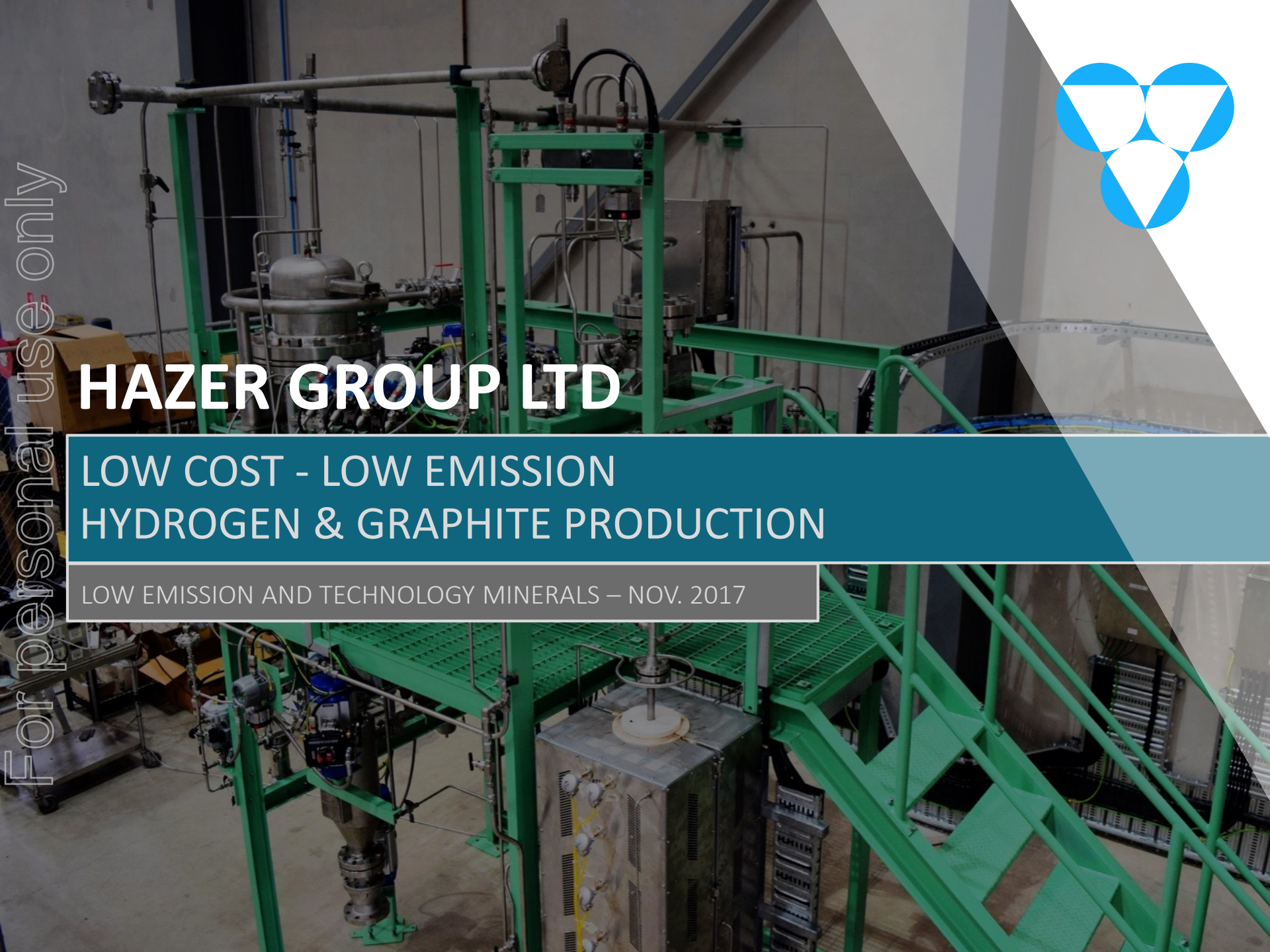


HAZER GROUP LTD

LOW COST - LOW EMISSION HYDROGEN & GRAPHITE PRODUCTION

LOW EMISSION AND TECHNOLOGY MINERALS – NOV. 2017



DISCLAIMER

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HAZER GROUP LIMITED

DEVELOPING
POTENTIALLY
LOW COST
LOW EMISSION
HYDROGEN &
GRAPHITE
PRODUCTION
PROCESS



Founded in 2010 to commercialise technology initially developed at the University of Western Australia



Nearly 10 years development, collaboration with leading Australian universities



Listed on ASX since Dec 2015; returned over 3x proceeds to IPO investors



Recently signed MoU with \$2bn ASX-listed resources group Mineral Resources Ltd for the development of a commercial scale synthetic graphite plant



Recently executed MoU with Primetals Technologies GmbH to investigate integration of Hazer Process to reduce costs and emissions for steel production



Currently undertaking scale up development work with pre-pilot plant constructed / commissioned

CORPORATE AND MARKET SNAPSHOT



(ASX: HZR, HZRO)

Capital Structure

Current Shares on Issue	76.5m
Restricted Securities	10.2m
Total Tradeable Shares	66.3m
Market Capitalisation @\$0.55	\$42m
Cash @ 30 Sept 2017	\$6.5m
Options	54.5m

Cash From Option Exercise \$23.0m

Substantial Shareholders

Mineral Resources Ltd	10.3m
Mr Geoff Pocock (MD)	4.2m
Dr Andrew Cornejo (CTO)	3.8m
UWA	1.5m

Total Top 20 (ASX Listed Shares) 42%

Share Price & Volume

HZR Share price & volume (4 mths)

