GE Vernova has been the project's key contractor and construction has supported more than 350 highly skilled jobs over the past two years
- Rehabilitation of surrounding land undertaken with native vegetation as part of a $300,000 partnership with the Illawarra Local Aboriginal Land Council and Wollongong Botanic Gardens
- Investments have been made in safety for aircraft using the nearby Shellharbour Airport including a $13 million 54t plume dispersion device and real-time plume monitoring

- EnergyAustralia is continuing to assess the feasibility of using hydrogen in Tallawarra B's fuel mix by the end of 2025 noting this timing is dependent on the development of a hydrogen manufacturing industry of an appropriate size and scale

Port Kembla trucking company ready to hit the - hydrogen - gas

Date: 2 February 2024

https://www.illawarramercury.com.au/story/8507706/port-kembla-truck-company-to-lead-with-hydrogen-diesel-trucks/

Picture: Cameron Hall, left, safety and environment manager and workshop manager Matt Kynezos at SCE Group with the trucks they are looking to convert to run on green hydrogen. Picture by Anna Warr

A Port Kembla trucking company is looking to lead the world by being the first to run hybrid hydrogen-diesel trucks operating in NSW mines and at the Port Kembla steelworks. SCE Group is in trials with an Australian technology company to convert existing trucks to run on a hydrogen-diesel blend, cutting CO2 emissions by between 70 and 85 per cent. The company is one of a number of potential hydrogen users located in and around Port Kembla that are waiting for a local supplier to step up as the region's demand for hydrogen outpaces supply. At the SCE Group workshop on Masters Road, workshop manager Matt Kynezos and safety and environment manager Cameron Hall are bent over the inside of an opened-out truck chassis.

The midnight green driver's cab is tilted forward, exposing the vehicle's drive train.
In the near future, Mr Hall hopes, the large diesel tank that sits alongside the engine will be replaced with a hydrogen tank, and the fumes that the truck belches when carrying a heavy load will be eliminated. "We have been on a journey the past few years exploring potential solutions to accelerate heavy industries' transition towards net-zero that involved engagement with a number of engineers and specialist suppliers in the electric and hydrogen motive power space," Mr Hall said.

About 70 kilometres away, in a lab at the University of New South Wales, a team of researchers have been building an engine that could in future power SCE's trucks in the Illawarra, Hunter and at mine and industrial sites around NSW.

The patented hydrogen-diesel engine reduces CO2 emissions by more than 85 per cent and can be used to retrofit existing heavy vehicles - rather than requiring transport companies to purchase an entirely new fleet of hydrogen fuel cell vehicles. When running on green hydrogen, emissions are reduced further, as this removes emissions in the production phase of the fuel.
"We have shown that we can take those existing diesel engines and convert them into cleaner engines that burn hydrogen fuel," lead researcher Professor Shawn Kook said when the research behind the engine was published in October 2022. "Being able to retrofit diesel engines that are already out there is much quicker than waiting for the development of completely new fuel cell systems that might not be commercially available at a larger scale for at least a decade."

Picture: Running existing internal combustion engines on hydrogen, rather than purchasing new fuel cell vehicles was a cost effective, robust and reliable solution, Cameron Hall (right) said. Picture by Anna Warr

Mr Hall said this kind of technology, converting existing internal combustion engineers to run on hydrogen, rather than replacing them with fuel cells which power an electric drivetrain, made business sense. "My view is a hydrogen combustion engine offers significant benefits by leveraging diesel engine technology and components," Mr Hall said. "They do not require rare earth elements and critically, and combustion engines along with powertrain and vehicle technology is already well proven equipment with existing maintenance practices. It is a technology which is cost effective, robust, reliable and well known throughout the industries SCE commonly operate in."

The company is preparing for equipment trials to be run this year and has previously registered its interest as a hydrogen user as part of the NSW government's Hydrogen Hubs initiative. The company estimated it could consume 30,000 kg of hydrogen per year, with the potential to scale up to 600,000 kilograms in the future. This puts SCE alongside major potential hydrogen users, such as the Tallawarra B power station and a mooted hydrogen power station backed by Andrew 'Twiggy' Forrest's Squadron Energy.

While the NSW government put $28.5 million towards BOC's plans for an electrolyser to produce green hydrogen at its plant in Cringila, the federal government's Hydrogen Headstart program did not shortlist any hydrogen production project in the Illawarra and those projects on the shortlist largely target hydrogen production for export, in the form of green ammonia. Blue hydrogen, produced from natural gas, is currently produced by Coregas at its plant inside the Port Kembla steelworks.

Speaking in Port Kembla on Wednesday, energy and climate change minister Chris Bowen said the shortlist of applicants was based on merit. "Hydrogen Headstart is not a location-based fund," he said. "That was a very competitive process based on merit." Despite the wrangling between governments and grants, Mr Hall was upbeat about the prospect of sourcing green hydrogen locally and for the company's Port Kembla operations to lead the green trucking revolution. "The decarbonisation of the trucking and logistics sector is challenging and we look forward to the opportunity to start this process in the Illawarra region."

FURTHER INFORMATION

The Port Kembla Hydrogen Hub is facilitated by the Department of Regional NSW in partnership with the Illawarra Shoalhaven Joint Organisation (ISJO). For further information about the Port Kembla Hydrogen Hub, please visit the webpage or contact Nigel McKinnon, Deputy Director, Department of Regional NSW by email nigel.mckinnon@regional.nsw.gov.au.