**VALUE PROPOSITION**

Disruptive, global and scalable low cost, low emission solution to a decarbonised hydrogen future.

Technical development successfully progressed to enable transitioning into commercial phase with a strong focus on additional partnerships and offtake.

Multiple potential revenue streams.
WHY CURRENT HYDROGEN PRODUCTION IS RIPE FOR DISRUPTION?

Production is high in emissions or expensive

**Current hydrogen production**

- **Fossil fuel reforming**
  \[ C_nH_m + [O] \rightarrow CO_x + H_2 \]

- **Electrolysis**
  \[ 2H_2O (+ \text{energy}) \rightarrow O_2 + 2H_2 \]

**Significant CO\(_2\) emissions**
- 95% of total global hydrogen production
- Chemically equivalent to direct combustion, but less energy efficient

**Energy intensive process**
- Requires renewable energy source
- Expensive (power consumption)

**Barrier to growth in energy markets**

hazergroup.com.au
THE HAZER ADVANTAGE
Capturing more value of feedstock gas and dual revenue streams

Natural gas composition
- 25% Hydrogen
- 75% Carbon

Steam Methane Reforming (SMR)

Hazer Process

Hydrogen gas
= $

Graphite (carbon)
= $

CO₂
= -$
THE HAZER PROCESS

Hydrogen and graphite from natural gas

\[ \text{CH}_4 \rightarrow 2\text{H}_2 + \text{C} \]

Natural gas

Iron-ore

H₂

Hydrogen

~US$130 billion pa*

Synthetic graphite

~US$14 billion pa^

* "Global Hydrogen – A US$2.5 Trillion Industry?", Morgan Stanley Research Report July 22 2018
THE BREAKTHROUGH
Methane Decomposition - Simplified approach to old science

Traditional methane decomposition research

Catalyst Synthesis

Decomposition reaction

Catalyst recovery

High cost

Raw catalytic material → Catalyst digestion → Add support (e.g. Ceramic) → Catalyst precipitation → Catalyst reduction

Natural gas

Hydrogen

Supported nano-catalyst

Graphite encapsulating catalyst

High complexity

Hazer Group

• Reaction creates catalyst from cheap material
• No need for catalyst synthesis
• No need for catalyst recovery and reuse

Decomposition reaction

Natural gas + Hydrogen →

Raw catalytic material + Catalyst creation → Graphite encapsulating catalyst

hazergroup.com.au
HAZER HYDROGEN COMPARISON

Positioning as a low cost, low emission alternative

Greater CO₂ emissions (per kWhr) than direct combustion of fossil fuel^*

Targeting low cost, low emission hydrogen production

- Significant emissions reductions.
- Emissions can be reduced further by harnessing clean energy options.
- Lower operating cost* through graphite sales to enable access to US$100 Billion Industrial hydrogen market.

*Economic modelling as per previous ASX Announcement 28th February 2018
^Conceptual diagram only with numbers in brackets showing best estimates current market share

hazergroup.com.au
OPPORTUNITIES IN THREE MAJOR GLOBAL MARKETS

**Industrial hydrogen**
US$130 billion*

*Low emission, low cost alternative*
Currently primarily addressed by fossil fuel reformation processes (high CO₂ byproduct).
Hazer has potential to deliver significant cost savings with graphite revenue offset.

Industry is beginning to turn toward cleaner solutions.

---

**Clean hydrogen and energy**
US$12 billionᵃ by 2023 (FCV)

*Multiple applications*
Clean (low carbon) hydrogen has price or value premium to standard hydrogen.
Key component of clean energy future (H₂ => H₂O + energy).
Fundamental cost, energy limitations for existing clean hydrogen production options.

---

**Synthetic graphite**
US$14 billion^*

*High quality, low cost graphite source*
Growth - energy storage (batteries)
Graphite has a wide range of desirable properties and is used in a range of industrial materials applications.
Current methods of graphite production (natural or synthetic) are costly and have significant environmental impacts.

---

* "Global Hydrogen – A US$2.5 Trillion Industry?", Morgan Stanley Research Report July 22 2018
MULTIPLE CLEAN HYDROGEN APPLICATIONS

**Clean energy – Vehicle fuel and stationary power**

Fuel Cell Vehicle (FCV) models being developed.

Potential distribution via traditional clean energy systems, including hydrogen injection into gas pipelines.

