

HyNQ North Queensland Clean Energy Project

Newsletter #2: November 2023

About the Project

North Queensland Clean Energy Project (HyNQ) is a large-scale integrated project involving renewable energy, green hydrogen, the export of green ammonia and the production of green liquid hydrogen for the domestic market. It is being developed by Energy Estate with support from project partners CS Energy, Idemitsu Renewable Developments Australia & IHI Engineering Australia.

The project is planned to be located at the existing export terminal at Abbot Point, repurposing infrastructure into a decarbonisation platform to accelerate the energy transition for the region.

New Project Partner Announced

On 14 September HyNQ was thrilled to announce that a leading Japanese company, IHI Corporation (through its subsidiary, IHI Engineering Australia Pty Ltd) had joined the consortium of Australian and global energy players developing the Project.

IHI Corporation is recognised as a global technology leader in the design and delivery of large-scale green ammonia projects in Japan and other markets around the world.

The partners held a signing ceremony to welcome IHI. Chris Shaw (Deputy Director-General – Hydrogen, Department of Energy and Public Works), Paul Martyn (Director General,

Department of Energy and Public Works) and Mr Junjie Gomakubo (Consul-General of Japan) joined representatives from the Project partners at the signing that was hosted by the Department of Energy and Public Works at 1 William Street in Brisbane.

At the ceremony Kensuke Yamamoto, Associated Director of IHI Corporation commented “IHI sees HyNQ as an opportunity to secure long term supplies of green ammonia for the Japanese market & build upon the foundations of the strong and enduring partnership between Queensland and Japan.”

