



# North Queensland Hydrogen Consortium **Investment Prospectus**

Introducing Australia's leading Renewable  
Energy & Green Hydrogen hub

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Australian Government certified  
Hydrogen Nera Cluster and Hub





The North Queensland Hydrogen Consortium (NQH2) is led by Townsville Enterprise Limited, the region's not-for-profit peak economic development body. NQH2 will provide concierge and facilitation services to support a complete, end-to-end, hydrogen ecosystem which will advance North Queensland as a major hydrogen contender in both domestic and international marketplaces.

## Mission:

Build the Hydrogen Industry in North Queensland and encourage and facilitate SME Hydrogen Innovation and Engagement.

Build business capability through connection and collaboration & identify advanced manufacturing opportunities for supply chain resilience.

Create community awareness and positive engagement, as well as facilitating the development of new skills and training opportunities for the North Queensland community.

Advocate for policies and seek all levels of government endorsement and action for the Hydrogen industry.

## NQH2 Members:

### FOUNDATION MEMBERS



### FUNDING PARTNERS



# Introduction

Townsville North Queensland is located 1300km north of Brisbane, on the doorstep of the precious Great Barrier Reef and is home to over 200,000 people. Our tropical climate provides the perfect setting for green hydrogen production with over 320 days of sunshine and three months of monsoonal rainfalls every year that provide an abundance of natural resources to produce green hydrogen.

Extraordinary tropical rainfall, proximity to large water storage infrastructure, the best solar and wind resources in Australia, a deep-water port with environmental approvals for a sixth-berth port expansion are the key ingredients that make Townsville North Queensland the perfect region for your investment.

Over the past two years, Townsville has made incredible progress through research and initial production of green hydrogen, and looking ahead to January 2023, Townsville will see the world's first 56m long heavy haulage Hydrogen trucks travelling on our roads.

Regionally, our solar and wind investment project pipeline totals over \$10 billion; our water infrastructure investment project pipeline is equally as strong - close to \$7 billion. We have three world-leading Hydrogen proponents with an estimated \$11 billion worth of investment in the project pipeline over the next 10 years.

Additionally, North Queensland is also at the heart of critical minerals mining and processing in Australia. Our critical minerals deposits produce \$6 billion of exports every year. We are home to the largest Copper, Zinc, Lead and Vanadium deposits in the country, as well as state-of-the-art Copper, Zinc, Lead and soon Vanadium and Nickel processing facilities. Our region's ability to produce batteries for the future in our city is second to none, and present immense opportunity.

Our region's green energy transition isn't a dream for the future, it's happening right now! We look forward to welcoming you to Townsville North Queensland and to join us in our green energy future.



**Jenny Hill**  
Mayor of Townsville



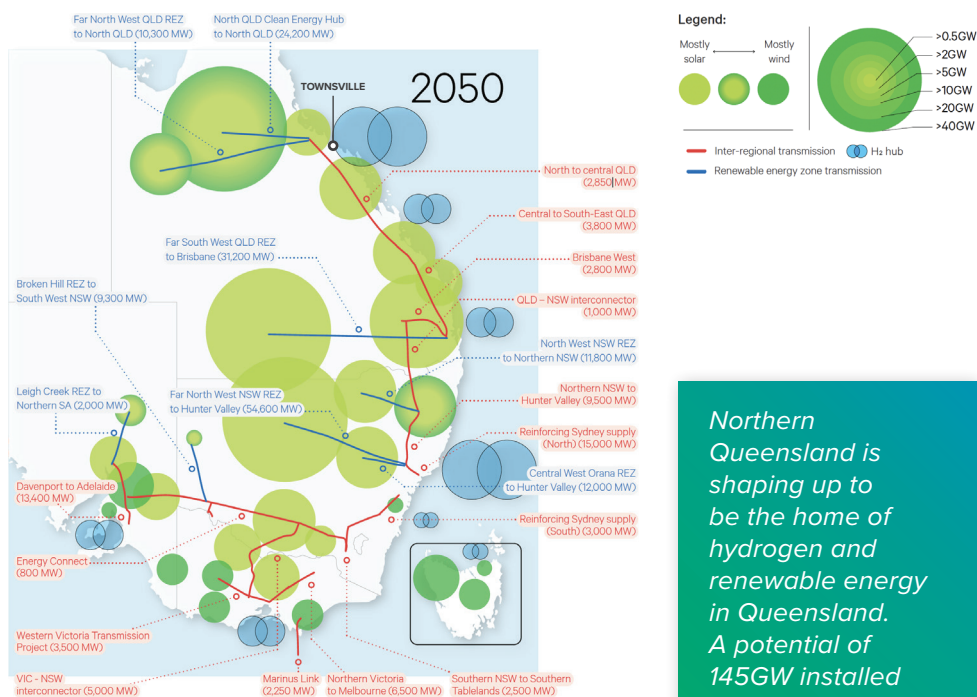
**Claudia Brumme-Smith**  
CEO Townsville Enterprise

# Invest in Townsville North Queensland

Townsville has untapped potential to become a leading producer of green hydrogen for domestic and export use. Our tropical climate means that Townsville receives 320 days of sunshine every year. Through December to early April, Townsville experiences bursts of monsoonal troughs, with most of Townsville's rain falling during this period.

