

8 May 2024

Port Kembla greetings. This **Port Kembla Hydrogen Hub Update #26** contains information on the following key projects and initiatives:

- **Clean Energy Tours** - Book now!
- **Licences go to nation's first offshore wind projects** - 1 May 2024
- **Australia's cleanest garbage truck** beating expectations - 22 April 2024
- **Focus on Illawarra jobs** as Albanese pushes locally **made renewables** - 11 April 2024
- **Squadron** considering accelerating **Port Kembla gas terminal** launch - 11 April 2024
- **Research project** aims to revolutionise the **steel industry** - 10 April 2024
- **EU Energy Commissioner** Visit to Port Kembla - 5 April 2024
- **Illawarra** embarks on **green energy transformation** - 3 April 2024

Previous editions of the **Port Kembla Hydrogen Hub Update** newsletter are available [here](#).

---

## **Clean Energy Tours – Book now!**

<https://insideindustry.org.au/>

Port Kembla is at the forefront of Australia's clean energy transition. Join us on a Clean Energy Tour to learn more about this transition based on renewable energy and hydrogen. Driving this transformation are the Port Kembla Hydrogen Hub and Renewable Energy Zone (REZ) being facilitated by the NSW Government, with over \$750 million in major energy projects to be completed by the end of 2024.

The Clean Energy Tours feature Australia's first heavy vehicle hydrogen refuelling station that is enabling a range of zero emissions trials for trucks and buses, powered by hydrogen produced at Port Kembla from recycled water and renewable energy.

With funding from both Wollongong City Council and the NSW Government, Inside Industry commenced staging Clean Energy Tours in September 2023. These Tours are a key element of the Port Kembla Hydrogen Hub's Education Program and are open to members of the public, schools and community groups.



A total of 20 Clean Energy Tours were held in the first six months of operation with some 310 people participating. The Tours showcase the developing hydrogen ecosystem at Port Kembla and are 2 hours in duration. A public Clean Energy Tour for community members is held on the third Saturday of each month. For private groups or school bookings please call **02 4275 7023** or email [admin@insideindustry.org.au](mailto:admin@insideindustry.org.au).

---

## Licences go to nation's first offshore wind projects

Date: 1 May 2024

<https://www.illawarramercury.com.au/story/8612313/licences-go-to-nations-first-offshore-wind-projects/>

Australia's first offshore wind projects will begin after being granted feasibility licences to unlock the energy, climate and economic benefits of the power source. Awarding licences for the nation-leading Gippsland zone off Victoria's coast, Energy Minister Chris Bowen said offshore wind would be "energy rich and jobs rich" for six development zones around Australia. "That's why major Australian energy users - from Alcoa in Portland, to BlueScope in the Illawarra, to Tomago in the Hunter - say that offshore wind is vital to their energy future," he told a conference in Melbourne on Wednesday. The proposed Gippsland projects alone could generate more than 15,000 jobs during construction and another 7500 ongoing jobs, he said.

Eyeing at least two gigawatts of offshore wind energy by 2032, 4GW by 2035 and 9GW by 2040, Victorian Energy Minister Lily D'Ambrosio said the zone would be key to the state's renewable energy transition. Those given the green light include Australia's most advanced project Southerly Ten's Star of the South and the developer's Kut-Wut Brataualung off Wilsons Promontory, as well as High Sea Wind, Gippsland Skies, Blue Mackerel North, and Orsted's Gippsland 01. Southerly Ten chief executive Charles Rattray said the group's two projects would power more than 2.4 million

homes and inject \$14 billion into the economy. "These licences signal that Australia is open for business and open to the economic opportunities offshore wind can provide for our regional communities," Mr Rattray said. "We've studied this area for five years under an exploration licence and know it's in a location with strong winds, ideal sea depths and suitable seabed conditions," he said. Southerly Ten is powered by investment from Copenhagen Infrastructure Partners, which has been progressing Star of the South since 2017 with Cbus Super and Australian founders.