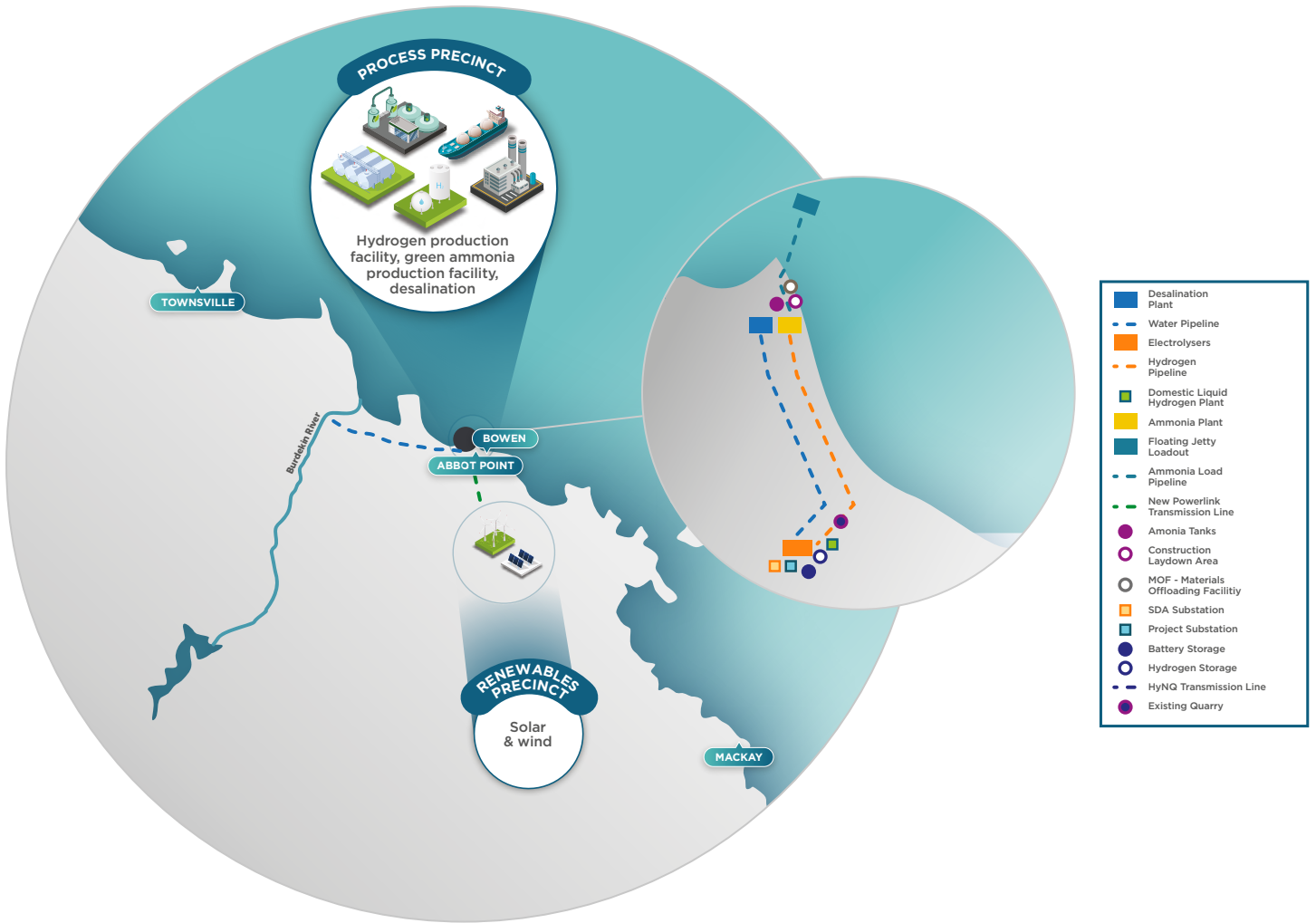


IHI signing ceremony : L to R - Chris Shaw Deputy Director-General – Hydrogen, Department of Energy and Public Works, Paul Martyn Director General, Department of Energy and Public Works, Mr Junjie Gomakubo Consul-General of Japan pictured with representatives of the four Project partners



Creating an Ecosystem

The infographic below shows the different proposed elements of HyNQ and the infrastructure which will support the development of a renewable exports super-hub at Abbot Point.



Vision for a clean energy future

A large-scale clean energy project like HyNQ can support the decarbonisation of different domestic industries including shipping, aviation, agriculture, chemicals, industrial processes and create new export industries.



Development Milestone Reached: Pre-Feed Study Complete

Our consortium has accelerated the development of the HyNQ project and recently reached a key milestone having completed our Pre-Front End Engineering Design (Pre-FEED) Study in September 2023. The Pre-FEED study, commenced in Q4 2022, demonstrates the viability of the Project through the following key components:

- Risks, Benefits and Opportunities,
- Planning Considerations,
- Land Assessments,
- Energy Generation & Transmission,
- Process Precinct,
- Port and Shipping,
- Economic Analysis,
- CAPEX and OPEX,
- Future Developments.

HyNQ
North Queensland Clean Energy Project

**NORTH QUEENSLAND
CLEAN ENERGY PROJECT**
Pre-FEED Study Report

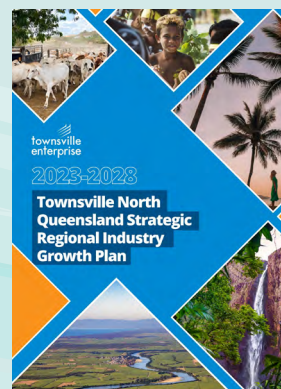
HyNQ joins Townsville Enterprise Limited

In July we were privileged to be welcomed as a new member of Townsville Enterprise Limited (TEL), the peak economic development and destination marketing organisation for the Townsville North Queensland Region. As a member of the TEL community we are committed to driving economic growth in the region. We are passionate about building strategic and enduring relationships across the region as HyNQ advances.

We look forward to participating in the first industry-led Regional Growth Plan for Townsville North Queensland. HyNQ will generate economic opportunities through complementing the existing workforce and creating new job paths in line with the Principles of the Queensland Energy Worker's Charter. In line with TEL's five-year Regional Growth Plan, HyNQ will ensure its investment, workforce, water, housing and planning is managed holistically and strategically.

