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ASX:HZR

# Hazer Group Ltd

*Clean hydrogen technology to  
decarbonise the world*

Corporate Presentation  
November 2022





# Disclaimer

## Important information

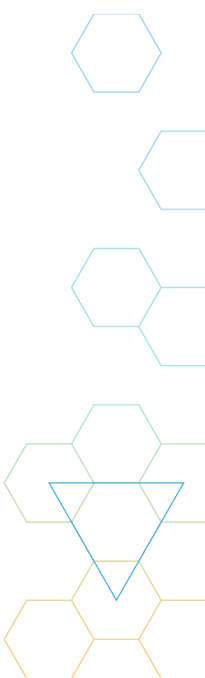
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# Investment Highlights

A disruptive and world-first hydrogen production technology well positioned to play a substantial role in global decarbonisation.



**Rapidly growing demand** for hydrogen in a US\$12 trillion market by 2030



**Low emission hydrogen technology** with strong competitive advantage



**Commercial Demonstration Plant** de-risking technology with production for 2023



**Clear pathway to commercial scale** at Burrard-Hazer Plant, Canada

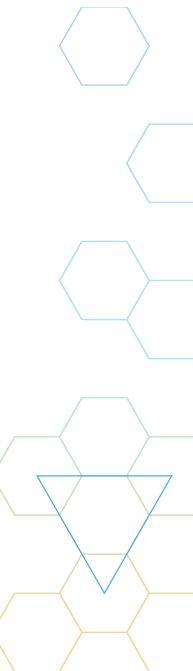


**Building global partnerships** across strategic markets and with stakeholders in hard-to-abate industries



**Balance sheet strength** to fund projects, R&D and business development programs

**Highly experienced team and extensive R&D capability**



# 2022: A solid platform for growth

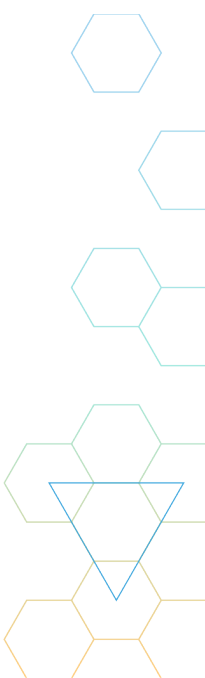
## Hazer Group Highlights

- Technology development strategy aligned with growth in hydrogen market
- Construction and first-phase commissioning complete at 100tpa Hydrogen Commercial Demonstration Plant (CDP) at Perth, Australia
- Agreement with Suncor Energy and FortisBC to develop 2,500 tpa Burrard-Hazer Hydrogen Production Plant in Canada\*
  - Government grant (C\$8m) secured funding project to 2023 Final Investment Decision (FID)
- Continued strong R&D program to develop application in growing market for graphite & advanced carbon materials
- Substantial progress made with IP protection strategy securing and advancing key patents in multiple jurisdictions
- New CEO appointed to lead Hazer's next phase of growth



Suncor & Fortis CDP Site Visit - October 2022

\* Refer ASX announcement "MOU for low-carbon hydrogen production project in Canada", 11 Feb 2022.





# Building a leading position in a rapidly growing market

COP27 is seeking to accelerate global climate action through emissions reduction. Particular focus on decarbonisation strategies, technology enablers and hydrogen’s role in hard-to-abate industrial sectors.

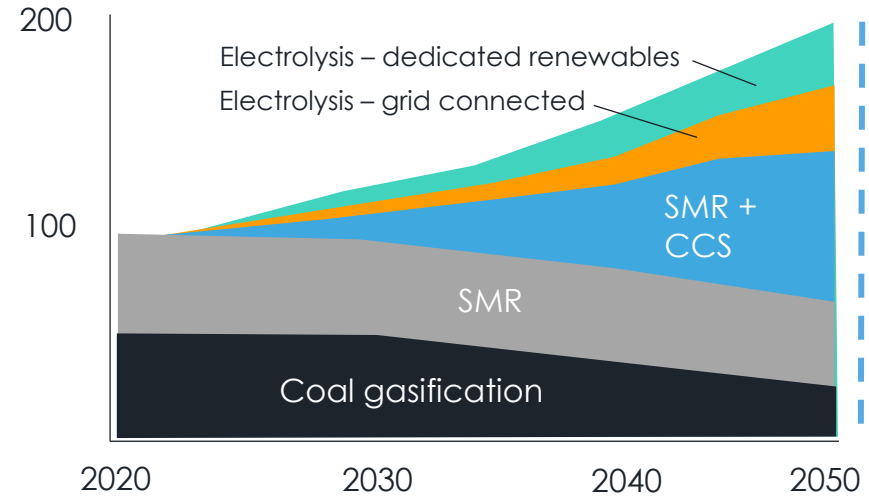
By 2050

~200-600 Mt of H<sub>2</sub> required to fill the gap needed to complete the transition to 100% renewable energy<sup>1</sup>

