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ASX:HZR

# Hazer Group Ltd

Webinar

Tuesday, 15 August 2023







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# Commercial Demonstration Plant (CDP)





# Commercial Demonstration Plant confirming scalability

The first fully-integrated demonstration plant of the Hazer Process



CDP Site, Perth, Australia

## Project Summary

- 100 tpa H<sub>2</sub> and ~380 tpa graphitic carbon
- Carbon negative process with biogas feedstock
- Construction & Phase1 commissioning completed June 2022
- Ready for startup on-track for 2023
- Received \$9.4 million grant funding awarded by Australia Renewable Energy Agency (ARENA)



Australian Government  
Australian Renewable  
Energy Agency

**ARENA**

# CDP achieves significant project milestones

## Key Milestones to Ready for Start-up (RFSU)

- ✓ Phase 1 plant construction
- ✓ Phase 1 commissioning, testing & debugging
- ✓ Heat exchanger materials delivery
- ✓ Mark-1 reactor forging & heat treatment
- ✓ Hot construction planning and contracts
- ✓ Start-up approvals and permits

On-track

- ✓ Hot equipment fabrication & installation
- ✓ Commissioning, RFSU and production

✓ Completed    ✓ On-track

- ✓ Heat exchanger completes heat treatment
- ✓ Reactor materials completed & inspected
- ✓ CDP start-up on-schedule



Heat exchanger successfully heat-treated prior to final assembly and delivery

# Leveraging CDP into new commercial projects

## Commercial Demonstration Plant (CDP)



### Demonstrate Continuous Operation

- Performance testing & process optimization
- Inform commercial design reliability requirements

