Corporate Update | August 2024 | ASX: HYT

WHITE HYDROGEN

A WORLD OF OPPORTUNITY

Exploring for natural hydrogen and helium in the United States.

HYTERRA

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Competent Person Statement Information

The resources estimate information and supporting documentation referred to in this announcement was reviewed by HyTerra's Chief Technical Officer and Executive Director, Mr Avon McIntyre, who is a full-time employee of the Company. Mr McIntyre is a qualified oil and gas geologist with over 20 years of international experience. He has extensive experience of oil and gas exploration, appraisal, strategy development and reserve/resource estimation. Mr McIntyre has a BSc, MSc and PhD in geology from The University of Waikato, New Zealand and is a member of The Society of Petroleum Engineers (SPE). Mr McIntyre is qualified in accordance with the ASX Listing Rules and has consented to the form and context in which this statement appears.

A WORLD OF OPPORTUNITY

Nemaha Project, Kansas USA

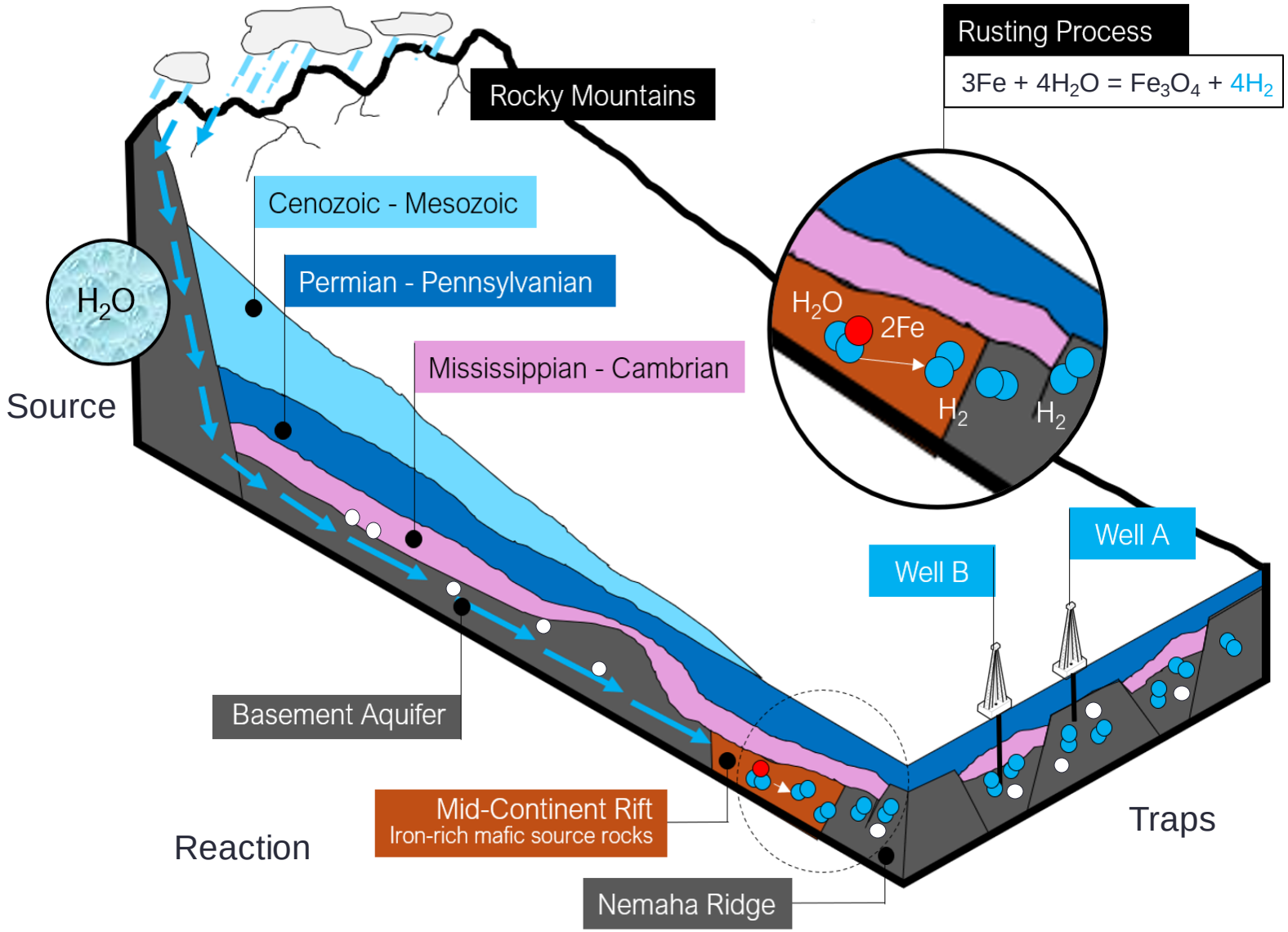
- Exploring for hydrogen and helium
- Fortescue acquires strategic interest and invests A$21.9M, subject to HyTerra shareholder approval
- Potential to triple exploration well count and leasing
- Historical well occurrences grading up to 92% hydrogen and 3% helium*
- Significant leverage on exploration success
- USA incentivising investment into hydrogen

*Guelard J, Beaumont V, Guyot F, Pillot D, Jezequel D, Ader M, et al. Natural H2 in Kansas: deep or shallow origin? Geochem Geophys Geosyst G3 2017; 18; Coveney, R. M. J., E. D. Goebel, E. J. Zeller, G. A. M. Dreschhoff, and E. E. Angino (1987), Serpentization and origin of hydrogen gas in Kansas, Am. Assoc. Pet. Geol. Bull., 71(1), 39–48. H_2 + He + N% reflects occurrences of published gas analyses recovered from the wellbore. Uncertainty remains on historic well operations, sampling techniques, and analyses. The values are considered up to a % of H_2 or He.

WHITE HYDROGEN
MADE BY NATURE

Cleaner, greener, and cheaper to produce using conventional oil and gas techniques, white hydrogen could revolutionise industry and economies worldwide

White hydrogen and helium is created naturally by the Earth#.