Addressable market worth >~US\$12T up from a cumulative US\$90B in 2030<sup>1</sup>

Clean hydrogen can contribute as much as 80 gigatons (or 11%) of cumulative CO<sub>2</sub> emissions<sup>2</sup>

Hydrogen could contribute more than 20% of annual global emissions reductions<sup>2</sup>



Potential addressable market for Hazer

Global production of hydrogen as feedstock – in million tonnes p.a.

Source: DNV (June 2022) – ‘Hydrogen forecast to 2050’

<sup>1</sup>New Energy Outlook 2021 | BloombergNEF | Bloomberg Finance LP (bnf.com)

<sup>1</sup>Wood Mackenzie (Dec 2020)- 2050:The Hydrogen possibility

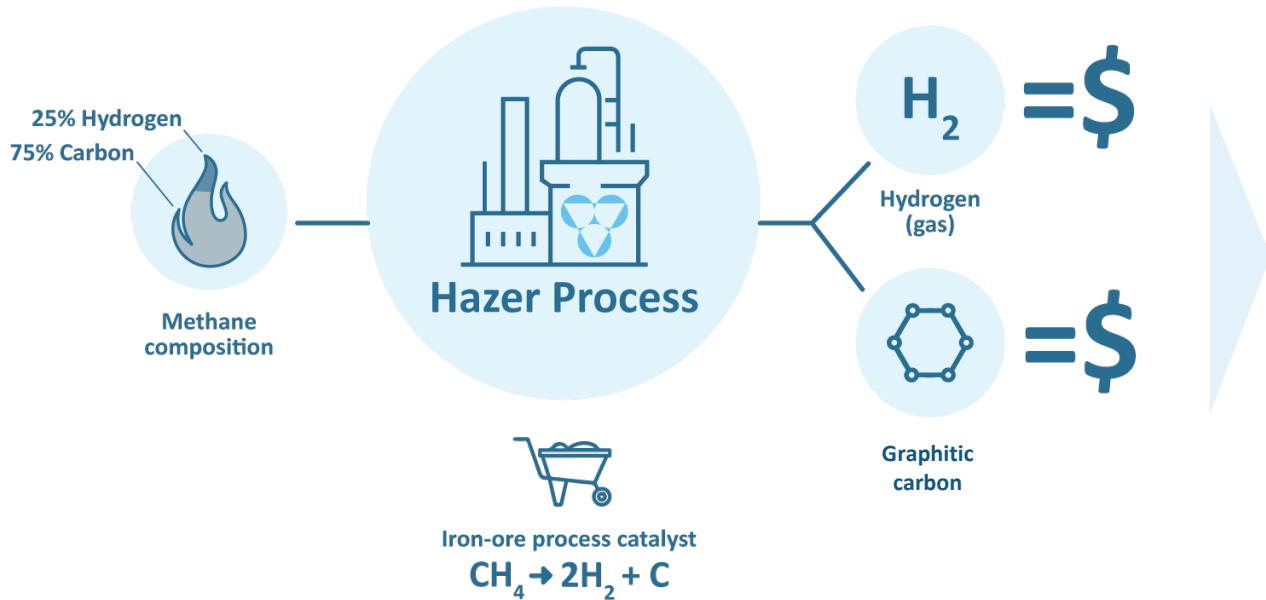
<sup>2</sup>McKinsey (October 2022) – Five charts on hydrogen's role in a net-zero future





# Clean H<sub>2</sub> technology with strong competitive advantage

Innovative low emission methane pyrolysis technology designed to produce clean hydrogen and graphitic carbon.



## Existing Technologies

### Steam Methane Reforming (SMR)



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

- Most widely used process for the generation of hydrogen (~95%)
- High CO<sub>2</sub> emissions
- Requires CCS with geological sequestration to address emissions; expensive and difficult



### Electrolysis



#### Energy intensive process

- 7x more energy intensive than SMR
- Only low emission if 100% renewable energy



# Technology upscaling...

Rapid development since company founding.