### Validate Scale-up Performance

- Confirm reactor performance to validate commercial scale design

### Hazer Graphite Production

- High volume samples for product qualification
- Marketing arrangements

## New Commercial Projects

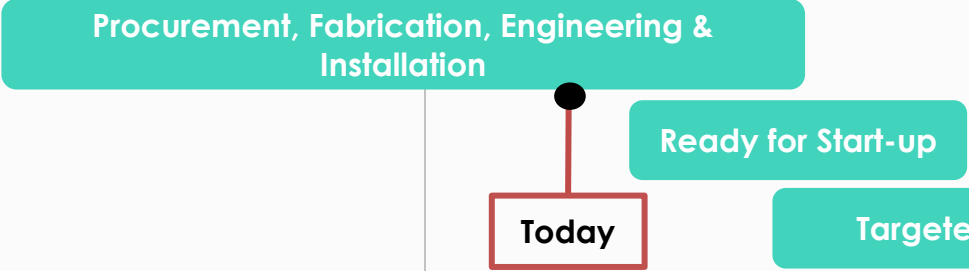











# Company Overview



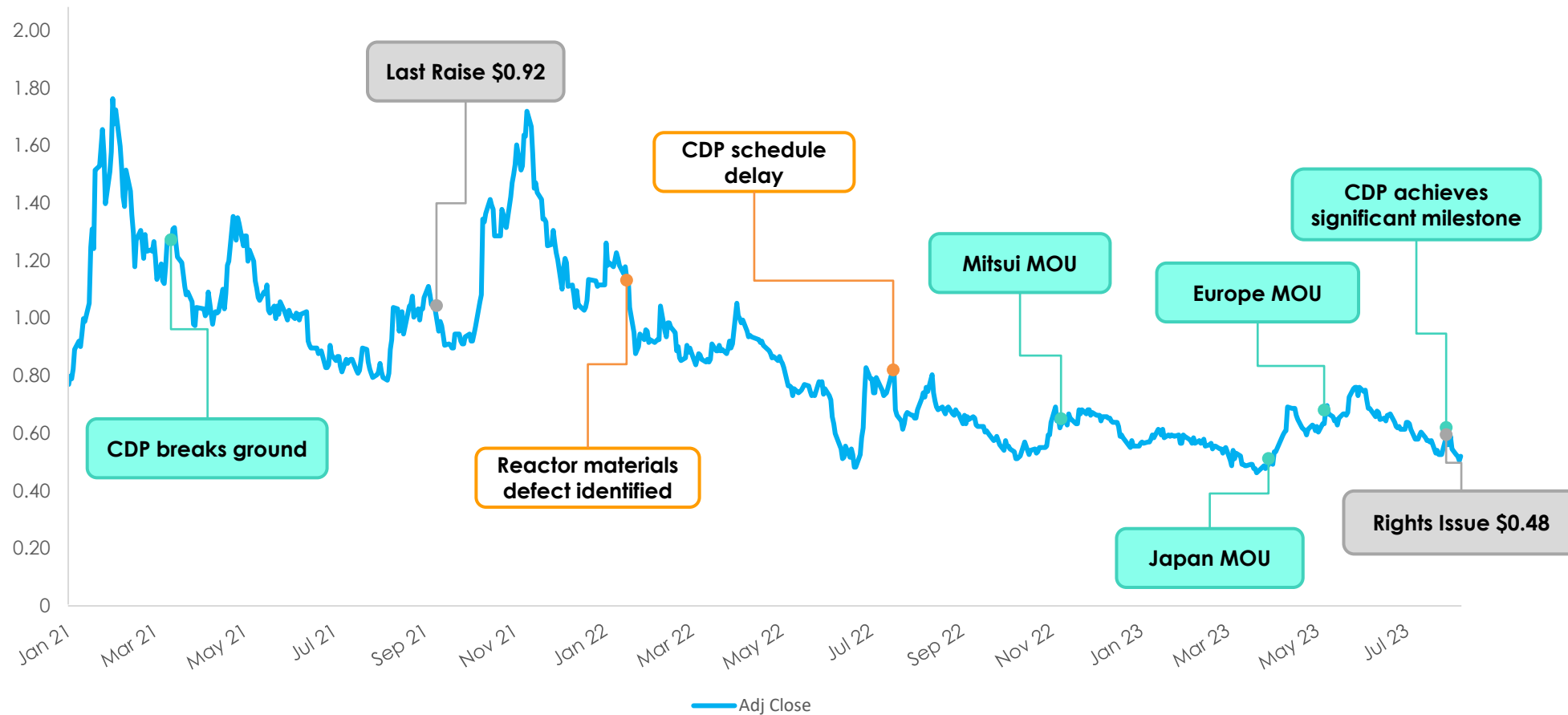
# Key Activities

	CY2023		CY2024
	H1	H2	H1
Commercial Demonstration Plant (100 tpa)	Procurement, Fabrication, Engineering & Installation 		Targeted Production & Testing Program
Hazer-Fortis 2,500 tpa Canada Plant	FEED Studies in Canada and Targeted FID 		
New Potential Projects in Target Markets	  Identify New Commercial Projects Japan France 		
Mitsui & Graphite Market Development	Developing Market for Hazer Graphite		Offtake Agreement
Corporate Updates	 ARENA Grants	 R&D Rebates	 Corporate Access Events ARENA Grants



# Near-term catalysts to deliver shareholder upside

## HZR: ASX Share Price History



# Equity Raise Overview







# Rights Issue offered to eligible shareholders

Offer Size & Structure	<ul style="list-style-type: none"> <li>Non-renounceable entitlement offer to raise approximately A\$15.3 million:             <ul style="list-style-type: none"> <li>3 new ordinary shares ("New Shares") for every 16 existing ordinary shares held on the record date, being as at 7.00pm (Sydney time) on Thursday 3 August 2023</li> <li>Attaching 1:2 option at \$0.75 exercise price with an expiry date of 28 February 2025. The Company intends to quote the options on the ASX</li> </ul> </li> </ul>
Offer Pricing	<ul style="list-style-type: none"> <li>Offer price of A\$0.48 per New Share represents a:             <ul style="list-style-type: none"> <li>11.1% discount to the last market price of A\$0.54 per share on 26 July 2023</li> <li>16.6% discount to the 15-day volume weighted average share price ("VWAP") of A\$0.576 per share as at 26 July 2023</li> </ul> </li> </ul>
Use of Proceeds	<ul style="list-style-type: none"> <li>Supporting the ongoing operational performance of Commercial Demonstration Plant (CDP) post start-up in 2023</li> <li>R&amp;D to advance and prepare the technology for commercial-scale deployment following CDP commissioning</li> <li>Advancing current commercial projects in North America, Japan and France, and unlock further commercial pipeline opportunities in Asia and North America</li> <li>Costs of the Rights Issue</li> <li>Working capital</li> </ul>
Underwriting	<ul style="list-style-type: none"> <li>Partial underwriting secured for A\$6.0 million</li> <li>All directors are taking up at least their full entitlement</li> </ul>
Ranking	<ul style="list-style-type: none"> <li>New Shares issued under the non-renounceable rights issue will rank equally with existing Hazer shares. On the valid exercise of the new attaching options and payment of the exercise price, the Company will issue ordinary shares ranking pari passu with the then issued ordinary shares</li> </ul>

# \$15 mln to support CDP operations and advance Hazer commercialisation

## Raise approximately A\$15.3 million

Uses	\$
CDP Operational Performance & Testing post-startup	\$5mln
Commercial Growth Projects (Europe, NA, Asia-Pac)	\$4mln
Working Capital & Corporate Purposes	\$5mln
Fees	\$1mln
<b>Total</b>	<b>A\$15 million</b>

These figures are rounded. See section 1.3 of the Company's Prospectus dated and released to the ASX on 31 July 2023 for further details as to the breakdown of the proposed use of funds raised from the Rights Issue.