Cost, energy and carbon emission barriers for existing hydrogen production methods.

**Clean Industrial Hydrogen Market**

Traditional industrial hydrogen users are seeking cleaner alternatives.

This offers opportunities to disrupt the large and growing industrial hydrogen market.

Recent attention has been in iron production, and green ammonia.

**Carbon Capture and Utilisation (CCU)**

An alternative to CCS (Carbon Capture and Storage), where CO₂ emissions can be captured and used as feedstock for other chemical products.

These include methanol and liquid fuel (diesel).

Low cost, low emission hydrogen will be in demand as a key additional feedstock.
INDUSTRIAL HYDROGEN MARKETS
TRANSITIONING TO LOW CARBON HYDROGEN

Conceptual Hazer plant integration into steel production with CCU

Iron Ore → Steel Plant
Iron Ore → Natural Gas → Hazer Plant
Natural Gas → Hazer Plant

Carbon Capture and Utilization (CCU) Waste to energy

Graphite (Coke Replacement and electrodes) → Hydrogen (Reductant) → Steel Plant

Steel Plant

Hydrogen (CCU Usage) → CCU/Methanol plant

Graphite → Steel → Methanol

3 Products = 3 Revenue Streams

hazergroup.com.au
HAZER GRAPHITE

Versatile properties – many opportunities

- Current graphite market value in excess of US$ 14 Billion per annum
- Hazer graphite structure and properties can be altered to potentially suit different market by changing the process conditions
- Graphite purity ex reactor can range between 80-95%wt, and can be purified to 99.9%> with standard purification techniques
- Promising preliminary results in using Hazer Graphite in Li-ion batteries


hazergroup.com.au
Preliminary testing of Hazer graphite in coin cell Li-ion batteries show equivalent performance to commercial synthetic spherical graphite.
HYDROGEN & GRAPHITE SYNERGY
Potential to be a major part of the revolution in future mobility

Electric Vehicle

Fuel Cell Vehicle

Graphite in Lithium-Ion Batteries
Graphite in Power Unit

Graphite in Fuel Cell Stack
Graphite in Lithium-Ion Batteries
Low carbon Hydrogen in Storage Tank
STRONG COMMERCIAL PROGRESS SINCE IPO

Milestones

- **HZR listed on ASX in Dec 2015**
- **Non-binding MoU with Primetals Technologies GmbH (Siemens and Mitsubishi Heavy Industry) to investigate integration of Hazer Process in steel production**
- **Design options begin for small hydrogen demonstration plant with potential offtake**
- **Research begins**
- **Non-binding MoU with Pan American Hydrogen to investigate integration of Hazer Process in hydrogen production**
- **Binding Co-Operation Agreement with $4bn Mineral Resources Ltd (ASX:MIN) for development of a commercial scale synthetic graphite plant**
COLLABORATION WITH ASX:MIN

Investment and Commercial Partner

March 2017 MIN made a A$5M strategic placement and significantly increased their stake in Hazer to 14%.

December 2017 binding agreement for the potential development of a commercial scale synthetic graphite facility:

• MIN to fund the commercial development.
• Hazer to obtain royalties from graphite sales.
• Stage 1 pilot plant first graphite expected Q4 2018.
• Stage 3 target production of 10,000tpa.
MULTIPLE REACTOR OPTIONS

Using Hazer Process

Hazer Reactor
**Fluidised Bed Reactor (FBR)**
Reactor flexibility allowing for a range of graphite purity options and high hydrogen production with best productivity for reactor size.

External Reactor
**Rotary Tube Reactor (RTR)**
Alternative off the shelf reactor design identified for a range of graphite purity options, medium hydrogen production but lower productivity for reactor size.