(<1g\* batch)



2007–2013

- Bench scale testing**
- University of Western Australia
  - PhD (Dr. Andrew Cornejo)
  - Concept evaluation

(<100g\* batch)



2016–present

- Scaled up bench scale**
- University of Sydney
  - Catalyst kinetics and process research

(~1 Kg\* batch)



2017

- Bench scale fluidised bed**
- University of Sydney
  - Conceptual testing of fluidised bed concept

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



2017–2021

- Pilot Plant**
- Sydney and Kwinana (Perth)
  - Fluidised bed with optimized conditions and catalyst injection

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



2022

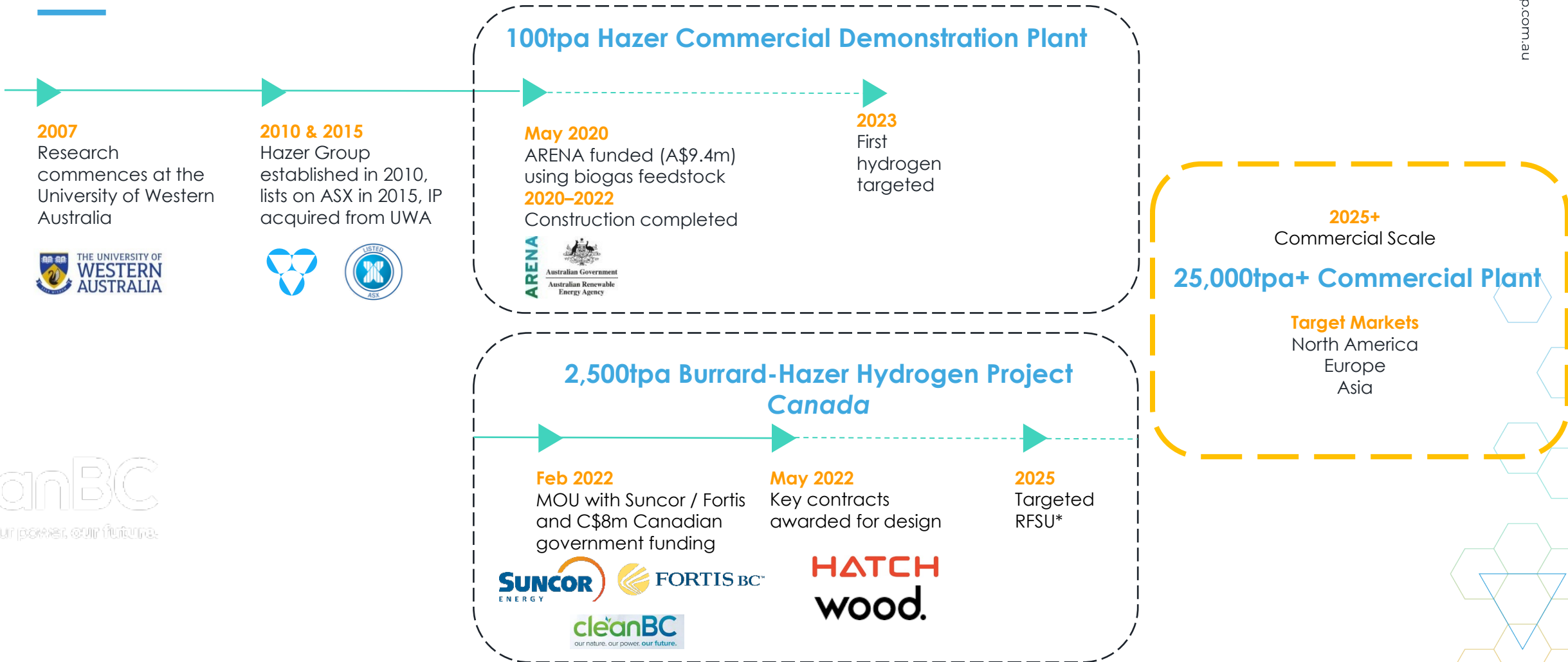
- Commercial Demonstration Plant (CDP)**
- Perth, Australia
  - End-to-end continuous plant with biogas feed
  - Start up planned 2023

\*Combined product scale \*\*CDP planned start up 2023.





