ASX Announcement | 29 January 2024
Hexagon Energy Materials Limited (ASX: HXG)

WAH_2 Project Gaining Momentum

Significant progress since last Company update
Flagship WAH_2 Project on track towards mid-2024 FEED entry

Hexagon Energy Materials Limited ('Hexagon' or 'the Company') is delighted to provide the following update to shareholders regarding its WAH_2 Project:

- **WAH_2 technical work remains on-track to support FEED-entry in mid-2024 with the core design basis set, detailed engineering progressing and vendor engagement underway.**
- **Confidential commercial discussions are progressing with potential gas suppliers, carbon capture and storage (CCS) providers, infrastructure owners, utility providers and ammonia customers.**
- **Confidential indicative pricing from third parties for several key aspects of the project indicate improved economics relative to the WAH_2 PFS Base Case[1].**
- **WAH_2 regulatory approvals workstream gaining momentum with scope of work defined and Australasian Environmental Solutions (AES) selected to lead environmental approvals.**
- **Significant capability added to the team to support commercial negotiations and regulatory approvals.**
- **Multiple signals that the market for low-emissions ammonia is strengthening and uncertainty is reducing.**

1. WAH_2 Progress Update

a) Project Delivery

The WAH_2 pre-FEED technical work remains on-track to support FEED-entry in mid-2024.

- Being led by Petrofac Asset Solutions Australia Ltd (Petrofac) as lead engineer and Topsoe A/S (Topsoe) as technology provider;
- Technical inputs from potential strategic partners have allowed refinement of the design basis which has been set for the core process; and
- Detailed engineering and vendor engagement are progressing to plan and will support refined capex planning.

Commercial discussions continue to progress, reducing uncertainty and suggesting improved economics relative to PFS Base Case[1].

- Confidential commercial discussions have progressed with potential gas suppliers, CCS service providers, infrastructure owners, utility providers and ammonia customers.
- Hexagon has received confidential indicative pricing from third parties for several key aspects of the project. These have reduced uncertainty and have tended to come in

[1] HXG ASX updated announcement 2nd August 2023.

under PFS Base Case assumptions, providing opportunities to improve project economics.

- An economic update will be provided by Hexagon prior to FEED-entry once the ongoing confidential commercial discussions are completed.

The WAH_2 regulatory approvals work stream is gaining momentum.

- The scope of work has been defined in the Regulatory Approvals Plan and Australasian Environmental Solutions (AES) retained to lead environmental approvals;
- Requirements for baseline environmental and heritage surveys have been defined and a request for proposals issued; and
- The Terms of the Option to Lease for the land allocated to Hexagon for the WAH_2 Project have been agreed in-principle with DevelopmentWA and approvals are being progressed.

b) Market Developments

The market for low-emissions ammonia is strengthening and uncertainty is reducing.

- There is increasing recognition of the importance of low-emissions ammonia to Japan's and South Korea's energy transitions by independent institutions[2];
- The Japanese Government has introduced an additional target for the import of low-emissions hydrogen/ammonia of 12 MTPA H_2e by 2040[3] – if half of this was ammonia, it would equate to ~30 MTPA of ammonia; and
- Commercial-scale co-firing of ammonia in Japan's Hekinan power plant is on-track to start in March 2024[4].

Japan has confirmed its definition of low-emissions ammonia. Hexagon's WAH_2 project would clearly exceed those expectations.

- Japan's updated Basic Hydrogen Strategy[3] sets a low-emissions benchmark of 0.84 kg CO_2e/kg NH_3. The WAH_2 PFS Base Case[5] has an emissions intensity of approximately one quarter of this (0.2 kg CO_2e/kg NH_3).

Costs for electrolysis-based ('green') low-emissions ammonia are increasing, strengthening the competitive position of Hexagon's WAH_2 Project as a planned early mover.

