

ASX Announcement - 8 March 2023

Progress Update on WAH₂ Preliminary Feasibility Study

Highlights:

- Hexagon has engaged leading engineering consultant Petrofac to undertake engineering analysis for the WAH₂ Preliminary Feasibility Study (**PFS**).
- Commercial discussions are progressing regarding the key inputs for the project - gas supply, power supply, CO₂ sequestration, land, and infrastructure access.
- WAH₂ PFS remains on track for completion in Q2 2023.
- Target remains Front End Engineering Design (FEED) entry Q4 2023 and FID Q4 2024, subject to the results of the PFS.

WAH₂ Project review

The WAH₂ Project is Hexagon's flagship project to supply low-emissions 'blue' ammonia to the decarbonising powerhouse economies of the Asia Pacific, including Japan and South Korea.

The WAH₂ Project is well-placed as the energy transition drives an increasing demand for low-emissions energy.

In summary, subject to the results and recommendations of the PFS, the WAH₂ Project:

- would use proven technology to reform natural gas to produce hydrogen.
 - WAH₂'s feed-gas requirement is small in the context of the WA gas market.
 - There are several potential suppliers with access to existing distribution infrastructure. Phase 1 of the WAH₂ Project would consume ~2% of Western Australia's forecast daily gas supply at the expected time of start-up (Base Case, WA GSOO 2022).
- would use proven technology to convert hydrogen to ammonia.
 - Ammonia is considered the most appropriate energy carrier as it offers reduced processing and transportation costs and greater energy-efficiency than the alternatives of liquid hydrogen or liquid organic hydrogen carriers, and it aligns with customers' need for ammonia.
- would involve capture and storage of CO₂ in depleted gas reservoirs to deliver low-emissions hydrogen and ammonia.
 - Several credible potential CO₂ sequestration alternatives are being developed proximal to WAH₂. Greenhouse gas assessment permits have been awarded to joint ventures operated by Santos (G-9-AP) and Woodside (G-10-AP), and the Australian Gas Infrastructure Group is investigating the potential to use its wholly owned Tubridgi asset for CO₂ sequestration.

Hexagon has identified its preferred site for WAH₂ and has applied to the WA Government for a long-term lease over the site (HXG ASX Announcements 17 January 2023 and earlier).

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The proposed site is in an existing Strategic Industrial Area in northern Western Australia. It is proximal to services, with established export routes and an existing infrastructure corridor. It is well-placed to access key Asian markets such as Japan and South Korea and to provide domestic supply to Australia (HXG ASX Announcements 17 January 2023 and earlier).

Engineering Studies

Engineering studies are being undertaken by Petrofac and are focused on determining the appropriate choice of hydrogen production technology, the appropriate production capacity for Phase 1 and Phase 2 of the WAH₂ Project, and the associated capital and operating costs for the WAH₂ Project (AAACEI¹ Class 4 cost estimate).

Potential access to multi-user infrastructure including utilities import, product export and CO₂ transmission offer opportunities to reduce unit costs and leverage economies of scale.

Strategic Collaboration

In parallel with the technical studies, Hexagon's WAH₂ team is progressing commercial discussions regarding the key inputs for the project:

- Gas supply
- Power supply
- CO₂ sequestration
- Land and infrastructure access.

Discussions regarding ammonia offtake, project structuring and project participation will commence in Q2 2023.

Hexagon looks forward to being able to update the market on progress, subject to confidentiality undertakings.

Developing Ammonia Market

The development of the global Ammonia (Hydrogen) market is accelerating. In 2022 some 680 large-scale hydrogen project proposals, equivalent to USD 240 billion in direct investment through 2030, have been put forward – an investment increase of 50% since November 2021. (Hydrogen Insights 2022, Hydrogen Council/McKinsey & Company, 2022).

In February 2021, METI's interim report of Fuel Ammonia's Roadmap set the target for use of fuel ammonia to 3 mt/y in 2030, and 30 mt/y in 2050 (equivalent to 5mt/y of hydrogen). It will do this through the following actions:

- by introducing the use of 20% co-firing in power generation by 2030.
- increasing the co-firing rate (50%) and commercialise the technology for fuel ammonia power generation by 2050.
- promoting exports to the Southeast Asian market through international standardisation and co-firing technology.

Japan is seeking Ammonia producers across the globe to support their efforts in decarbonising their power industries.

Note 1: AAACEI, Association for the Advancement of Cost Engineering International

Timeline

Q2 2023	<ul style="list-style-type: none"> • Complete WAH₂ Preliminary Feasibility Study Report • Secure Option to Lease from WA Government over preferred project site • Progress commercial discussions
Subject to positive feasibility outcome and recommendations:	
Q3 - Q4 2023	<ul style="list-style-type: none"> • WAH₂ Concept Selection Studies • Binding commercial agreements for project inputs (conditional on FID) prior to FEED entry • FEED entry by end 2023
Q1 - Q4 2024	<ul style="list-style-type: none"> • FEED Studies • Unconditional binding commercial agreements for project inputs prior to FID • FID by end 2024

Petrofac

Petrofac Limited is a leading international energy services company that designs, builds, manages and maintains oil, gas, refining, petrochemicals and renewable energy infrastructure. Team member previous experience include work on hydrogen and ammonia producers both in Australia and internationally.