# ...and clear pathway to commercialisation



\*Ready For Start Up (RFSU)





# Commercial Demonstration Plant: Confirming Scalability

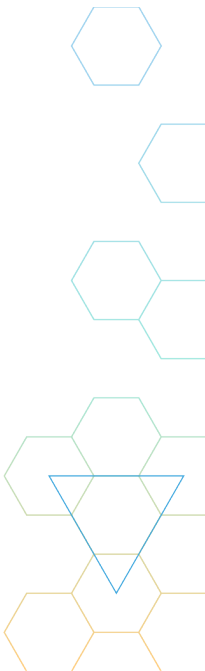
The first fully-integrated demonstration plant of the Hazer Process.



Hazer Team members at CDP Site, Perth, Australia

## Project Summary

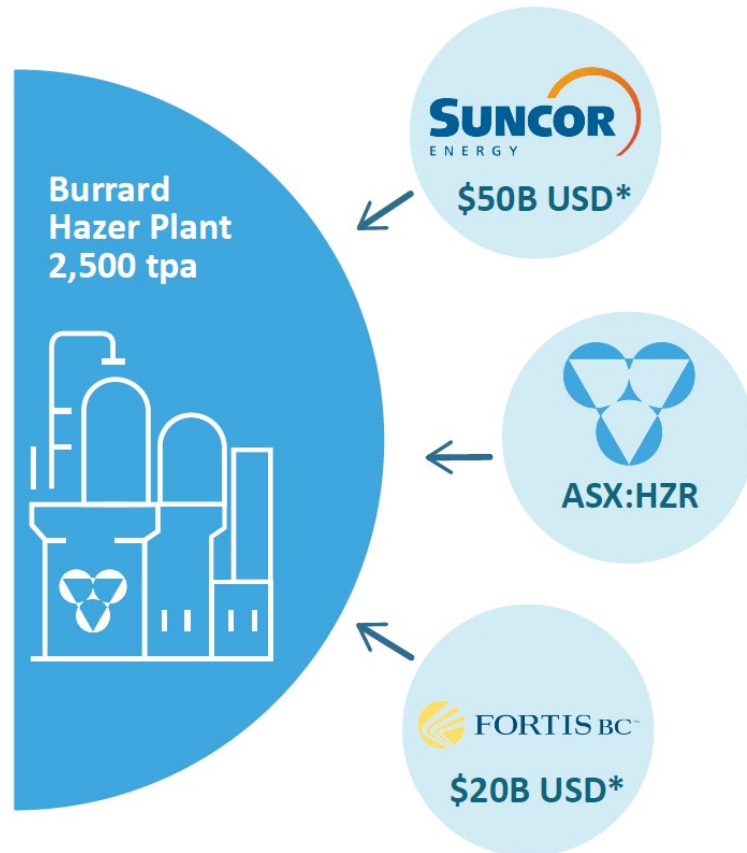
- 100 tpa H<sub>2</sub> and ~380 tpa graphitic carbon
- Carbon negative process with biogas feedstock
- Construction & first phase commissioning completed in June 2022
- 1<sup>st</sup> Hydrogen and graphitic carbon production on track for 2023 (phase-2 testing)
- Fully funded with ~\$9.4 million construction grant awarded by Australia Renewable Energy Agency (ARENA)





# Collaborating with leading energy companies in Canada

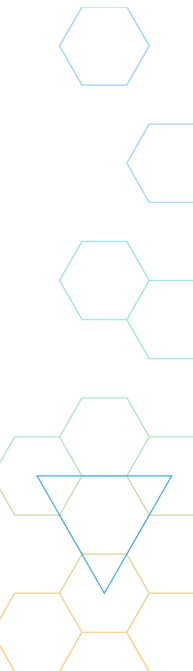
**Burrard-Hazer H<sub>2</sub> Plant: Partnership with Suncor and Fortis to develop a 2,500tpa hydrogen facility in Burrard, BC Canada.**



- Concurrently scaling up technology 25x from CDP
- MOU signed in Feb 2022 with Suncor and FortisBC
  - 2,500tpa near-commercial scale plant
  - Decarbonising pipeline network by blending with natural gas
- Target FID 2023
  - With first hydrogen expected 2025
- Secured C\$8m in grant funding from the province of British Columbia. Meets funding requirements to Final Investment Decision