MRL/HZR Reactor
**Paddle Tube Reactor (PTR)**
Reactor tailored towards production of high purity graphite for battery applications with good hydrogen potential.
PROPOSED PATHWAY & POTENTIAL MARKETS

Hydrogen focus with graphite by-product

- FBR/RTR
  - Functionalization
  - Low end graphite
  - Transport (FCV)
  - Bio Fuels
  - Stationary power
  - Residential use
  - Low carbon industrial hydrogen (e.g., clean ammonia)
  - Refractory
  - Lubrication
  - Foundry
  - Metallurgy
  - New markets: e.g., Concrete

- PTR
  - Purification
  - High end graphite
  - Li-ion batteries
  - Electrodes
  - Industrial Hydrogen
  - Clean energy

Graphite focus with hydrogen by-product
**PATH TO COMMERCIAL DEVELOPMENT**

- **Fluidised Bed Reactor (FBR)**
  - **FBR Lab scale (FBR - Lab)**
    - COMPLETED
    - **G: 1 kg/day^**
    - **H: ~1.1 kg/day^**
  - **FBR Pre-Pilot Plant (FBR - PPP)**
    - COMPLETED
    - **G: 4.5 kg/day^**
    - **H: ~1.1 kg/day^**
  - **FBR External (FBR - EXT)**
    - COMPLETED
    - **G: 4.8 kg/day^**
    - **H: ~1.2 kg/day^**
  - **FBR External (FBR - EXT)**
    - **G: 4.8 kg/day^**
    - **H: ~1.2 kg/day^**
    - Alternative heating testing

- **Rotary Tube Reactor (RTR)**
  - **RTR External (RTR - EXT)**
    - **G: 5.9 kg/day^**
    - **H: ~15 kg/day^**

- **Paddle Tube Reactor (PTR)**
  - **PTR Pilot Plant (PTR - PP)**
    - Q4 2018
    - **G: 1 t/year^**
  - **PTR Demonstration Plant (PTR - DP)**
    - **G: 1000 t/year^**
  - **PTR Commercial Plant (PTR - CP)**
    - **G: 10,000 t/year^**

- **FBR/RTR Demonstration Plant (FBR/RTR - DP)**
  - **TBA - 2019/2020**
  - **G: ~146 t/year***
  - **H: ~36 t/year***
  - **FBR/RTR Commercial Plant (FBR - CP)**
    - **TBA**
    - ~10,000 t/year*

---

^ Actual equivalent product capacity rate achieved (unpurified)

* Nominal product target capacity (unpurified)

^ Nominal graphite target capacity (purified)

G: Graphite nominal capacity

H: Hydrogen nominal capacity
MULTIPLE COMMERCIAL OPTIONS

Using Hazer Process

License
License IP to 3rd parties and generate high margin royalty

Partnership
Share capital & operating costs with hydrogen or graphite partners

Build, Own & Operate
Hazer can construct own and operate plants and sell products

Currently investigating multiple options across different business models
**NEWSFLOW**

**Aspirational Milestones**

- **Aug 2018**
  - Independent FBR Testing Results
  - External Feasibility Study on Demonstration and Commercial Plant
  - PTR Plant Commissioning Commences

- **Feb 2019**
  - Hazer FBR Plant Relocation to Perth
  - PTR Pilot Plant Completion and Testing Commenced
  - Commercial Scale Graphite Purification Testing Results
  - Business Case Financial Modelling
  - FBR Pilot Plant Optimisation Results
  - Graphite Lubrication Results

*Indicative timetable only August 2018 to February 2019*
STRONG LEADERSHIP

Commercial, Technical, Contract & Regulatory expertise

Mr 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

Ms Danielle Lee  
NED  
• Corporate lawyer with more than 23 years’ experience shared between private law firms and the ASX  
• Main practice areas are corporate advisory, governance and equity capital markets; regularly advises on issues relating to the Corporations Act and ASX Listing Rules

Mr Simon Rushton  
NED  
• Executive General Manager - Corporate Development at Mineral Resources Limited  
• 18 years global corporate experience in financial, advisory and legal roles  
• Corporate contracts including M&A expertise within the mining sector

Dr Andrew Harris  
NED  
• Lead Director of the Engineering Excellence Group, Laing O’Rourke  
• Professor of Chemical and Biomolecular Engineering at the University of Sydney  
• Previously the CTO of Zenogen, a hydrogen production technology company, and a co-founder of Oak Nano, a start-up commercialising novel carbon nanotube technology
Mr Geoff Ward  
**Chief Executive Officer**  
- 25 years experience in senior executive roles in the energy sector, covering operations, commodity trading, strategy and planning, development and execution of major capital projects  
- Specialised experience leading transactions in capital markets, financing, M&A and joint ventures  
- B.E Chem (Hons) and MBA. Member of the Australian Institute of Company Directors  