## Use of proceeds breakdown

- **Commercial Demonstration Plant (CDP)**
  - Operating expenditure post-startup
  - Operational performance testing
  - R&D / Reactor performance diagnostics
- **Commercial Growth Projects**
  - Advance current commercial projects in Japan (Chubu/Chiyoda) and France (Engie)
  - Advance further opportunities in Asia & North America
  - Pursue graphite market capture
- **Working Capital**
  - Corporate purposes





# Rights Issue Timeline

Activity	Date
Announcement of Rights Issue	Monday, 31 <sup>st</sup> July 2023
Rights Issue Record Date (7:00pm Sydney time)	Thursday 3 <sup>rd</sup> August 2023
Rights Issue Opens (9:00am Sydney time) with Prospectus and personalised entitlements and acceptance forms sent to Eligible Shareholders	Friday 4 <sup>th</sup> August 2023
Last date to extend the Rights Issue	Tuesday 15 <sup>th</sup> August 2023
<b>Rights Issue Closes for eligible security holders</b>	<b>Friday 18<sup>th</sup> August 2023</b>
Announcement of results of the Rights Issue including any shortfall	Monday 21 <sup>st</sup> August 2023
Allotment of New Shares and New Options under Rights Issue	Tuesday 22 <sup>nd</sup> August 2023

This timetable is indicative only and may be subject to change subject to the requirements of the Corporations Act 2001 (Cth) and the ASX Listing Rules:

A Prospectus was lodged with the Australian Securities Exchange and the Australian Securities and Investment Commission on 31 July 2023 (Prospectus) and is available on the ASX website and also on the Company's website at [www.hazergroup.com.au](http://www.hazergroup.com.au).

Eligible Shareholders may participate in the Rights Issue making payment in accordance with the instructions on their personalised application form. To access their personalised application forms and Prospectus, Eligible Shareholders can use the following link, following the prompts: <https://investor.automic.com.au/#/home>.

The Company encourages all Eligible Shareholders to read the Prospectus before deciding whether to participate in the Entitlement and Shortfall Offers.