We see HyNQ as an enabler for the region as it will:

- Underpin the CopperString Project
- Encourage the development of a new water pipeline that will stimulate further agriculture in the region and support existing agriculture
- Enhance port infrastructure,
- Assist with local manufacturing, jobs, and skills training,
- Improve connected industry load demand in the North Queensland Grid
- Increase energy security through renewable energy development
- Open a multiproduct solution for the port precinct.




**townsville
enterprise**

Recent Events

Update to Whitsunday Regional Council and attending Bowen Cup

On 13th October, Energy Estate Co-founders Simon Currie and Vincent Dwyer met with the Whitsunday Regional Council (WRC) to update them on the progress of The Project. Members included Mayor Julie Hall, CEO Warren Bunker, and Economic Development Manager Gary Warrener. WRC was interested in the extent of engagement across all stakeholders including the Traditional Owners of the land and was interested in maintaining a coordinated engagement across this project and other major projects across the region.

On the 14th October, Simon and Vincent attended the annual Bowen Cup, a signature event in the Bowen community. This was successful engagement with landowners, Council, key potential suppliers, and relevant government agencies in a relaxed environment!



Meeting with Kyburra Munda Yalga Aboriginal Corporation

HyNQ recognises the rich history of the First Nations People and their connection with Country throughout Australia. We acknowledge the Juru people and the Kyburra Munda Yalga Aboriginal Corporation as the First Nations people for the majority of the project location. We recognise and respect their continuing connection to land, sky, sea and waterways.

HyNQ had the privilege of meeting with the Kyburra Munda Yalga Corporation (KMYAC) in Townsville City on September 17th. It is the prescribed body corporate representing the Juru people. The Juru people have nurtured and cared for their land for more than 65,000 years, and HyNQ is committed to ensuring that our project also cares for their land, water and sacred places.

KMYAC will soon carry out a walk over of the Project site with the Project partners. During this walk over, KMYAC will share stories about the significance of the Project site including their rich historical connection to the land. This site reconnaissance signifies the beginning of an enduring partnership.



Project Economic Impact Assessment Published

The construction and operation of a project the size of HyNQ will deliver substantial social and economic benefits to the community, the local economy and regional economy. We commissioned ACIL Allen Consulting (ACIL Allen), a leading independent economics, policy & strategy advisory firm, to examine these impacts in the form of a comprehensive Economic Impact Assessment. The results show direct and indirect economic impacts of the HyNQ project on the economies of the local region, Queensland and Australia over the life of the project. Gross product is the total value of all the goods and services produced in a particular place in a particular year.

ACIL Allen’s impact modelling was undertaken using what is known as computable general equilibrium (CGE) modelling. ACIL Allen used their CGE model, Tasman Global to estimate the economic impacts.

To understand the results, it is useful to consider what is meant by direct and indirect impacts. The direct jobs created by the Project are an estimated 1,200 full time equivalent (FTE) local employee jobs required during construction, with up to 133 FTE jobs every year during operation.

Indirect jobs result from the purchases made by the Project during construction and operation from Australian businesses. Put simply, local industry bodies purchase more goods, services and labour to operate their businesses. This effect continues down the supply chain, creating jobs at each stage.

	<p>GROSS PRODUCT Impact Results Local Region¹: (\$676m p.a.) Queensland: \$24.1b (\$709m p.a.) Australia: \$22.2bn (\$653m p.a.)</p>	<p>Much of the economic value from the Project is generated in the Local Region and Queensland.</p>
	<p>INCOME Impact Results Local Region: \$4.2bn (\$125m p.a.) Queensland: \$9.3b (\$273m p.a.) Australia: \$20.0bn (\$587m p.a.)</p>	<p>The boost in real income to the Local Region over the life of the Project, is equivalent to all current residents receiving a one-off payment of around \$3,300 today.</p>
	<p>JOBS Impact Results Local Region: 493 FTE p.a. Queensland: 502 FTE p.a.</p>	<p>Potential housing issues that result from inflow of people should be addressed/acknowledged.</p>