Energy Minister Chris Bowen has granted offshore wind licences for the Gippsland zone. (AP PHOTO)

As the world's leaders in offshore wind line up to develop Australian waters, Mr Bowen said six more developers were offered licences subject to further engagement with traditional owners. These include Iberdrola's Aurora Green, Gippsland Dawn, Navigator North Project, Orsted's Gippsland 02, Kent Offshore Wind and the Great Eastern Offshore Wind Farm Project. Together, the 12 projects would generate 25GW of electricity, or more than 10 times AGL's Loy Yang A coal-fired power plant when operational.

The licences allow developers to do environmental assessments, geotechnical surveys and obtain approvals before a commercial licence for generating electricity can be considered, with the red tape usually requiring at least seven years to get to first wind. Mr Bowen also released further details in a capacity investment scheme that is bringing on 32GW of new reliable renewable power, and the offshore wind program. Successful bidders have been shortlisted for the Victoria-South Australia tender to provide an additional 600MW of capacity by 2030. A massive oversubscription of bids totalling 19,000MW of capacity submitted showed "exceptionally strong investment appetite plus industry confidence" in the scheme, he said.



---

## Australia's cleanest garbage truck beating expectations in the Illawarra

Date: 22 April 2024

<https://www.illawarramercury.com.au/story/8600618/illawarras-hydrogen-powered-garbage-truck-a-success-remondis/>

In the first six months of operation, the [Illawarra's hydrogen-powered garbage truck](#) has saved 22 tonnes of carbon dioxide, more than the average Australian household's carbon footprint in an entire year. The [Australian-first trial of a hydrogen powered garbage truck](#) began in October last year and according to waste contractor Remondis, the vehicle is performing well above its targets. "We can say the truck has performed ahead of expectation," Chris Wade, Remondis Australia south coast region manager, said. "It operates just like our diesel trucks do, only it's quieter and of course it's a zero-emission vehicle." So far, the truck has collected over 60,000 bins and carried 60 tonnes of waste across 6700 kilometres.

The first hydrogen-powered garbage truck begins its run in the Illawarra. On a peak day, the truck lifted 1254 bins, carried over 15 tonnes of waste and in 10 and a half hours travelled 166 kilometres, climbing 2310 metres along the way. Mr Wade said all this was done while emitting only waste vapour. "Most pleasing is that more than 22 tonnes of carbon that would be emitted by an equivalent diesel truck have been spared," he said. The trial of the hydrogen garbage truck is paving the way for other [governments and businesses to use zero-emissions hydrogen](#) instead of diesel for heavy vehicles.



Chris Wade, regional manager at Remondis, and the hydrogen-powered garbage truck that has been picking up bins throughout the Illawarra. Picture by Robert Peet

While consumers have generally opted for battery-powered electric vehicles, the heavier weights of large vehicles such as trucks and buses has made hydrogen a more attractive option. In the Illawarra, hydrogen power vehicles can refuel at the [Coregas hydrogen filling station](#) inside the Port Kembla steelworks, enabling local fleets to start running on hydrogen. The hydrogen is

produced from natural gas, what is known as 'grey hydrogen', with greenhouse gases emitted in the production process. Having the hydrogen garbage truck in action puts the nascent hydrogen ecosystem in the Illawarra into practice. "The progress opens the door for industry and governments in Australia to look at embracing this technology as a serious zero emission transport alternative." Despite this progress, in December the Illawarra was [overlooked under the Albanese government's \\$2bn Hydrogen Headstart](#) fund, with no projects in the region on the shortlist.

---

## Focus on Illawarra jobs as Albanese pushes locally made renewables

Date: 11 April 2024

[Domestic manufacturing warning for Illawarra in green energy boom | Illawarra Mercury | Wollongong, NSW](#)

The Illawarra could be saddled with cracking wind turbines and miss a generation of opportunities in the renewable energy sector if governments don't get local content policies right, a new report has warned, as Australia steps up its ambition to manufacture more renewable energy infrastructure domestically. On Thursday, Prime Minister Anthony Albanese delivered a landmark speech in Queensland, outlining the government's vision to fund advanced manufacturing and clean energy in the proposed Future Made In Australia Act. This follows the \$1 billion announcement to manufacture solar panels in the Hunter made last month.