#Water from the Rocky Mountains seeps underground and flows eastward across the helium enriched Hugoton Basin. When the water reaches the iron-rich mafic source rocks in Kansas (Mid-Continental Rift), the hydrogen is then split from this water. Then, the molecules migrate upwards into various traps along the Nemaha Ridge. Here, both hydrogen and helium occurrences were recovered in wellbores.

WHITE HYDROGEN COULD HAVE THE LOWEST PRODUCTION COSTS AND CARBON EMISSIONS

[#] Modified from https://koloma.com/geologic-hydrogen/. Values obtained from 2022 GREET Model. Carbon intensity of hydrogen production for natural hydrogen was calculated based on Brandt, A. Greenhouse Gas Intensity of Geologic Hydrogen Produced from Subsurface Deposits. 2023. EarthArXiv preprint. https://doi.org/10.31223/X5HM1N". Calculation maintained consistency with GREET methodology. https://gh2.org/our-initiatives/gh2-green-hydrogen-standard#:~:text=Green%20hydrogen%20is%20hydrogen%20produced,a%2012%2Dmonth%20period

Grey Hydrogen

Made from natural gas.
H_2 separated from CH_4.
Carbon emissions not captured.

~9.0kg CO_2e per kg H_2[#]

White Hydrogen

Naturally occurring, found in the subsurface.
Hydrogen made underground.

<1.0kg CO_2e per kg H_2*

Blue Hydrogen

Made from natural gas.
H_2 separated from CH_4.
Carbon emissions captured.

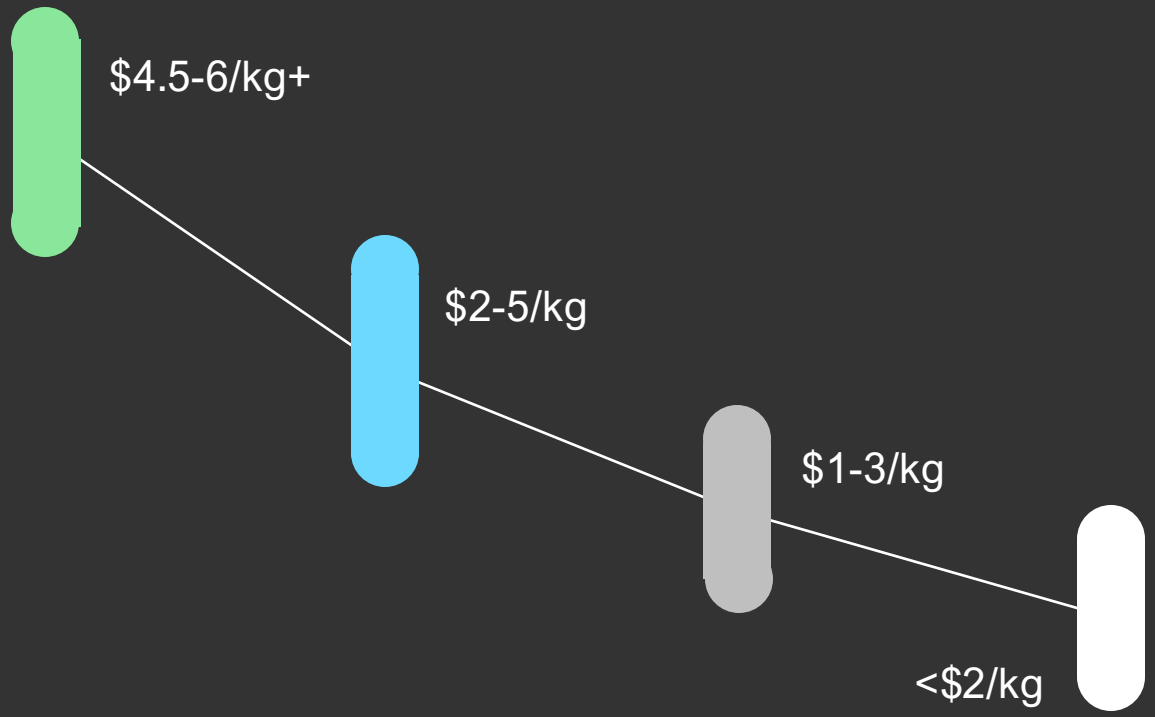
~3.0kg CO_2e per kg H_2[#]

Green Hydrogen

Made by using renewable energy to electrolyse water.
H_2 separated from H_2O.
Production is expensive.

<1.0 kg CO_2e per kg H_2[#]

Hydrogen production cost ranges 2022-2023^, $US



*Geologic hydrogen (white) has a carbon intensity of 0.37 kg CO_2e per kilogram of hydrogen when including the embodied emissions of the well casing and hydrogen emissions, according to a published paper in Joule by Stanford's Dr. Adam Brandt.

^ Numerous ranges of production costs exist due to changing variables such as, but not limited to, technology advancement, existing infrastructure, feedstock price etc

Source: Ranges sourced from BloombergNEF, IEA, Lazard, IRENA. 'At the dawn of a hydrogen era', Clota Varde Feb 2023,

HYDROGEN IS THE WORLD'S WONDER ELEMENT

Today, hydrogen is used to refine petrochemicals and produce ammonia and methanol

Tomorrow, it will be a low-carbon fuel option for transportation, manufacturing, and used to generate electricity

The demand for hydrogen reached an estimated 87 million tonnes per annum (Mtpa) in 2020 and is expected to grow as much as 580 Mtpa by 2050[1]

