

# ASX: HYT CORPORATE PRESENTATION PIONEERING NATURAL HYDROGEN

6 DECEMBER 2022 | HYTERRA.COM

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This presentation was authorised by the Board of Directors for release on 6 December 2022



# **Executive Summary**

	First mover advantage	Dedicated to new energy	Advanced exploration activity	Experience and proprietary knowledge	Huge Market Opportunity
	The first ASX listed company with a focus on the exploration and production of natural hydrogen	Dedicated to natural hydrogen with no competing interests in fossil fuels	Hydrogen exploration well ready for testing – opportunity to add significant value	Across exploration, development and production, together with the specialist knowledge of our joint venture partner	Positioned to capitalise on the significant demand growth for non-fossil hydrogen
	Market Cap \$11M at \$0.02	Cash \$5.25M (1/12/22)	Total Shares 555M (74M escrowed)	Total Options 227M (all escrowed)	Performance Rights 49M (all escrowed)



## **Board & Management**



#### **Avon McIntyre**

Executive Director & Chief Technical Officer

PhD in Geology with 20 years oil and gas exploration experience inc. 5 years in natural hydrogen and helium



#### **Russell Brimage**

Non-Executive Chairman

40 years experience in upstream oil and gas operations. Held multiple ASX directorships



#### **Paul Garner**

Non-Executive Director

20 years experience in capital markets and business development. Held multiple ASX directorships



#### Po Chan

Non-Executive Director

Masters in commerce with business consulting and investment banking experience in China and Asia Pacific



#### Luke Velterop

Chief Operating Officer

10 years experience in energy and hydrogen across director and operations management roles



#### Jeff Goodall

**Principal Geologist** 

PhD in Geology with 30 years exploration experience in developing new plays, prospects and discoveries

# About HyTerra

- HyTerra is derived from the words Hydrogen and Terra (Earth)
- We are pioneering the exploration and production of natural hydrogen
- HyTerra is the first ASX company company dedicated to this sector
- Natural hydrogen exploration is already underway in Nebraska, USA
- Company is screening additional natural hydrogen exploration opportunities
- Our mission is to unlock the potential of natural hydrogen, as a leading explorer and producer

#### Why Hydrogen Source: Australian Hydrogen Council, 2022

# Market Opportunity

- The energy sector is transforming and the urgency to 0 decarbonise has created unprecedented interest, support and momentum for hydrogen
- Production will need to grow from negligible levels 0 today to 614 million tonnes per year by 2050 (IRENA, 2022)
- The growth is assumed to come predominantly from 0 green hydrogen, however these mega-scale renewable projects will require multi-billion dollar investments and long development schedules
- HyTerra can capitalise on this market opportunity by 0 accelerating the development of a naturally occurring source of hydrogen



Can be stored as

a gas or liquid



No greenhouse

gas emissions in

use





Can provide energy to all parts of the economy



Can be stored.

