VYTAS RESOURCES

Stakeholder Update

NOVEMBER 2022

Executive Summary

Vytas Resources (Vytas) is strategically progressing its Green Hydrogen Strategy which is reshaping the company given the potential scale of the opportunity. This development has presented new options commercially and corporately. The Green Hydrogen Strategy has been described by one prominent resource fund's manager as "having the tiger by the tail".

Recent conceptual financial models and optimisation completed has provided Vytas the confidence to increase its tenement package at the White Peaks Project from 62 blocks (196km^2), by a factor of 7, to 438 blocks (1,381km^2).

Vytas' hydrogen strategy is to produce and commercialise a nano-porous silicon material (Vytas refers to this material as High Purity Silicon - HPS) for the production of:

- "At-Source and On-Demand Hydrogen"; and separately
- "Anodes for Green Hydrogen".

Please find the following YouTube link to understand Vytas' "At-Source and On-Demand" Green Hydrogen Strategy

https://www.youtube.com/watch?v=TYRilJU_lo0

Note: The link is using a more expensive and less efficient material than HPS, in aluminium, in the program.

"At-Source, On-Demand" Green Hydrogen

The HPS can be used directly to produce "At-Source, On-Demand" Green Hydrogen through hydrolysis (simply by adding to water of any quality and capturing the released hydrogen).

- The hydrolysis of water to form hydrogen (H_2) involves the use of an oxidant with a large redox potential to dissociate (or reduce) the H_2O molecule, without the need for external inputs of electricity, heat or the use of a catalyst.
- The advantages of an "At-Source, On-Demand" Green Hydrogen process is:
  - It negates the engineering and safety challenges of hydrogen storage and logistics.
  - The process works best using non-beneficial water such as brackish, sea water or even urine.
- This technology removes the need for expensive electrolysers to produce hydrogen.
- Vytas seeks to reset the cost base for hydrogen having a low-cost natural feedstock and scale.
- The waste product of Vytas' "On Demand, At Source" Green Hydrogen is the initial feedstock which can then be recycled for reuse.
- Target markets include automotive, heavy machinery, shipping, rail, military, disaster response, mining, agriculture, remote townships and grid scale applications.

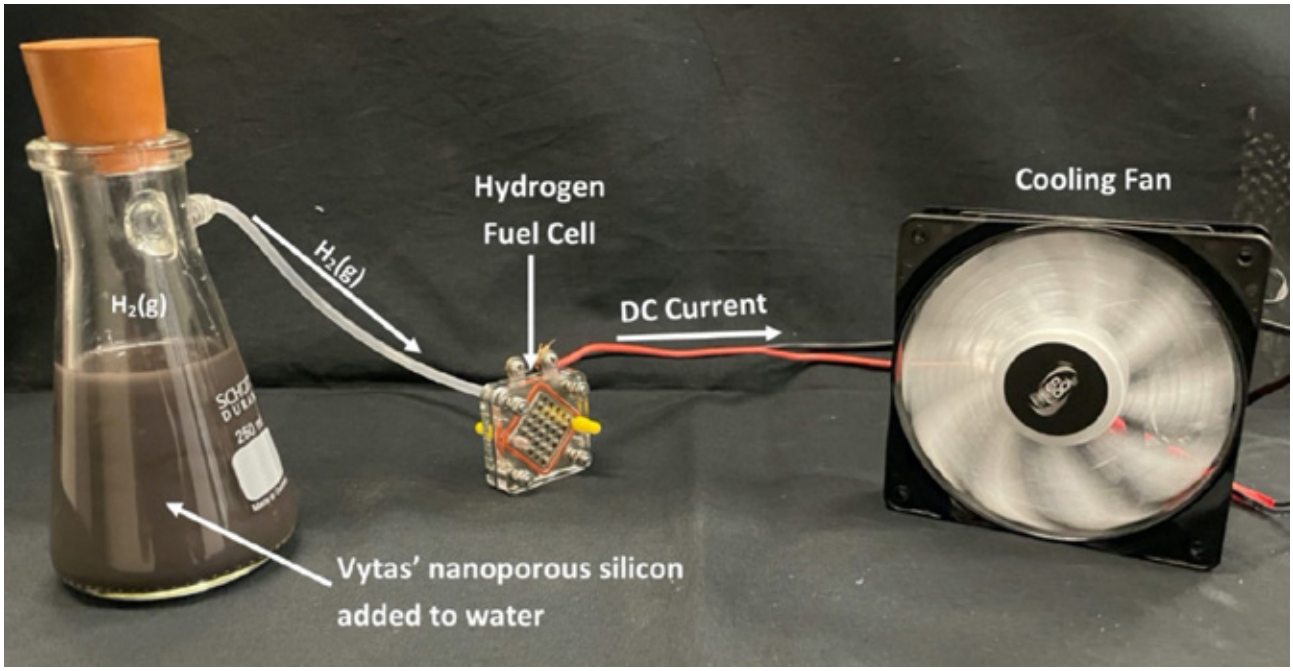

Figure 1: Hydrogen generation and direct electricity production using nano-porous silicon

Anodes for Green Hydrogen (Electrolysis and Saline Water)

The nanoporous silicon material can be used to replace existing anode materials in electrolysers to allow non-beneficial, saline and hypersaline water (including seawater) to be used instead of fresh water. This technology will preserve our precious fresh water resources and promote hydrogen production in remote communities or in locations where affordable fresh water is not available.

