

**Submission
No 16**

INQUIRY INTO DEVELOPMENT OF A HYDROGEN INDUSTRY IN NEW SOUTH WALES

Organisation: Wollongong City Council

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NSW Standing Committee on State Development
Parliament of New South Wales
6 Macquarie Street
SYDNEY NSW 2000

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Dear Sir/Madam

DEVELOPMENT OF A HYDROGEN INDUSTRY IN NEW SOUTH WALES

Wollongong City Council welcomes the opportunity to provide a submission to the NSW Standing Committee of State Development inquiry into the development of a hydrogen industry in New South Wales.

Wollongong is a city committed to a clean energy future with demonstrated capability to develop a large-scale hydrogen industry, as identified by both the Commonwealth and New South Wales Governments. Wollongong City Council strongly supports this vision and is working proactively to encourage the development of a hydrogen hub at Port Kembla. This will not only help the city achieve its adopted target of net zero emissions by 2050 but also deliver long lasting economic benefit to the both the Illawarra region and New South Wales.

This submission aims to inform the inquiry of Wollongong's capability as a location for large-scale hydrogen production and export and advise of the next phase in its development as a large-scale hydrogen hub.

Wollongong: a globally connected, international trade hub

Wollongong is the regional capital of the Illawarra, contributing \$12.2B (60%) of the Illawarra's \$20.4B economy. By 2041, Wollongong will be home to more than 265,000 residents, part of a broader population of almost half a million people across the Illawarra region.

Wollongong is a city transformed. Traditionally known for its world class steel making and coal mining industry, Wollongong today is an important knowledge service centre, a globally connected international trade hub and home to an industry-focused global university. Wollongong is New South Wales' third largest city, approximately 80km south of Sydney. Wollongong is strategically located just over an hour south of Sydney International Airport, just over two hours from Canberra and has global connections through the port of Port Kembla.

In September 2019, Council adopted its Economic Development Strategy 2019-2029, setting a target of 10,500 net new jobs within Wollongong over the next decade. Many of these new jobs will be in sectors such as Professional Services and Technology, but there is also an opportunity to build on Wollongong's existing skill base in Advanced Manufacturing, supporting jobs in emerging sectors such as Clean Energy. Manufacturing employs close to 11,500 people across the Illawarra Shoalhaven region, 67% within Wollongong local government area (LGA), and remains the largest sector in terms of export income.

Council through its participation in the Invest Wollongong partnership (along with the NSW Government and the University of Wollongong), has identified clean energy as a target investment sector. Wollongong is envisaged to play a key role in Australia's decarbonised energy future, with Port Kembla identified as a superior location for Australia's first large scale hydrogen facility.

Wollongong has a supportive business environment with a highly collaborative manufacturing sector. Council currently supports the Illawarra Innovative Industry Network (i3net), a network established to promote the collective capability of the manufacturing industry to local, national, and international markets. The network is comprised of over 55 local companies employing over 10,000 personnel. Whilst representing the interests of the

region's industry, i3net collaborates closely with the Department of Regional NSW (DRNSW), the University of Wollongong (UOW), NSW TAFE and Wollongong City Council.

At a local level, i3Net on behalf of the Industry submitted an application to the National Energy Resources Australia's recent EOI process to establish a series of Hydrogen Technology Cluster across the country. Despite an established ecosystem and a submission with strong local support, with the backing of UOW, the Port Kembla application was not successful.

Wollongong City Council, with the support of other regional economic and business interests, request the NSW Government finance a second business case and opportunity for a hydrogen industry cluster/hub to be established at Port Kembla.

The network advocates strongly for the continued development of a local hydrogen cluster at Port Kembla, to build the capabilities of companies and opportunities within the hydrogen supply chain and industry.

Wollongong is committed to a clean energy future

Over the last five years, Wollongong City Council has embarked on significant environmental policy development and partnerships to address the ongoing threat of climate change and promote a clean energy future. A summary of Council's recent plans and activities is as follows:

- In August 2017, Council became a signatory to the Global Covenant of Mayors for Climate and Energy (GCoM), which commits Council to a series of activities to achieve a resilient and low-emission society
- In August 2019, Council declared a state of climate emergency that requires urgent action by all levels of government. As part of the GCoM, Council set a target of net zero emissions by 2050 for the City of Wollongong. Council also recognised the significance of its own contribution to the city's emissions and the need to demonstrate leadership, and so set a target of net zero emissions by 2030 for its own operations
- In January 2020, Council joined the City Power Partnership Program (CPP) to help reduce emissions and to promote opportunities to our community and businesses. This program will support the city's transition to a clean energy future by providing access to a range of resources to help evaluate and monitor actions and opportunities to collaborate and share knowledge with other Councils
- At its meeting of 16 November 2020, Council adopted its Climate Change Mitigation Plan 2020 and Sustainable Wollongong 2030: A Climate Healthy City Strategy