Current uses of hydrogen

Petrochemicals and refining

Fertiliser/ammonia production

Methanol production

Food production

Emerging uses of hydrogen

Transport

Power generation

Heat source alternatives

Steel and cement production

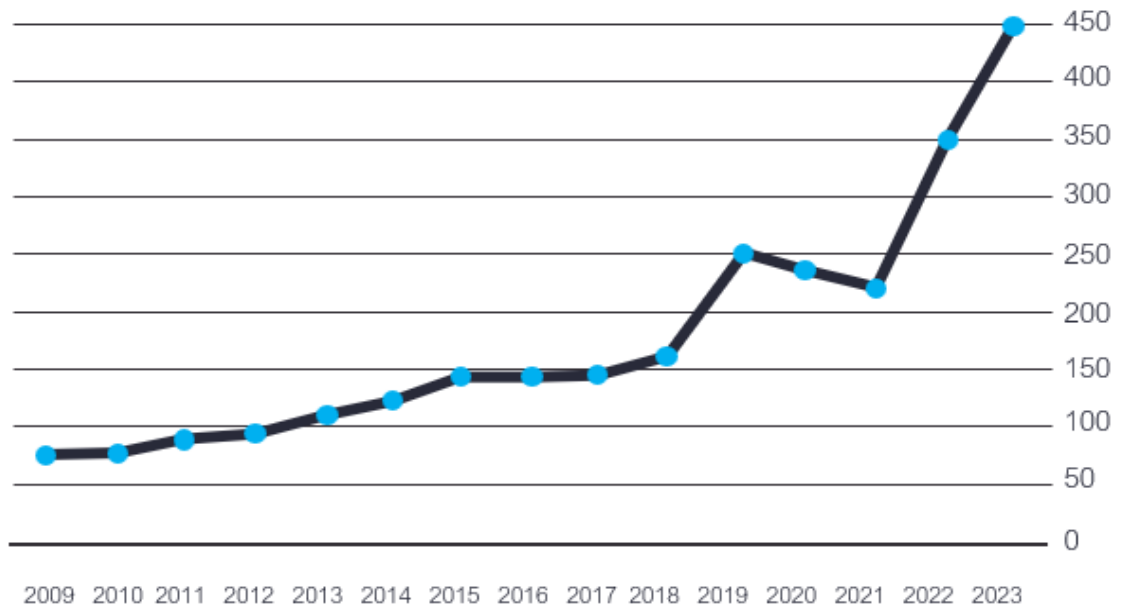
[1]Source: https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2023-hydrogen-outlook

HELIUM IN THE USA HAS AN UPWARD TRENDING PRICE

HyTerra is high-grading areas of significant helium potential

- Helium is an irreplaceable input for many important technologies, with significant demand from manufacturers of semi-conductors to MRI's
- The economic threshold for helium-rich fields in U.S. is concentrations >0.3%#
- Helium pricing has been on an upward trend as a result of declining volumes from US BLM storage facility and growing demand for helium globally
- Liquid helium sells at up to 50 times the price of LNG^. Current prices are approx. USD450/ thousand standard cubic feet

Historical price of bulk liquid helium
US$/thousand standard cubic feet (Mscf)



Source: Kornbluth Consulting LLC

#https://www.sciencedirect.com/science/article/pii/S0009254122000845
^https://mining.com.au/the-rise-of-helium-a-critical-raw-material-and-not-just-a-party-balloon-filler/

HYTERRA
MID-WEST, USA

Exploring white hydrogen and helium resources near major industrial hubs.

- Nemaha Project exploration acreage covers over 12,840 acres.
- 10+ occurrences within the Nemaha region, some up to 92% hydrogen and 3% helium*.
- Potential off-takers nearby include ammonia producers and petrochemical plants.
- Off-takers connected via existing transport infrastructure.

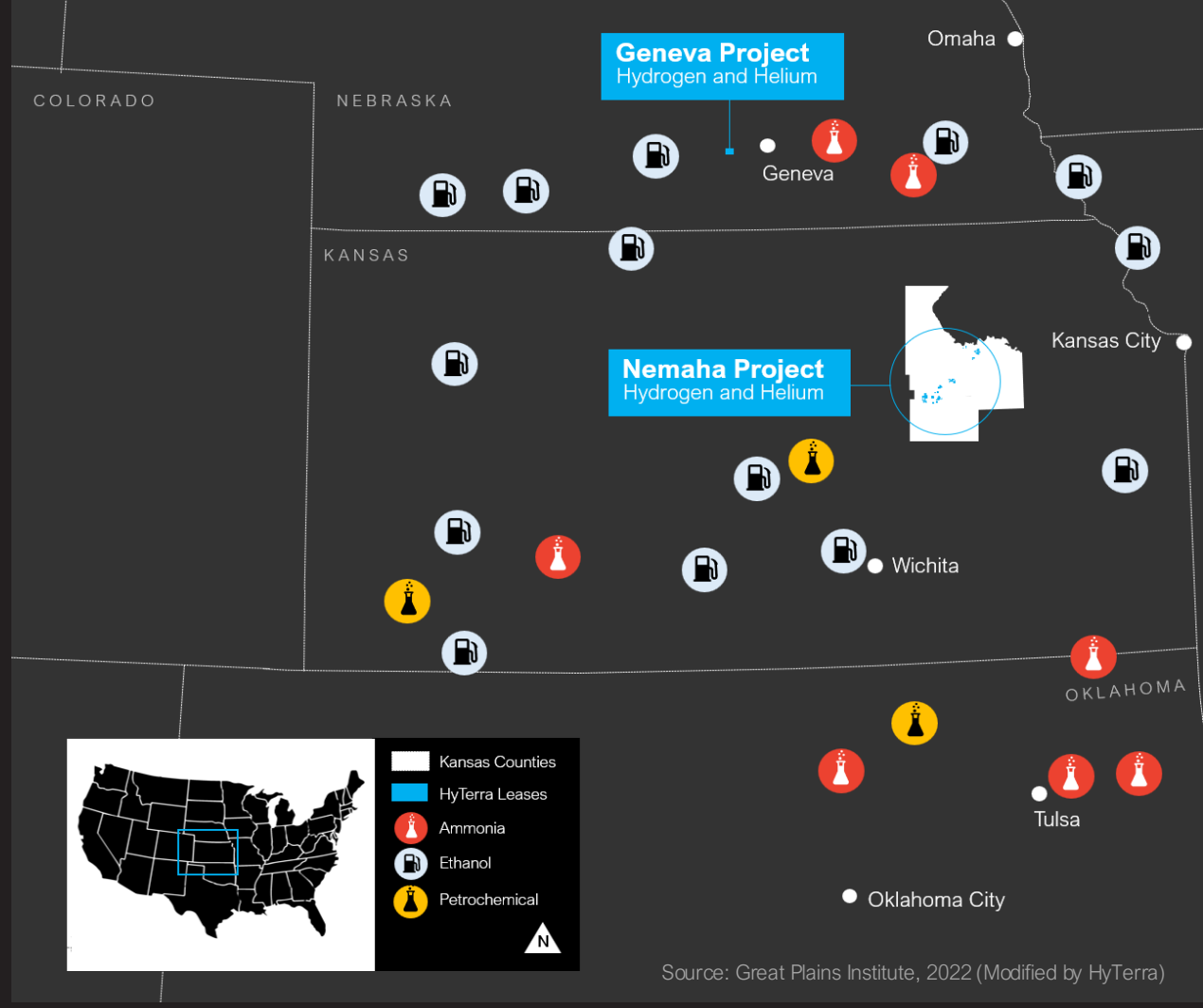
*Guelard J, Beaumont V, Guyot F, Pillot D, Jezequel D, Ader M, et al. Natural H2 in Kansas: deep or shallow origin? Geochem Geophys Geosyst G3 2017; 18; Coveney, R. M. J., E. D. Goebel, E. J. Zeller, G. A. M. Dreschhoff, and E. E. Angino (1987), Serpentization and origin of hydrogen gas in Kansas, Am. Assoc. Pet. Geol. Bull., 71(1), 39–48. H_2 + He + N% reflects occurrences of published gas analyses recovered from the wellbore. Uncertainty remains on historic well operations, sampling techniques, and analyses. The values are considered up to a % of H_2 or He.

