



ASX Announcement I 10 March 2021 Hexagon Energy Materials Limited (ASX: HXG)

EGM Chairman's Address to Shareholders

Ladies and Gentlemen, it is with great pleasure that I have the opportunity to address you prior to this EGM to consider the acquisition of Ebony Energy Ltd. and the exciting opportunity presented by the Pedirka Blue Hydrogen project.

As I mentioned in my address at the AGM, Pedirka has the potential to become a regionally important producer of hydrogen to help meet the increasing demand in the Asia Pacific region for carbon neutral energy solutions. The planning and ambitions of economies such as Japan and Korea create a very predictable growth trajectory for hydrogen demand, and it is up to providers like ourselves to fulfil that opportunity.

Hexagon has always been focused on "clean" energy solutions and Pedirka is no exception. The differentiating factor in this project has been the focus on finding real CO2 solutions rather than just offsets. Through the PFS and in future planning we are seeking to be at the front of the curve in terms of minimizing carbon footprint, not only from the zero emissions plant but also for all related operations.

I expect the next twelve months to be exceptionally busy with work and results on all aspects of the project and we very much look forward to keeping you updated as things progress. In addition, we will be active on the Company's mineral assets and have been continuing to plan and progress initiatives on these to realise the significant potential that we believe they have.

Finally, I would like to thank shareholders for their overwhelming support over the past several months as we have worked to bring this transaction to closure, and we look forward to being able to reward that goodwill with upcoming performance.

With thanks,

Charles Whitfield Chairman Hexagon Energy Materials



Pedirka Blue Hydrogen Project

ASX: HXG, March 2021

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Authorised for release by the Board of Directors

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Hexagon Energy Materials Pedirka Blue Hydrogen Project

The Hydrogen Market



Pedirka Blue Hydrogen Project

Hexagon Energy Materials



Corporate Overview



HEXAGON ENERGY MATERIALS LTD

0 3 Mar 2020-2 Mar 21

ASX Code Share Price (02/03/21) **HXG**

A\$0.095

52 week low

A\$0.14

52 week high

Market Capitalisation

A\$28.6M

A\$0.013 562,791

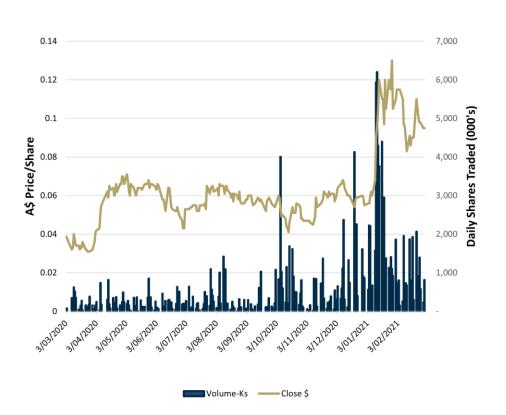
Shares on Issue

301.2M

Average daily volume

HXG SHARE PRICE

3 Mar 2020-2 Mar 21



TOP FIVE SHAREHOLDERS

As at 26 February 2021

Options/Rights

4M

Holder	Shares (Millions)	Holding %
Citicorp Nominees Pty Ltd	21.90	7.27
UBS Nominees Pty Ltd	19.16	6.36
HSBC Custody Nominees (Aust) Ltd	13.62	4.52
Custodial Services Ltd Beneficiaries Holding A/C	10.52	3.50
HSBC Custody Nominees (Aust) Ltd	9.92	3.30

Substantial Shareholder: Tribeca Investment Partners Pty Limited (10.75%)

Corporate Leadership Team





Charles Whitfield
Chairman

Clean Energy resource specialist. Undertook turnaround of lithium producer Galaxy Resources Ltd as Executive Director. Former MD in Investment Banking with Citigroup & previously Deutsche Bank.



Adam Bacon
Ebony Energy – Managing Director

Extensive global expertise in the energy, resources and transportation sectors. Having held senior leadership roles within General Electric, UGL and most recently the Andrew Forrest backed Australian Industrial Energy.



Garry Plowright
Non-Executive Director

Extensive experience in the resource sector, having a background in mining law and administration as well as regulatory process and mine development.



Lianne Grove
Commercial / BD

Extensive global expertise in project development and commercial management in Oil & Gas at AWE Ltd and Sea Trucks Group and mining experience at Rio Tinto.