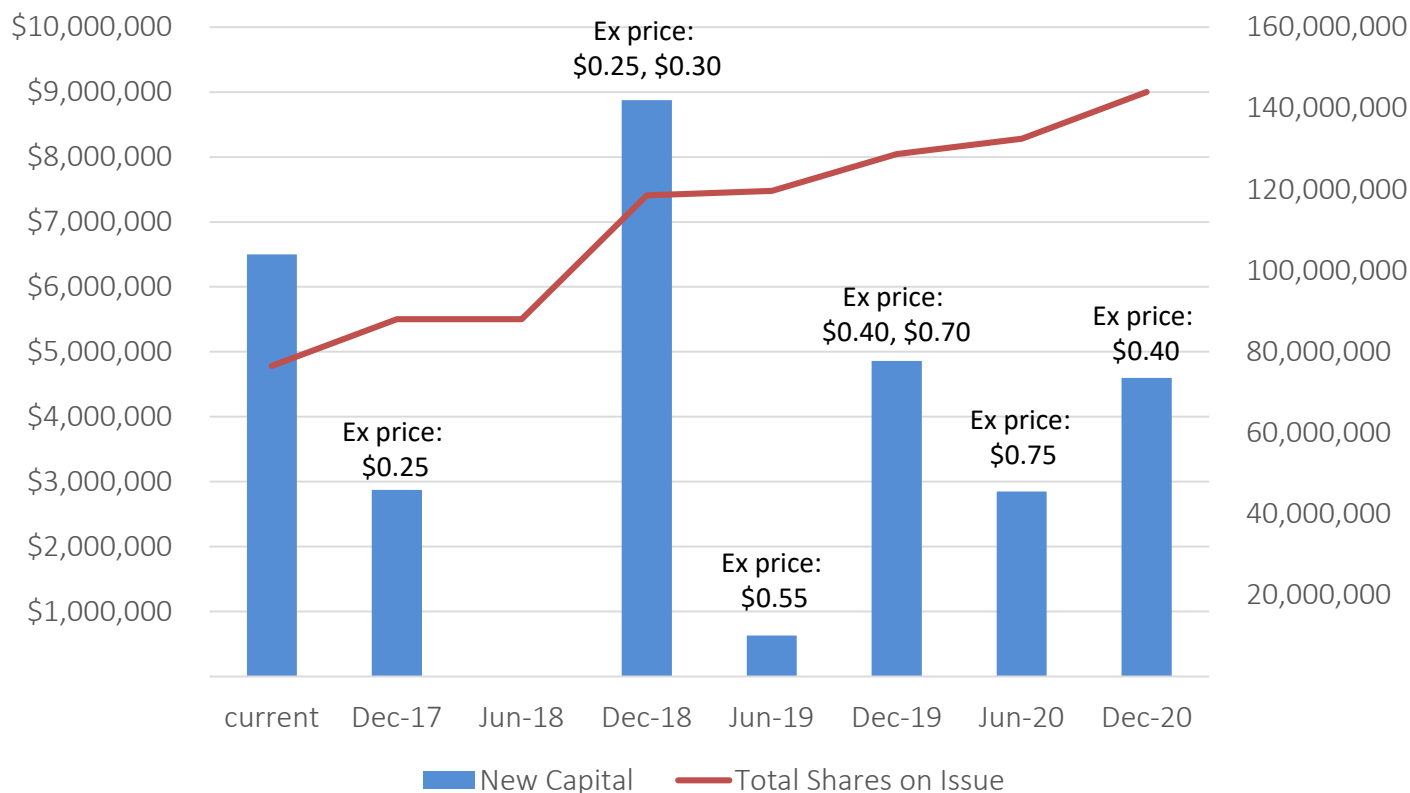


FUTURE CAPITAL

CURRENT OPTIONS ON ISSUE COULD RAISE OVER \$24M

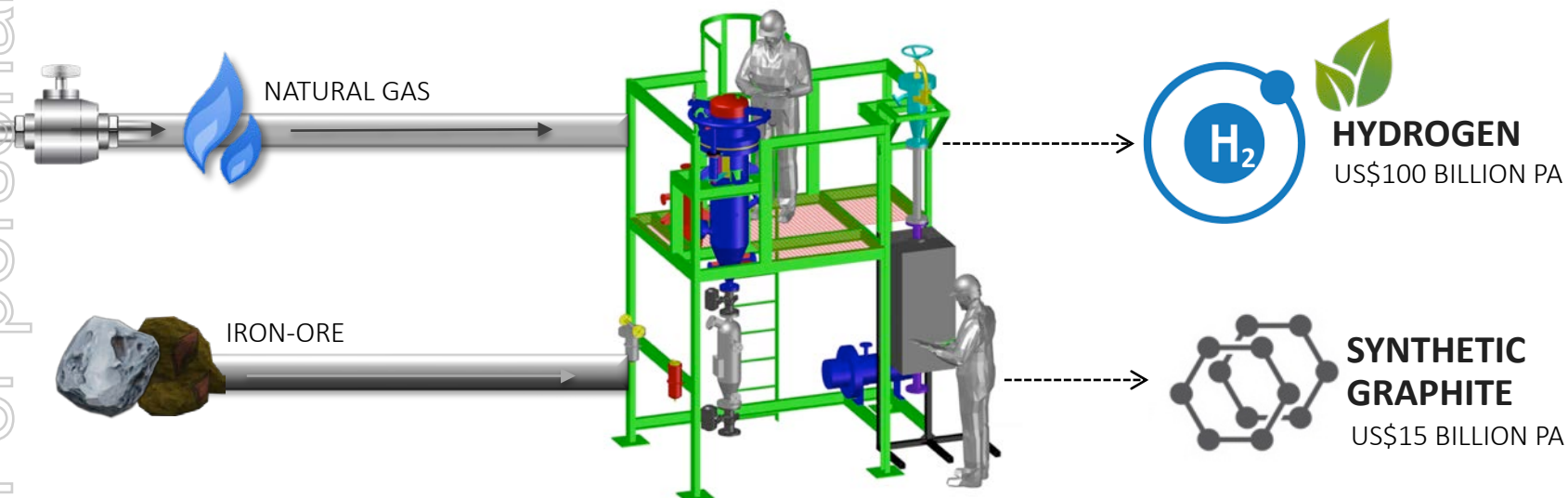
Capital Investment

Total Shares on Issue



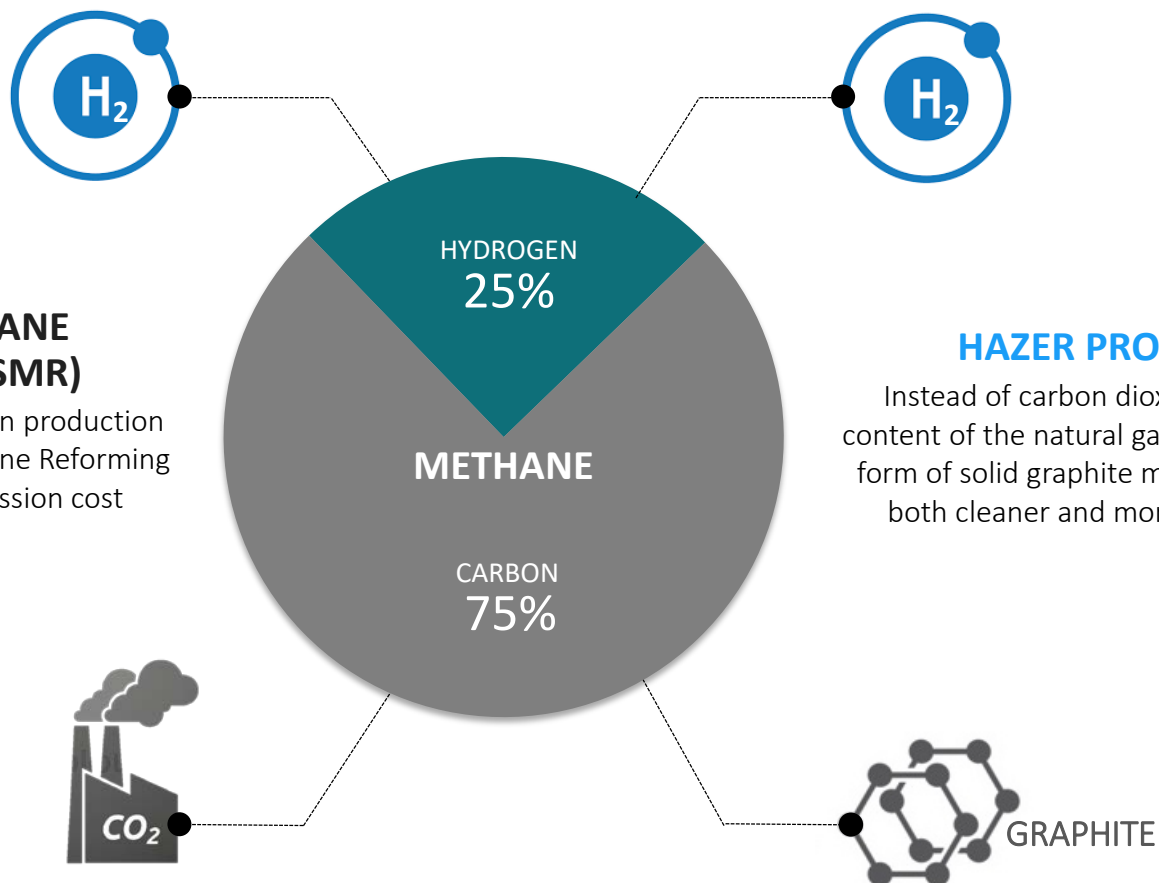
THE HAZER PROCESS

HYDROGEN AND GRAPHITE FROM NATURAL GAS



THE HAZER ADVANTAGE

HAZER CAPTURES ALL THE VALUE OF FEEDSTOCK GAS



STEAM METHANE REFORMING (SMR)

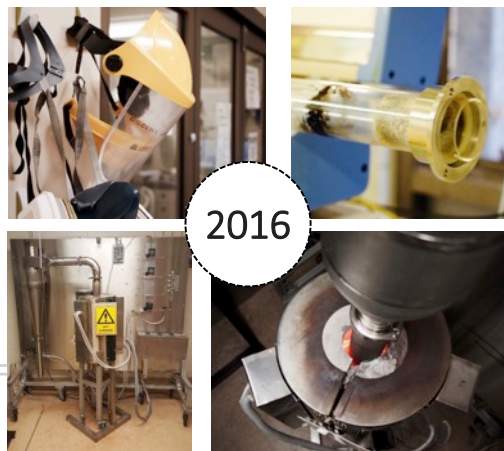
Current large scale hydrogen production processes like Steam Methane Reforming come at a huge CO₂ emission cost

HAZER PROCESS

Instead of carbon dioxide, the carbon content of the natural gas is captured in the form of solid graphite making the process both cleaner and more cost effective