The electrolysis process is typically undertaken using fresh (or potable) water to limit anode corrosion. However fresh water is a scarce resource and likely to become increasingly more scarce as the world continues to become more arid in response to climate change.

In order to produce the 74 EJ of green hydrogen needed to meet the 2050 hydrogen demand, via electrolysis, the International Renewable Energy Agency (IRENA) has estimated that 25 Bm^3 (billion cubic metres) of fresh water will be required (IRENA, 2021a[1]).

Vytas strategy is to produce a silicon anode material that can sustainably use non-beneficial or saline / hypersaline (incl. seawater) to produce hydrogen, which represents 96.5% of the world's water resources, without the need for desalinisation.

The benefits of using non-beneficial or saline water include:

- Conserves our precious fresh water;
- Enables hydrogen production to occur in remote and arid regions where there is a scarcity of fresh water;
- The by-products produced from electrolysis (including Chlorine and Caustic – NaOH) are marketable commodities, and
- Production of fresh potable water.

Green Hydrogen and Current Costs

Green hydrogen is considered vital in the transition to a renewable economy and in meeting global 2050 emission targets. Although this is the case, green hydrogen production only represents 4 % of total hydrogen production, with the vast majority (96 %) of hydrogen still produced from fossil fuels by steam reforming of natural gas, partial oxidation of heavier hydrocarbons or coal gasification (DoISER, 2021[2]). IRENA states that by 2050 green hydrogen production needs to be approximately 66 % of the total hydrogen production in order to achieve global net zero emission targets (IRENA, 2021a). IRENA estimate that the total hydrogen demand in 2050 will be around 74 EJ (exajoules or 1.0 x 10^{18}J), of which around 49 EJ will need to come from green sources.

Green hydrogen is hydrogen that is generated primarily from water, using mainly electrolysis powered by renewable energy or from low-carbon power (IRENA, 2020[3]). The application of green hydrogen is particularly suited to energy-intensive, hard-to-decarbonise sectors like steel, chemicals, long-haul transport, shipping and aviation. However, regulations, market design and the costs of power and electrolyser production are still major barriers to the uptake of green hydrogen, with the current cost of green hydrogen being two to three times more expensive than blue hydrogen, which is produced from fossil fuels in combination with carbon capture and storage (CCS) (IRENA, 2021b[4]). This presents a huge opportunity for Vytas.

1. IRENA (2021a). Hydrogen production in 2050: How much water will 74 EJ need? Press Release 22 July 2021. International Renewable Energy Agency (IRENA), Abu Dhabi
2. DoISER (2021). State of Hydrogen 2021. Department of Industry, Science, Energy and Resources (DoISER), Australian Government.
3. IRENA (2020). Making Green Hydrogen a Cost-Competitive Climate Solution. Press Release, 17 December 2020. International Renewable Energy Agency (IRENA), Abu Dhabi.

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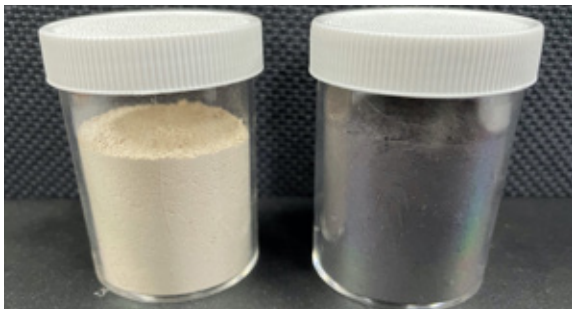
High Purity Silicon (HPS)

Vytas has successfully converted the nano-porous silica, from the White Peaks Project, to HPS for use in green hydrogen production. The process has been optimised by Vytas over a two-year development period in-house and with the support of external consultants.



Conversion of silica (left) to nanoporous silicon (right) using Vytas' in-house process

Government Support

Vytas has received Western Australian government support, securing a co-funding for the drilling program.

Vytas will apply for the R&D rebate and other industry incentives.

Next Steps

Vytas anticipates the current optimisation work facilitating the Green Hydrogen Strategy, commissioned in Q3 2022, will be completed in December 2022 and planning for the pilot plant has begun. Subject to funding and equipment availability, Vytas will commence pilot plant operations in Q2 2023.

In parallel with the pilot plant stage, Vytas will open discussions with industry participants and relevant stakeholder in preparation of commercialisation.

4. IRENA (2021b). Making the Breakthrough: Green Hydrogen Polices and Technology Costs. International Renewable Energy Agency (IRENA), Abu Dhabi.

United Nations Sustainability Development Goals

Through the development of our nanoporous silicon and its use in hydrogen production, primarily using non-beneficial or saline water, Vytas is addressing the following United Nations (UN) Sustainability Development Goals (SDGs):

SDG 6 – Clean Water and Sanitation: by avoiding the use of fresh water in electrolysers for energy production we are conserving this precious resource for humanity.