Corporate Strategy



Hexagon's strategy is focused on exploration and development of clean-energy, and energy materials projects





Pedirka Blue Hydrogen Project

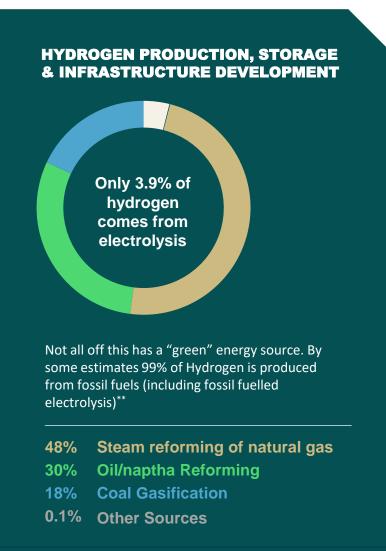




Regionally important Blue Hydrogen

- The development of the Pedirka Project in the Northern Territory basis is 'clean' Blue Hydrogen that is to say zero carbon emissions.
- Blue hydrogen will provide the gateway for the conversion to hydrogen economies over the coming decades.*
- Hexagon looks forward to developing future green hydrogen projects enabled by providing clean and economically viable blue hydrogen into the current market.

- Only hydrocarbon-based production can currently provide the volumes and cost for viable hydrogen platforms. However, "Grey" or "Brown" producers are going to become sidelined as they fail to meet emission requirements.
- Currently 96% of Hydrogen production is derived from hydrocarbons. The largest component from Gas, followed by oil and then coal.



^{*}IRENA predicts that Blue Hydrogen will still account for 1/3 of Hydrogen production in 2050 ("Hydrogen: A renewable energy perspective" IRENA; 2019)

^{** &}quot;Hydrogen's future: reducing costs, finding markets"

December 10, 2019 by <u>Dolf Gielen</u> and <u>Emanuele Taibi</u>

Graph: Martin Khzouz and Evangelos I. Gkanas Sep 2020

Ebony Energy's Pedirka Project



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Blue hydrogen from coal gasification

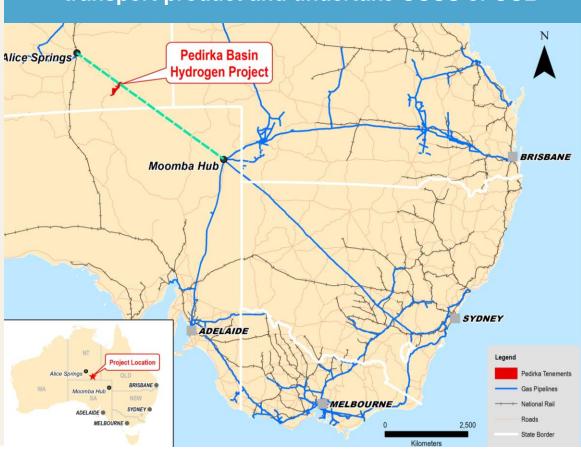
Permits held to explore the Pedirka Basin for coal, drilling and desktop-research on historical drilling undertaken to determine the shape, size and potential of the Basin.

The plan is to extract coal as a feedstock to a gasification plant, converting the coal to produce hydrogen for export or domestic markets

Uniquely located with respect to oil & gas infrastructure to offer unique advantages for large scale hydrogen gas production

Zero carbon emissions through CO2 sequestration and enhanced oil recovery projects

Ideally located near existing infrastructure to transport product and undertake CCUS of CO2 Pedirka Basin





Ideally geographically located

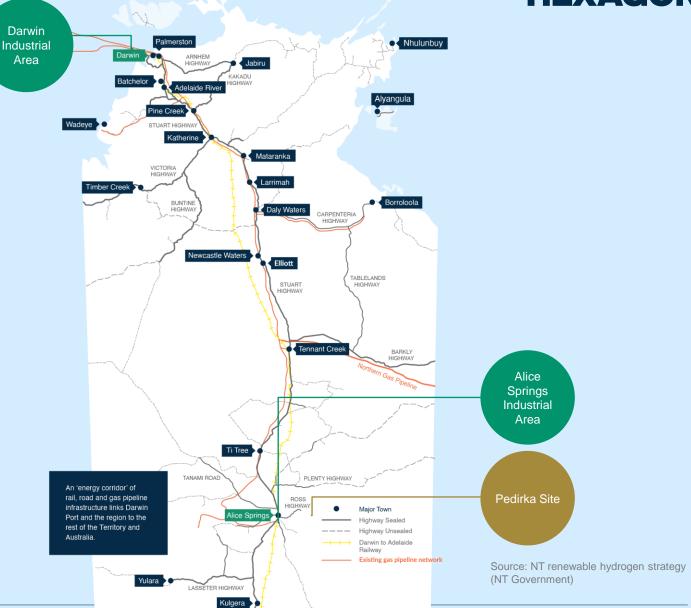
Workforce availability due to the proximity to Alice Springs, with processing plant to be located on the outskirts of the town