Aggregated Net Recoverable Prospective Hydrogen Volumes (bcf)#

P90	P50	P10
49.0	**105.5**	**251.7**

Aggregated Net Recoverable Prospective Helium Volumes (bcf)#

P90	P50	P10
0.05	**0.59**	**2.04**



Source: Great Plains Institute, 2022 (Modified by HyTerra)

#Cautionary Statement: The estimated quantities of natural hydrogen and helium that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal, and evaluation is required to determine the existence of a significant quantity of potentially recoverable natural hydrogen and helium. The Prospective Resource estimates are quoted on an unrisked basis and are aggregated arithmetically by category. Please refer to the ASX release dated 13 December 2023 and June 30th Quarterly Activities report for full details with respect to the Prospective Resource estimate, associated risking and Cautionary Statement.

NEMAHA PROJECT
KANSAS, USA

Acreage is 100% owned and operated by HyTerra

Acreage is geologically contiguous to several historic well occurrences and connected via existing transport infrastructure

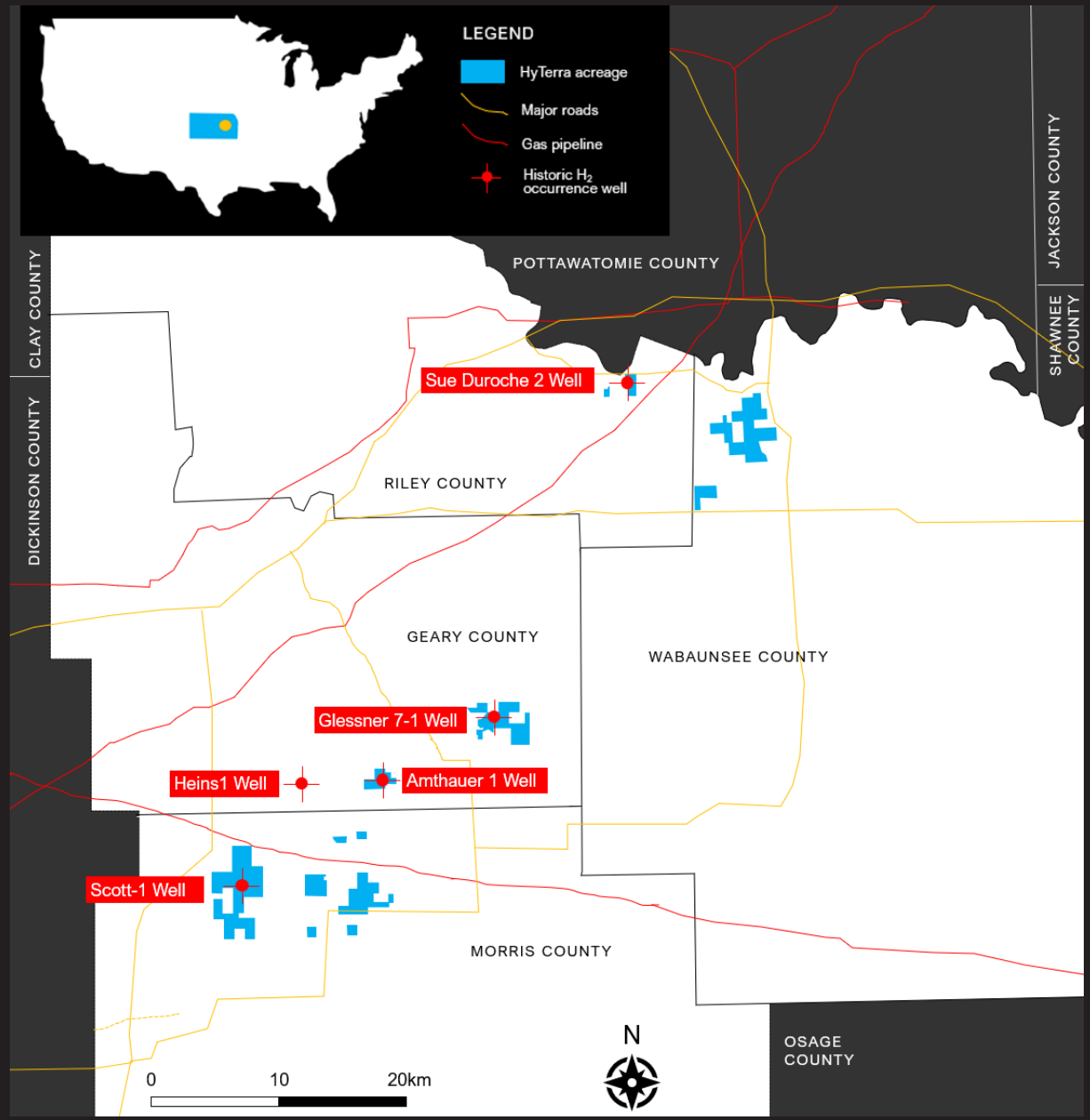
Morris County
6,665 acres

Riley County
341 acres

Wabaunsee County
3,113 acres

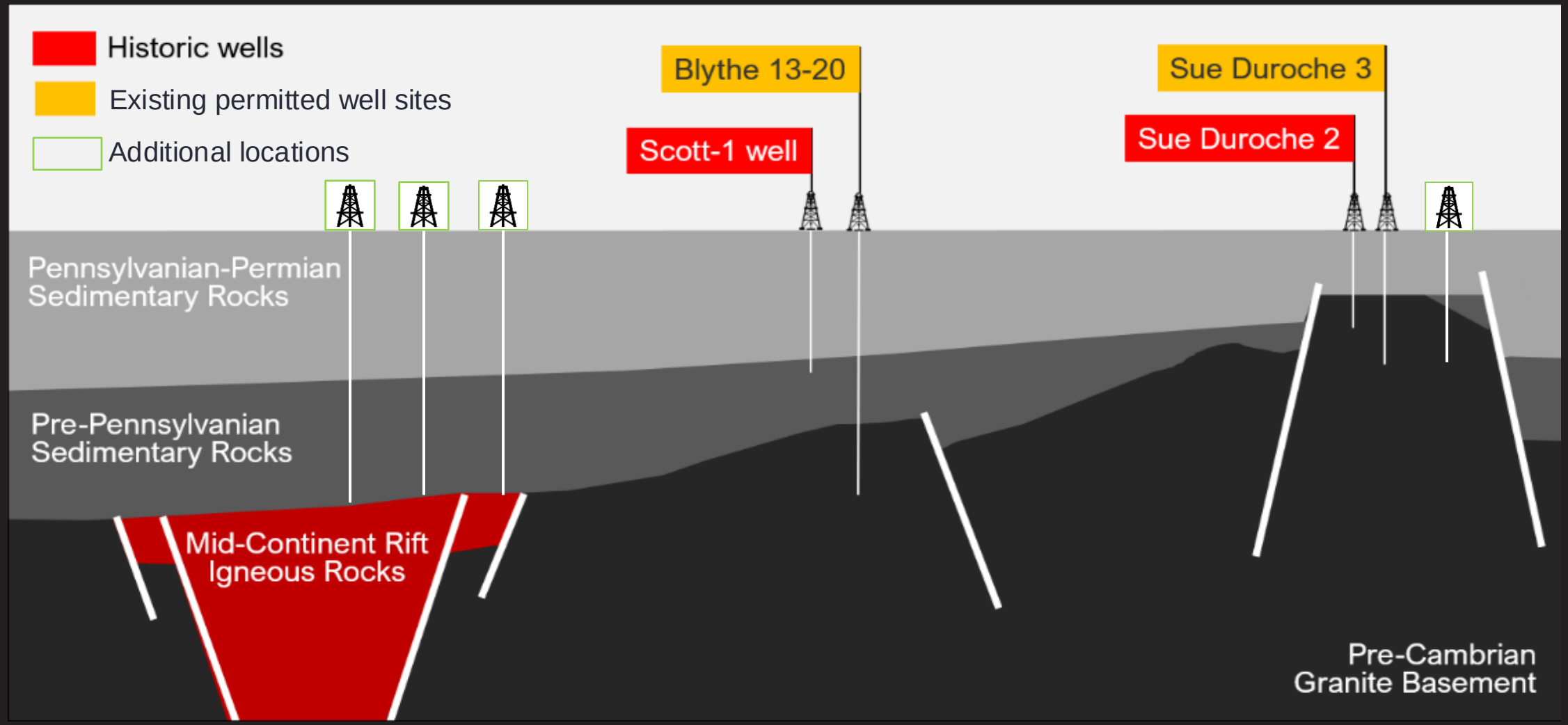
Geary County
2,560 acres

Marshall County
160 acres



NEMAHA PROJECT
DRILLING PORTFOLIO

Range of shallow to deeper targets



NEMAHA PROJECT
PERMITTING UNDERWAY

Two well sites nearby historic wells are planned to be drilled significantly deeper