LABORATORY → PRE-PILOT PLANT

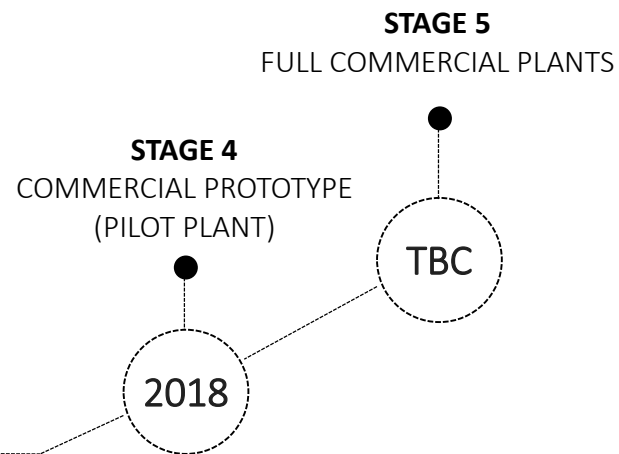
HAZER HAS MADE SIGNIFICANT PROGRESS SINCE IPO



STAGE 1-2 - LABORATORY
STATIC BED REACTOR
FLUIDIZED BED REACTOR



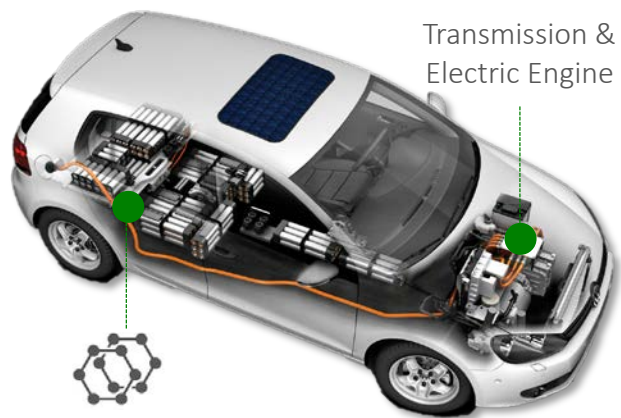
STAGE 3 – PRE-PILOT PLANT
CONSTRUCTED AND COMMISSIONED 2017



HYDROGEN & GRAPHITE

PROVIDING EXPOSURE TO THE REVOLUTION IN TRANSPORT

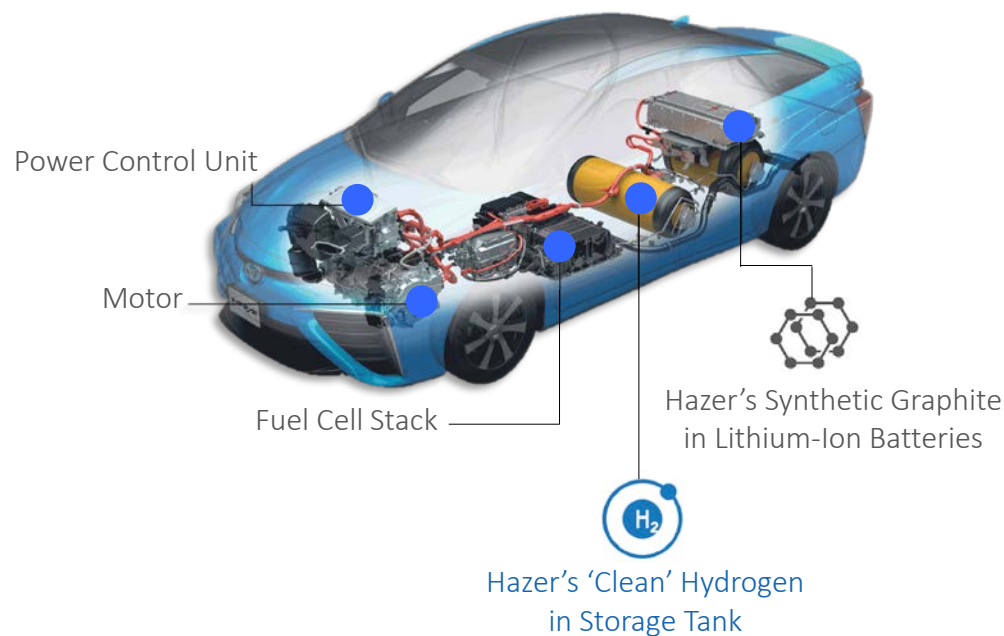
ELECTRIC VEHICLE



Hazer's Synthetic Graphite
in Lithium-Ion Batteries

Transmission &
Electric Engine

FUEL CELL VEHICLE



Power Control Unit

Motor

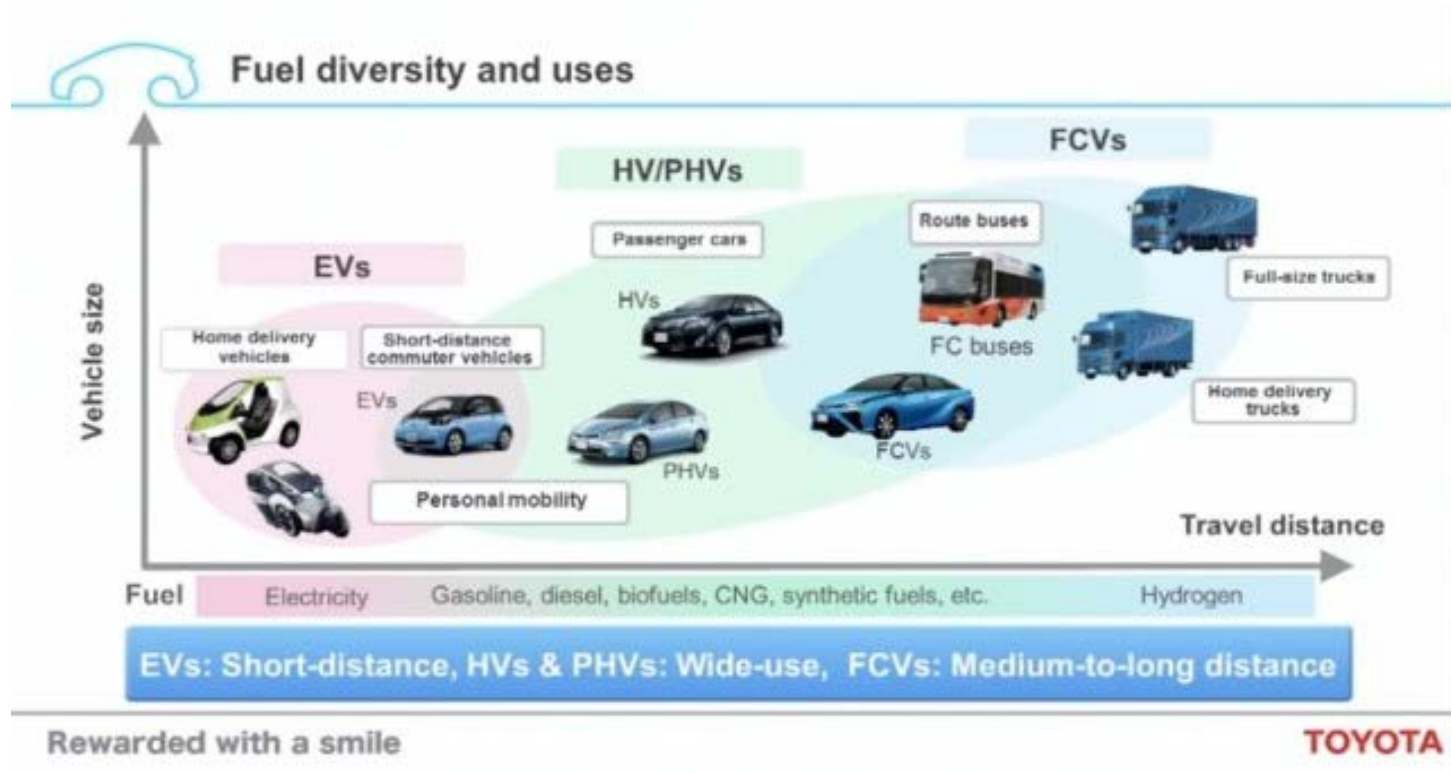
Fuel Cell Stack

Hazer's Synthetic Graphite
in Lithium-Ion Batteries

Hazer's 'Clean' Hydrogen
in Storage Tank

FUEL CELL VEHICLES VS BATTERY POWERED

“HORSES FOR COURSES” APPROACH



GLOBAL PUSH UNDERWAY

MOMENTUM TOWARDS FCV'S IS ADVANCING RAPIDLY

News > UK > UK Politics

UK plans to halt production of petrol cars by 2040

'The Government has a manifesto commitment for almost all cars and vans on our roads to be zero emission by 2050. We believe this would necessitate all new cars and van being zero emission vehicles by 2040'