Strong indications of support from Federal and State Governments

Potential for both state, federal and NAIF support

Easy access to existing pipeline infrastructure offers a number of options to access undersupplied markets

Underutilised rail is also a supply chain option if hydrogen derivative such as ammonia is produced





Pedirka Blue Hydrogen Project

The Hydrogen Market



Hydrogen is gaining momentum



Versatility a key positive in global decarbonisation efforts

The use of Hydrogen is very broad, however it is currently mostly used as an industrial gas in ammonia production and oil refining.

Hydrogen can be used as a source of energy or feedstock. When used for energy, the material by-product is water vapour. It can also be transported and used as a gas or a liquid.

Key global drivers include

Action to reduce GHG emissions, carbon pricing increasing

Increasing recognition around the limitations of electrification, particularly for industrial sectors

Air quality

Why now?

Underpinned by mature technologies that means market activation can proceed (CSIRO)

Fuel security

Opportunity for downstream, energy-intensive industries

Opportunity for innovation and technology leadership

ENERGY



Heat



Transport



Electricity



Export

FEEDSTOCK



Ammonia



Chemicals



Petrochemical



Food



Glass manufacturing



Synthetic fuels



Processing

Hydrogen is gaining momentum



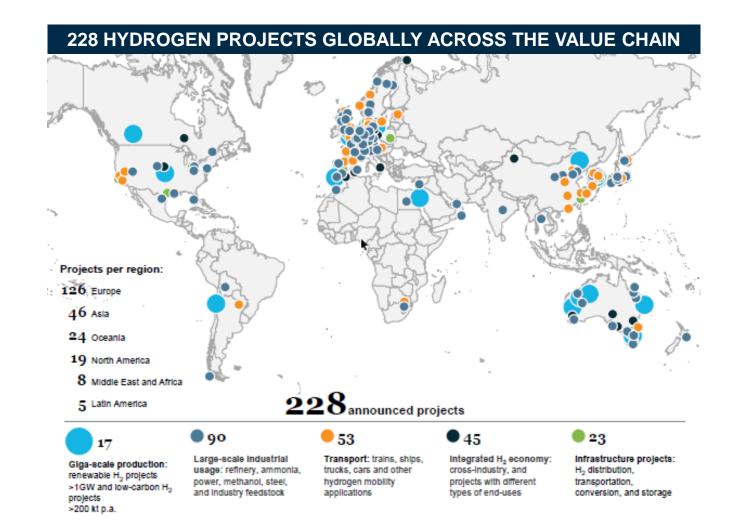
Hydrogen Council highlighted 228 active projects currently

Largest projects in Europe, Australia, Middle East and Chile

Asia and Oceania are 2nd and 3rd in number of projects after Europe

Most of the Asian projects are for usage of hydrogen, rather than production

Critical source of demand for Australian project



Source: Hydrogen Council

Hydrogen is gaining momentum



Australian governments have lofty ambitions

Australia launched its National Hydrogen Strategy in Nov-19, with 2030 goals including

- One of the top three exporters of hydrogen to Asian markets
- A destination of choice to international investors
- Major offtake or supply chain agreements in place with importing countries
- Demonstrated capability in all links of the supply chain and economic benefits to the domestic market

States/territories with consistent policies

SA, QLD, WA TAS, NT, ACT

Intersection with post Covid-19 priorities

- Investment in low emissions technologies
- Gas-fired recovery
- The electricity trilemma (affordability, reliability, security)
- Modern manufacturing
- Fuel security
- National resources and downstream processing
- Future fuels

LARGE SCALE MARKET ACTIVATION FROM 2025



Identify signals that large-scale hydrogen markets are emerging



Scale up projects to support export and domestic needs



Build Australian hydrogen supply chains and large-scale export industry infrastructure



Build and maintain robust and sustainable export and domestic markets and supply chains



Enable competitive domestic markets with explicit public benefits

Supply chain infrastructure includes powerlines, pipelines, storage tanks, refuelling stations, ports, roads and railway lines and any other facilities needed for hydrogen supply.