# Investment Highlights

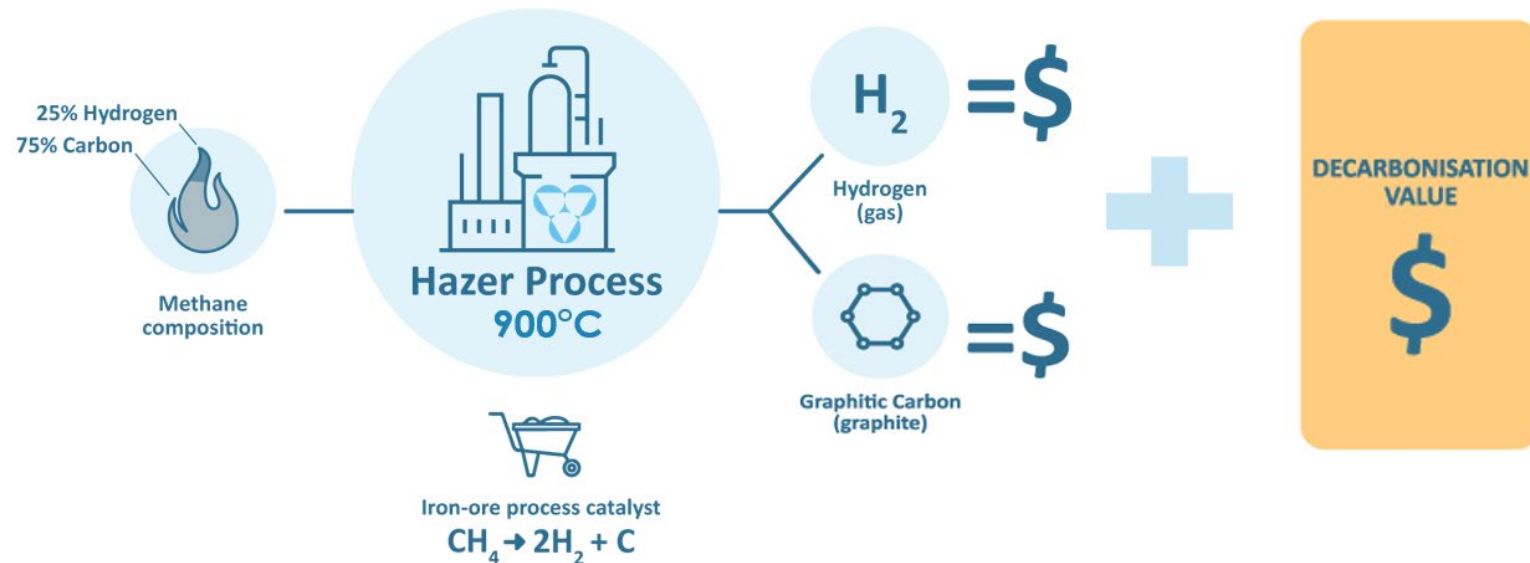




# Hazer's competitive technology advantage

**Innovative low emission, low-cost methane pyrolysis technology producing clean hydrogen and graphite**

- Hazer Group Limited is a technology development company undertaking the commercialisation of the Hazer Process
- The Hazer Process enables low temperature conversion of natural gas and similar methane feedstocks, into hydrogen and high-quality graphite, using iron ore as a process catalyst



# Investment highlights

Low cost, low emissions H<sub>2</sub> production technology company positioned to play a leading role in global decarbonisation



**1**  
Low-cost, Low-emissions, Proprietary Technology



**2**  
Compelling Economics & Returns



**3**  
Global Tier-1 Partnerships Across Strategic Markets



**4**  
Advanced Technology Readiness & Proven Scale-up



**5**  
Clear Commercial Pathway & Capex-lite



**6**  
Graphite Production Diversifies Earnings



**7**  
Rapidly Growing H<sub>2</sub> Demand



**8**  
Government & Policy Support



1

# Low cost & low emissions hydrogen

Hazer well positioned as a low-cost, low-emissions hydrogen technology

## Existing Technologies

### Steam Methane Reforming (SMR)

#### Significant CO<sub>2</sub> emissions

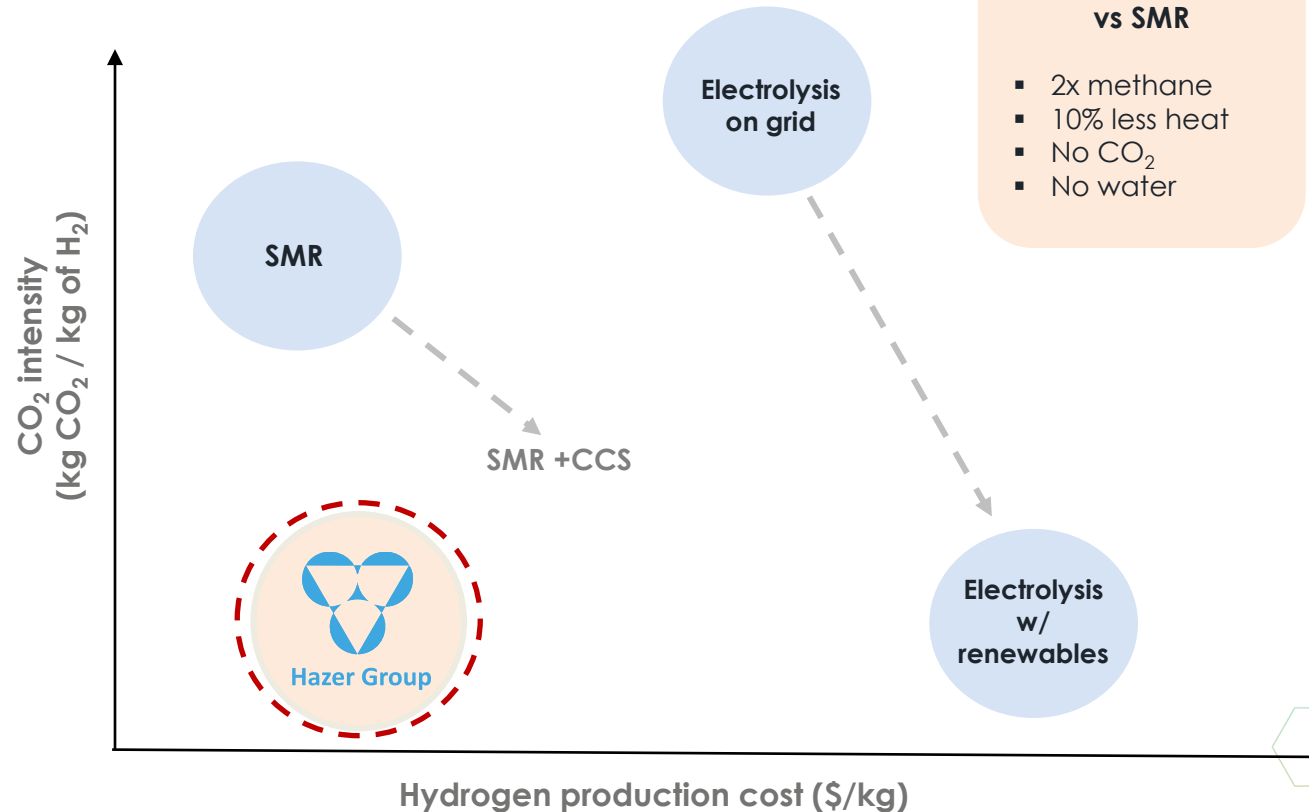
- Most widely used process for H<sub>2</sub> generation (~95%)
- High CO<sub>2</sub> emissions
- Requires CCS\* to address emissions