Council's Climate Change Mitigation Plan 2020 recognises the need for Council to stay up-to-date with electric, hybrid and hydrogen vehicle technology, infrastructure needs, and opportunities to support the transition from non-renewable fossil fuels. The Plan identifies the long-term benefit of developing alternative fuels including lower running costs for users, reduced air pollution and lower greenhouse gas emissions, health benefits from air quality improvements, and reduced noise which will improve liveability. It will also contribute to improved energy security through reduced reliance on imported, non-renewable fuels.

The Plan notes the transformational opportunities presented in the transport sector through a shift to fuel cell electric vehicles (FUEVs) to complement the already underway uptake of conventional electric vehicles (EVs). Fuel Cell Electric Vehicles (FCEVs) powered by renewable hydrogen have high range and quick refuelling times and when combined with the use of EVs, there is a long-term opportunity for all motorised vehicles to be an emissions-free solution at point of vehicle use. The opportunity for hydrogen vehicles is particularly relevant given Port Kembla's role as a major logistics and freight hub. The Plan acknowledges that hydrogen refuelling infrastructure, not currently available, is necessary though to support commercialisation of this potential market.

National and State Policy Context

The Commonwealth of Australia released Australia's National Hydrogen Strategy in November 2019. A key element of the Strategy is port based hydrogen hubs that can build scale and capacity by leveraging existing infrastructure to service initially domestic markets, scaling into exports by 2030 as international demand builds and firms up. The port of Port Kembla was identified as a potential hydrogen export hub in the Strategy.

The NSW Government through DRNSW is coordinating a regional effort with a vision to create Australia's first large scale 5-gigawatt (GW) hydrogen hub to service domestic and export markets by 2030 at Port Kembla.

The hub would successfully integrate production with multi sector utilisation opportunities across gas network injection, industrial processes, transport (cars, buses trucks trains and shipping), power generation and export.

To deliver on the vision, the Port Kembla Hydrogen Hub has been established, which aims to maximise the opportunities through:

- Facilitating the more than \$2.5B of major energy projects in hydrogen production, power generation, gas pipeline, import and export terminal infrastructure at the port of Port Kembla
- Supporting technology demonstration projects that leverage existing infrastructure, connect industry expertise with research institutions and create new highly skilled jobs
- Educating the community about the benefits of a hydrogen economy to build public trust, confidence, and social licence to operate

The Draft Illawarra Shoalhaven Regional Plan 2041 also recognises the development of Port Kembla as an international trade hub, NSW's second container port and emerging hydrogen hub to grow the local economy and new jobs in the clean energy sector. Specifically, the Draft Plan contains the following strategy 15.3 to "promote opportunities for clean energy in the region including pumped hydro, hydrogen and biogenic gas" (pg. 57).

Further, the Draft Illawarra Shoalhaven Regional Transport Plan identifies that the regional freight task will continue to grow over the next 20 years, particularly with Port Kembla identified as a future container terminal, and a future hub for hydrogen production and export. The Plan notes that to support this expansion, supporting road and rail networks will need to embrace technology-driven solutions, and address first mile/last mile limitations.

The Draft Plan contains the following vision for Port Kembla over the next 20 years:

"The region will be well on the way to a low emissions future, with Port Kembla playing a key role in hydrogen production and distribution. With the ongoing transition of the electricity grid to renewables, public transport services will be both cleaner and more accessible and take up of electric vehicles will be supported by a comprehensive, local fast charging network underpinning the electric evolution of the vehicle fleet." (pg. 21)

The Draft Plan notes the following:

"To reach net zero emissions by 2050, the transport sector will need to play a key role in this transition towards a low emissions future. With Port Kembla identified as a potential hydrogen hub and electric vehicles forecast to reach upfront price parity with traditional combustion engine vehicles in Australia from 2046, the region's transport network and transport fleet will need to evolve to capitalise on this change" (pg. 17)

"To boost the commercialisation of low emissions hydrogen production and applications, the NSW Government has set an aspirational target for hydrogen to comprise up to 10% of the gas network by 2030. This commitment is likely to have associated benefits for the transport sector and could open up opportunities for hydrogen fuel cell vehicles across New South Wales". (pg. 48)

"Transport for NSW, in conjunction with the DPIE and DRNSW, will investigate opportunities with key industry partners for a hydrogen mobility pilot in the Illawarra-Shoalhaven. If supported, the pilot would provide valuable lessons for New South Wales on the wider expansion of hydrogen use in the transport sector, as well as support the growth of hydrogen-associated industries within the region" (pg. 48).