Sue Duroche-2*
2009

Hydrogen <92%

Helium <3%

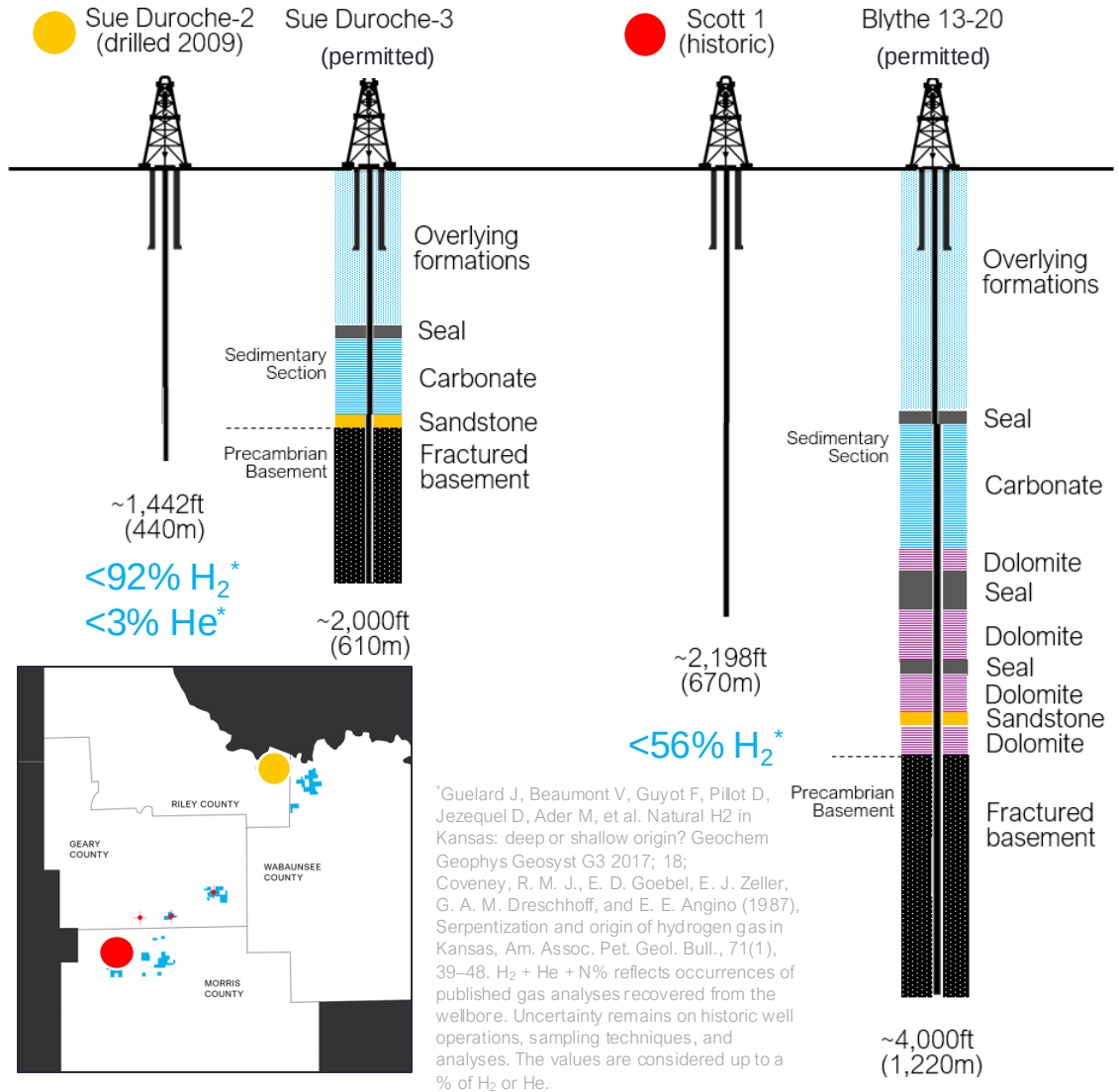
Total depth
1,441ft (440m)

Scott-1*
1982

Hydrogen <56%

Total depth
2,198ft (670m)

Two examples. Final well selection is made after additional leasing and permitting is completed



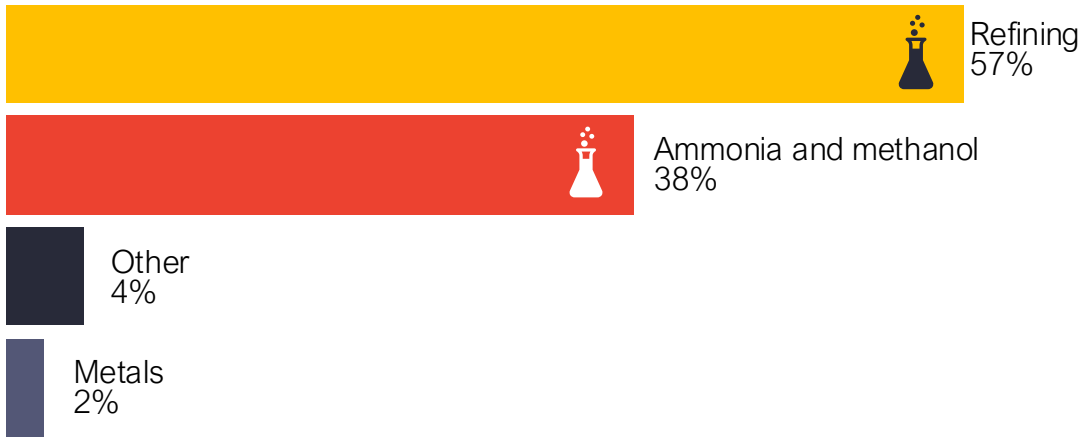
*Guelard J, Beaumont V, Guyot F, Pillot D, Jezequel D, Ader M, et al. Natural H2 in Kansas: deep or shallow origin? Geochem Geophys Geosyst G3 2017; 18; Coveney, R. M. J., E. D. Goebel, E. J. Zeller, G. A. M. Dreschhoff, and E. E. Angino (1987), Serpentization and origin of hydrogen gas in Kansas, Am. Assoc. Pet. Geol. Bull., 71(1), 39–48. H_2 + He + N% reflects occurrences of published gas analyses recovered from the wellbore. Uncertainty remains on historic well operations, sampling techniques, and analyses. The values are considered up to a % of H_2 or He.

NEMAHA PROJECT
MID-WEST, USA

Mid-West is a very important location in the United States for ammonia and fertiliser production.

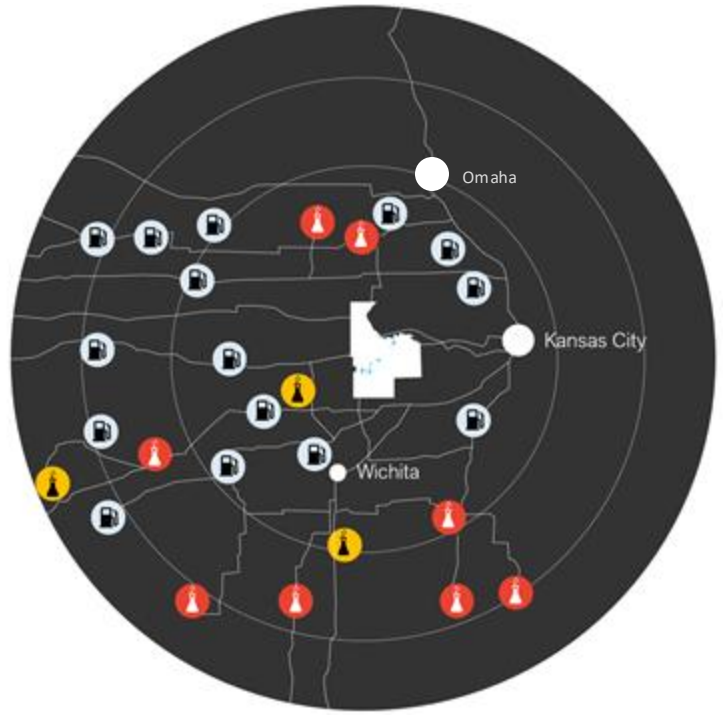
US Hydrogen Market today
Current consumption in the US H_2 market, percent

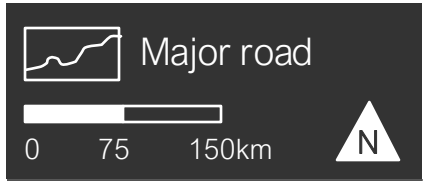
- The majority of hydrogen today is used in petrochemicals, oil refining, ammonia production, and methanol production.
- Over 35% of US ammonia is produced in Kansas and neighbouring states*.