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

\* Market capitalisation is approximate as of 31 October 2022

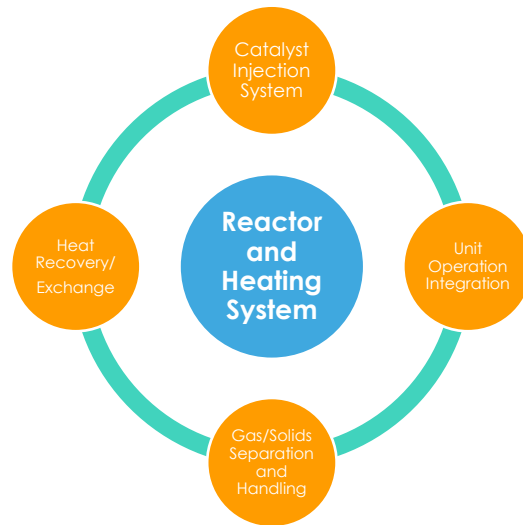


# Targeted Research & Development Program

Strengthen IP and expediting technology development timeline.

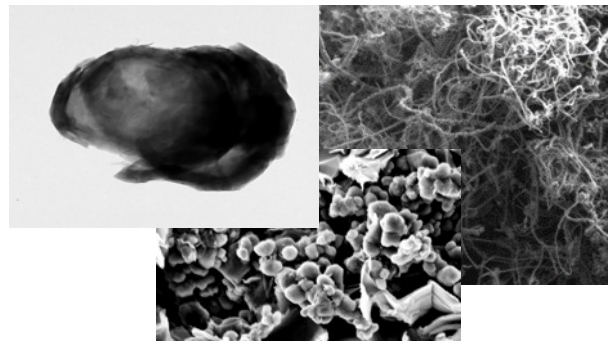
## Hazer Process Development

- Development of Hazer Process towards commercial scale
- Focus on expediting development timelines



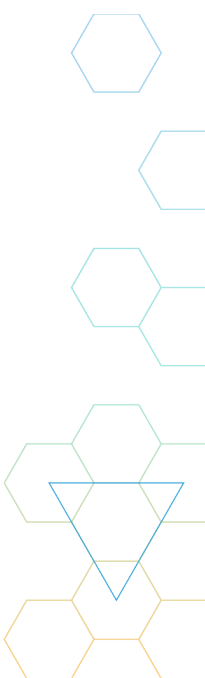
## Hazer Carbon Development

- Development of carbon markets towards offtake agreements
- Tailoring graphitic carbon towards target markets



## Hazer Catalyst Development

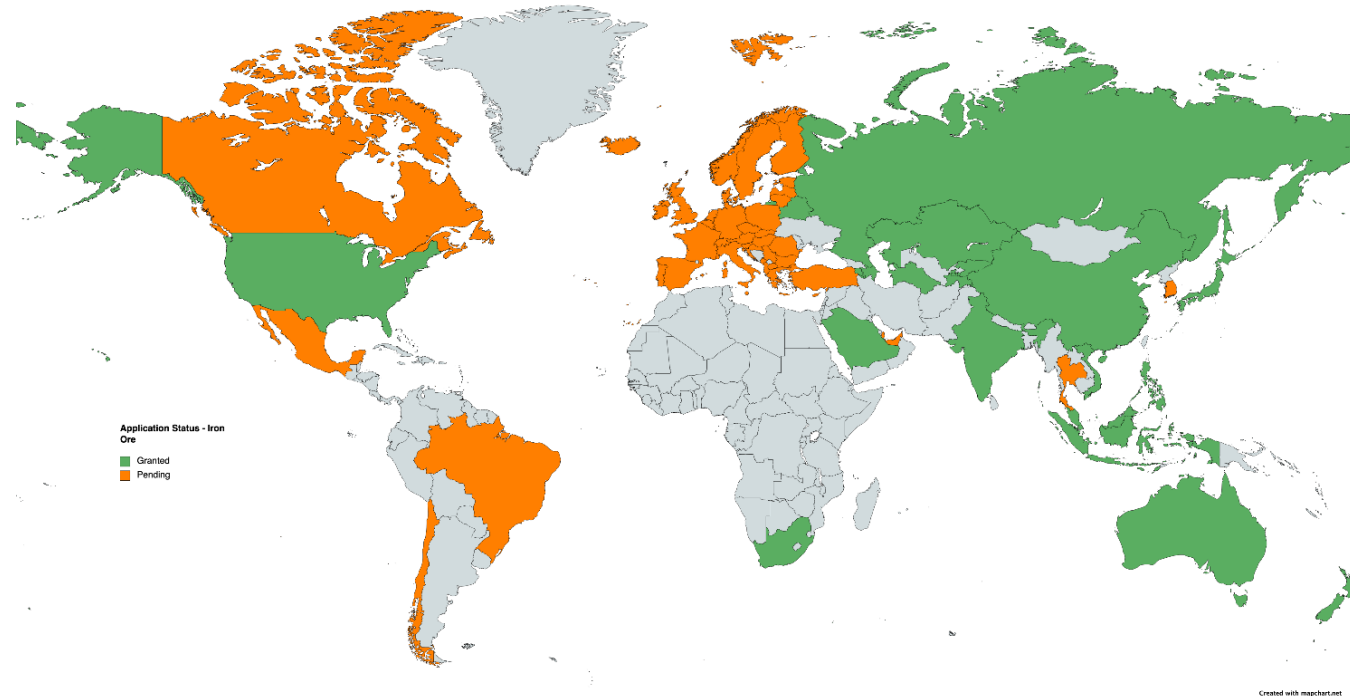
- Understanding key properties underpinning catalyst performance to strengthen IP
- Sourcing catalyst for future projects



