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HazerGroup

HYDROGEN
FUEL CELL

Compressed
Hydrogen

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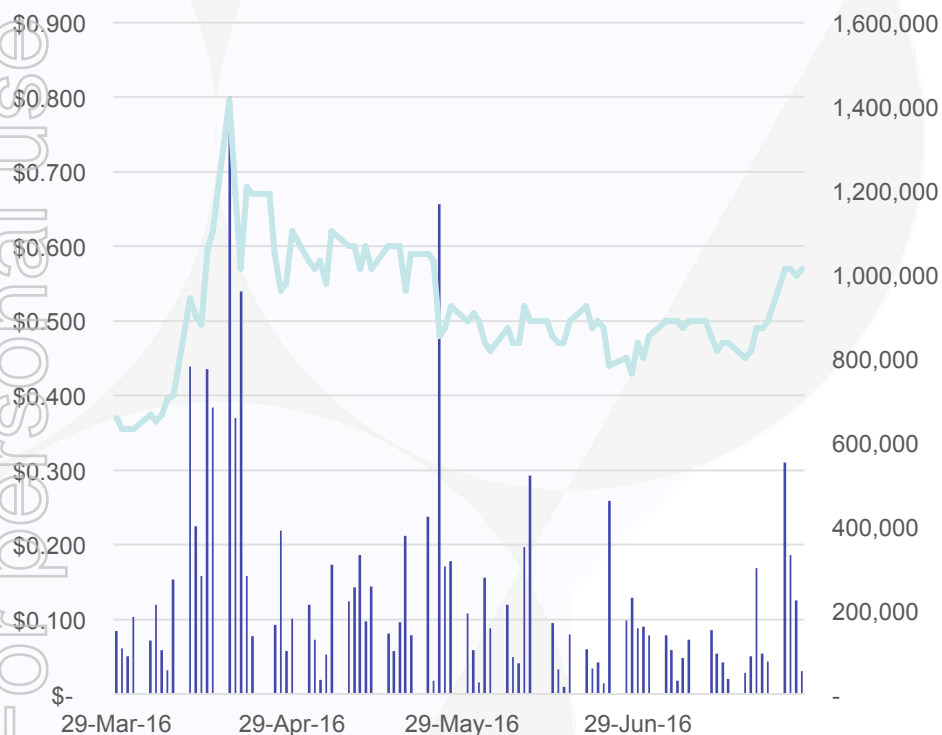
ABOUT HAZER GROUP LTD



- Hazer Group Ltd is the commercialisation entity for the Hazer Process – a novel potential low cost, low emission hydrogen and graphite production technology, originally developed at the University of Western Australia
- Company established in 2010
- December 2015, completed heavily oversubscribed \$5m IPO capital raising and listing on ASX (ASX:HZR, HZRO)
- Funds will provide up to 2 years of ongoing development, up to demonstration / pilot plant scale