Source: https://www.statista.com/statistics/1179429/us-hydrogen-consumption-share-by-sector/

Industries near Nemaha Project
Within 250km#

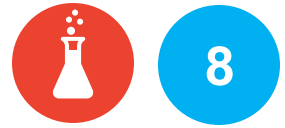




Ethanol

Petrochemical/oil refining

Ammonia plant

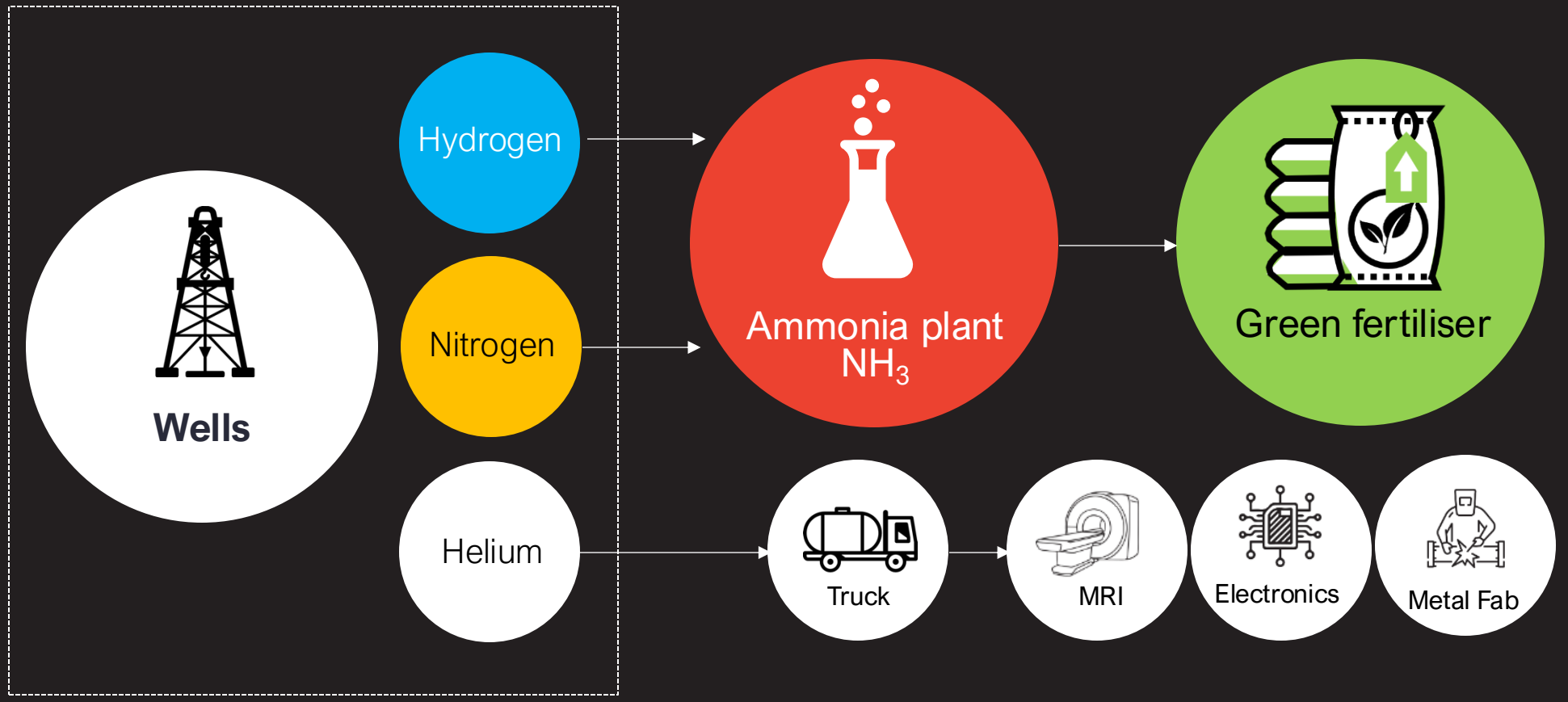


* Source: https://www.statista.com/statistics/1266392/ammonia-plant-capacities-united-states/

#Source: Great Plains Institute, 2022 (Modified by HyTerra)

A VALUE CHAIN
HYDROGEN AND HELIUM

Several local commercialization pathways to develop



2023 global ammonia market[1]

~US$80B

2032 forecast of global ammonia market[1]

~US$120B

2027 forecast of global helium market[2]

~US$6.5B

[1]https://www.statista.com/statistics/1391399/global-ammonia-market-size/
[2]https://www.statista.com/statistics/1411790/market-value-the-helium-industry-worldwide/

US GOVERNMENT RECOGNISES WHITE HYDROGEN POTENTIAL.

US Senate holds first congressional hearing 28 February 2024 on white hydrogen

Hydrogen incentives/funding announced:

- US$1 billion for a clean hydrogen electrolysis research.[1]
- US$500 million for clean hydrogen manufacturing and recycling research and development activities.[1]
- $8 billion for regional clean hydrogen hubs.[2]
- The Inflation Reduction Act provides a Hydrogen Production Tax Credit to incentivise the production of clean hydrogen in the US. It creates a new 10-year incentive for clean hydrogen of up to $3.00/kilogram. The level of the credit provided is based on carbon intensity, up to a maximum of four kilograms of CO_2-equivalent per kilogram of H_2.[3]
- US Department of Energy (DOE) announced up to $20 million in funding to develop technologies that can stimulate the generation of hydrogen within the subsurface at the lowest cost and environmental impact.[4]

[1] https://www.energy.gov/articles/biden-harris-administration-releases-first-ever-national-clean-hydrogen-strategy-and
[2] https://www.energy.gov/articles/biden-harris-administration-announces-7-billion-americas-first-clean-hydrogen-hubs-driving
[3] https://www.energy.gov/eere/fuelcells/financial-incentives-hydrogen-and-fuel-cell-projects
[4] https://arpa-e.energy.gov/news-and-media/press-releases/us-department-energy-announces-20-million-16-projects-spearheading

The potential for geologic hydrogen represents a paradigm shift in the way we think about hydrogen as an energy source.

