

**INQUIRY INTO DEVELOPMENT OF A HYDROGEN
INDUSTRY IN NEW SOUTH WALES**

Organisation: Coregas
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Standing Committee on State Development
NSW Legislative Council
Parliament House
6 Macquarie Street
Sydney NSW 2000

Dear Standing Committee Members

RE: INQUIRY INTO THE DEVELOPMENT OF A HYDROGEN INDUSTRY IN NEW SOUTH WALES

Coregas appreciates the opportunity to provide input into the NSW Legislative Council's Inquiry into the Development of a Hydrogen Industry in New South Wales. As a company active within the State's hydrogen sector for over 30 years, we welcome the Standing Committee on State Development's interest in developing this important industry.

As a Wesfarmers company, Coregas is the only Australian owned industrial gases company. We manufacture gases locally and distribute throughout Australia and New Zealand to almost all industries, ranging from heavy industry and manufacturing to healthcare and specialty users such as universities and laboratories.

Coregas is a leading manufacturer and supplier of hydrogen producing the gas at our Port Kembla plant and distributing it across Australia for a wide range of applications, including for projects in the burgeoning hydrogen economy such as hydrogen mobility and hydrogen for export. We see an enormous future for hydrogen in Australia and we are working diligently with partners to build a foundation to support the sector to scale.

Details of our key hydrogen projects are outlined below.

Hyundai Australia hydrogen refuelling station, Sydney NSW

Coregas has been assisting Hyundai Australia since 2015 when it commissioned the first hydrogen refuelling station in Australia to support its growing fleet of fuel cell electric vehicles.

Through a supply agreement with Hyundai, we have been providing high-purity hydrogen suitable for use in mobility from our Port Kembla facility since the introduction of its first vehicle to Australia and continue to supply hydrogen on an ongoing basis.

Coregas also provides operations and maintenance support to Hyundai to ensure the reliability and performance of their refuelling station – an important task given the absence of a backup station in Sydney.

Western Sydney Green Gas project – Green hydrogen for mobility, Sydney NSW

Coregas has entered into a Memorandum of Understanding with Hyundai Australia and Jemena to produce and deliver green hydrogen gas to Hyundai's Macquarie Park headquarters.

Coregas will provide a compressor, pipework and connectors for filling and discharging hydrogen which will be located at Jemena's Western Sydney Green Gas project. The project will demonstrate that renewably generated hydrogen can be made directly available to the vehicle and transport sectors and

will provide an opportunity for Coregas to supply green hydrogen for the first time across Sydney and beyond.

Hydrogen Energy Supply Chain, Latrobe Valley VIC

Coregas is providing its expertise in design, risk assessment, liquefaction and transportation of hydrogen in the world first pilot project to ship liquefied hydrogen from Victoria to Japan.

Known as the Hydrogen Energy Supply Chain (HESC), Coregas is supporting the pilot project through the onsite support and equipment for the gasification plant at Loy Yang in the Latrobe Valley and the state-of-the-art liquefaction and loading facility at nearby Port of Hastings.

Coregas has also been awarded the contract for the operation and maintenance of the liquefaction plant in its demonstration phase.

Together, this experience demonstrates Coregas' capability in hydrogen supply chain development from production to distribution and use, and our commitment to developing a safe, scalable and prosperous hydrogen sector for Australia.

Our commitment to developing the Port Kembla hydrogen hub

Hydrogen is expected to play a significant role in the global energy mix as the world shifts to cleaner sources of energy. While hydrogen solutions are technologically mature, concerted efforts are required to scale these technologies to realise their full potential. Governments and industry worldwide are responding, prioritising hydrogen's deployment through supportive policy and investment.

With its expertise, infrastructure, natural resources and trading relationships, Australia has a set of competitive advantages it can leverage to become a major hydrogen player. The size of this new Australian industry could be significant, with the potential to create thousands of new jobs and \$11 billion a year in additional GDP by 2050.

Port Kembla and the region of Illawarra-Shoalhaven is primed to be an epicentre of this emerging sector. The region possesses several advantages to foster the development of a thriving domestic and export hydrogen sector. Port Kembla in particular, with its deep-water port, electricity and gas infrastructure, water recycling plant, road and rail connections, R&D presence and finally, heavy-duty vehicle fleet is a prime location for a hub.

Hydrogen could therefore represent a sizeable economic opportunity for the region as it attracts jobs and investment to support increasing levels of production to serve sectors such as natural gas, steel production, transport and in future, export.

Port Kembla's hydrogen potential has been identified by the NSW Office of the Chief Scientist & Engineer, who in their recent Decarbonisation Innovation Study recognised it as a suitable location for a hydrogen hub. Port Kembla's potential as a hydrogen hub has also been endorsed by the Minister for Energy and Environment, the Hon Matt Kean MP.