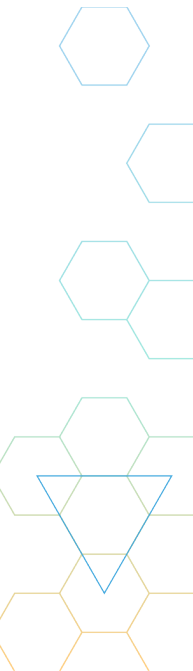


# 4 patent families across 24 jurisdictions

64% of the Hazer portfolio is now accepted or granted in line with expectations.



\*Key Jurisdictions include: Australia, Canada, China, Europe, Japan, Korea and USA

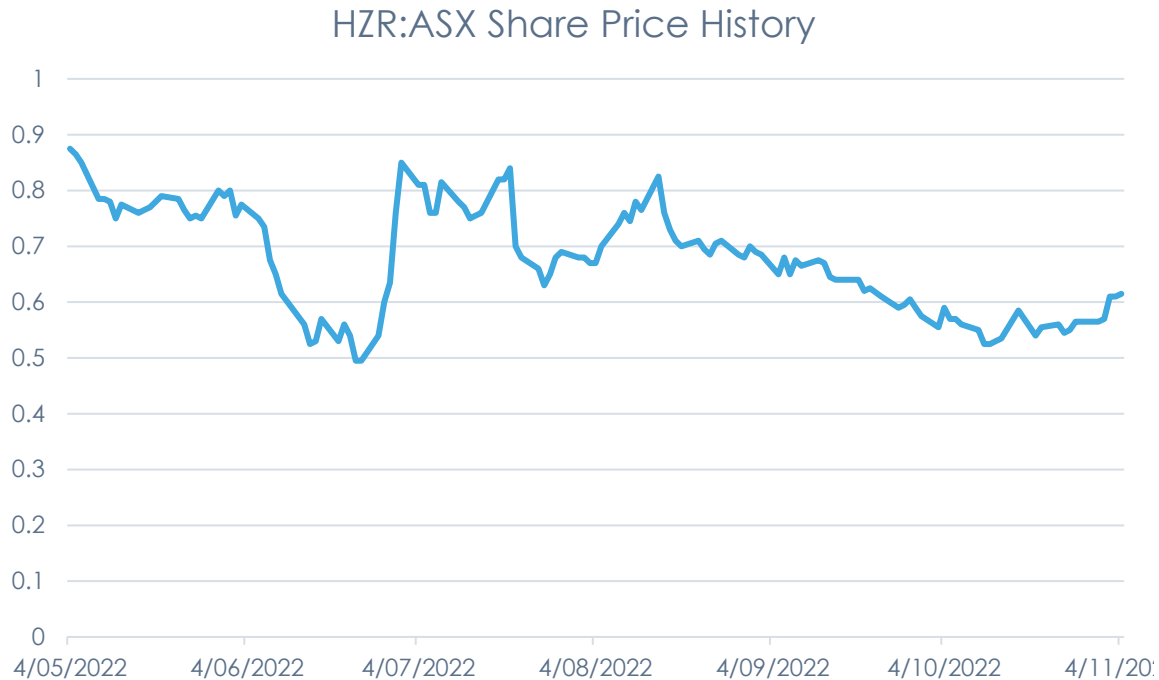




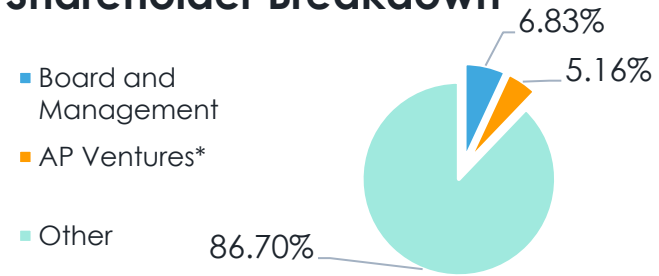
# Corporate Overview

## HZR:ASX Share Price History

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## Shareholder Breakdown



\*AP Ventures largest shareholder

Capital Structure as at 2 Nov	
Share price	\$0.61
Market capitalisation (AUD)	\$104 million
Shares on issue	170,443,743
Debt as at 30 June 2022	\$3.8 million
Cash as at 30 Sept 2022	\$15.1 million
Enterprise value	\$92.7 million





# Experienced Management Team

Highly experienced team with engineering, technical, marketing and corporate expertise.



**Glenn Corrie – CEO**

- 25 years of international energy industry, private equity and investment experience
- Previously CEO of ASX listed Sino Gas & Energy and UK focused PE backed NEO Energy.
- Senior executive positions with Ophir Energy PLC & Temasek International, responsible for global energy and renewables investments.
- 1998 to 2010, and variety of senior positions with Shell International.



**Dr Andrew Cornejo – Co-Founder & CTO**

- PhD; inventor of the Hazer Process
- Co-Founder of Hazer Group Limited
- 15 years technical engineering experience in R&D, advisory and resource development roles.
- Bachelor of mechanical engineering and commerce (UWA), Grad Cert in research commercialisation (QUT)



**Mark Edwards – COO**

- Mechanical engineer with 30 years experience in industry, including various lead roles in project management, engineering management, site maintenance and operation.
- Previously senior technology specialist with experience in developing various technologies to patent award.
- Former AUA Regional Director for Light Metals division at Hatch Pty Ltd.



**Harry Spindler – Company Secretary**

- Experienced corporate professional with a broad range of corporate governance, reconstruction and capital markets experience spanning 20+ years.