### Electrolysis

#### Energy intensive process

- 7x more energy intensive than SMR
- Only low emission if 100% renewable energy
- Requires significant water and renewable energy



\*CCS = Carbon Capture & Storage. Requires geological formations for CO<sub>2</sub> sequestration

## 2 “Plug-in” technology using existing infrastructure

End-use deployment and application of the Hazer Technology eliminates H<sub>2</sub> transport risk and reduces cost



Conceptual design of Hazer facility co-located with 3<sup>rd</sup> party refinery  
(Source: stock image not Hazer infrastructure)

- Eliminates requirement for hydrogen transportation cost and risk
- Co-located with end-user infrastructure – such as LNG facilities, refineries etc.
- Ability for shared services and lower operating cost model





3

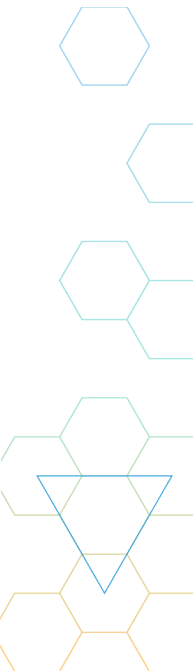
## Global partners & projects

Tier-1 partners developing commercial projects in North America, Europe and Asia-Pacific



HATCH

wood.



3

# Overview of key scale-up development projects



**BC, Canada**



**Nagoya, Japan**



**Montoir, France**

<b>Description</b>	<ul style="list-style-type: none"> <li>Utilises existing fuel terminal site</li> <li>H<sub>2</sub> to be used in gas blending and other industrial applications</li> </ul>	<ul style="list-style-type: none"> <li>Existing LNG import terminal or power station site</li> <li>H<sub>2</sub> as fuel for power generation, industry feedstock and mobility</li> </ul>	<ul style="list-style-type: none"> <li>Existing LNG import terminal site identified</li> <li>H<sub>2</sub> as fuel for power generation, industry feedstock and mobility</li> </ul>
<b>Partners</b>			
<b>Expected H<sub>2</sub> Production</b>	<ul style="list-style-type: none"> <li>Phase 1</li> <li>Phase 2</li> </ul>	<ul style="list-style-type: none"> <li>Phase 1</li> <li>Phase 2</li> </ul>	<ul style="list-style-type: none"> <li>Phase 1</li> <li>Phase 2</li> </ul>
<b>Hazer Operating Model</b>	Project partner & licensing	Licensing	Licensing
<b>Targeted Start-up (phase 1)</b>	2025	2027-2028	2027-2028