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Source: Australia's National Hydrogen Strategy, Nov-19

Demand forecast to be strong



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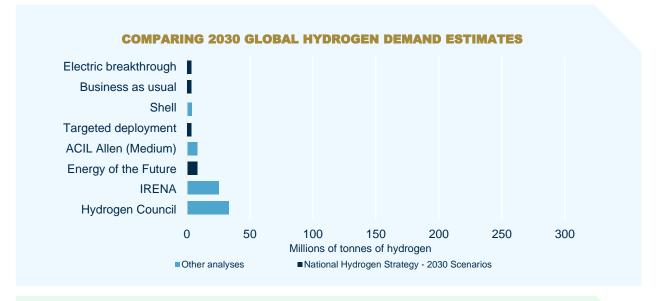
From a current market of ~70mtpa, incremental demand expected to be meaningful

Australia's National Hydrogen Strategy (Nov-19) scenarios highlighted demand pathways as technology adoption and decarbonisation efforts gather pace

- Incremental 2-9mtpa by 2030
- Incremental 20-230mtpa by 2050

It also recognised that there were a wide range of potential outcomes from other sources

 Hydrogen Council includes power generation, transport, industrial energy, building heat/power and new feedstocks





Source: Australia's National Hydrogen Strategy, Nov-19

Demand forecast to be strong



Australian demand will develop in hubs, but regional demand will be larger

The Australian government is looking to develop hydrogen hubs to de-risk developments and drive domestic benefits

 NT strategy highlights opportunity at Middle Arm Industrial Precinct at Port of Darwin

Japanese utilities demonstrating progress in co-firing ~20% ammonia in coal-fired power plants

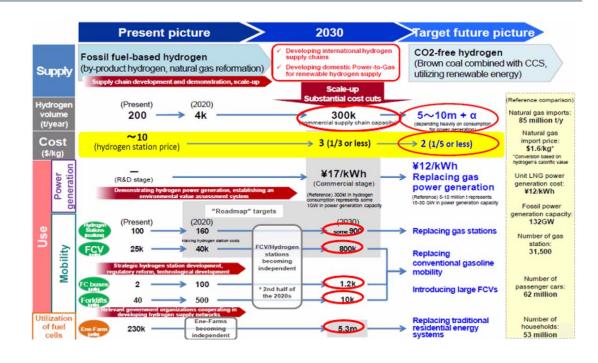
- IEA estimated if all Japanese coal-fired plants did so, it would add ~20% to global demand for ammonia (~180mtpa)
- Japan's METI has indicated expected incremental hydrogen demand of ~300ktpa by 2030 and >10mtpa by 2050

South Korea particularly focused on transport sector applications

 Expects imports of >5mtpa by 2040 Asia fast developing demand for hydrogen, not production

Gas blending is a large potential use-case (see over)

JAPANESE HYDROGEN GOALS FOR 2030 AND BEYOND



Source: Japan's METI (Ministry of Economy, Trade & Industry), CFAA

The role of blue hydrogen



THE DIFFERENT COLOURS OF HYDROGEN

Hydrogen **Brown / Grey** Most hydrogen produced is derived from fossil fuels · Most common is steam methane reforming of natural gas, coal gasification common in China Hydrogen Natural gas 2020

Hydrogen Blue

Blue hydrogen uses traditional production method with CCUS (carbon capture, utilisation & storage)

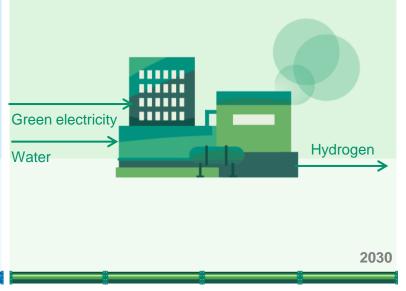
- Increase in hydrogen cost driven by CCUS solution and easier to scale currently
- Ebony has designed a production process that captures CO₂ and also converts CO₂ to syngas and methane



Hydrogen

Green

- Green hydrogen produced from electrolysis of water using renewable energy
- Not yet cost competitive at commercial scale, but a significant focus for governments



The role of Blue Hydrogen



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Required to develop supply chain infrastructure and end-markets

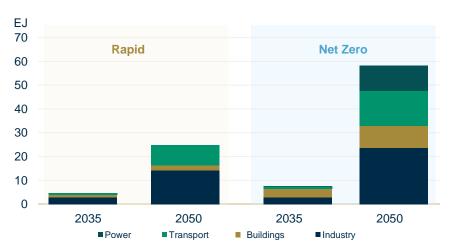
Key end markets such as Japan and the EU highlight the need for blue hydrogen in the near-term