CORPORATE & MARKET SNAPSHOT

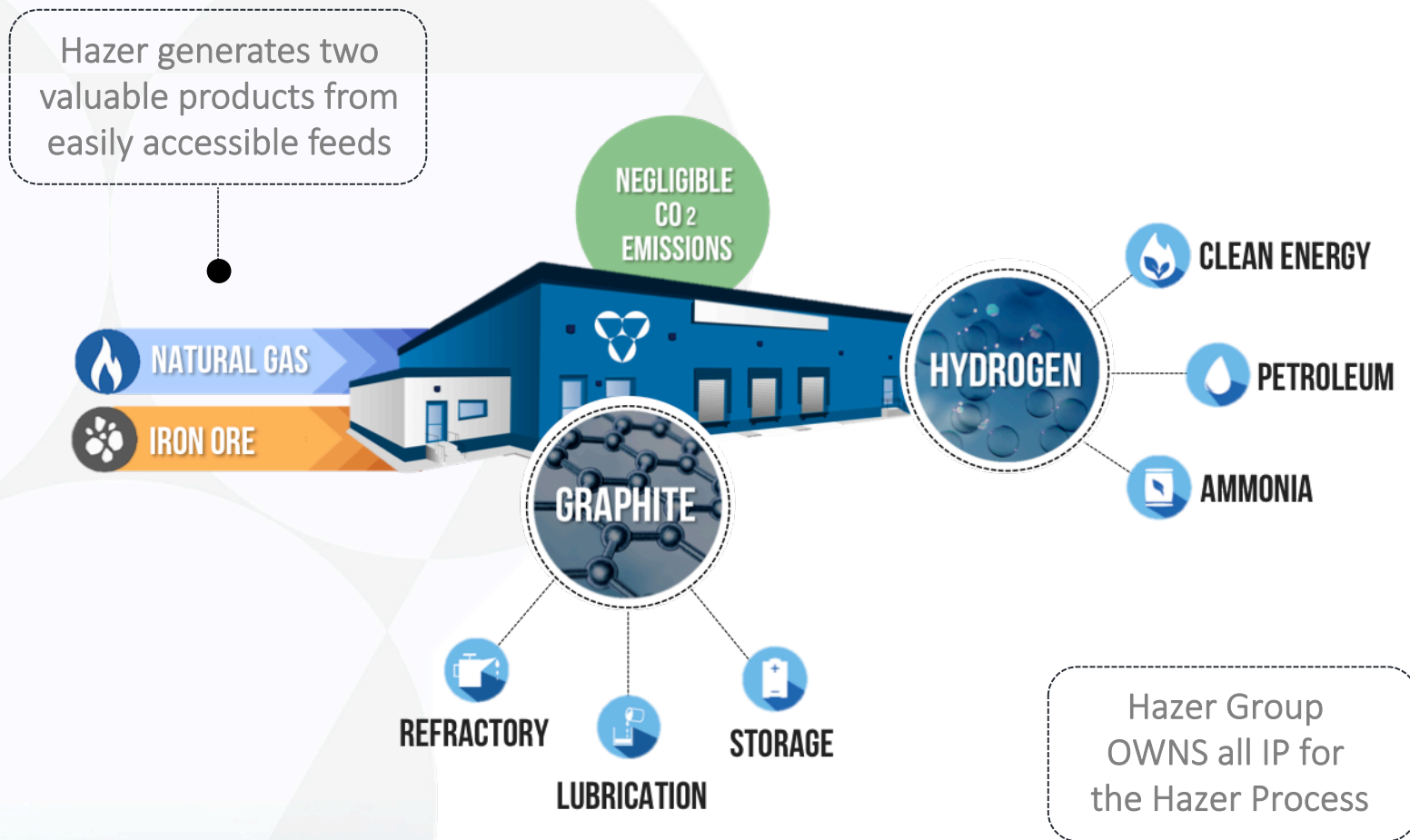
HZR Share price & volume



Current Shares on Issue	64.5m
(Restricted Securities)	(11.3m)
Total tradeable shares	53.2m
Trading range (Post IPO)	\$0.22 - \$0.85
Last	\$0.55
Market Cap'n (@\$0.55)	\$35.5m
Cash (30 June 2016)	\$4.5m
Total Options	47.1m
Cash from option exercise	\$18.4m
Significant Shareholders	Shares
Mr Geoff Pocock (MD)	4.2m
Dr Andrew Cornejo (CTO)	3.8m
Mineral Resources Ltd	2.0m
UWA	1.7m
Total Top 20	~42%

THE HAZER PROCESS

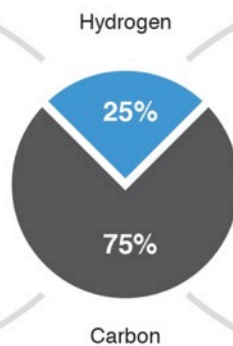
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THE HAZER PROCESS

The Hazer Process captures all the value within feedstock gas

 **Natural Gas**
(Composition by mass)




Hydrogen
(\$)




Carbon wasted as CO₂


Hydrogen
(\$)




Graphite
(\$)