2,500 tpa  
100,000+ tpa

2,500 - 10,000 tpa  
Up to 100,000 tpa

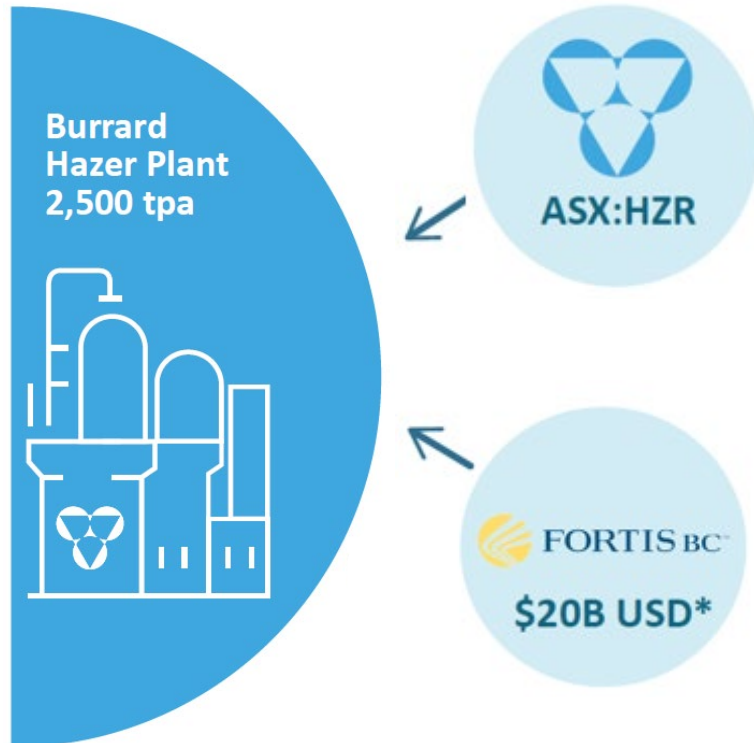
2,500+ tpa  
50,000+ tpa



3

## World-first project in strategic North America market

Partnership with FortisBC to develop a 2,500tpa hydrogen facility in Canada



- Concurrently scaling up technology 25x from CDP
- FortisBC & Hazer jointly operating 2,500tpa near-commercial scale project
- Engineering design package complete in Q3 2023 with Final Investment Decision targeted for 1H 2024
- New potential site locations being assessed
- Secured C\$8m in grant funding from the province of British Columbia. Meets funding requirements to FID

On 4<sup>th</sup> Nov 2022, the Canadian Government announced federal tax credits for clean technology & low-emitting hydrogen projects

4

# Advanced technology readiness

Rapid development since company founding and advancing Tech Readiness Level (TRL)

(< 60kg/hr\* continuous\*\*)

(<1g\* batch)



2007–2013

## Bench scale testing

- University of Western Australia
- Concept evaluation

(<100g\* batch)



2016–present

## Scaled up bench test

- University of Sydney
- Catalyst kinetics and process research

(~1Kg\* batch)



2017

## Bench scale fluid bed

- University of Sydney
- Conceptual testing of fluidised bed concept

(~<2 kg/hr\* semi-continuous)



2017–2021

## Pilot Plant

- Sydney and Perth
- Fluidised bed with optimized conditions and catalyst injection



2022–2023

## Commercial Demonstration Plant (CDP)

- Perth, Australia
- End-to-end continuous plant with biogas feed
- Start up planned 2023

Project Development Pipeline

FORTIS BC™

CHUBU Electric Power

CHIYODA CORPORATION

ENGIE

2025+

## Key Projects

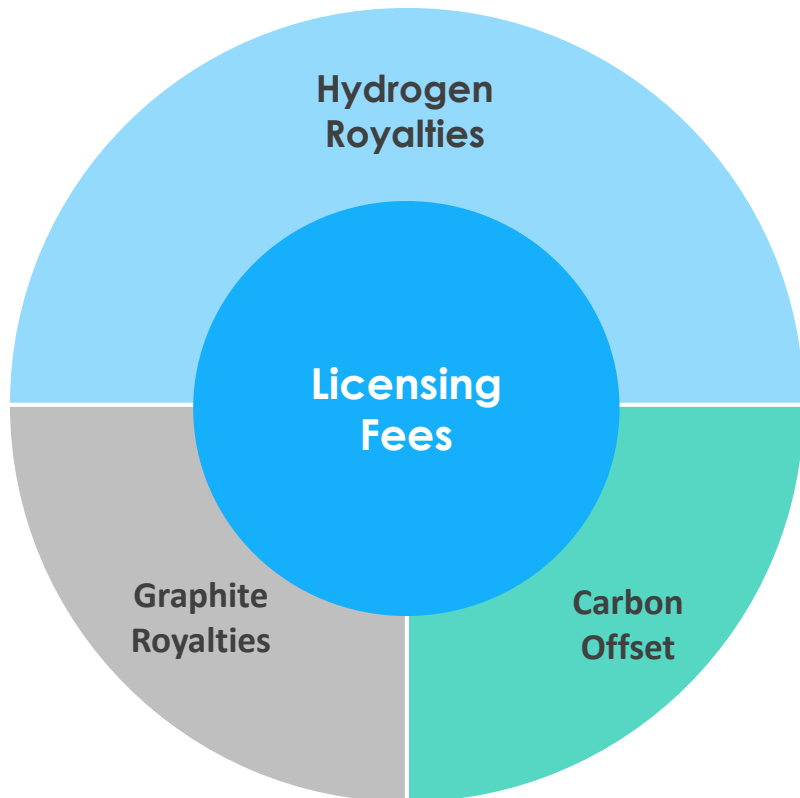
- BC, Canada
- Nagoya, Japan
- Montoir-de-Bretagne, France