transported &

exported



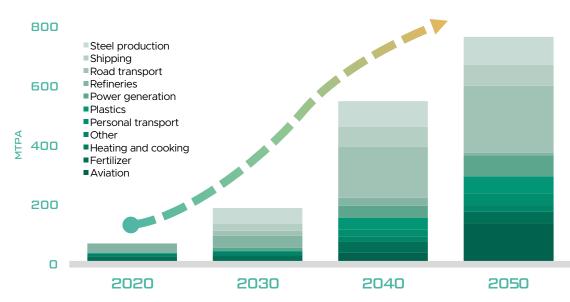
**Produced from** 

many sources

**Higher energy** No more or less safe than petrol density than or diesel fuels batteries when compressed

Source: Rystad Energy, HydrogenCube Tool

#### Demand through to 2050

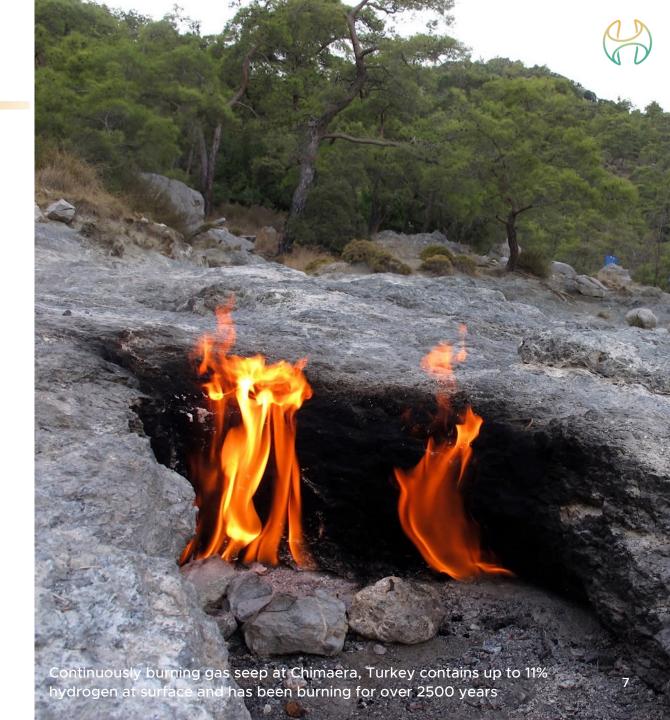


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# **Natural Hydrogen**

also known as subsurface, geological, native, gold, white hydrogen

- Natural hydrogen is generated through naturally occurring processes in the subsurface
- It is explored for and produced by drilling wells in prospective regions
- Although hundreds of historical wells have encountered natural hydrogen, explorers previously had no incentive to commercialise
- Hydrogen market growth, geopolitical support and rising energy prices have created the ideal opportunity to develop this new industry
- As a naturally occurring energy source, natural hydrogen could offer significant commercial advantages when compared with manufactured hydrogen (e.g. green & blue hydrogen)
- Natural hydrogen could revolutionise the energy industry



# Natural Hydrogen: Capturing Global Headlines

# Natural hydrogen: the new frontier Natural hydrogen exploration 'boom'

Geological hydrogen could revolutionise our low-carbon future. Philip J. Ball and Krystian Czado report on discussions of this little-understood resource during the first international summit on natural hydrogen exploration

#### Natural hydrogen: how the potential wellspring works and why companies are pouncing

Mali that could change our climate fortunes Will natural hydrogen be Australia's next

Fuel of The Future: the hydrogen field in

gold rush? Potential fuel source is drawing interest — and significant investment —

With its promise of cheap, easy 'god molecules' flowing inexhaustibly from the ground, it's no wonder natural hydrogen is piquing interest. Sometimes referred to 'gold' or 'white' hydrogen, Avon McIntyre, executive director of HyTerra, an Australian company in the space, told **pv magazine Australia** natural hydrogen

British scientists lead the way in hydrogen 'gold rush'

# Hydrogen could be taken straight from the ground

Et si l'hydrogène naturel était le "game changer" de la transition énergétique ? Natural hydrogen hits the ASX: Morgans pumps up Cheap, green hydrogen would be a massive breakthrough in clean energy

The occurrence and geoscience of natural hydrogen

Natural hydrogen seeps identified

**Bill Gates** 'Finally, there are reserves of hydrogen in geologic formations around the world, and in theory geologic hydrogen has the potential to provide a vast supply of affordable, zero-emissions hydrogen' **July 2022** 

(L-R) Geoscientist, March 2022 | PV Magazine, February 2022 | Palatinate, December 2020 | PV Magazine, April 2022 | Upstream, July 2022 | The Times, September 2021 | Science Business, January 2022 | HyNat, September 2021 | Australian Financial Review, October 2022 | ScienceDirect, April 2020, September 2021 | Bill Gates – Gates Notes, July 2022

# Why we Operate in the USA

#### Supportive regulatory systems

Efficient path to acquiring leases and commencing operations

#### Availability of data, logs & surveys

Large archive of open-file data with historical well information and gas analyses