Chairman Charles Whitfield commented: *“The coming few months will be very exciting for the WAH₂ Project. After completion of the initial study at the end of last year to highlight any “red flags” the project team is now moving forward apace. In parallel with the progression of the study – conversations with important partners are being progressed and we hope that these will be announced in the coming months. As the specifics of the WAH₂ Project take shape - the Company also plans to increase shareholder and investor presentations to increase the level of understanding in the potential of Hexagon’s role in the growing international hydrogen market. In the meantime I would like to reiterate my thanks to the team including Stephen Hall and Andrew Kirk and hope that shareholders will have a chance to hear from them directly as to the opportunity that WAH₂ presents”.*

Ends

About Hexagon Energy Materials Limited

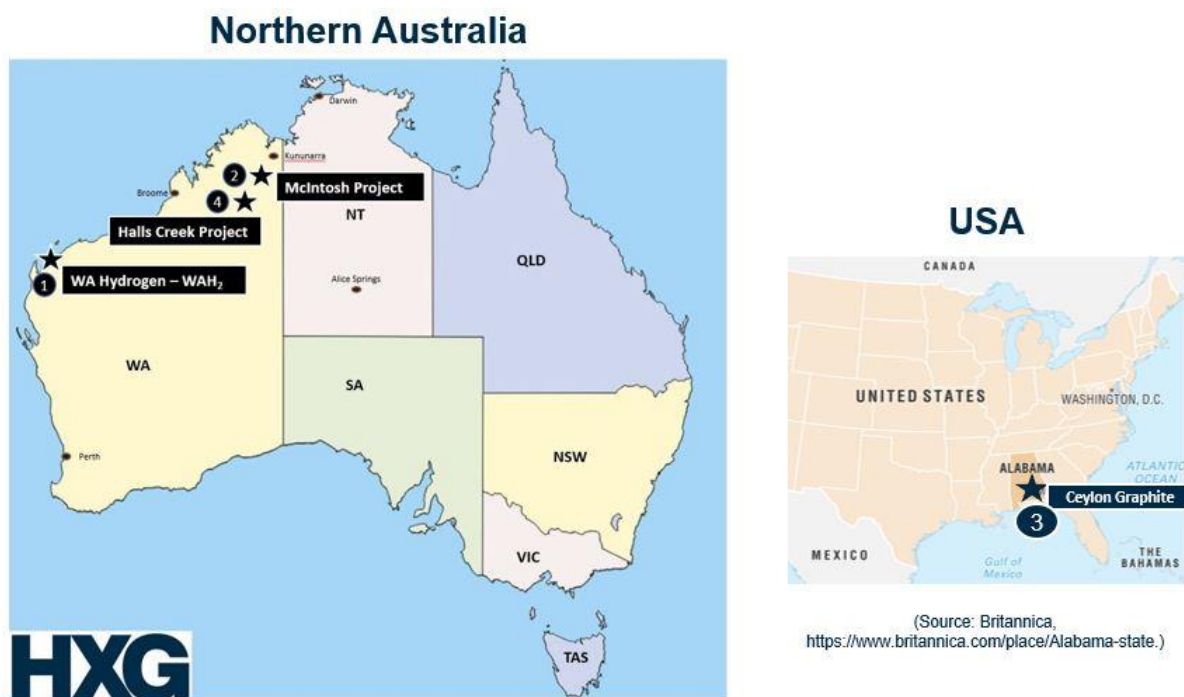
Hexagon Energy Materials Limited (ASX: HXG) is an Australian company focused on future energy project development and energy materials exploration and project development.

Hexagon 100% owns the McIntosh Nickel-Copper-PGE and Graphite project in Western Australia and the Halls Creek Gold and Base metals project in WA. On 14 February 2022 Hexagon announced a binding Graphite Mineral Rights Earn-in agreement (up to 80%) had been entered into with Critical Green Minerals Pty Ltd, with McIntosh Graphite expected to become part of an ASX Initial Public Offering during 2023. In the USA, Hexagon has an 80 per cent controlling interest of the Ceylon Graphite project located in Alabama, over which South Star Battery Materials Corp (TSXV: STS) on 7 December 2021 signed an Option to develop and Earn-In up to 75% interest.

Hexagon also is developing a business to deliver decarbonised Hydrogen (blue Ammonia) into export and domestic markets at scale, via Hexagon's WAH₂ Project.

Hexagon's plan is to use renewable energy in clean Hydrogen production to the greatest extent possible in its projects, transitioning from blue to green Hydrogen production on a commercial basis, over time. Supporting this strategy in January 2022 Hexagon signed a Memorandum of Understanding with renewable energy company FRV Services Australia Pty Ltd (FRV Australia) (51% owned by Fotowatio Renewable Ventures SL and 49% owned by OMERS Infrastructure part of OMERS Canadian defined benefit pension plan fund). FRV has almost 800MWdc of Australian PV assets built or under construction in Australia.

Hexagon's overarching goal for 2023 is to secure and leverage technical and commercial alliances by commodity across its project portfolio whilst maintaining a core focus on Northern Australian Future Energy and Future Energy Materials project development, in-house.



Locations of Hexagon's projects

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

Authorisation

This announcement has been authorised by the Board of Directors.

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