Strategic Focus

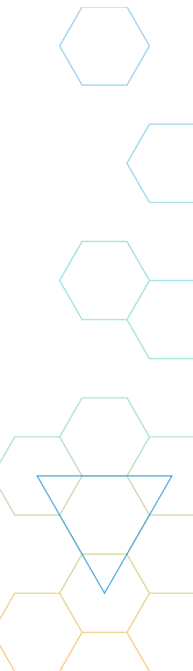


## 5 “Capex-lite” business model enables early free-cashflow

Hazer business plan premised on licensing and royalty revenues avoiding large-scale capex exposure



- One technology, two valuable markets
- Flexible combination of license fees and royalties
  - Fixed annual license fees commensurate with plant size
  - Royalties a percentage of H<sub>2</sub> and graphitic carbon revenues
- “Capex-lite” approach

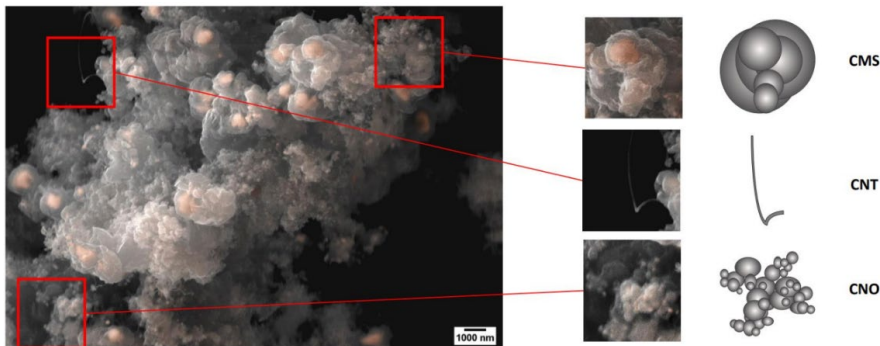


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# Graphite production diversifies earnings

A synthetic, low emissions product with differentiated morphology and properties

- Highly structured vs amorphous carbon black
- Iron inclusions produce magnetic graphite
- Low production emissions
- Up to 95% graphite purity
- High thermal & electrical conductivity
- Low sulphur & low ash content



## Mitsui MOU

- A leading international trading and investment group based in Japan
- MOU signed to jointly investigate the market for Hazer graphite
- Exploring possible customers & applications in Asia-Pacific, North America, Europe and Middle East