REDUCED RISK

Reduced Commercial Risk

Natural gas to hydrogen conversion is currently done on industrial scale (steam methane reformation - SMR)

Majority of SMR plant infrastructure would be similar for Hazer process plant

Hazer will review potential to retrofit Hazer reactor into existing SMR production plant

Reduced Technical Risk

Catalytic decomposition of methane has previously been developed to pilot plant scale

Technical issues for scale up of Hazer process have been addressed in comparable systems

Previous development hindered by economic rather than technical issues

Hazer's core innovation is use of low cost catalyst that addresses underlying economic barrier to development

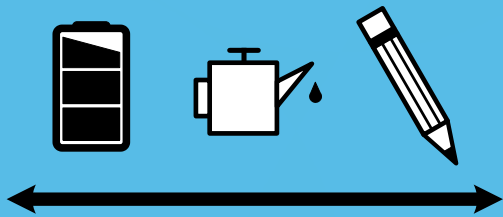
COMPETITIVE ADVANTAGES



Lower Cost Production
Access to billion dollar markets



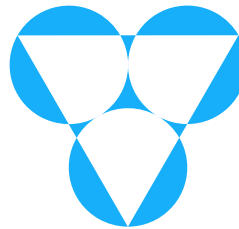
Clean Hydrogen
Opens new markets for product



Tailored graphite
Target wide range of potential markets



Process Versatility
Access to low cost inputs



SIGNIFICANT MILESTONES REACHED

Hazer has demonstrated significant progress this year, with ongoing development we expect sustained news flow over the next 18 months.

- ✓ Secured research partnership with Sydney University
- ✓ Commissioning of larger scale reactors (ongoing)
- ✓ Strategic and collaborative partnerships with research and commercial partners (ongoing)
- ✓ Preliminary characterisation results of graphite produced
 - Optimisation of process conditions and bulk (~1kg+) graphite synthesis
 - Third party validation of graphite utility
 - Design and specifications for demonstration plant

Medium term development milestone is commissioning of demonstration plant (2017)

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Shell
Hydrogen

Shell
Hydrogen

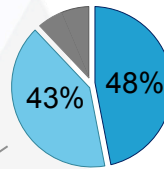


Hydrogen Market

HYDROGEN - \$100BILLION MARKET

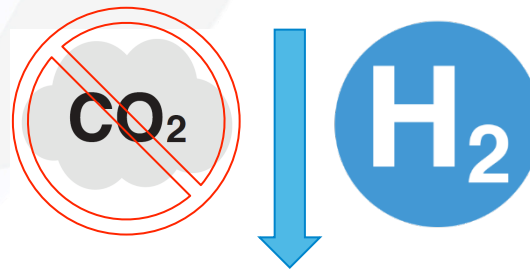
Massive global market, and further “step change” growth


Ammonia production
(Fertilizer / Explosives)




