

Ex-Woodside senior execs in stealth natural hydrogen play

Hoping to unlock first-mover benefits to create substantial local and export opportunities

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It is no secret that former Woodside Energy CEO Peter Coleman, and other senior ex-Woodside executives, are trying their hands at the emerging plays for natural hydrogen and helium, in Australia. However, unlike other players shouting from the rooftops, the all-star team at H2EX, has been quietly putting together a compelling package to attack the sector after partnering with global engineering giant Black & Veatch.

Announced on Monday, the partnership will see H2EX and Black & Veatch together study the extraction of natural hydrogen and helium. It also covers concept design for well and surface production facilities in South Australia. Crucially, the study into extraction solutions could provide a pathway to drill and extract the lowest-cost hydrogen, which might be up to 75% more cost-effective than manufacturing hydrogen, noted H2EX.

The news is timely, and also kind of ironic given the Woodside Energy connections, after Energy News' Slugcatcher column recently highlighted that gold hydrogen could be the perfect opportunity to rejuvenate Woodside Energy.

Indeed, as the Slugcatcher pointed out, gold hydrogen could take the industry by surprise as did shale gas. Gold hydrogen, also known as white hydrogen, is hydrogen that occurs naturally, is generated by geological processes, and offers significant cost and emissions advantages relative to other means of hydrogen production.

Significantly, start-ups are springing up across the globe, as well as in Australia, with the likes of Gold Hydrogen, also in South Australia. Gold Hydrogen has reported some notable work at its Ramsay exploration sites.

H2EX all-star team and partnerships

The team at H2EX has extensive experience working across all the major oil and gas players, including Woodside Energy, ExxonMobil, Chevron, and BG. Coleman, H2EX's chairman, is also on the board of oilfield services giant SLB, also known as



CEO and Managing Director, Mark Hanna

Photo credit: Jillian McHugh

Schlumberger. The Black & Veatch study is part of an Australian Federal Government-funded project led by H2EX to enable green and passive exploration techniques to accelerate the discovery of natural hydrogen. H2EX said that it is partnering with Black & Veatch, The University of Adelaide, and Australian National University. The study is partly funded by Australia's Federal Department of Science and Innovation through the Cooperative Research Council Projects (CRC-P) Grants Round-14 initiative. The CRC-P supports short-term, industry-led research collaborations.

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Photo credit: H2EX supplied, PEL 691 passive seismic campaign Dec-2023

The objective of the study is to unlock first-mover benefits for Australia within an emerging sector globally and create substantial local and export opportunities while retaining the country's competitive advantage, and technical and engineering expertise," H2EX said in a statement.

H2EX added the development study, which is estimated to be finished by mid-2024, is important as it will help the explorer fast-track its first exploration wells and development scheme. Energy News understands that the company will be in a position to drill its first well by this time next year.

"If successful, natural hydrogen will be a great source of energy for power generation and transport on the Eyre Peninsula," said Mark Hanna, H2EX CEO and Managing Director, who previously spent many years at Woodside marketing and trading both LNG and oil.

"Natural hydrogen will help decarbonise the region, which predominantly uses liquid fuels for energy and transport. Helium is also a high-value and scarce commodity. Recent drilling in South Australia has found high concentrations of helium too," added Hanna.

In South Australia, two historical oil bores drilled 100 years ago discovered hydrogen between 50-85% purity. In late 2023, Australian ASX-listed company Gold Hydrogen (ASX:GHY) drilled two exploration wells - Ramsay 1 and 2 - and confirmed the similar historical results. They also announced encountering elevated levels of helium of up to 6%.

Notably, as GeoExPro observed, "further exploration, analysis, and flow testing by Gold Hydrogen will prove whether helium and hydrogen can be exploited commercially from the Ramsay prospect. Will it be enough to power the city of Adelaide? As things stand now, the well results seem to suggest a dynamic system with hydrogen and helium 'leaking' through a fracture system rather than the presence of a closure containing a pool of pressurised hydrogen. On that basis, it may not be a system that lends itself for large-scale export."

Meanwhile, H2EX has its eyes on combined acreage in South Australia which is approximately the size of Croatia for its hydrogen and helium hunt. Maybe, somewhere, amongst that 52,000 sq km of acreage is a large-scale export opportunity waiting to be found.



Photo credit: H2EX supplied, H2EX CFO Greschen Brecker with the Fleet Space Technologies geode

H2EX Development study

As part of the development study, Black & Veatch will provide two concept designs on H2EX's exploration license PEL 691 on the Eyre Peninsula in South Australia. One concept design will be for the drilling and completion of a hydrogen exploration well. The other concept design will be for surface facilities to purify, process, and deliver natural hydrogen and helium, including co-production of the resources, if they are found together.

Black & Veatch will analyse gas industry practices related to well drilling and extraction infrastructure and identify key considerations to adapt these practices for natural hydrogen and helium.

"Decarbonisation efforts in the Asia Pacific is a priority for Black & Veatch. This includes extracting natural hydrogen, a potential clean energy source for the region," said Yatin Premchand, Managing Director, Strategic Growth, Global Advisory, Black & Veatch.

"Black & Veatch has an 80-year history working with hydrogen and ammonia production in multiple industries. The company developed the first hydrogen power generation conversion project and the first major hydrogen fuelling station deployment in the United States. Since then, our experts have continued to deliver reliable innovation and first-of-a-kind solutions across the hydrogen value chain," added Premchand.

H2EX hydrogen and helium hunter

H2EX is a natural hydrogen and helium company. H2EX reports it is searching to find and harvest natural hydrogen and helium on its exploration license PEL 691 (~6,000 km²) in South Australia. H2EX continues to develop and undertake what it calls first-of-a-kind research and in-field exploration activities.

In June 2023, a H2EX-led research consortium was awarded an Australian Government grant via the Cooperative Research Council Projects (CRC-P) Round 14 initiative, announced by The Hon Ed Husic Minister for Industry and Science.

As part of the CRC-P, H2EX completed several Ambient Noise Tomography surveys (aka passive seismic) in December 2023, utilising Fleet Space Technologies geodes. The 3D velocity models generated by Fleet Space Technologies are currently being interpreted in-house to develop a portfolio of leads and prospects.

The South Australian Government amended the petroleum legislation in February 2021 to allow for natural hydrogen exploration. Subsequently, H2EX secured an exploration license in June 2022 (PEL 691) and six 1st ranked applications (52,000 km²). The combined acreage is approximately the size of Croatia, noted H2EX. Applications are the precursor to a license and require agreement with Native Title groups before license award.

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