However, a new report commissioned by the Australian Manufacturing Workers Union warns that if government policies around skills and local content are not strengthened, this investment could be for naught, and industrial regions like the Illawarra would miss out on jobs and investment. Released on Wednesday, the report identifies opportunities in battery manufacturing, wind-power, solar manufacturing and building electric heavy vehicles, however cautions that without funding and the right policies, Australia's potential in these areas could be squandered. The Illawarra is no stranger to this, with proposals across a range of these areas including local [wind towers](#), [electric vehicles](#) and [battery manufacturing](#) stymied by policy and funding decisions.



The Port Kembla coal terminal overlooks the site of a proposed future wind farm assembly site in Port Kembla. Picture by Anna Warr

AMWU acting NSW & ACT state secretary Brad Pidgeon said what was holding the region back was strong industry policy. "That should be coming out of the Illawarra through good procurement policy and legislation that allows us to have a domestic manufacturing capability, but we need to have the right investment and right levers to do this," he said. "There are many businesses out there that want to partake in this energy transition more, but they need a firm commitment about getting the right investment, the right skills and training for their workforce and long term stability."

The state and federal governments have committed to establishing a renewables skills centre in the Illawarra, at the University of Wollongong and Wollongong TAFE, however there are concerns that the closure of coal mines before major renewable projects kicks off could lead to a brain drain from the region.

In addition, while there has been \$43 billion of interest in the proposed Illawarra Renewable Energy Zone from private interests, there has been little movement locally and other regions have been delayed as the government grapples with pushback on transmission lines.

Mr Pidgeon said while the federal government was taking steps in the right direction, both levels of government need to coordinate, for example in local content and procurement. "We recognise we can't manufacture everything here in Australia, but certainly we should make sure that we can maximise participation from industry where we can." If this doesn't occur, Mr Pidgeon said, this would lead to inferior products and a lost generation of workers. "What we're seeing from imports is inferior products, many of these wind towers have got to be repaired due to cracks in the steel, which is a concern," he said. "Renewable energy is going to happen whether we like it or not, and if we don't get this right then we'll miss the opportunity to create jobs locally, to have skilled people and have investment in our regional economies." The Port Kembla Energy Terminal, due for completion in 2025-26, will be capable of supplying more than 70 per cent of NSW's gas needs before turning to importing and exporting green hydrogen.

---

## Squadron considering accelerating Port Kembla gas terminal launch

Date: 11 April 2024

[Port Kembla gas import terminal opening hinges on demand | Illawarra Mercury | Wollongong, NSW](#)

The Port Kembla gas import terminal could be up and running a year earlier than last forecast but households and gas-reliant businesses shouldn't expect any major relief on their power bills from the terminal anytime soon. Located Port Kembla's inner harbour, the \$300 million gas import facility is part of Andrew 'Twiggy' Forrest's energy arm - [Squadron Energy](#) - and has been under construction since 2021. Speaking to local media at the construction site on Thursday, recently appointed Squadron Energy CEO Rob Wheals said the terminal could be operational by mid 2025, a year earlier than forecast by AEMO, but the market conditions needed to be right. "We could be ready by 2025 if that's what the market requires, and then obviously what we'll do in that case is make sure that the floating storage and regasification unit (FSRU) is [ready]," he said.

The Port Kembla Energy Terminal is nearing completion, but any gas bill relief for Illawarra households and businesses could still be a way off. In its latest forecast released in March, energy market regulator AEMO expects the import facility, which allows for liquefied natural gas to be shipped to Port Kembla in tankers, before being converted back into gas to be fed into the gas grid, to be operational from 2026. This is expected to align with a shortfall in gas production in southern Australia, as gas fields in the Bass Strait reduce production. In the short term, the ACCC has forecast a gas surplus for mid 2024, but warned the outlook beyond that was "uncertain". "The storms in

Victoria in February, which led to coal power station outages and increased demand for gas-powered generation, are an important reminder that demand forecasts can quickly change," ACCC chair Gina Cass-Gottlieb said. The current 2026 date is much later than when the Port Kembla terminal was originally announced, with early indications the terminal could be up and running by late 2023.