# 7 Building leading position in a rapidly growing market

Hydrogen will play a key role in the decarbonisation of hard-to-abate sectors

Current  
market  
~95<sub>MTPA</sub>

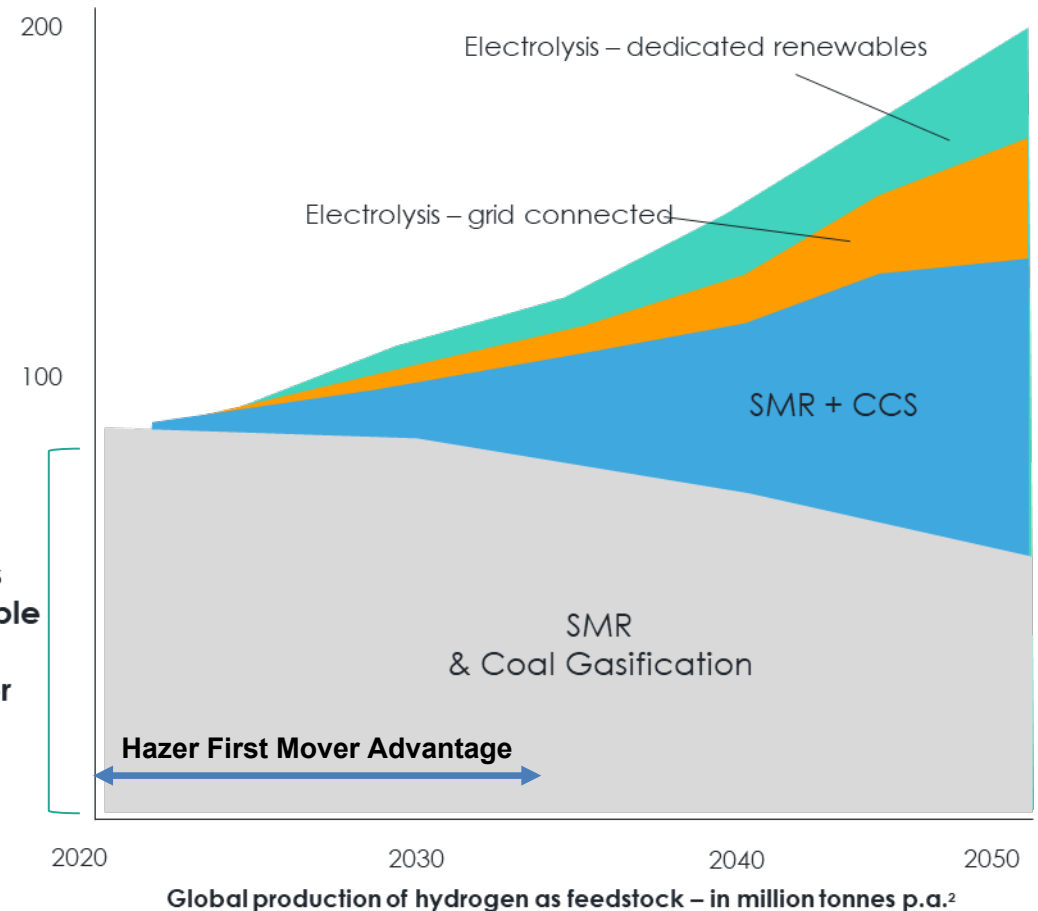


500<sub>MTPA</sub>  
in 2050<sup>1</sup>



© Getty Images

Today's  
Addressable  
Market  
for Hazer



<sup>1</sup>International Energy Agency (IEA) - The Future of Hydrogen, June 2019: <https://www.iea.org/reports/the-future-of-hydrogen>

<sup>2</sup>DNV (June 2022) – 'Hydrogen forecast to 2050':

<https://www.dnv.com/news/hydrogen-at-risk-of-being-the-great-missed-opportunity-of-the-energy-transition-226628>



8

# Significant fiscal policy support across key markets

Government funding & incentives support Hazer technology commercialisation

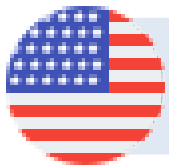
## POLICY SUPPORT



**Hydrogen Headstart Program**



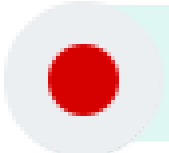
**Canadian Net-Zero Emissions Accountability Act**



**Inflation Reduction Act (IRA)  
National Hydrogen Strategy**



**Green Deal & GDIP**



**METI Green Innovation Fund (\$16bln)**

## HAZER ELIGIBILITY

- ✓ Australia ARENA (\$9mln) & R&D tax support
- ✓ Hydrogen Headstart program commits \$2bln to industry

- ✓ \$8mln CleanBC provincial government grant secured
- ✓ Further provincial and federal level funding available

- ✓ Up to \$3/kg H<sub>2</sub> production tax credit
- ✓ Australia-US Climate Compact facilitates access

- ✓ ENGIE PFS confirms Hazer meet EU thresholds for low emissions hydrogen
- ✓ Funding options being explored by partnership

- ✓ Japanese Government support likely for Chubu/Chiyoda Project
- ✓ Funding options being explored by partnership



# HazerGroup<sup>TM</sup>

**Hazer Group Ltd**

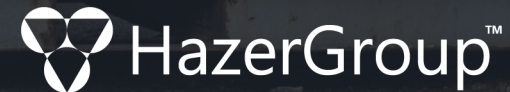
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**Investor Relations Enquiries:**

[contact@hazergroup.com.au](mailto:contact@hazergroup.com.au)

**Media Enquiries:**

[hhowlett@we-worldwide.com](mailto:hhowlett@we-worldwide.com)



[hazergroup.com.au](http://hazergroup.com.au)