Ashley Cowburn Political Correspondent | @ashcowburn | Friday 14 July 2017 18:07 BST | 1K comments



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Indy Politics

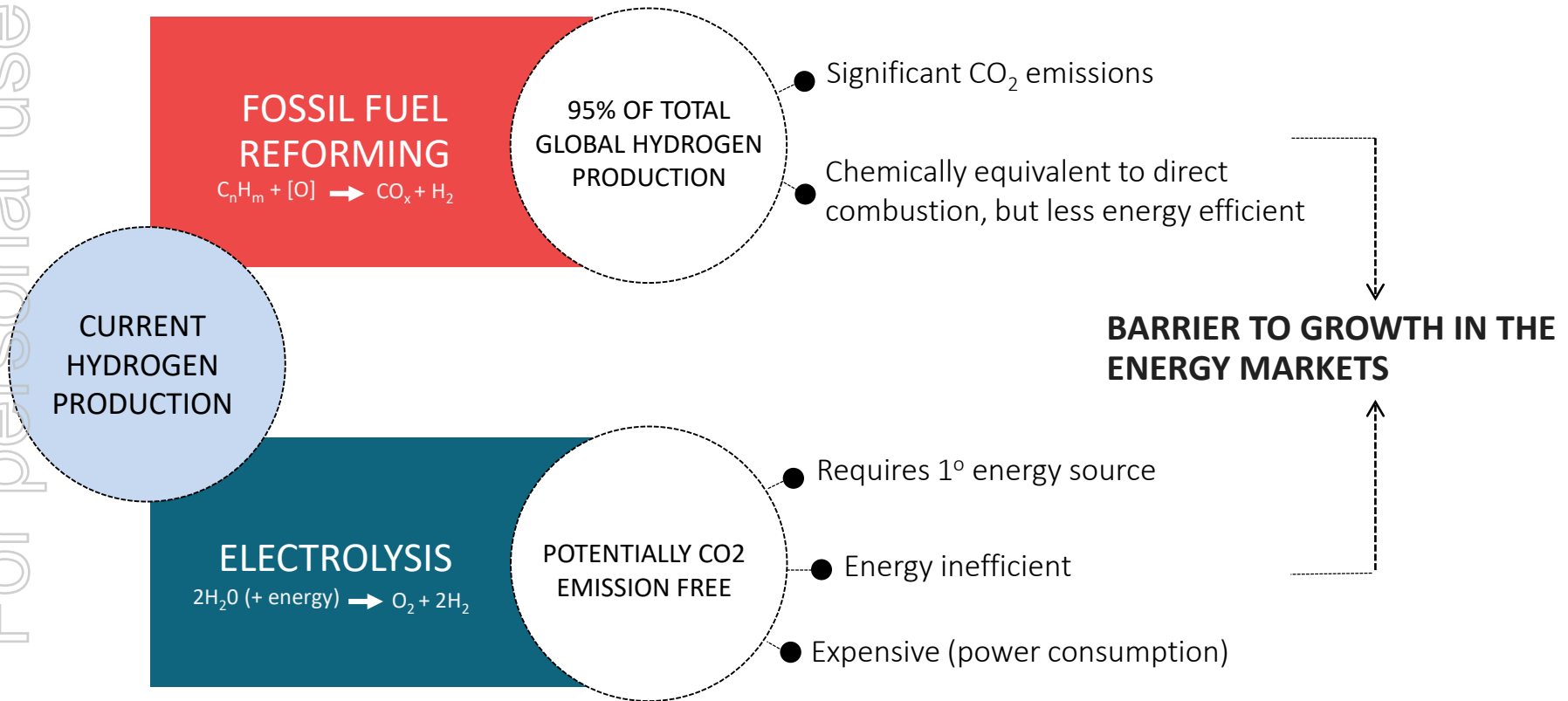


An electric car charging Creative Commons

- The Japanese government has ambitions to become the first nation significantly fuelled by hydrogen;
 - Committed \$470m towards hydrogen in FY2015 alone
 - Plans to spend \$22 billion yen on hydrogen initiatives
 - Aims to have 40,000 FCV's on the streets by the 2020 Olympics
- **UK plans to halt production of petrol cars by 2040**
- Newly created 'Hydrogen Council'
 - Toyota, Shell, BMW, GM among the 13 members
 - Plans to invest \$10.7B in hydrogen projects within 5 years
- Significant hydrogen infrastructure being developed globally
 - Stations in Europe expected to double biannually
 - Germany committed \$2.1b to support fueling infrastructure
 - California to have 100 stations by 2020