Petrochemical refining

Significant CO₂ with current hydrogen production => Barrier to growth



Clean (CO₂-free) hydrogen has potential to access **clean energy markets**

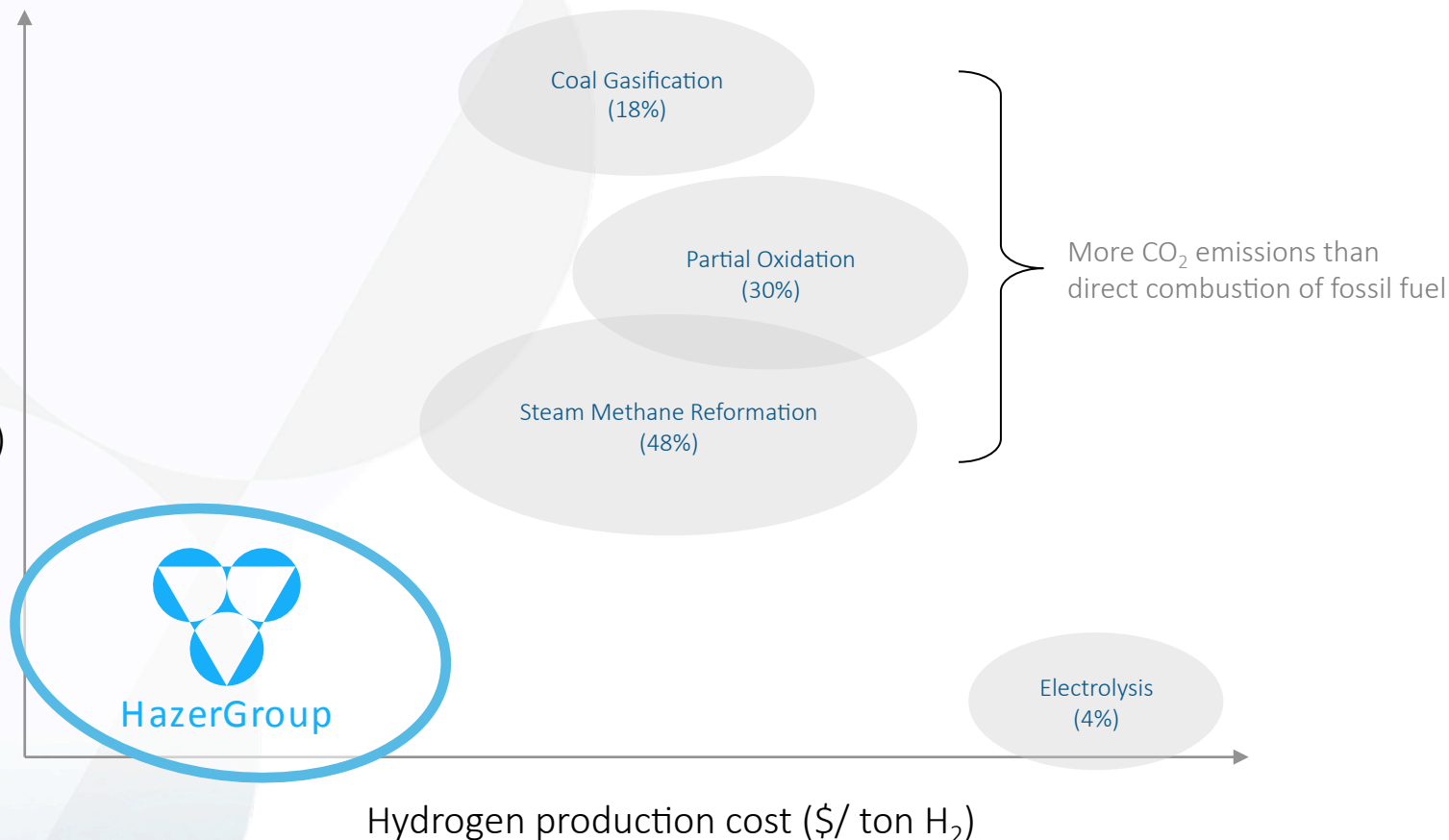

Clean
electricity


Fuel Cell
Vehicles


Synthetic
Fuels

LOW COST, CLEAN HYDROGEN