North-west of Townsville lies some of the best wind resources in the country that has secured commitments from international energy providers to build 1 GW wind farm.

Across the region, the Australian Energy Market Operator (AEMO) has identified that the North-West Queensland Energy Hub will be capable of producing 33 GW of wind and solar energy as part of their draft Integrated System Plan (2021). A report by Transgrid further investigated the renewable energy potential for the region (see map below) which highlights the natural advantage of our region - the balanced availability and potential for both wind and solar resources. Additionally, the map also identifies **North Queensland's potential to be one of the largest Hydrogen Hubs on Australia's Eastern seaboard.**



*Northern Queensland is shaping up to be the home of hydrogen and renewable energy in Queensland. A potential of 145GW installed electrolyser capacity could exist by 2050*

Source: Australian Energy Market Operator Draft Integrated System Plan 2022

# Proven Investment Destination for Green Hydrogen

**11,400 MW**

RENEWABLE SOLAR POTENTIAL BY 2050

**18,600 MW**

RENEWABLE WIND POTENTIAL BY 2050

*The following proponents have already committed to pursuing the export, domestic and transportation potential of renewable hydrogen in North Queensland.*

## LANDSDOWN ECO-INDUSTRIAL PRECINCT

Lansdown Eco-Industrial Precinct will be Northern Australia's first eco-industrial precinct, led by Townsville City Council. It will be a hub for advanced manufacturing and processing. Development Approval (DA) for a hydrogen production plant has already been granted.

- 2,200 ha
- 40 km south of Townsville CBD
- Water and Grid access
- Road, Rail and Port Connectivity
- Potential for over GW capacity
- Received \$60 million in funding commitments from both the State and Federal Governments

## EDIFY ENERGY

Edify Energy has been granted development approval to build and operate a green hydrogen production plant, with capacity of up to 1 GW. The project will be constructed in phases to meet market demand.

- 1GW of hydrogen production
- Behind-the-meter renewable energy and battery storage
- 150,000 tonnes of hydrogen annually
- Export and domestic potential

## ORIGIN ENERGY

Origin Energy is working with Kawasaki Heavy Industries (KHI) to develop a commercial scale, 300 MW export-focussed project. First exports from the project are expected late 2020 to early 2030.

- Produce 36,500 tonnes of green liquid hydrogen
- Signed MoU with the Port of Townsville

## SUN HQ HYDROGEN HUB

Ark Energy is the Australian subsidiary of Korea Zinc Company Ltd, the largest zinc, lead and silver producer in the world. The initial phase of the SunHQ Hydrogen Hub will see the installation of a 1 MW PEM electrolyser located at the Townsville Zinc Refinery Site. The produced hydrogen will mainly be used in diesel fuel displacement. Also further developing opportunities for export to green hydrogen to Korea.

- Behind-the-meter connection to existing 124 MW solar farm
- Produce 140 tonnes of hydrogen per year
- Ark Energy has signed with Hyzon Motors for the supply of five heavy-duty hydrogen fuel cell-powered trucks

## TOWNSVILLE STATE DEVELOPMENT AREA (TSDA)

Defined area of land that has been dedicated to industrial development.

- 4915 ha
- 6 km south of Townsville CBD
- Road, rail and port connectivity

## SKILLS AND EDUCATION

The Queensland Government is investing \$10.6 million in Hydrogen and Renewable Energy Training facility at TAFE Townsville Trade Training Centre. James Cook University is also vital in providing the region with a highly-skilled workforce required for the growth of the hydrogen industry. Additionally the University is also collaborating with industry to provide further research and development for renewable hydrogen.



JAMES COOK  
UNIVERSITY  
AUSTRALIA



# Why Invest in Townsville North Queensland

**2,100 GL**

TOTAL WATER CAPACITY TODAY

**4,500 GL**

TOTAL WATER CAPACITY FOR FUTURE

## SECURE WATER SUPPLY

Townsville has access to two existing dams, with an additional dam proposed West of Townsville. This ensures that Hydrogen producers have access to strong and reliable water allocation for extended periods of time.

## BURDEKIN FALLS DAM

Harnessing the mighty Burdekin River, which drains into a water catchment. The Burdekin Falls Dam is currently the largest dam in Queensland.

- ▶ Catchment area of 13 million hectares
- ▶ Storage capacity of 1860 GL
- ▶ Business case has been proposed for the raising of existing dam walls from two to six meters and increase water capacity to 2446 GL

## ROSS RIVER DAM

Servicing the water needs for the entire Townsville community, the Ross River Dam is the 9th largest dam in Queensland by storage capacity.