THE PROBLEM WITH HYDROGEN

PRODUCTION IS HIGH IN GHG EMISSION OR EXPENSIVE



MOU SIGNED WITH PRIMEMETALS

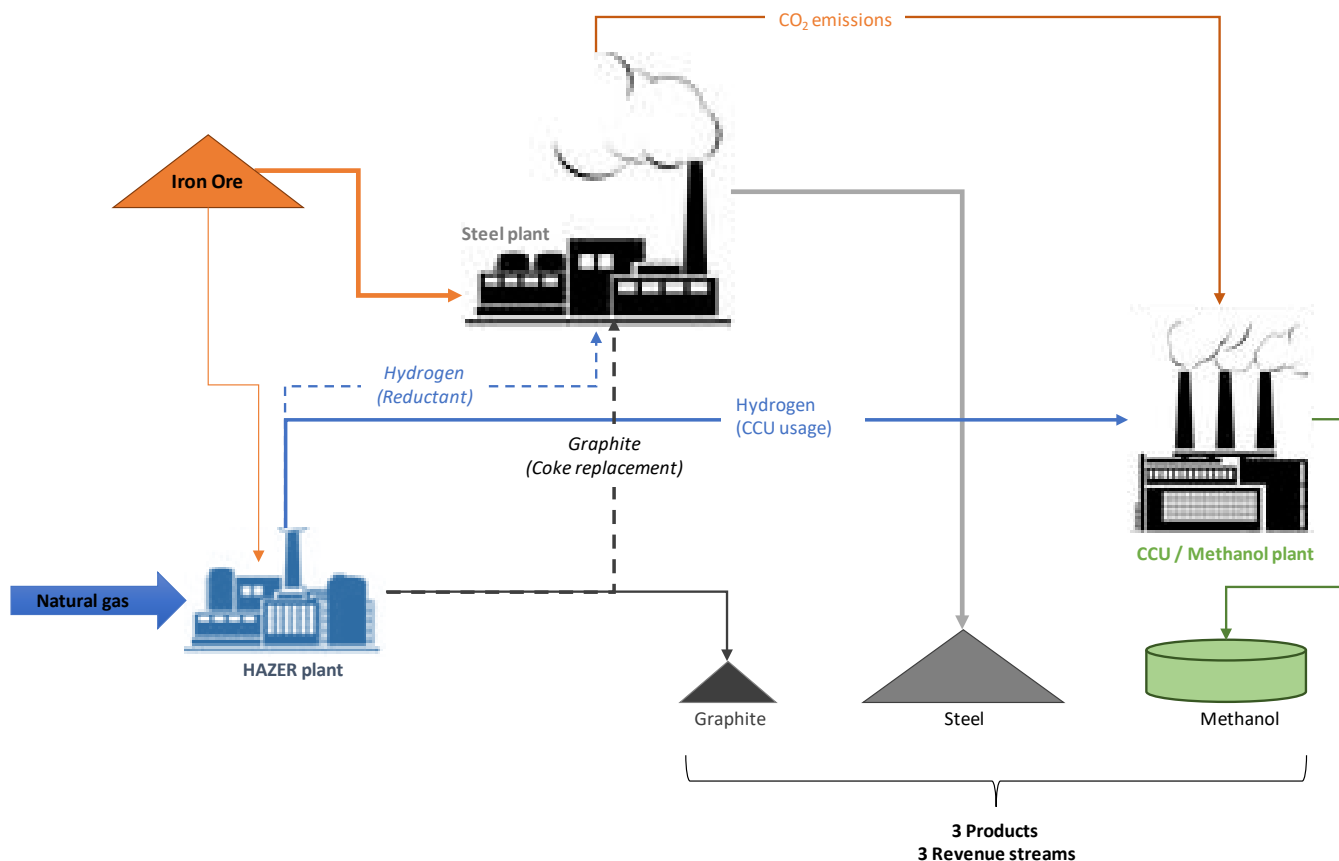
DEPLOYMENT OF HAZER TECHNOLOGY IN STEEL INDUSTRY



- Hazer has executed an MoU with Primetals Technologies, a leading global engineering company and solution provider for the metals industry
 - Primetals is a joint venture between Mitsubishi Heavy Industry and Siemens
- Joint investigation to assess utilising the Hazer Process to reduce the cost and environmental impact of steel production;
 - Carbon Capture and Utilisation - CO₂ emissions can be captured and chemically converted to valuable downstream products, including methanol or synthetic liquid fuels.
 - Hydrogen as alternative reductant – Use of Hazer's hydrogen as an alternative to carbon-based reducing agents, significantly reducing the CO₂ footprint of steel production
 - Graphite as alternative to coal - Graphite produced by the Hazer process to be used as a co-reductant and carburiser for steel making, reducing the need for coking coal

HAZER BASED CARBON CAPTURE AND UTILISATION (CCU)

HAZER PLANT INTEGRATED INTO STEEL PRODUCTION

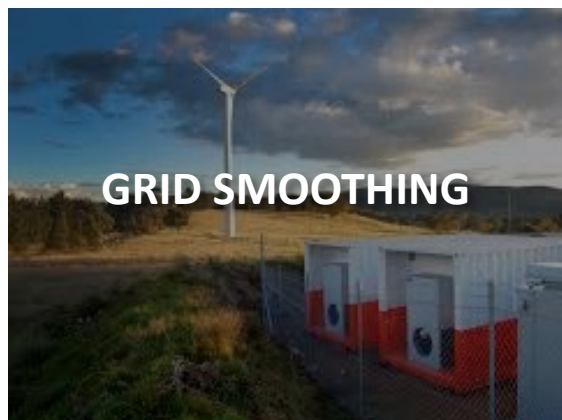


HAZER HYDROGEN

MULTIPLE CLEAN ENERGY APPLICATIONS



- Major vehicle manufacturers developing FCV models
- Fundamental cost, energy and GHG emissions barriers for existing hydrogen production in this market
- Hazer offers unique solution
- Hazer currently working towards refuelling scale prototype unit



- Hazer can offer an alternative hydrogen grid smoothing option
- Potential to offer significantly enhanced energy efficiency over traditional electrolysis based hydrogen grid smoothing options
- Lower energy load per kg of H₂ so greater grid efficiency



- Low energy requirements potentially offers an option to leverage off traditional clean energy systems
- Use of wind / solar plus self sequestering natural gas has potential to address cost and consistency issues for renewable power generation
- Operating costs may be further reduced through graphite sales

