# Welcome

Townsville Industry Breakfast Thursday 16<sup>th</sup> March



### The Department of State Development, Infrastructure, Local Government and Planning





Queensland Resources Common User Facility (QRCUF) Stephen Budd Senior Economic Development Officer





# Our commitment









# Why is the QRCUF needed?

Junior miners hold mining tenure

No demonstration capabilities for critical minerals in Australia

Reputation of Queensland's critical minerals



Queensland Good jobs Better services Great lifestyle

# Queensland's target minerals









# QRCUF Operations





# Key milestones

Milestone	Timeframe
Secure site	Complete
Consultation with potential future users	Complete
Concept design	Q1 – Q2 2023
Construction tender process	Q2 – Q3 2023
Construction & commissioning	2024
Operations	2025





Better services

Queensland Resources Common User Facility

Contact QRCUF@treasury.qld.gov.au





16 MARCH 2023

### EDIFY 17.5MW-1GW GREEN HYDROGEN PRODUCTION FACILITY

 $\mathbf{Q}\mathbf{Q}$ 

**QQ** Edify

Hydrogen

North Queensland

# table of **Contents**

01

About Edify

02

**Project Outline** 

03

**HyGATE** Funding

04

Project Partners

edifyenergy.cor

### **About Edify** Our business - full project lifecycle support

A 250MVA

transformer delivery

Hayman solar farms (Collinsville)

to Daydream and

### **103** <u>(</u>\$) (\$ N Develop Construct Own Structure Finance Manage 02 03 01 04

### **Front-end** development

Project origination, securing land agreements, securing development approval & initiating grid connection processes

### **Project structuring** & financing

Negotiation of all project documents, management of due diligence processes and the raising of equity and debt

### Construction management

Overseeing the EPC contractor and construction activities on behalf of project sponsors

### Asset management

Maintaining the enduring operational role for the assets including managing O&M contractors, settling contracts and trading power

edifyenergy.com

# About Edify Australian transaction experience



Project	Size	Location	Status	Comments
Gannawarra Solar Farm	60 MWp DC	Kerang, VIC	Operational. Commissioned in April 2018	PPA with EnergyAustralia First large-scale solar farm in Victoria
Whitsunday Solar Farm	69 MWp DC	Collinsville, QLD	Operational. Commissioned in July 2018	Project received ARENA funding Secured largest Solar 150 Support with Qld Government
Hamilton Solar Farm	69 MWp DC	Collinsville, QLD	Operational. Commissioned in July 2018	Short-term PPA with ERM Power
Daydream Solar Farm	180 MWp DC	Collinsville, QLD	Operational. Commissioned in October 2018	PPA with Origin Equity funding with BlackRock
Hayman Solar Farm	60 MWp DC	Collinsville, QLD	Operational. Commissioned in February 2019	Merchant project with short-term contracts Equity funding with BlackRock
Gannawarra Storage System	25 MW/50 MWh	Kerang, VIC	Operational. Commissioned in February 2019	Grant funding provided by ARENA and the Victorian Government One of the largest co-located solar farm batteries in the world
Darlington Point Solar Farm	333MWp DC	Darlington Point, NSW	Operational. Commissioned in October 2020	PPA with Delta Electricity Equity funding with Fern Trading Development Corporation.
Riverina Energy Storage	150 MW / 300 MWh	Darlington Point, NSW	Under development Targeting commissioning Q1 2023	In Construction
edifyenergy.com	Edify Energy ha	s developed and b	prought to financial close approximately	y 796 MW of renewable energy project.

# **About Edify**

Projects in commercial operation





edifyenergy.com

Farm 180MWbc In operation

**Daydream Solar** 

Hayman Solar Farm

60MWpc

In operation

Darlington Point Solar Farm

15



# table of **Contents**

01 About Edify 02

**Project Outline** 

03

**HyGATE Funding** 

04

Project Partners

edifyenergy.cor

# **Project Summary**

### Edify Green hydrogen supply



Location: Townsville, North Queensland



Land: 105 ha site



**Water supply –** secured. Memorandum of Understanding entered into with Townsville City Council for raw and recycled water



**Output –** c 180,000+ tonnes of green hydrogen per year



**Route to Market –** Memorandum of Understanding with the Port of Townsville

Development Approval – secured in September 2021 for GW scale green hydrogen production facility together with a behind-the-meter solar PV photovoltaic and battery storage facility.

- This is the first large scale green hydrogen production facility to be granted development approval in Queensland.
- DA allows the project to be built out in stages to meet market needs. It also allows for technology flexibility.



ocument Set ID: 1927809

What is the Queensland SuperGrid?

and affordable power for generations.