The terminal will allow imported gas to be added to the grid. Picture by Adam McLean

However, these hopes were scuppered, both by practical and economic concerns. The outbreak of war in Ukraine delayed the delivery of the FSRU, essentially a floating factory which turns the liquid methane into gas, as the in-demand unit was required to support gas deliveries into Western Europe as Russian pipelines were cut off. In addition, with gas markets already exceptionally volatile, most large customers were tied into long contracts, meaning the import terminal struggled to find a buyer - [apart from itself](#). "Conversations with all customers are ongoing," Mr Wheals said. Currently, around 100 workers are on site, with the quay wall and dredging for the berthing bay finished and landside works including fire systems and the all-important connection to the gas main nearing completion. But with [businesses in the Illawarra reporting paying tens of thousands of dollars more for gas](#), Mr Wheals said prices needed to get to a certain level before it made economic sense to have the import terminal enter its final phase. "This facility provides much needed gas to meet the market," Mr Wheals said. "If you have a shortage of supplies, that's when you see higher prices, this facility will meet the demand to ensure that prices don't continue to escalate."

---

## Research project aims to revolutionise the steel industry

Date: 10 April 2024

[2024 | \\$4.2 million secured to decarbonise steel production - University of Wollongong – UOW](#)

Australia is the world's foremost exporter of iron ore, accounting for as much as 53 per cent of global exports annually. The process of decarbonising the iron and steel value chain stands to deliver a substantial contribution to global efforts aimed at reducing emissions. A team of University of



Wollongong (UOW) researchers has secured \$4.2 million funding from the [Australian Renewable Energy Agency](#) (ARENA) and industry partner BlueScope Steel to investigate ways to utilise low and medium grade iron ore in low emission steelmaking and further decarbonise domestic steel production.

Project leaders, Dr [Xue Feng Dong](#) and Dr [Raymond Longbottom](#), together with Professor [Brian Monaghan](#) and Dr [Paul Zulli](#), of UOW's [School of Mechanical, Materials, Mechatronic and Biomedical Engineering](#), will explore the viability of Australia's abundant, low to medium grade Pilbara iron ores in a potential breakthrough, low-emissions, electric smelting furnace (ESF)-based steelmaking route. The team will work in close collaboration with senior BlueScope ironmaking and engineering officers to help ensure delivery of high impact research and development outcomes across the steelmaking supply chain. In this project, the team will compare the performance and suitability of three types of Pilbara ore products - lump, fines and pellets - for direct reduction and hot metal production through an electric smelting furnace using a combined high temperature experimental and computational modelling approach.

"This project stands to revolutionise the steel industry and bring net-zero one step closer through assessing the way the country utilises all of its ores and helping establish future low emission steelmaking technology," Dr Dong said. "Over the next five years our team will collaborate with our industry partner to thoroughly investigate the long-term viability of utilising Australia's Pilbara ores in the emerging ESF process, including identifying and addressing some future challenges and process constraints for low emission steel production." UOW is the home of the ARC Research Hub for Australian Steel Innovation ([Steel Research Hub](#)), which is supporting the transition of Australia's steel manufacturing industry to a more sustainable, competitive and resilient position based on the creation of new, higher value-added products and more advanced manufacturing processes.

UOW Deputy Vice-Chancellor and Vice-President (Research and Sustainable Futures) Professor [David Currow](#) said the University's team of researchers stood at the forefront of global steel innovation and advancement. "This funding ensures the momentum of our steel research work, fostering its expansion and continuation," Professor Currow said. "The steel industry has long been integral to Wollongong's identity, and this project will seamlessly integrate its rich history with the city's forward-looking vision for research and innovation. Through collaboration with our esteemed government and industry partners, the University remains committed to delivering exceptional research, and driving economic and environmental security for the communities in which we operate and for the nation." This Project received funding from the Australian Renewable Energy Agency (ARENA) as part of ARENA's Advancing Renewables Program, with further funding through industry partner BlueScope Steel.

---

## EU Energy Commissioner Visit to Port Kembla

Date: 5 April 2024

The Port Kembla Hydrogen Hub hosted a visit from the [EU Energy Commissioner](#) to Port Kembla on the 5 April 2024. At a forum held at the BlueScope Visitor Centre with local stakeholders, Commissioner Simson provided an overview of her role as Energy Commissioner over the past five years including highlights such as playing a key role in securing European gas supplies after the Russian invasion of the Ukraine. The Commissioner also heard about the region's clean energy transition including [BlueScope's](#) decarbonations plans. UOW Vice Chancellor University, [Patricia Davidson](#) spoke about the \$10million Energy Future Skills Centre that will help train the workforce needed to support the transition to clean energy.