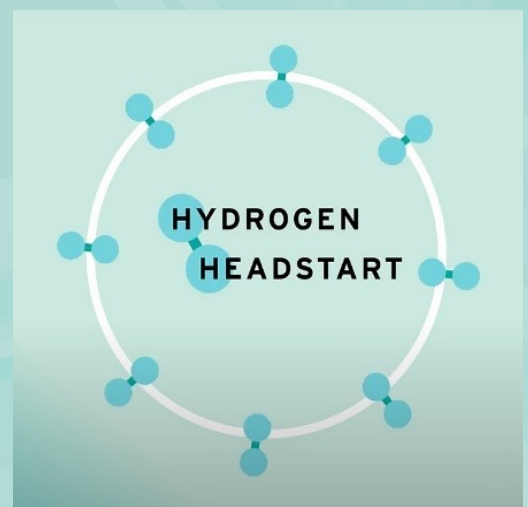
¹ For this analysis, the Local Region comprises the aggregation of the Townsville SA4 plus the Mackay-Isaac-Whitsunday SA4 as defined by the ABS. This region comprises just over 420,000 people.



Hydrogen Headstart Program

In the 2023 Federal Budget, the Australian Government announced it would invest up to \$2 billion in the Hydrogen Headstart Program (HHP). HHP will fund large-scale hydrogen projects, assisting the acceleration of Australia’s hydrogen industry. This will connect Australia with emerging global hydrogen supply chains, taking advantage of hydrogen’s immense jobs and investment potential.

Following this announcement, the Australian Renewable Energy Agency (ARENA), working in concert with the Department of Climate Change, Energy, Environment and Water (DCCEEW), undertook a design and consultation process for HHP. Having reviewed the responses received, on 10 October 2023 ARENA announced the opening of an Expression of Interest (EOI) stage. We will be submitting HyNQ for this program.



In each newsletter, we will include frequently asked questions about clean energy and our project

What is Green Hydrogen?

Hydrogen can be produced by electrolysis, the splitting of water into its components, hydrogen and oxygen. When powered by renewable energy hydrogen produced through electrolysis is known as Green Hydrogen. Using hydrogen does not create any carbon emissions.

In the HyNQ project green hydrogen and green ammonia will be produced using renewable energy built specifically for the project.

Land has been secured to install wind turbines and solar panels close to the processing plant, in areas identified for the deployment of renewable energy (Renewable Energy Zones).

Will hydrogen be produced for export or domestic use, and what is the size of the domestic hydrogen market in Australia?

Current market engagement shows ammonia is the hydrogen carrier of choice for export due to energy density, proven synthesis technology at scale and the ability to use existing supply chains. Liquid hydrogen a good way to transport hydrogen for domestic use. Therefore, the HyNQ hydrogen liquefaction plant been sized for the local domestic market.

The HyNQ project will continue to evaluate and adjust to developing market trends through the project development. During the pre-FEED development of

HyNQ we have undertaken both a bottom up and top-down approach to estimating domestic hydrogen demand in the North Queensland region.

Key domestic demand areas for hydrogen use are trucks, buses, marine and small commercial aircraft.

Hydrogen demand in 2030, 2040 and 2050 was assessed under three scenarios: low, medium, and high uptake. In 2030 demand for hydrogen is expected to range from 5-20 tonnes per day (TPD). Demand is expected to increase in 2040 to 10-40 TPD, then again by 2050 with a demand forecast of 20-80 TPD.

International export of liquid hydrogen is currently not considered in the project scope due to lack of shipping availability.

What is hydrogen used for?

Hydrogen is a very versatile and unique fuel. Hydrogen is an industrial raw material and can be combined with other materials to create hydrogen-based fuels and feedstocks. It can substitute natural gas for heating and cooking, and it can replace fuels such as diesel and petrol in transportation. Hydrogen can also be chemically converted into other forms, such as ammonia and methane.

Hydrogen also stores energy which can be used at later times and can be transported to different places. In this way, hydrogen acts like a battery. However, unlike conventional batteries, hydrogen allows energy to be stored for long periods. Hydrogen can be repeatedly converted across and between its physical and chemical forms.