North West

Minerals

Province

Mt Isa

Pioneer-Burdekin

delivered by 2035 a

the largest Pumped

vdro in the world

The SuperGrid is all of the elements in the electricity system, including the poles,

wires, solar, wind and storage that will provide Queenslanders with clean, reliable

**By 2035** 

25 GW

No regular reliance on

coal-fired generation

\$62 billion

80%

3 X more renewab

energy than 2022

Mind Desine

See more Edify's GW Green H2Production Facility Development Approval, **click here** 



edifyenergy.com



# **Project Summary**

Edify Green hydrogen supply



### Northern Australia's foremost eco-Development Approval (including EPBC Referral) industrial precinct for advanced received for Edify Energy's Majors Creek Solar Farm manufacturing, processing, Unlocking manufacturing through low-cost, technology and emerging industries. locally-generated renewable energy. Woodstock-Giru Intersection acceleration lane completed Lansdown Eco-Industrial Precinct is the only code assessable high impact Proximity to the Haughton Pipeline for industrial users. (1)industrial precinct in Queensland and (8) benefits from existing infrastructure which Creek corridors will be protected by environment 3 buffers and the operational processes of dev (2) is essential for project success, including: will meet highest standards nded May 2020 in City Plan to include in 6 $\overline{7}$ High Impact Industry Zone enabling environ Adjacent gas pipeline (4) Direct access available for future rail siding facilities on the Mo sunt Isa - Townsville Railway line o Sustainable Water Supply North West Minerals Provinces. O ISDA Immediate adjacency to North Queensland Gas Pipeline. **HV** powerlines FOR MORE INFORMATION Conditionally-Committed Land - Raw Water Supply O SOLAR Townsville City Council Committed Land Solar 103 Walker Street. Townsville City Available Land - 275kv (High Voltage) Powerlin Road and Rail direct to the Road and Railwa IN Reserved for Infrastructu æ it townsville.gld.gov.au/lansde deep water Port of Townsville See more Lansdown Eco-Industrial Precinct. **click here** See more Lansdown Precinct 2021, click here

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19

# **Project Summary**

Edify Green hydrogen supply - staged delivery to meet market need



# table of **Contents**

01

About Edify

02

**Project Outline** 

03

HyGATE Funding

04

Project Partners

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# HyGATE

22



# table of **Contents**

01

About Edify

02

**Project Outline** 

03

**HyGATE Funding** 

04

**Project Partners** 

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# **Siemens Energy** edifyenergy.com



Siemens Energy is a global powerhouse, supplying enabling technologies for decarbonisation and the energy transition. The company is one of the world's largest providers of energy and resource efficient technologies. Siemens Energy has more than 92,000 employees in over 90 countries. In Australia, Siemens Energy has over 300 employees based in all the major capitals and a rotating machinery workshop in Tonsley, South Australia. We have a significant installed base of generation equipment both fossil and renewable including via our majority-owned Siemens Gamesa Renewable Energy.



Siemens Energy has **extensive experience with hydrogen production** using electrolysers, hydrogen compression and hydrogen consumption in gas turbines. We are one of the world leaders in delivering MW scale electrolyser with committed development of multi-GW scale manufacturing capabilities. We have already delivered multiple MW scale electrolyser projects around the global include the largest operating plant in Australia.



**Collaboration with Edify**: Siemens Energy and Edify Energy has been collaborating for several years, where Siemens supported Edify's Renewable projects with our Grid connection equipment (e.g.: Power Transformers, High Voltage Circuit Breakers). We will bring this collaboration to the next level by designing and delivering a state-of-the-art Hybrid Green Hydrogen project in Townsville!







Formed in 2009, Enscope provides Project Management, Engineering, Construction Management and Commissioning in support of Energy Infrastructure Projects throughout Australia.



**(O)** 

With offices in Perth, Brisbane, Melbourne and Darwin, Enscope employs approx. 200 dedicated professional and trades staff.

Since 2015 Enscope has been a wholly owned subsidiary of Quanta Services Inc, a Fortune 500 Company listed on the New York Stock Exchange (NYSE:PWR). Quanta employs approx. 45,000 people globally and has a market capitalization in excess of US\$20Billion, which provides Enscope with significant parent company backing.



With a strong pedigree in the delivery of high-pressure natural gas-based projects Enscope has been active in Australia's emerging hydrogen industry for the past 4 years, and in 2019 formed a teaming agreement with Siemens Energy for the combined delivery of hydrogen production projects under a turn-key, single accountability model.

### 

# **Local Procurement Opportunities**

Enscope's policy is to seek material and contractor support from the local Townsville market to the extent this support is available in an economic and timely manner.