The Hazer Process potentially offers low cost, clean hydrogen production

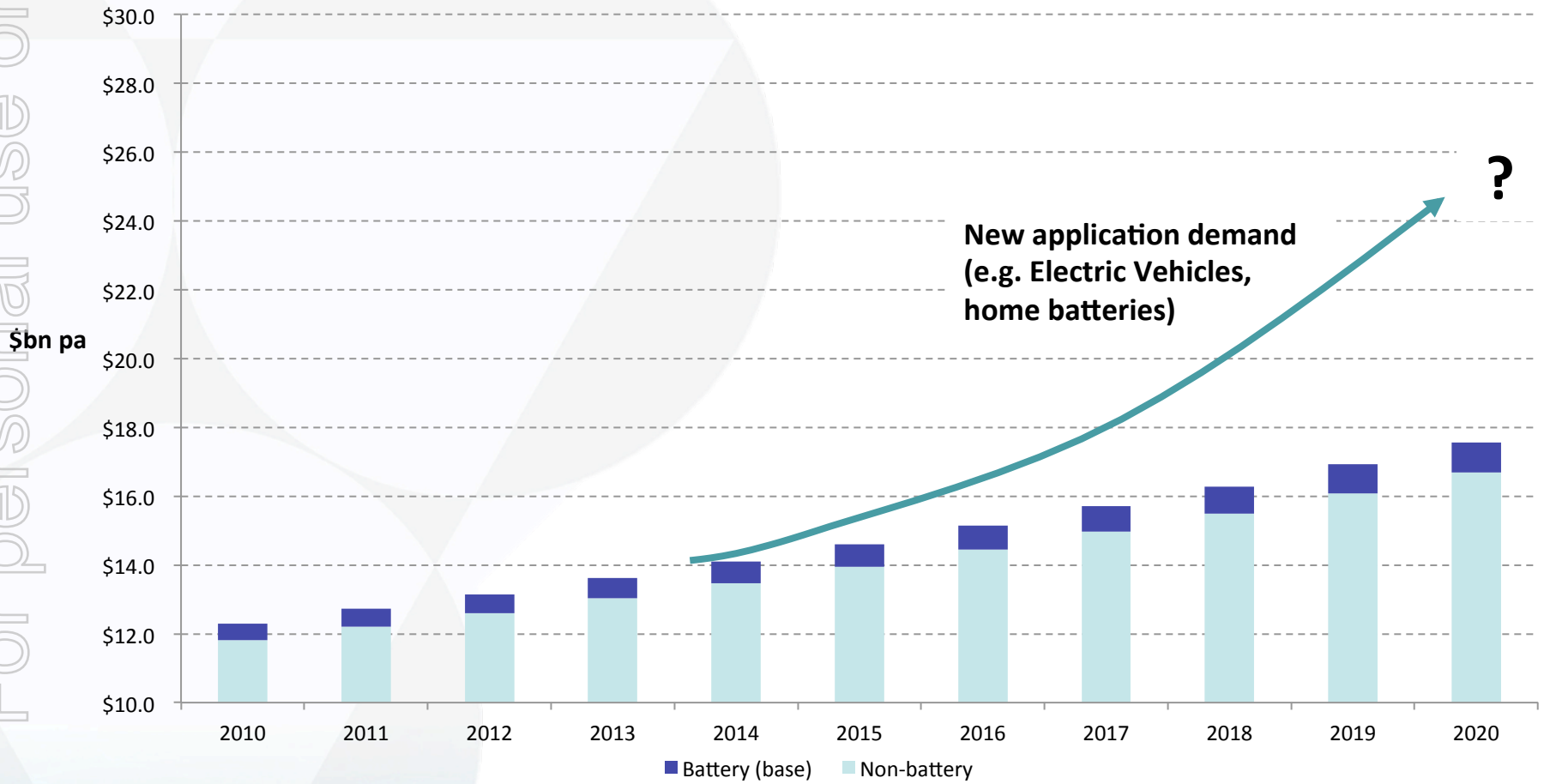


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Graphite Market

GRAPHITE MARKET

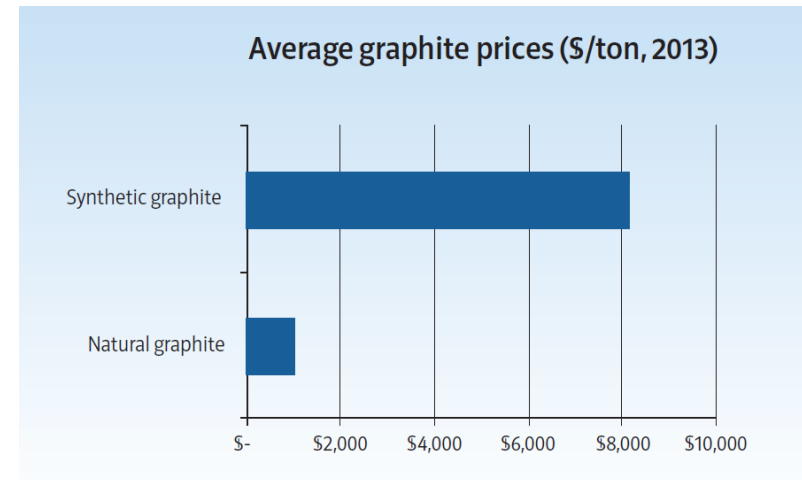
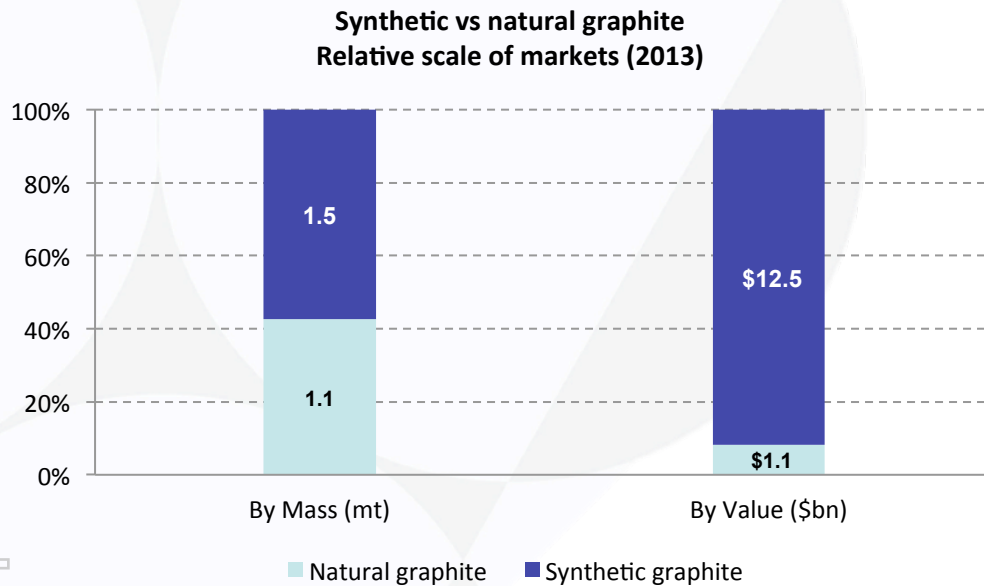