- Worked for a number of public and private companies in the energy, resources, technology and cosmetics industries, including recently Critical Resources, Balkan Mining & Minerals and Equinox Resources.
- Member of the Institute of Chartered Accountants Australia and New Zealand (CA) and Financial Services Institute of Australia (FINSIA).



**Luc Kox – Commercial Manager**

- Over 20 years' experience in the water, oil & gas and renewable energy sectors. Particular strength in technology-based solutions and engineering in clean tech, including energy recovery from biogas.
- Extensive experience in international business development and commercial management; including market entry strategy, project development, project finance and contract development





# Independent Board of Directors

Commercial, Technical, Contract and Regulatory expertise.



**Tim Goldsmith - Chairman**

- Over 20 years as Partner with global professional services group PwC.
- Leader of PwC's Mining Group, and National China Desk Practice.
- Over 30 years corporate and commercial experience across international mining and industrial business operations.



**Danielle Lee – Non-Executive Director**

- Corporate lawyer with more than 25 years experience having worked in private law firms, In-house counsel and the ASX.
- Broad experience advising public and private corporations on corporate transactions, capital markets and governance issues.



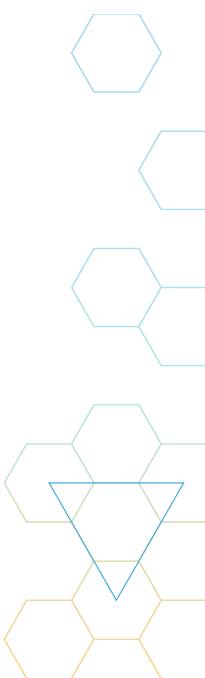
**Dr Jack Hamilton – Non-Executive Director**

- Career spanning over 30 years in the energy sector, holding senior positions with Shell and Woodside.
- Experience across strategy development, commercial marketing, M&A, capital raisings, manufacturing operations and project management.



**Andrew Hinkly – Non-Executive Director**

- Founding Managing Partner of AP Ventures.
- 25 years working in the automotive and mining industries.
- Extensive global experience in finance, purchasing, strategy and new market development.





# Hazer Group™

▼  
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