### Project elements that we expect to be of interest to the Townsville community includes:

- · Earthworks, civils, roads and concrete works
- Supply and installation of buildings and tanks
- · Electrical and mechanical contracting
- Offsite pipe fabrication
- Fencing & Security
- Accommodation and logistics

### **Staging:**

Front End Engineering and Design (FEED) will be carried out during 2023. This includes the sourcing of pricing to help finalise the Project budgets and delivery program.



## **Local Procurement Opportunities**



Front End Engineering and Design (FEED) will be carried out during 2023. This includes the sourcing of pricing to help finalise the Project budgets and delivery program.



Enscope anticipates initial enquiries to the Townsville market (approx.) July 2023.

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Contracts to the Townsville community are expected in the period from mid 2024 through to early 2026.

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Registrations of interest are encouraged and can be made to hello@edifyenergy.com



### Edify®

# Contacts

### Damien Krauklis

Hydrogen Development and Delivery

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# **QUEENSLAND** ENERGY AND JOBS PLAN

Power for **generations** 



### Vision

Clean, reliable and affordable energy providing power for generations.

### Clean energy economy

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Build a clean and competitive energy system for the Queensland economy and industries as a platform for accelerating growth.

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### Secure jobs and communities

Drive better outcomes for workers and communities as partners in the energy transformation.



### Empowered households and businesses

Deliver affordable energy for households and businesses, and support more rooftop solar and batteries.

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### **Queensland Energy and Jobs Plan**



Framework to manage risk and uncertainty

Changing Energy Mix Clean Energy Hubs

### **Workers and Communities**

Building the SuperGrid

**Coordination and Planning** 



## **Queensland's SuperGrid**

- In 2015 almost no large-scale renewables
- Currently 3GW wind and solar (21% renewables)
  - Borumba Pumped Hydro planned for 2030
- New transmission connecting southern and central
- Pioneer-Burdekin planned for 2035 (stage 1 2032)
- New transmission to connect in Pioneer-Burdekin
- 25GW total new and existing wind and solar by 2035

### Beating our 50 per cent renewable energy target



**Financial Year** 

## **Opportunities for North Queensland**



- Since 2015, around \$800 million investment in over 400 MW of large-scale renewable energy, creating more than 900 construction jobs (operational)
- Estimated additional \$1.4 billion investment in electricity infrastructure by 2040
- CopperString connection to Mount Isa represents a unique opportunity to support a clean energy industrial ecosystem from the North West Minerals Province to Townsville, growing opportunities for jobs in the clean energy economy

## **Delivering for Queensland together**

### **Government & energy GOCs**

- Improving visibility of **Qld's pipeline** of solar, wind, network and storage projects
- Ensuring procurement and offtake delivers on QId Renewable Energy Procurement Policy
- Setting **local content targets** for renewable energy zones and manufacturing precincts
- Partnering with **high-value manufacturers** that can create long-term domestic capability
- Funding **R&D**, skills development and infrastructure, together with Commonwealth

### Industry and peak bodies

- Investing in renewable energy assets
- Engineering, procurement and construction (+ halo services) across the QEJP capital build
- Business readiness to deliver the QEJP pipeline to 2035+
- Investing in the skills to construct and operate
- Incorporating local content for all projects in the forward pipeline
- Partnering with government and businesses to create **connected**, **resilient supply chains**



# **Defence Industry Hub**


### Base Services Tender – Industry Engagement Opportunity

A range of services are required to support the Defence workforce live and work on base.

Requirements include:

- Cleaning
- Landing Management
- Pest & Vermin
- Estate Upkeep
- Hospitality and catering
- Laundry and dry cleaning
- Training and range management
- Transport

### **Tuesday 28 March**

Join us for Breakfast to hear from representatives from major contractors who are tendering for the Base Services Transformation Program.

Book your ticket for breakfast via Eventbrite then register your interest for B2B Meetings



**DEFENCE JOBS QUEENSLAND** 



## **Defence Industry Hub Workshops and Events**

- Workshop Suite:
  - Introduction to Defence
  - Marketing to Defence
  - Tendering for Defence
  - Cyber (for DISP)
  - Collaborations and Partnerships
  - Webinar and in person options

DEFENCE JOBS QUEENSLAND



### Are you in the Queensland Defence Industries Capability Directory

### Want to build your company's profile and promote your capabilities?

A new platform has been created to help Queensland businesses in our defence, aerospace and maritime industry sectors promote their capabilities to local, national and international customers.

The <u>Queensland Defence Industries Capability Directory</u> is an online database where users can find specific capabilities in Queensland.