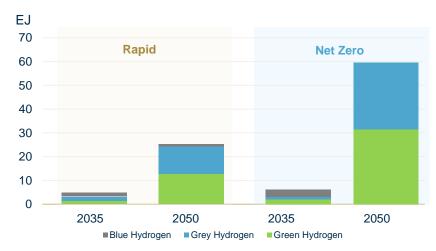
- As above, Japan still sees a need for blue hydrogen post 2030
- EU Hydrogen Strategy (July-20) states low-carbon (blue) hydrogen is needed to "rapidly reduce emissions from existing hydrogen production and support the parallel and future uptake of renewable [green] hydrogen"

Drivers are cost competitiveness and ability to achieve scale

- This is critical for developing supply chain infrastructure and end-markets
- In the medium/long-term, blue hydrogen growth should allow faster ramp-up of overall hydrogen use than green hydrogen alone due to the already significant required increase in renewable energy capacity (source: BP)

HYDROGEN USE BY SECTOR AND HYDROGEN PRODUCTION BY SOURCE





Source: BP

The role of Blue Hydrogen



Cost competitive immediately with the right incentives

CF Industries and Yara, the top two global producers of ammonia, have both indicated that they are investing in decarbonisation of production

EU Hydrogen Strategy used IEA data to estimate costs of brown/grey hydrogen of €1.5/kg

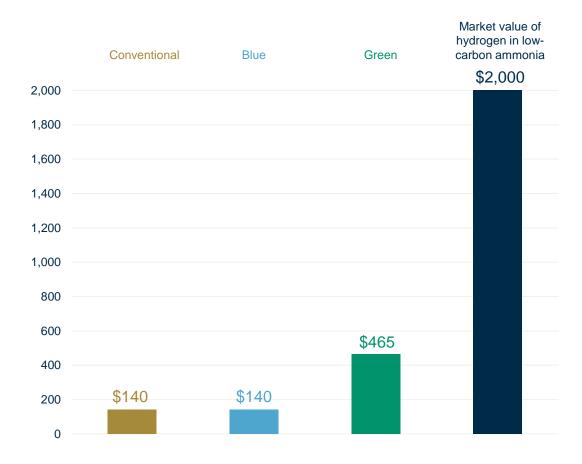
Compared to blue hydrogen of €2.0/kg and green hydrogen of €2.5-5.5/kg

European market is assessing CCUS options using North Sea storage CF Industries has highlighted that blue hydrogen can be a similar cash cost to conventional production

The key driver is US Section 45Q tax credits, which offset the incremental cost of CCUS.

Note the market value shown is based on the California retail refuelling markets and is unlikely to be reflective of the value received once production is scaled.

AMMONIA CASH COSTS FOR CF INDUSTRIES



Source: CF Industries

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Australian developments



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Explicit support for CCUS

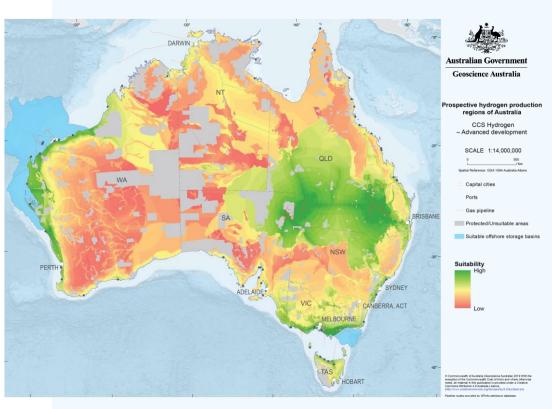
Low Emissions Technology Statement set two related targets relevant to the Pedirka blue hydrogen project

- Reducing hydrogen production costs to \$2/kg
- Reducing the cost of CCUS to <\$20/t of CO₂
- Santos has highlighted the importance of Australian Carbon Credit Units to business case

Pedirka appears well located

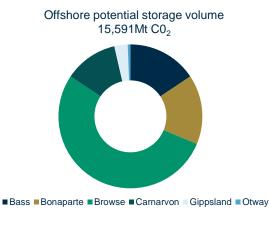
- Green is best onshore CCUS locations
- Cooper Basin has scale storage potential

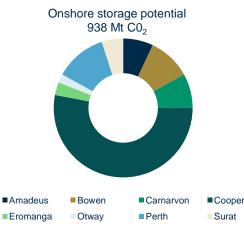
Australia's most prospective CCUS locations, considering infrastructure availability



Source: Australia's National Hydrogen Strategy, Nov-19

Australia's offshore and onshore CO₂ storage potential by basin





Source: Australian Carbon Storage Taskforce report, 2009





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