The Commissioner visited [EnergyAustralia](#) Tallawarra site which is home to Australia's most efficient power station - the gas fired Tallawarra A. The recently commissioned Tallawarra B power station is the first in the country to be hydrogen capable. Commissioner Simson also visited the [Hysata](#) electrolyser manufacturing facility where she addressed the staff and toured the 8,000 square metre facility.



EU Energy Commissioner Kadri Simson addressing Hysata staff

---

## Illawarra embarks on green energy transformation

Date: 3 April 2024

<https://www.afr.com/policy/energy-and-climate/illawarra-embarks-on-green-energy-transformation-20240223-p5f7ef>

Wollongong is rapidly transforming into a hub for green energy and sustainable innovation. Last year the NSW government identified Wollongong and the Illawarra as one of five Renewable Energy Zones (REZs), which could unlock a prospective 44 projects in the region worth \$43 billion in investment. [Green Gravity's](#) renewable energy technology harnesses a universal force for clean, green power.



“The region is an ideal location due to its major energy, port and transport infrastructure, and just one hour south of Sydney, coupled alongside a highly skilled workforce and a strong manufacturing / industrial base,” says Mark Grimson, economic development manager at [Wollongong City Council](#). “There are a range of initiatives positioning Wollongong as an attractive location for businesses and investors interested in clean energy.” “We have the advantage of not only becoming a source of clean energy production (including exports), but also a major industrial user of clean energy, including hydrogen.”



Mark Grimson, economic development manager at Wollongong City Council.

Alongside this, in 2021, with the release of the NSW Hydrogen Strategy (2021), the NSW government has also selected Port Kembla as one of two green hydrogen hubs across the state.



Advertisement “Port Kembla is an ideal location for ongoing investment into large-scale hydrogen production,” says Grimson. “The Port Kembla Hydrogen Hub has an ambitious vision to be Australia’s first 5GW-plus scale green hydrogen hub and aims to service domestic and export markets by 2030.” BOC has received NSW government funding to construct a 10MW electrolyser to produce green hydrogen at their Port Kembla facility. The project will produce up to 4000kg/day of green hydrogen that will be used to power some 40 fuel cell electric buses and trucks. Wollongong is also home to Energy Australia’s \$300 million Tallawarra B project, which is being commissioned now and will deliver Australia’s first dual fuel capable power station, to be powered by a blend of gas and green hydrogen with direct emissions offset.

In the private sector, local start-up companies coming via the University of Wollongong’s [iAccelerate](#) program including [Sicon](#) and Green Gravity, along with companies like Hysata who are commercialising world leading research and development out of UOW, highlights the region has the research capabilities to help clean energy initiatives launch and grow. Last year federal Minister for Climate Change and Energy, Chris Bowen announced the commencement of public consultation for the Illawarra Offshore Wind Zone, a 1461 square kilometre area with the potential to generate up to 4.2GW from offshore wind farms - enough to power up to 3.4 million homes. “At a local government level, through its Climate Change Mitigation Plan, Wollongong City Council has set a path to achieve net zero emissions for Council operations by 2030 and net zero community emissions by 2050,” says Grimson.

Wollongong is also home to Australia’s first zero emissions, hydrogen powered garbage truck which will reduce green gas emissions from council’s operations. The new truck, launched in October 2023 is significantly quieter than diesel trucks and relies on hydrogen combined with air to generate electricity for motor function, only emitting water vapour. Wollongong City Council and the NSW government have also joined forces to engage Inside Industry to run Clean Energy tours as part of the Clean Energy Education Program. Tours are available to the general public, community groups, schools as well as to industry groups and key stakeholders. And the growing number of local clean energy initiatives in Wollongong are opening up job opportunities for locals to work in the sector, says Grimson. “They will also help to position Wollongong as a clean energy hub, a place where clean energy innovation and thinking is supported and encouraged.” “Combined with the current and potential projects in the pipeline, clean energy is poised to contribute to Wollongong’s ongoing economic transition while supplying much needed innovative clean energy solutions.”