As an operator of two Steam Methane Reformers (SMR) to ensure full redundancy, Coregas supplies a continuous stream of hydrogen to Port Kembla industrial users, notably BlueScope steel. This redundancy provides spare capacity, which can be leveraged to start the transition to a Port Kembla Hydrogen Hub without expensive investment in production capacity.

At this stage SMR is the most reliable and economical large-scale hydrogen production technology. However, when coupled with recycled water and biomethane, it will deliver renewable hydrogen. The carbon dioxide can also be captured, purified and used for water treatment, food freezing, green house injection, dry ice etc.

Coregas is currently exploring the opportunity to transition to biomethane for use in the hydrogen production process at our Port Kembla as part of a smooth transition to a clean hydrogen economy for the State.

Our commitment to developing the NSW hydrogen mobility sector

The transport sector accounts for 20 per cent of Australia's national greenhouse gas inventory and has been increasing for the last decade. In NSW, transport represents the second highest emitting sector and has seen the largest increase in emissions, increasing by over 50% between 1990 and 2008.

As one of the fastest ways to reduce carbon dioxide emissions from the transport sector, hydrogen mobility presents a significant opportunity for the State to address this problem while developing a new clean energy sector.

Fuel Cell Electric Vehicles (FCEVs) have significantly lower GHG emissions compared to conventional vehicles and can be zero-emission when hydrogen is generated from renewable energy. FCEVs are complementary to Battery Electric Vehicles (BEV), allowing a transition to zero-emission vehicles today for applications that remain hard to decarbonise due to their operational needs.

FCEVs do not release carbon dioxide or harmful particles such as nitrogen oxide (NOx), sulphur oxide (SOx) or fine particulate matter (PM2.5). They also offer quick refuelling and have a long driving range (500km+ on a single tank). Among zero emission powertrains, FCEVs therefore provide the longest range and shortest refuelling times.

Using hydrogen as a fuel in the transport sector will reduce emissions and improve local air quality, thus addressing both climate change and a major health issues whilst at the same time meeting climate targets. Heavy duty FCEVs trucks using cost effective hydrogen from SMR will reduce emissions by more than 50 per cent in comparison with a similar diesel truck. Further reductions could be achieved with hydrogen produced from biomethane or by electrolysis with renewable electricity, which as noted above, Coregas is currently exploring.

We have been collaborating with Hyundai Australia to foster the development of the NSW hydrogen mobility sector since 2015. We see an enormous opportunity for the state to become a leader in the development and deployment of this important technology and we look forward to continuing to be a central player through the supply and distribution of hydrogen as well as through providing our expertise in the space.

Requests to the Standing Committee

The transition to the hydrogen economy has started already. Australia is behind developments occurring in Europe, Asia and North America, but has a unique position that we can capitalise upon to be a hydrogen superpower.

Globally, 228 large-scale hydrogen projects now exist across the value chain, which if all come to fruition, will exceed USD 300 billion in hydrogen spending through 2030 – the equivalent of 1.4% of global energy funding. More than 30 countries now have hydrogen-specific strategies in place and governments have committed to more than USD 70 billion to support hydrogen initiatives.¹

¹ Hydrogen Council. 2021. Hydrogen Insights 2021. [online] Available at: <<https://hydrogencouncil.com/en/hydrogen-insights-2021/>> [Accessed 26 February 2021].

NSW needs to assess these initiatives, learn from their mistakes and release its own strategy to signal the state is 'open for business'. This has the potential to deliver quick results for NSW and position it on the global hydrogen stage. The strategy should include the following aspects if the State is to capitalise on the opportunity presented by hydrogen and put itself in a leadership position:

- Regulations – Introduction of clean fuel standards, more stringent emission standards and fossil fuels vehicle restrictions to accelerate the adoption of zero emission mobility, including hydrogen
- Incentives - Zero emission vehicle rebates, tax incentives and carbon pricing to reduce the total cost of ownership of a hydrogen vehicle versus equivalents
- Funding support – Infrastructure funding for hydrogen production facilities and refuelling stations to establish a network of filling points across NSW
- Government procurement – NSW Government to procure both hydrogen gas and vehicles for their own use and fleets as a tool to build the market in the first phase of its development
- Hydrogen Hub development – Focus and invest in hydrogen hubs that present competitive advantages, such as Port Kembla, to build large scale hydrogen production, multiple uses cases and position to the State for future hydrogen export

We thank the Standing Committee for the opportunity to participate in this inquiry and would welcome the opportunity to provide further information as required. Please contact myself by email on e:

or m:

Yours sincerely

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Innovation Manager
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