PARTNERSHIP WITH MIN

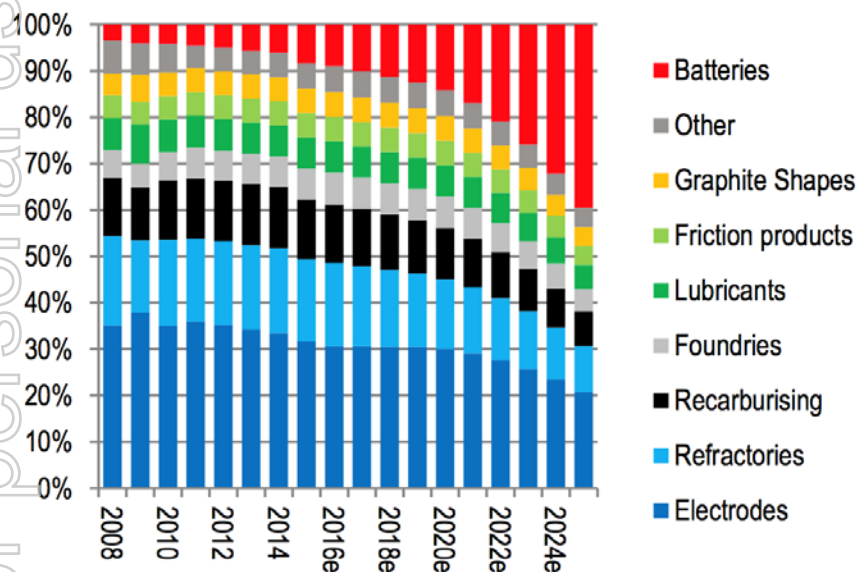
INVESTMENT AND COMMERCIAL PARTNER



- In March 2017 Hazer completed A\$5M strategic placement with ASX-listed mining and mining services provider Mineral resources Ltd
- MIN significantly increased their stake in Hazer to 14%
- 3rd October Hazer signed a Heads of Agreement with Mineral Resources for the potential development of a commercial synthetic graphite facility;
 - MIN to fund the commercial development
 - Hazer to obtain royalties from graphite sales
 - Initial target production of 10,000tpa
- Hazer to form part of MIN's growing battery / energy storage materials operations

GLOBAL GRAPHITE MARKET

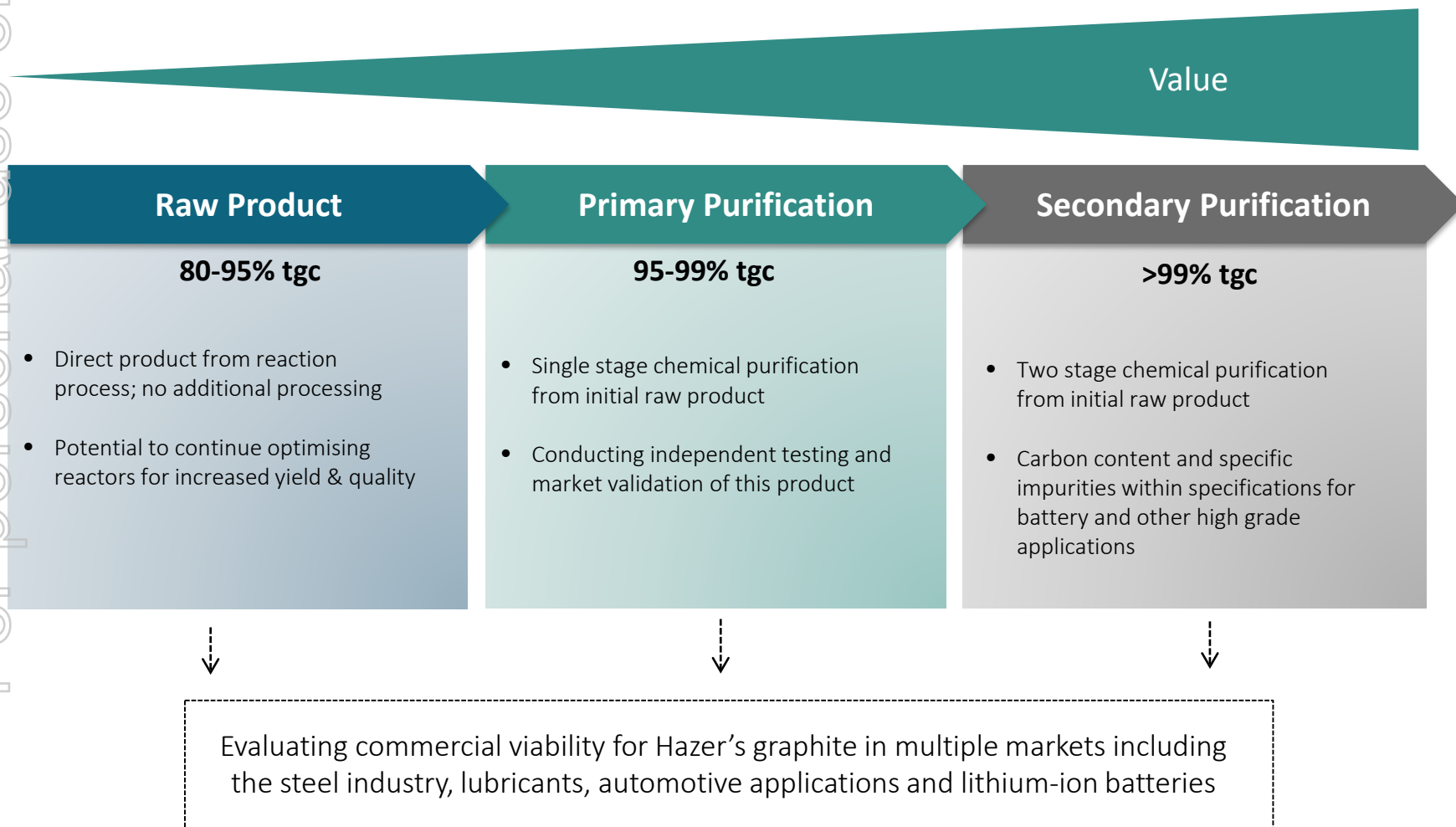
Estimated Graphite Demand



- Total graphite market in 2016 is estimated at 2.4Mt
 - Expected to increase to 4.1Mt by 2025
- **Total value of the graphite market is ~US\$ 15 Billion**
- Take-up of EV's and FCEV's is likely to underpin future demand for graphite
 - There is 30-100kg graphite required per electric vehicle – 1kg per kWh
- Long term price for graphite powder (<100 mm, 94-95% purity) estimated at US\$725 per tonne
- Market value is dominated by synthetic graphite products
 - ~60% by tonnage, ~90% of value