University of Wollongong's research capability

The UOW research and development area is currently addressing the issues of decarbonisation of the energy sector through the development of reliable and affordable hydrogen, syngas and biogas supply chains.

UOW researchers have also provided significant advances on the engineering and management of pipelines for carbon capture and storage projects. The headquarters of the Energy Pipelines CRC was at UOW for 10 years, as is its current successor, the Future Fuels CRC. This long-term collaboration has led to close engagement with all the natural gas and other energy suppliers in Australia, along with regulators, industry associations and government agencies.

UOW is also working closely with the NSW State Government, the Future Fuels CRC and Illawarra industry and energy suppliers as part of the Port Kembla Hydrogen Hub in the region. UOW is well positioned to be a leading research provider into the larger hydrogen energy drive within Australia. UOW is also part of the NUW Alliance - with the University of Newcastle, University of NSW and Western Sydney University. The Alliance is developing the NUW Energy initiative, of which, UOW brings unique and complementary skills and capabilities to this work.

Port Kembla as a large-scale hydrogen hub

The Illawarra region is particularly well suited to capitalise on both the use of hydrogen and the development of supporting technologies that will enable the adoption of the hydrogen supply chain. Companies in the region contain a mix of heavy industrial, engineering, technology and services businesses that support a client base that extends across the region, NSW, Australia and internationally.

The Illawarra region has a long history of innovation within the industrial sector, most notably in mining and manufacturing, which have shown the region's ability to diversify to adapt to the needs of the market place. The businesses within this region have developed a high level of resilience as they have continued to evolve to improve the way they deliver value to clients across the region, around the country and internationally. Continued development of a national hydrogen cluster will provide the opportunity for a number of these businesses to develop their product and service value offering, being part of this new industry and creating new jobs.

The region has already attracted the attention of several significant projects that will provide early-stage opportunities for the adoption of hydrogen and development of a regional industry focusing on supporting the hydrogen supply chain. These include H2X's announcement of their intent to build a hydrogen fuel cell vehicle manufacturing facility, Energy Australia's Tallawarra power station expansion, Australian Industrial Energy's (AIE) gas import terminal and potential gas turbine, and investigation to possible adoption of hydrogen into the steelmaking processes at BlueScope Port Kembla Steelworks.

Industrial gas company Coregas has operated a gas production facility at the Port Kembla steelworks for over thirty years. Coregas operate the largest hydrogen merchant facility in Australia, producing marketable hydrogen (2,000kg/day capacity) in a range of certified purities for industrial, food production, scientific and transport mobility applications. Coregas are providing technical services to the \$500M Hydrogen Energy Supply Chain Project in Victoria.

Port Kembla is an ideal location for large-scale clean energy hydrogen production due to the following factors:

- Access to significant quantities of renewable electricity and recycled water
- Access to customers across the industrial, heavy transport, electricity generation, gas network injection sectors in the Illawarra and proximity to the Sydney market, as well as to export markets such as Japan and Korea (through the internationally-connected port)
- Access to distribution infrastructure including road, rail, the Eastern Gas Pipeline, connecting to 80% of Australia's population and industry
- An industrialised precinct for 24/7 operations
- An existing supply-chain and skills base that could pivot to support large-scale hydrogen production

Attachment A is an Investment Prospectus for the Port Kembla Hydrogen Hub prepared by DRNSW.

Port Kembla Hydrogen Hub Development Plan

The next phase of work for the Port Kembla Hydrogen Hub working collaboratively with local stakeholders, is to develop a roadmap for a 5GW clean energy hydrogen hub supporting multiple GW scale water electrolyser production facilities. The Plan aims to assess the following:

- Potential GW production facility site locations
- Production technology and demand (power to X)
- Electrical infrastructure and grid connections
- Gas pipeline infrastructure
- Export terminal site and connections
- Refuelling station site location identification

Further, the Port Kembla Hydrogen Hub is advancing several initiatives related to future transport mobility, including a series of community education workshops in 2021 to showcase hydrogen fuel cell technology as a key enabler of zero emission transport.

Wollongong City Council commends the NSW Government on its support for the development of a hydrogen industry in NSW and looks forward to continuing to work in partnership to deliver on the substantive environmental and economic opportunities associated with the potential of a large-scale hydrogen industry.

Please contact Mark Grimson, Economic Development Manager on _____ should you require further information.

Yours faithfully

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Attachment A: Port Kembla Hydrogen Hub – Investment Prospectus November 2020