Register for free via our website - www.defenceindustries.qld.gov.au

DEFENCE JOBS QUEENSLAND



### **Defence Industry Hub Contacts**

- Erin Kiernan, Principal Industry Development Officer
  - <u>Erin.Kiernan@dsdilgp.qld.gov.au</u>







TOWNSVILLE BREAKFAST UPDATE SHANE SCARINCI GENERAL MANAGER, RESEARCH & DEVELOPMENT



#### ESI Asia Pacific – A Summary

Pathway to be a key part of Renewable Energy Transition, now and into the future:

- Long term strategy to realise energy storage opportunities in the Australian market.
- Working with Commonwealth and State Governments on guiding policy on how best to utilise storage in the changing energy market.
- Pilot programs are being commenced with major Australian generators.
- Queensland-developed DC/DC converter launching to market June 2024.
- First batch of electrolyte manufactured in Townsville being installed in H2 2023.

#### The Energy Transition

Without fossil fuel power stations operating, powering our cities at all hours will require large amounts of electricity to be stored.

Renewable generation on it's own dissipates when unused and is therefore wasted. Storing and then utilisation when there is no renewable generation via mix of different forms of storage is key.

Without longer duration storage to cover the evenings renewable energy targets cannot be met.

#### **Current Solutions**

Lithium-Ion (Li-on) batteries are being used in the grid and are important for the delivery large amounts of energy over a short period of time (up to 2 hours). This is not enough to cover overnight.

#### **Future State**

Li-on is not scalable and has presented issues operating in the Australian heat. Feedback from Generators is that they want to protect them with workhorse batteries which have unlimited cycling capability.

For the grid to decarbonise, Short Duration Li-on batteries (2 - 4 hours of energy), need to be complimented with Medium duration Batteries (6 - 12 hours of energy) for everyday use and deep storage pumped hydro (12 - 24 hours) to provide longer term energy security.

Together this is the grid of the future.

#### Market Snapshot

#### Key metrics

- By 2050, Australia will require **46GW** of storage.
- Double this if we add in hydrogen, cars and other electrification.
- We have the ability to deliver 8GW over the next 20 years 17% of the market need.
- Storage will be key to support generation on Copper String.
- We are already working with four of the five largest generator companies with each looking to replace over 3GW of firmed energy.



#### Long Duration Storage Product: Iron Flow Batteries

Our energy storage technology is commonly known as an **Iron Flow battery**. Our Iron Flow batteries utilise cheap, abundant minerals that are sustainably mined and processed in Australia, to create batteries that are:

- Non-toxic
- Have a 25-year life time
- Do not degrade over life
- Fully recyclable
- Operate at high temperature
- No fire or explosion risk
- Can be easily assembled and operated in regional, rural and remote areas
- Can be stacked to accommodate any size storage need
- Have been independently tested at the National Battery Testing facility under harsh Australian conditions.





#### Cost Effective Solution – Iron Flow Batteries are Half Cost of Delivered Energy



Illustrative Cost Comparison Versus Li-Ion<sup>1</sup>

Cost per Kwh comparison shows scaling benefits of Iron Flow

#### Local Manufacture Minimises Supply Chain Risk



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#### Where will we build our product?

#### Maryborough Renewable Manufacturing Facility

Our products will be constructed in our purpose built facility in Maryborough, Queensland:

- ESI has contracted an 11ha site from Fraser Coast Council (FCC).
- Construction of the large-scale assembly and testing facility will commence in Quarter 1, 2023, with Fraser Coast Council works for road and infrastructure already commenced.
- The site has been chosen for proximity to major transport routes and access to electrical sub- station.
- Maryborough facility to focus on Energy Centre product line.
- Townsville second site will be considered with further sales volume.







#### Industrial Chemical Reagents – Townsville

#### Electrolytic Grade Ferrous Chloride (EGFC)

- In partnership with Cleveland Bay Chemical Company (CBCC) we have identified a need to manufacture Electrolyte locally.
- Required to reduce supply chain risks, and support the National rollout the Long Duration Iron Flow Batteries.
- Research and Development work has been completed on the Electrolyte.
- The newly developed product has passed all of the technical specifications required by our US partner, Energy Storage Systems (ESS).
- As this capability grows, it provides opportunities to manufacture additional industrial chemicals that are in short supply in the Australian market.
- Also investigating additional specialist chemicals to support additional emerging critical minerals markets.