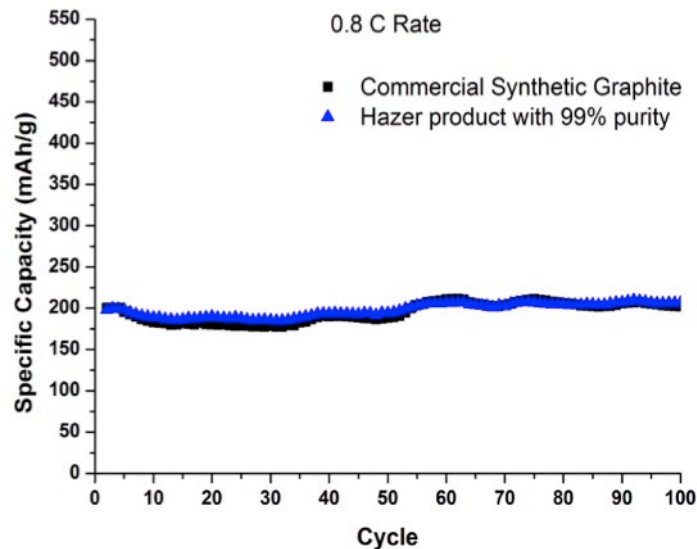
HAZER GRAPHITE

PRODUCTION, PROCESSING, SCALE



BATTERY TESTING

PROMISING RESULTS IN LITHIUM-ION BATTERIES



- Preliminary longer-term cycle results indicate virtually no loss in capacity after 100 cycles
- Equivalent performance to commercial synthetic graphite used in lithium-ion battery applications
- Results demonstrate Hazer's graphite has the potential to become a suitable alternative to traditional mined or synthetic graphite in lithium-ion batteries
- Hazer continues development roadmap for;
 - Longer term stability testing
 - Further optimisation for increased graphite quality
 - Additional cycle rate capability analysis
 - Comparing performance against various commercial types of graphite (natural flake)

POTENTIAL MARKETS

OPPORTUNITIES IN THREE MAJOR GLOBAL MARKETS



INDUSTRIAL HYDROGEN

US\$100 Billion

- **Cheaper and cleaner alternative**
- Oil refining, ammonia production, other industrial chemicals
- Currently primarily addressed by fossil fuel reformation processes
- Hazer has potential to deliver significant cost savings and reduced GHG emissions for industrial hydrogen producers



CLEAN HYDROGEN AND ENERGY

US\$18 Billion by 2023 (FCV)

- **Multiple applications**
- Key component of clean energy future ($H_2 \Rightarrow H_2O + \text{energy}$)
- Fundamental cost, energy limitations for existing hydrogen production options
- Fuel cell vehicles, stationary power applications
- Other applications including Carbon Capture and Utilisation (CCU) and synthetic fuels



SYNTHETIC GRAPHITE

US\$15 Billion

- **High quality, low cost graphite source**
- Range of industrial materials applications
 - Growth - energy storage (batteries)
- Currently addressed by mining, synthetic graphite production with significant environmental impacts

EXPERIENCED & CAPABLE TEAM

STRONG CORPORATE, COMMERCIAL AND TECHNICAL EXPERIENCE



Mr Geoff Pocock | Managing Director

- Founder, HazerGroup Ltd
- Over 15 years experience in corporate finance, commercialisation and strategy
- Ex Managing Partner mid tier strategy consulting business
- Tertiary qualifications in Chemistry, Law and Applied Finance

Cobus Malherbe | GM – Process Dev't

- Masters in Chemical Engineering and over 20 years of international engineering and team management experience
- Previous relevant experience in roles at Santos Ltd, Linc Energy and Sasol Ltd.
- Chartered Chemical Engineer, registered with the Board of Professional Engineers of Queensland



Mr Terry Walsh | Chief Development Officer

- Former commercial lawyer with 20 years project development experience
- Former General Counsel, Hancock Prospecting Pty Ltd
- Previous roles with Rio Tinto, and leading law firms in Perth and Sydney, focusing on development

Mr Michael Wills | Marketing & Comm's

- 12 years experience in strategic communications and media
- Significant expertise in marketing strategy for ASX listed companies, including crafting communications collateral, implementing brand identity and attracting new investors
- Extensive experience working with high net-worth individuals and investors
- Active investor in ASX-listed small cap companies



STRONG BOARD CAPABILITIES

COMMERCIAL, TECHNICAL & 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 leader at PwC
- Over 30 years corporate and commercial experience across international mining and industrial business operations

Ms Emma Waldon | Company Sec / CFO

- Over 18 years global corporate experience.
- Diverse financial, corporate advisory and risk management roles at Ernst & Young, Euroz Securities, Lloyds Banking Group (London) and Deloitte.
- Significant Company Secretary / CFO experience with public companies
- Member, AICA, a Fellow of the FINSIA and a Certificated Member of GIA.



Ms Danielle Lee | NED

- Corporate lawyer with more than 20 years' experience with approximately 9 years as legal counsel at ASX Sydney and Assistant Manager at ASX Perth.
- Main practice areas are corporate advisory, governance and equity capital markets; regularly advises on issues relating to the Corporations Act and ASX Listing Rules

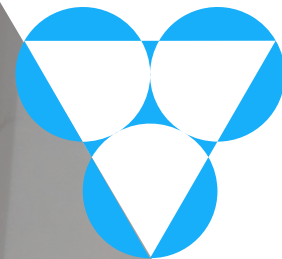
Dr Andrew Harris | NED

- 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.



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