- ▶ Catchment Area of 75,000 hectares
- ▶ Supply Capacity of 233.18 GL

## HELLS GATES DAM

A detailed Business Case for the Hells Gates Dam has been submitted for approval by the Queensland Government. If constructed, Hells Gates Dam will be the largest dam in Queensland, with a water storage capacity of 2100 GL, it will facilitate over 60,000 ha of irrigated agriculture.

## HELLS GATES DAM PUMPED HYDRO

As part of the Hells Gates Dam Business Case the Hells Gates Pumped Storage Project Feasibility report proposes a storage system that can generate up to 808MW of secure power that will assist in grid stabilisation for the North Queensland region.

## CLEVELAND BAY RECYCLED WATER TREATMENT PLANT

This project involves the design and construction of a Recycled Wastewater Treatment Plan that will recycle up to 15 ML a day and supply non-potable water for municipal use and for the hydrogen energy production in Townsville.

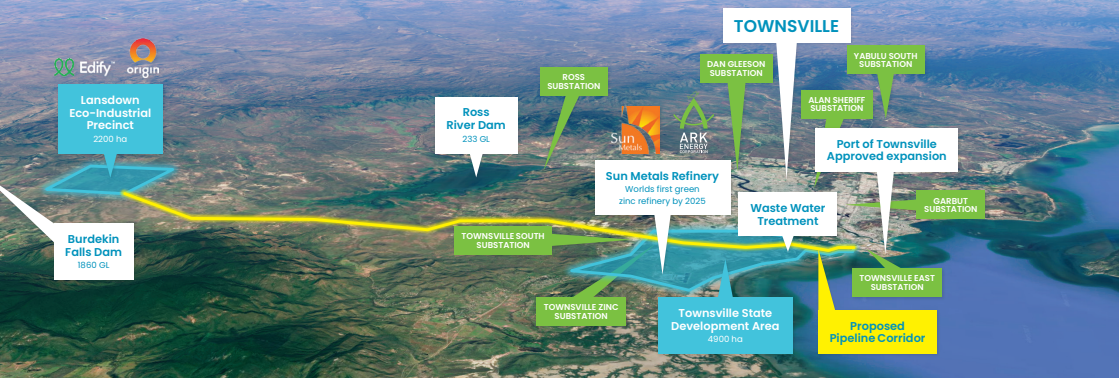


**Australia's best wind & solar resources**  
Up to 33 GW green energy capacity by 2050.

**Australia's largest critical minerals province**  
480 tenements for copper, zinc, lead, vanadium and rare earth minerals.

**Kidston Pumped Hydro**  
250 MW

**Proposed Hells Gates Dam & Pumped Hydro**  
2100 GL & 808 MW



## COMMON USER INFRASTRUCTURE MASTER PLAN

NQH2 will be developing a Common User Infrastructure Masterplan that will identify the investment requirements for the whole hydrogen ecosystem and supply chain in the region. This includes (but not limited to):

- ▶ Water treatment facilities and water pipelines to production facilities
- ▶ Green energy inputs (wind, solar and hydro) and the transmission of green energy to production sites.
- ▶ Pipelines and storage infrastructure
- ▶ Export infrastructure at the Port of Townsville

The development of Townsville as a global leader for the production and export of renewable hydrogen aligns with the following State and Federal Government policies:

- ▶ Queensland Hydrogen Industry Strategy 2019-2024
- ▶ Queensland Renewable Energy and Hydrogen Jobs Fund
- ▶ Queensland 50% Renewable Energy Target by 2030
- ▶ Australia's National Hydrogen Strategy

## COMMON USER INFRASTRUCTURE PORT OF TOWNSVILLE

The Port of Townsville is the largest general cargo port in Northern Australia. The Port has currently signed three Memorandums of Understanding to deliver and export green hydrogen. The Port of Townsville will be instrumental in positioning Townsville as a global leader for clean energy exports. As a deep-sea port with proximity to Asian markets, the Port of Townsville has a strategic advantage in the production and export of renewable hydrogen.

- ▶ Currently undertaking a \$232 million channel upgrade project to widen shipping channels
- ▶ Reclaiming 158 hectares of land
- ▶ Developing 6 additional berths
- ▶ Proposal to develop North Queensland Hydrogen Hub and associated infrastructure

**There is a growing demand from hydrogen proponents to identify optimal methods for the efficient and cost-effective delivery of hydrogen from production plant to port and the end user. NQH2 is seeking input from industry for any developments in the technology that enables the transport of commercially viable quantities of hydrogen in bulk. For more information, please reach out to the NQH2 team.**

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*Proudly supported by Local,  
State and Federal Government.*



City of  
Townsville



Queensland  
Government



Australian Government