Green Gravity is literally harnessing a universal force for clean, green power. Unlike traditional methods that rely on water and consume vital resources, Green Gravity uses heavy weights that are lowered and raised into disused vertical mineshafts to convert potential energy into electricity. “Green Gravity’s energy storage technology represents a breakthrough in the search for economic long-duration storage of renewable energy,” says Mark Swinnerton, the company’s founder and CEO.

The company’s approach not only reuses abandoned mining infrastructure but also improves the economics of wind and solar power, accelerating the transition away from fossil fuels. “Redeploying abandoned but abundant mining infrastructure in regions like Wollongong, and many others lowers both the capital and environmental outlay of the technology,” says Swinnerton. “The environmental challenge we are working to resolve is related to carbon emissions from energy. “As renewable energy is added to the grid to displace coal and gas, there is a resulting variability created due to the production profile of wind and solar energy. Green Gravity has developed a technology to store renewable energy when it is produced and then reproduce the energy back to the grid when it is needed.”



Green Gravity founder and CEO Mark Swinnerton.

Support from BlueScope Steel, in the form of capital and industrial warehouse space, reinforced the potential for large and small enterprises working together in Wollongong on the development of new clean energy technologies. BlueScope Steel has several unused sites that it is keen to repurpose and has partnered with Green Gravity to establish The Gravity Lab™ on land alongside a 103-year-old abandoned foundry. “It’s the heart of heavy industry in Australia and we’ve cleared a space and built something that’s cutting-edge for the future of energy,” says Swinnerton. “Right beside us we have an old power plant that’s one of the earliest big power plants in Australia and it’s a stone’s throw from the future of energy.”

Paul Barrett, the CEO of Hysata, is another visionary leader pushing the boundaries of green energy in Wollongong. Hysata is manufacturing the world’s most efficient electrolyser, a critical component for producing green hydrogen. The company’s technology, invented at the University of Wollongong, operates at an impressive 95 per cent system efficiency. “This is a giant leap in performance and cost over incumbent technologies, which typically operate at 75 per cent efficiency or less,” says Barrett. “This high efficiency, coupled with the simple approach to mass manufacturing and low supply chain risk puts us on a path to delivering the world’s lowest cost green hydrogen.” In 2023, Hysata were acknowledged as an Energy Transition Changemaker by the COP28 UAE Presidency for their project with Stanwell Corporation Limited supported by the Australian Renewable Energy Agency. Hysata was the only Australian company to receive a top accolade at the event.

Hysata recently opened an 8000 square meter manufacturing facility in Port Kembla, signalling the next phase of the firm’s growth. Hysata’s plans includes constructing a 100MW per annum production line, with commercial-scale units scheduled for delivery in 2025. This transition to green hydrogen as a clean energy source aligns with global efforts to tackle climate change. Hysata expects to contribute to the decarbonisation of the local community, create local jobs, and add value to the region’s products and exports. With the region already constrained by affordable renewable



electricity, Wollongong faces a difficult pathway to decarbonise without massive investment, says Barrett. “Hysata’s high efficiency electrolysers reduce renewable electricity consumption by 20 per cent to achieve the same output of hydrogen,” he says. “This efficiency gain allows our steel mills, chemical manufacturers, and logistics providers to decarbonise their operations using green hydrogen, while simultaneously saving more renewable electricity to charge our electric vehicles and decarbonise small businesses and households.” The company’s role extends beyond technology; Barrett envisions the region becoming a manufacturing hub for clean technologies, particularly electrolysers.

[Invest Wollongong](#) is a long-term strategic partnership between Wollongong City Council, the NSW government, and the [University of Wollongong](#). The organisation focuses on promoting Wollongong as a superior business location, attracting private sector investment, and providing tailored services to businesses interested in establishing or expanding in the region. “Our team can introduce businesses to specialists and levels of government in our region ready to help them identify opportunities, develop strategic partnerships, and provide advice specific to their investment or business needs,” says Grimson. “We do this by supporting businesses, whether they are a new start up, scaling up or looking to relocate their business, set up a regional or set up a satellite office, with everything they need to assess Wollongong as a viable business location.”

---

## 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](mailto:nigel.mckinnon@regional.nsw.gov.au).