Multi-billion dollar market with sustained growth



Source: Persistence Mkt research (2015),

SYNTHETIC GRAPHITE

Graphite market is dominated by synthetic graphite



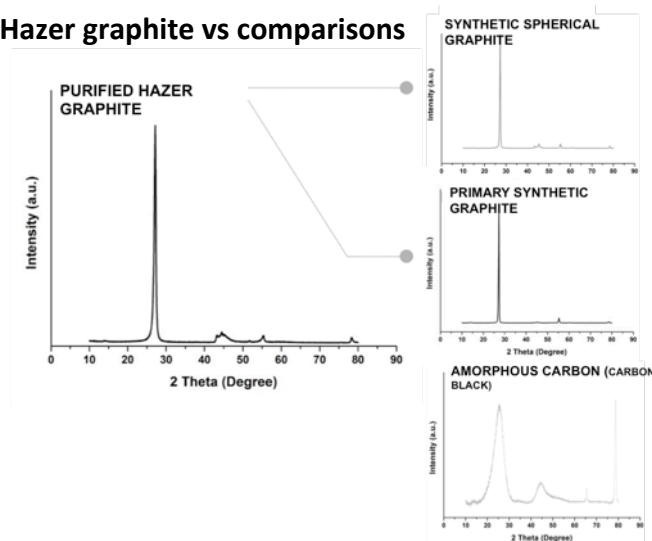
Hazer generates synthetic graphite with high purity and high crystallinity