Image for Illustration Purposes Only

#### **Power Electronics**

#### **DC-DC Converters**

- Meeting renewable and battery installation needs these products take a low voltage output and increase it to one that connects easily with grid facing inverters.
- The newly developed DC/DC Converter utilises modern electrical components, unique electrical architecture and integrates several leading-edge electrical theories into one product.
- Product has been development for more than 18 months.
- This unique modular design has high efficiency and flexibility to be able to compete in a growing worldwide market

#### Market Uses:

- Battery Power Electronics Systems
- Commercial, Industrial and Utility scale Photovoltaic (Solar)
- Electric Vehicle (EV) charging
- Fuel Cells (Hydrogen)
- DC micro grids.



# THANK YOU shanescarinci@esiap.com.au

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### Fast Track to Investment

#### Purpose of the Pilot Program:

- Support SME's to become investment ready, assist with investment matching and investment success
- 15 companies chosen to participate looking for around \$5M-\$50M
- 12-month program identify investment approach, training, ongoing 1:1 investment mentoring, investment plan and IM design and development, pitch readiness, assistance with investment matching

#### Program cost:

• Cost to participate: \$15,000 – TIQ matching over double this fee

#### **Program Status:**

- Deloitte to deliver the program (full procurement process undertaken)
- Launched 2 March 2023

#### Pre-qualification workshops -

#### Must attend to qualify to participate - register

- 9am 1pm Monday 20 March, Brisbane
- 9am 1pm Tuesday 21 March, Toowoomba
- 9am 1pm Thursday 23 March, Cairns
- 9am 11am Friday 24 March, online session









An Australian Government Initiative

# Regional Development Australia Townsville and North West Queensland

MARCH 16 2023

Townsville Industry Breakfast





# JOBS TOWNSVILLE NORTH QUEENSLAND (JTNQ) What is it?

- Regional jobs committee for North Queensland region.
- Focus on skills development, and workforce attraction and retention.
- Aligns with the Queensland Workforce Strategy.
- RDA is the secretariat.
- Funded by Queensland Government.



### JTNQ 4 PILLARS TO BUILD REGIONAL SKILLS & TALENT

#### **REGIONAL** ATTRACTION



Promoting the benefits and advantages of the North Queensland lifestyle to attract people to the region.

#### **CAREER PATHWAYS**



Ensuring North Queensland kids are aware of the key industries in our region, the jobs available and the career pathways to follow.

#### PARTICIPATION

Creating strategies to get people back into the workforce, by matching their skills with businesses' needs.

#### PROCESS



Getting industry to modernise recruitment processes and practices to engage niche groups looking for careers in the region.



# JODS North Queensland





TOWNSVILLE AND NORTH WEST OLD An Australian Government Initiative



## CAREER INFLUENCE & JOB PATHWAYS JOBS PORTAL

jobsnorthqueensland.com.au

A regional jobs portal connecting job seekers and employers across regional North Queensland

- Allows job seekers to upload a CV or input key skills to be found in relative talent pools.
- Employers can list jobs for free, run campaigns, access talent pools and view their advertising analytics.



**VISIT JOBS NQ** 



JOB SEEKERS ~

EMPLOYERS ~

FEATURE INDUSTRIES ~ COMMUNITY ~

#### JOIN THIS COMMUNITY

SIGN IN / REGISTER

# **Jobs North Queensland**

Connecting Job Seekers with Regional Employers

#### SEARCH JOBS V Advanced

Title, industry or company







# REGIONAL ATTRACTION LIVABILITY WEBSITE

livenorthqueensland.com.au

A livability website designed to support initiatives to attract talent to the region.

- Provides a comprehensive overview of all aspects of livability.
- Ranging from access to quality education, affordable living, and a thriving economy, to education and healthcare services.



HOME WHY NO THE REGIONS LIVE WORK (



# Over 300 days of sunshine each year.

# PARTICIPATION CONNECT & EDUCATE RESOURCE GUIDE

For employers navigating recruitment in a tight, regional market

- A focus on leveraging hidden talent and underutilised cohorts.
- Includes local contacts for HR support, training, hiring support and access to grant funding.
- The result of extensive engagement with local business community and features several local success stories.







### PROCESS REGIONAL SHOWCASE

Events to physically connect community and business with the resource kit

• Raise awareness of the tools available and drive uptake through engagement.







Regional Development Australia An Australian Government Initiative

# We appreciate your feedback!

- Townsville Industry Breakfast series Feedback form
- Scan QR code
- A link will also be provided in an email later today, along with a copy of today's presentations
- Thank you in advance for your time on this



Keep in the loop...

- Follow us on Eventbrite for our events and workshops...
- Next Townsville Industry Breakfast Thursday 18<sup>th</sup> May



### Thank you

#### Susannah Greenleaf

A/Regional Director North Queensland State Development Infrastructure, Local Government & Planning

### Contact us:

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