Exploration

#### Low cost operations

Cost of exploration is inexpensive due to a competitive market

#### Large & highly active service industry

600 drilling rigs in operation and thousands of service providers

#### Size & proximity of markets, end-users & access to mid-stream infrastructure

Multiple offtake and sales options enhances commercial outcomes

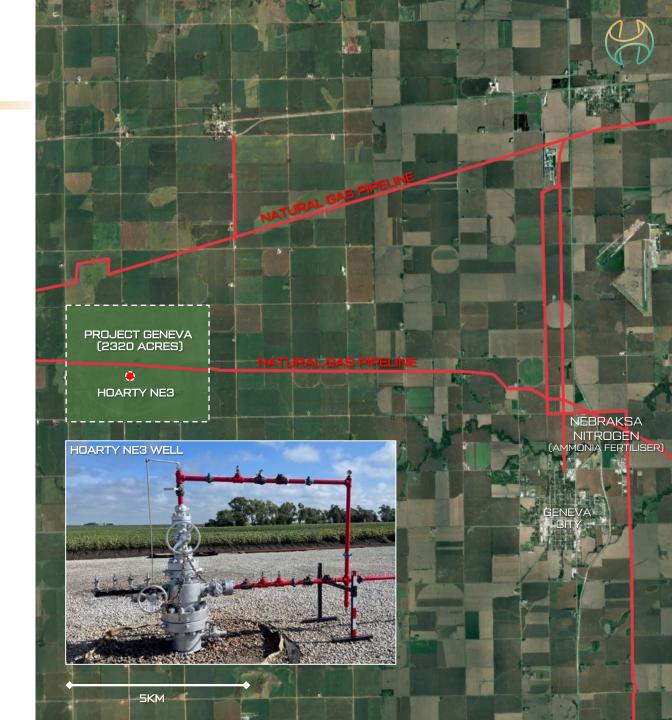
#### Political support

World leading support with tax credits, subsidies and funding programs to advance hydrogen production

Aug 2022, Inflation Reduction Act, up to \$3/kg tax credit for hydrogen Sep 2022, National Hydrogen Strategy & Roadmap, US\$8 billion in funding to develop hydrogen hubs & networks across the USA

### Project Geneva (Nebraska, USA)

- HyTerra has acquired a 10% interest (and the right to earn up to 51%) in a Joint Development Agreement with Natural Hydrogen Energy LLC
- Through the JDA, HyTerra retains control of its capital expenditure in the project
- The project area is favourably located near infrastructure and market opportunities in Geneva, Nebraska and is known as **Project Geneva** (previously referred to as Nebraska Northwest Project)
- The Joint Venture includes the worlds first wildcat well specifically targeting natural hydrogen (Hoarty NE3) and surrounding exploration leases
- The Hoarty NE3 well targeted Precambrian basement rocks predicted to contain hydrogen enriched gases
- To date, the well has been drilled, completed and swab tested and the JV is preparing the work program for an extended well test
- Additional exploration & appraisal prospects are also being matured



# Well Results to Date

#### Drilling

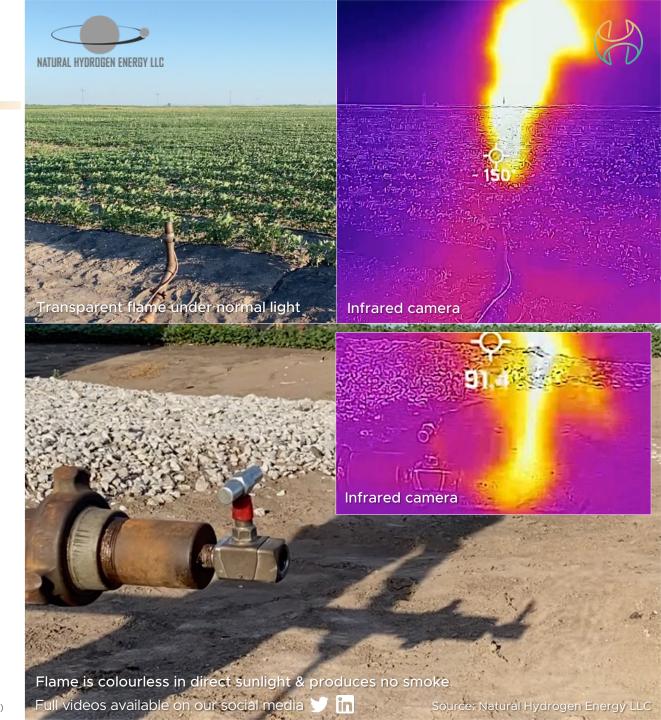
 Manual sampling of gas from the drilling mud yielded elevated hydrogen concentrations

#### Wireline Logging

 Post drilling, interpretation of log data highlighted two prospective zones with elevated hydrogen concentrations and increased rock porosity

#### Swab Testing

- Swabbing was used to remove water from the well, allowing gas to accumulate in the wellbore
- Composition of recorded gas samples was inconclusive future testing will engage specialists in the sampling, storing, handling and analysis of natural hydrogen
- However, gas evacuated from the annulus of the well burned with a clear flame in direct sunlight
- "The flare burnt with a transparent flame, interpreted to verify that hydrogen gas was predominant in the gas stream"<sup>1</sup>