Dr Andrew Cornejo  
**Co-Founder and Chief Technical Officer**  
- PhD and inventor of the Hazer Process  
- 15 years technical engineering experience in R&D, advisory and resource development roles  
- Bachelor of mechanical engineering and commerce, Graduate Cert in research commercialisation  

Mr Mark Edwards  
**Chief Operating Officer**  
- Mechanical engineer with 25 years experience in project management, site maintenance and operation  
- Former AUA Regional Director for Light Metals division at Hatch Pty Ltd  
- Technical specialist with focus on delivery of complex technical projects  

Ms Emma Waldon  
**CFO & Company Secretary**  
- 20 years experience in finance and corporate advisory roles including ASX listed companies  
- Specialist in risk management  
- Member of the Australian Institute of Chartered Accountants, a Fellow of the Financial Services Institute of Australasia and a Certificated Member of the Governance Institute of Australia  

Mr Luc Kox  
**Commercial Manager**  
- 20 years’ experience in engineering and clean tech industries, including energy recovery from biogas  
- Extensive experience in international business development, including project finance and contract development, in particular throughout Asia Pacific region  
- Master of Science plus post grad Qualified Export Marketing Manager (both The Netherlands)
## TIGHTLY HELD REGISTER

### Top 20 own 42%

#### Capital Structure

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Shares on Issue</td>
<td>89.4m</td>
</tr>
<tr>
<td>Market Capitalisation @ $0.35</td>
<td>$31.3m</td>
</tr>
<tr>
<td>Cash @ 30 June 2018</td>
<td>$6.185m</td>
</tr>
<tr>
<td>Total Options</td>
<td>67.3m</td>
</tr>
<tr>
<td>$0.25 and $0.30 Options Exercise Dec 2018</td>
<td>29.1m</td>
</tr>
<tr>
<td>Diluted Market Cap $0.25 and $0.30 Options</td>
<td>$41.5m</td>
</tr>
<tr>
<td>Total Cash From $0.25 and $0.30 Options Exercise Dec 2018</td>
<td>$8.5m</td>
</tr>
<tr>
<td>Total Cash From all options</td>
<td>$33.3m</td>
</tr>
</tbody>
</table>

### Share Price & Volume

![Share Price & Volume Chart](chart.png)

**Share Price ($)**

**Volume (m)**

- **Period average volume**
- **Share Price**

#### Substantial Shareholders

- Top 20 ex substantial shareholders holding >5%
- Mineral Resources Ltd
- Geoff Pocock Entities
- Andrew Cornejo
- Other

hazergroup.com.au
WHY INVEST?

Disruptive, global and scalable low cost, low emission solution to a decarbonised hydrogen future.

Technical development successfully progressed to enable transitioning into commercial phase with a strong focus on additional partnerships and offtake.

Multiple potential revenue streams.
DISCLAIMER

Important Information

This presentation has been prepared by Hazer Group Limited (“Hazer” or “the Company”)

This presentation is not a financial product or investment advice or recommendation, offer or invitation by any person or to any person to sell or purchase securities in Hazer in any jurisdiction. This presentation contains general information only and does not consider the investment objectives, financial situation and needs of individual investors. Investors should make their own independent assessment of the information in this presentation and obtain their own independent advice from a qualified financial adviser having regard to their personal objectives, financial situation and needs before taking any action.

No representation or warranty, express or implied, is made as to the accuracy, completeness, reliability or adequacy of any statements, estimates, opinions or other information, or the reasonableness of any assumption or other statement, contained in this presentation. Nor is any representation or warranty (express or implied) given as to the accuracy, completeness, likelihood of achievement or reasonableness of any forecasts, prospective statements or returns contained in this presentation. Such forecasts, prospective statements or returns are by their nature subject to significant uncertainties and contingencies, many of which are outside the control of Hazer.

To the maximum extent permitted by law, Hazer and its related bodies corporate, directors, officers, employees, advisers and agents disclaim all liability and responsibility (including without limitation any liability arising from fault or negligence) for any direct or indirect loss or damage which may arise or be suffered through use or reliance on anything contained in, or omitted from, this presentation. An investment in Hazer securities should be considered speculative and is subject to investment and other known and unknown risks, some of which are beyond the control of Hazer. Hazer does not guarantee any rate of return or the absolute or relative investment performance of Hazer securities. The distribution of this presentation including in jurisdictions outside Australia, may be restricted by law. Any person who receives this presentation must seek advice on and observe any such restrictions.