HAZER GRAPHITE - RESULTS

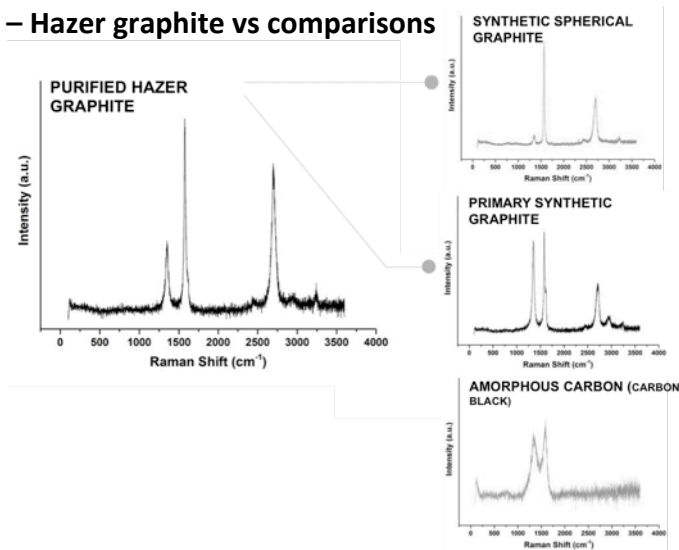
Initial, non-optimised results from Hazer's current large scale reactors has shown highly promising results for Hazer's synthetic graphite product:

- ✓ Purity of 99% after single stage (not HF) chemical processing
- ✓ Raw (direct from reaction) purity 86% under non-optimised conditions
- ✓ XRD and Raman spectroscopy data shows highly crystalline nature of product, comparable to premium graphite including synthetic spherical graphite as used in Li-ion batteries

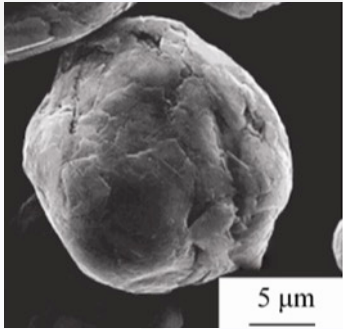
XRD Spectra – Hazer graphite vs comparisons



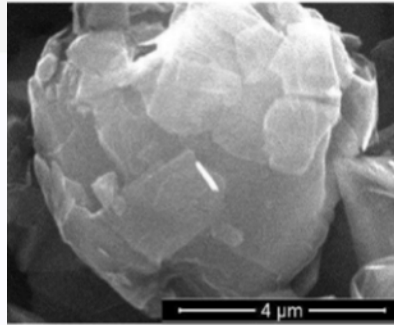
Raman Spectra – Hazer graphite vs comparisons



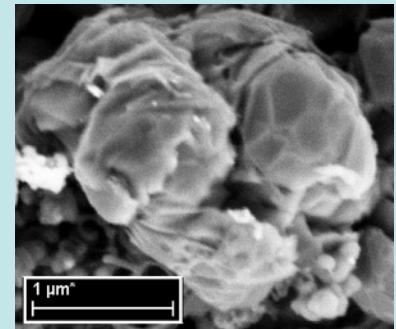
HAZER SPHERICAL GRAPHITE



Synthetic spherical graphite



**Spherical graphite
(from natural flake)**



Hazer spherical graphite



Hazer provides a potentially lower cost
alternative to existing spherical graphite options

Current spherical graphite sources:

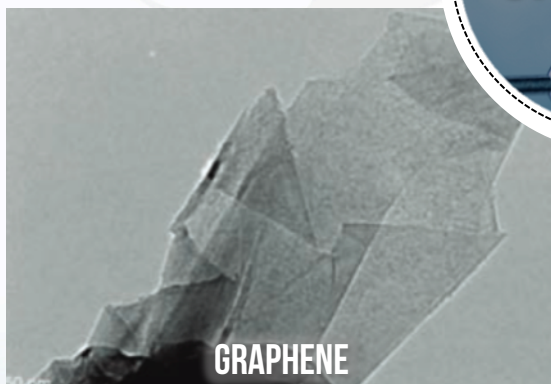
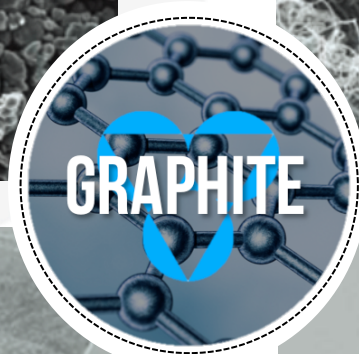
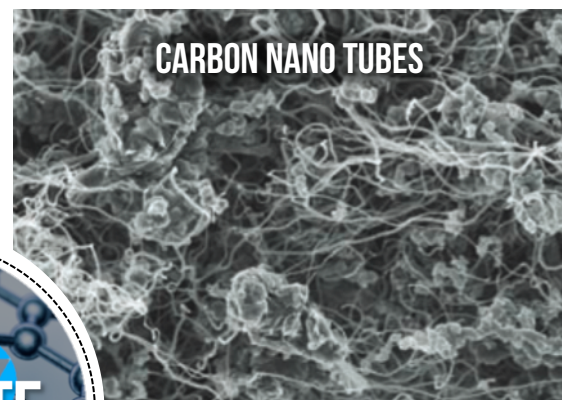
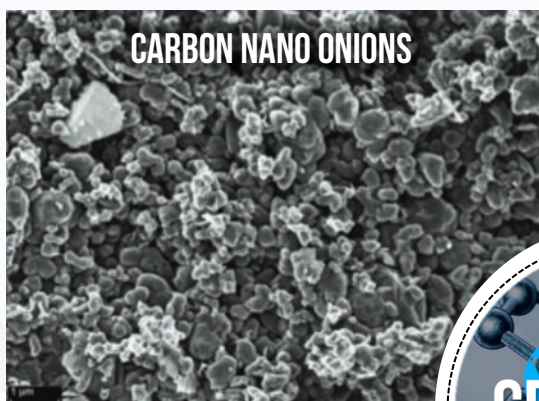
- Synthetic (\$10,000 - \$20,000/t) – high energy process produced from petroleum coke
- Natural flake (\$7,000 - \$8,000/t) - 6+ stages of processing; not all resources can be used

Hazer spherical graphite is potentially:

- Higher surface area (smaller physical size and hollow)
- Less complex to produce (single processing stage)
- Lower cost to produce

PREMIUM GRAPHITE STRUCTURES

The Hazer Process offers access to ultra premium graphite structures



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Commercialisation Strategy

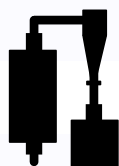
COMMERCIALISATION PLAN

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2016

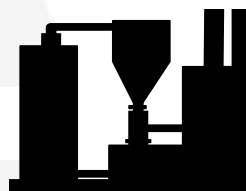
2017

Process
Development



Large lab reactor

Kgs per day
<\$1m capex



Demo / Pilot plant

10's tonnes pa
Capex est \$1-3M



Commercial plants
Graphite Hydrogen

1,000 tonnes pa
\$TBC

10,000 tonnes pa
\$TBC

Product
Development



Graphite application
testing



Secure offtake
agreements



Production

CURRENT OPERATIONS

- Hazer is currently operating at state of the art laboratory facilities in the University of Sydney
- Current reactors capable of producing at up to 1kg / day scale



Operational large lab scale reactors at Laboratory of Sustainable Technology, Sydney University

COMMERCIALISATION OPTIONS

Hazer is targeting multiple commercialisation options at a range of commercial scales

Scale*	Application
~100-500 tpa	Distributed hydrogen production for vehicle refuelling infrastructure
~5,000 tpa	Premium graphite products
~80,000 tpa+	Hydrogen (Industrial chemicals)

* Total products (20-25% hydrogen / 75%-80% graphite)

Commercialisation options

License	Hazer owns IP and can license to third party – sell IP rights for high margin royalty
BOO / BOOT	Hazer can construct and own plants and sell products
Agency / hybrid	Share capital cost / operating costs where partner has interest in only one product

Different commercialisation options can offer diversified revenue streams



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