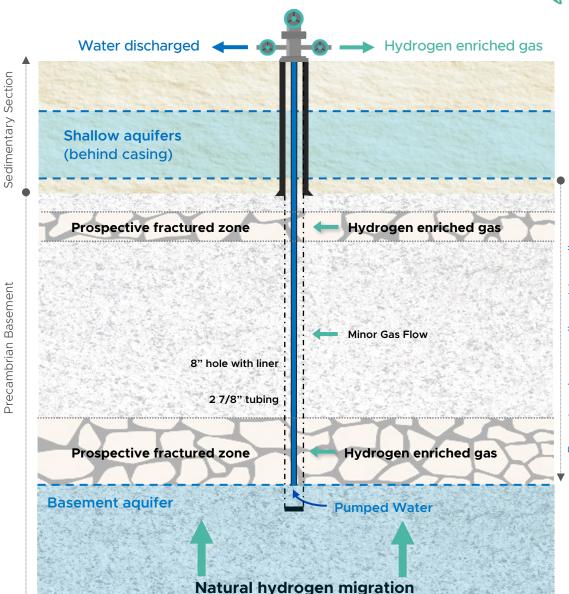
# Drill for oil? You mean drill into the ground

# to try and find oil... You're Crazy!

drilled the first productive oil well in the U.S (Mid 1800's)

# **Extended Well Test**

- HyTerra and its JV partner are preparing to commence an extended well test on the Hoarty NE3 well in Q1 2023
- The operation will involve dewatering the well with a pump to reduce hydrostatic pressure on prospective zones
- This is anticipated to allow hydrogen enriched gases in these zones to flow freely
- The purpose of the extended test is to record well & flow data over a period of approximately 3 months
- HyTerra seeks to understand the hydrogen production potential of the well by measuring parameters that include gas composition, pressure and flow rate
- Well data will be continuously measured on site and detailed gas analysis will be undertaken in a laboratory
- These data points can be used to establish a resource estimate



Simplified schematic of Hoarty NE3 Well Forecast well test outcome

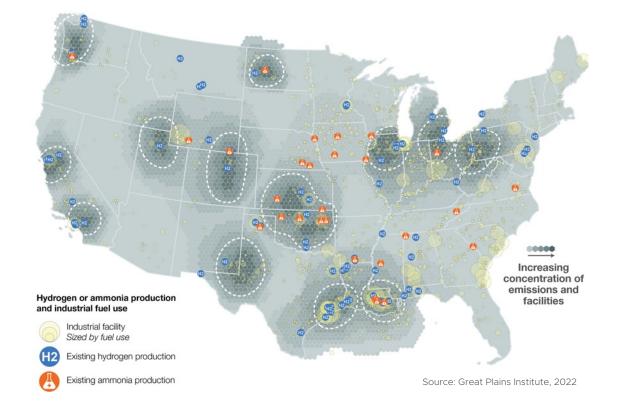
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# Path to Commercialisation

#### HyTerra is planning for the production and sales of natural hydrogen in 2024

- USA based operations provide the critical success factors required to build a new industry
- Our philosophy is to develop projects and production close to end-users (to minimise the handling, storage and transport of hydrogen)
- Midwest is a key area of focus for the growth of a hydrogen industry
- Natural hydrogen production could be scaled to meet growing market demand
- Initial focus is on intrastate industrial consumers expanding to larger regional hydrogen hubs with full scale field production
- Our 2024 target would position HyTerra as a global leader in natural hydrogen as well as the broader renewable hydrogen sector

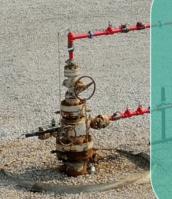


The US Department of Energy has announced it will fund an US\$8 billion program to develop regional hydrogen hubs across America

# Why Invest



Operations significantly more advanced than our Australian competitors with testing to commence on a world first hydrogen wildcat well



#### Technical Capability

Experienced team delivers decades of exploration and operational expertise with a propriety targeting methodology

#### Large Market Opportunity

Demand growth for hydrogen – Opportunity to develop a natural source targeting lower production costs than other forms

#### Modest Upfront Investment

No multi-billion dollar investments required, with well costs of ~ \$1M to \$5M

#### Accelerated Development

HyTerra is planning for production & sales in 2024

(Green hydrogen projects can take 5+ years to reach production)

#### Small Environmental Footprint

Small drill pad compared to the vast areas required for mega-scale solar and wind installations

#### Carbon Intensity

Targeting hydrogen enriched gases in the subsurface

# HYTERRA

国際部署

Annale



1000

#### Avon McIntyre

Executive Director & Chief Technical Officer



Luke Velterop Chief Operating Officer



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