SDG 7 – Affordable and Clean Energy: by providing At Source and On-Demand hydrogen we are removing the associated storage and transport issues associated with hydrogen; thus producing a clean, sustainable and 'Green' energy source at an affordable price.

SDG 11 – Sustainable Cities and Communities: by providing At Source and On-Demand hydrogen, using non-beneficial water, we are not only improving the sustainability of our cities, but we are also providing a renewable and sustainable energy source for remote communities.

SDG 13 – Climate Action: by implementing our At-Source and On-Demand Hydrogen Production Technologies we are tackling Climate Change head-on.

The Team

I have the privilege of working with an innovative and progressive technical team and board, which have contributed significantly to delivering and executing the company's strategy. We look forward to our exciting future.

Regards

David Cornell
Managing Director

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About Vytas Resources

Vytas is an emerging producer and supplier of High Purity Quartz (HPQ), High Purity Alumina (HPA) and High Purity Silicon (HPS) and silica-based Technology Materials to provide solutions to global challenges to transition to a renewable economy.

Vytas' flagship projects consist of the Moora Silica Sand Project, the Tambellup Kaolin Project, White Peaks and Ajana Projects. Preliminary metallurgical test work confirms that High Purity Quartz (HPQ) and High Purity Alumina (HPA) can be cost effectively produced. In addition, preliminary metallurgical test work at the White Peaks and Ajana Projects confirms that the feedstock is amenable to conversion to silicon that has potential application as an anode material in lithium batteries.

Vytas High Purity Aluminium (HPA) and High Purity Quartz (HPQ) Strategy

CSIRO's (2021) Critical Energy Minerals Roadmap includes both aluminium (HPA) and silicon (HPQ) as critical minerals needed to transition to a renewable economy. Both materials are in high demand due to their manufacturing benefits and use in Solar PV, Wind Turbines, Concentrated Solar Power (CSP), Hydrogen Production and Batteries.

This new technology material venture will place Vytas at the forefront of the renewable technology industry.

The Global HPA market was valued at US$1.3 billion in 2019 and is projected to reach US$4.8 billion by 2026, growing at a CAGR of 20.7 % from 2020 to 2026 (Allied Market Research, 2020).

Similarly, the Global HPQ market had a value of US$672 million in 2019 and is expected to reach US$1,234 million by 2027 growing at a CAGR of 7.9 per cent during the forecast period (Research and Markets, 2021).

> "This new technology material venture will place Vytas at the forefront of the renewable technology industry."

Appendix - JORC 2012 Exploration Targets and Mineral Resource

White Peaks Project - Exploration Target*

Tonnes (Mt)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	CaO_2 (%)	Porosity (%)	LOI (%)
240 – 320	73 – 88	6 – 9	0.2 – 7	0.1 – 5	58 - 69	3 – 9

Moora Silica Project - Exploration Target*

Tonnes (Mt)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
272 - 408	97.1 – 99.8	0.01 – 1.4	0.02 – 0.5	0.1 – 0.2	0.01 – 0.7

Tambellup Kaolin Project - JORC-2012 Mineral Resources (Inferred)

Tonnes (Mt)	ISO Brightness (%)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	LOI (%)
12.48	> 80	36.64	48.42	0.37	12.19

Tambellup Kaolin Project - Exploration Target*

Tonnes (Mt)	ISO Brightness (%)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	LOI (%)
54 – 108	79 - 87	34.2 – 38.1	46.9 – 50.5	0.1 – 0.8	10.9 – 13.4

* The potential quantity and grade of the Exploration Target is conceptual in nature and therefore is an approximation. There has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource. The Exploration Target has been prepared in accordance with the 2012 edition of the JORC Code.

Competent Persons' Statements

The information in this Stakeholder Update that relates to the technical assessment of the Mineral Resources, Exploration Results and Exploration Targets is based on, and fairly represents, information and supporting documentation prepared by Dr Andrew Scogings and Mr Serik Urbisinov, both who are employees of CSA Global and are Competent Persons who are member of the Australian Institute of Geoscientists. Both Dr Scogings and Mr Urbisinov have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.

As at the date of this Stakeholder Update, neither Dr Scogings nor Mr Urbisinov have a relevant interest in any Securities.

Forward Looking Statement

Any statements, estimates, forecasts or projections with respect to the future performance of Vytas Resources and/or its subsidiaries contained in this announcement are based on subjective assumptions made by Vytas Resources management and about circumstances and events that have not yet taken place. Such statements, estimates, forecasts and projections involve significant elements of subjective judgement and analysis which, whilst reasonably formulated, cannot be guaranteed to occur. Accordingly, no representations are made by Vytas Resources or its affiliates, subsidiaries, directors, officers, agents, advisers or employees as to the accuracy of such information; such statements, estimates, forecasts and projections should not be relied upon as indicative of future value or as a guarantee of value or future results; and there can be no assurance that the projected results will be achieved.