- The cost of producing electrolysis-based 'renewable hydrogen' was assessed in December 2023 to be US$4.5 – 6.5 /kg, an increase of between 30% and 65% over previous estimates[6]. This reflects the increasing costs of renewable energy, rising interest rates, and supply chain constraints; and
- This implies a cost of electrolysis-based ammonia of at least US$800[7] T NH_3 - which is significantly greater that the WAH_2 PFS Base Case[5] cost of production of US$552 /T NH_3 (and target of US$500 /T NH_3).

c) Capability Building

Hexagon continues to build capability with three key additions to the team over recent months.

[2]The Oxford Institute for Energy Studies, November 2023, Issue 138, 'The role of clean hydrogen/ammonia in Japan's energy transition', H Gordenker.
[3] Japan's Basic Hydrogen Strategy, June 2023, Ministerial Council on Renewable Energy, Hydrogen and Related Issues.
[4] Reuters, November 2023, 'JERA to start trial of co-firing ammonia at coal power plant in March.
[5] HXG ASX updated announcement 2nd August 2023.
[6] Hydrogen Insights December 2023, Hydrogen Council and McKinsey & Company.
[7] ~180 kg hydrogen is required to manufacture 1T ammonia (180*4.5 = 810). Excludes other costs of conversion.

- Reinhardt Matisons (ex Executive Vice President Woodside), Neil Theobald (ex Vice President Chevron) and Liz Sully (ex Santos, Woodside) have joined the Hexagon team;
- Reinhardt and Neil bring decades of commercial experience in the energy sector. Each was instrumental in building Australia's LNG trade with Asian counterparties, has an extensive network of relationships in key Asian markets, and a deep understanding of the WA gas market;
- Liz is a regulatory approvals specialist with an in-depth knowledge of the Australian regulatory landscape and established relationships with regulators, government and contractors.

Hexagon's target remains WAH_2 FEED entry in mid-2024. This will require the completion of planned technical work and finalisation and execution of conditional commercial agreements for key aspects of the project. Confidential negotiations continue with key input providers, potential off-takers and strategic partners.

Hexagon Chairman Charles Whitfield commented:

> *"The Hexagon Team led by Stephen Hall continues to achieve excellent progress on the WAH_2 Project with meaningful recent steps towards de-risking and expected improvements in project economics. The biggest step forward has been the progress made in negotiations with strategic partners which has allowed Hexagon to refine inputs to the current financial model from ongoing pricing discussions and progress detailed engineering as provider specifications get nailed down.*
>
> *We remain very aware that investors are hungry to see announcements around the cementing of agreements. While the confidential nature and interdependency of these arrangements has meant that this has not been possible yet, the progress made has allowed the Company to stay on track for mid-year FEED-entry as planned."*

2. WAH_2 Project Recap

The energy transition is driving an increasing global demand for low-emissions energy.

Through its WAH_2 Project, Hexagon intends to supply low-emissions ammonia to Asia Pacific markets, leveraging ammonia's advantages as a hydrogen carrier and its direct use in clean power generation. The project aims to be an early mover, using proven technology and leveraging existing infrastructure to accelerate schedule and reduce both project risk and costs.

In April 2023, Hexagon was allocated land for the WAH_2 Project in the Maitland Strategic Industrial Area by the Western Australian Government.

In August 2023, Hexagon announced the completion of the WAH_2 Pre-Feasibility Study and based on the encouraging results commenced Pre-FEED studies.

The Pre-FEED studies and ongoing commercial discussions with potential gas suppliers, CCS service providers, infrastructure owners, utility providers and ammonia customers are intended to support FEED entry in mid-2024.

Authorisation

This announcement has been authorised by the Board of Directors.

About Hexagon Energy Materials Limited

Hexagon Energy Materials Limited (ASX: HXG) is an Australian company focused on *Future Energy* project development and *Future Energy* materials exploration and project development.

Hexagon is developing a business to deliver decarbonised hydrogen (low-emissions ammonia) into export and domestic markets at scale, via its WAH_2 Project. The Company plans to use renewable energy to the greatest extent practicable.

Hexagon 100% owns the McIntosh Nickel-Copper-PGE project and the Halls Creek Gold and Base Metals project in Western Australia. The Company has two joint ventures on its Graphite properties.

To learn more please visit: www.hxgenergymaterials.com.au

FOR FURTHER INFORMATION,

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