Dr Evelyn Wang, Director of the Department of Energy's Advanced Research Projects Agency – Energy (ARPA-E).

28 February 2024, Senate Committee on Energy & Natural Resources

https://www.energy.senate.gov/services/files/A4A4CFF6-A4E4-4D07-A39A-F046322266F5

HYTERRA LTD
WORK PROGRAM

Strong news flow ahead from drilling campaign results and rapid growth of hydrogen and helium resources.

Portfolio	Current Workplan	Fortescue fully funded Workplan (subject to shareholder approval)
Nemaha	Continued leasing	Significant increase in leasing (~3x)
	Acquire geophysical survey	Acquire expanded geophysical survey area
	Drilling of 2 exploration wells	Drilling of 6 exploration wells
Geneva	Venture decision on Project	Venture decision on Project
Growth	Screening new opportunities	Joint screening of new opportunities

BOARD & MANAGMENT

HyTerra's executive team has proven experience in developing oil and gas projects around the world.

Benjamin Mee
Executive Director

Benjamin has over 20 years' experience in international oil and gas with a successful track record in project delivery from exploration, through to appraisal, development and production both onshore and offshore in various global locations. Most recently he held the title of Exploration Manager Deepwater Africa for Shell, during which time significant petroleum discoveries were made.

Dr Avon McIntyre
Executive Director & CTO

Avon has more than 20 years' experience in minerals and oil and gas exploration industries, with roles in government, service and operating companies. He worked for Shell in Australia and internationally in new ventures and new energies from 2008 to 2021, during which time he developed an interest in natural hydrogen and helium occurrences.

Russell Brimage
Non-Executive Chairman

Russell has over 40 years' experience in the upstream oil and gas industry, ranging from public listed oil & gas companies to the service industry – both onshore and offshore. He has served in the capacity of Operations Manager and CEO on several ASX listed entities since 1997. Currently he is a Non-Executive Director of Lion Energy (ASX: LIO).

Dr Jeff Goodall
Principal Geologist

Jeff has 30 years' experience in both oil and gas exploration and development, holding senior geological roles in several major exploration companies in both Australia and Indonesia. From 2014 Jeff held the role of chief geologist role at Carnarvon Energy, being heavily involved in the numerous Bedout Basin oil and gas discoveries. Jeff was also the owner and director of MGPaleo until 2020.

Dr Dirk Smit
Consulting Geophysicist

Dirk has over 30 years in Shell working in various roles including Chief Geophysicist for Shell UK, and Vice President Exploration and Upstream Technology. From 2015 as VP Research Strategy, his work shifted to "systems thinking and engineering" aspects of the energy transition to a net-zero emission system and became Shell's first Chief Scientist in 2019.

CORPORATE OVERVIEW

Share price

A$0.031

As at 26 August 2024
52 week high $0.052, low $0.016

Market capitalisation

A$30.23m

As at 26 August 2024

Top 20 ownership

41.6%

As at 26 August 2024

Shares on issue

975.3m

As at 26 August 2024
44 million escrowed

Cash

A$5.53m

As at 30 June 2024

Options and Performance Rights

461m

As at 26 August 2024
32.15 million escrowed

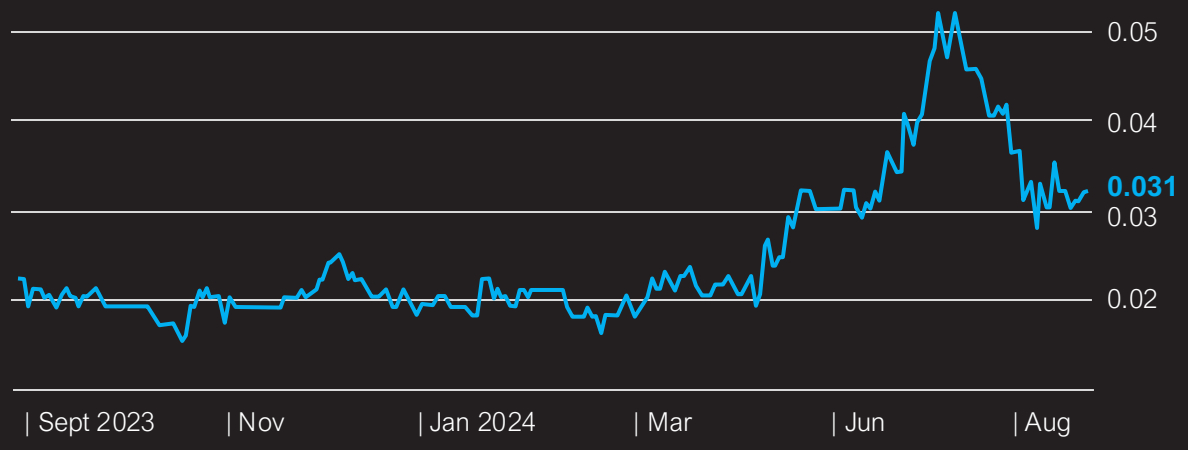
Debt

Nil

As at 30 June 2024

ASX Share price performance ($A)

12 months to 26 August 2024



A WORLD OF OPPORTUNITY.

HyTerra is advancing hydrogen and helium projects in the heart of an established agriculture and manufacturing hub

01 Explore to develop natural hydrogen and helium resources near major industrial hubs

02 USA is incentivising investment into cleaner energy with clear need for hydrogen

03 Fortescue will fully-fund an expanded exploration of the Nemaha Project, subject to HyTerra shareholder approval

04 Expected ramp up in news-flow based on leasing and drilling campaign results

05 Experienced leadership developing onshore gas fields across the world

HYTERRA

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APPENDICES

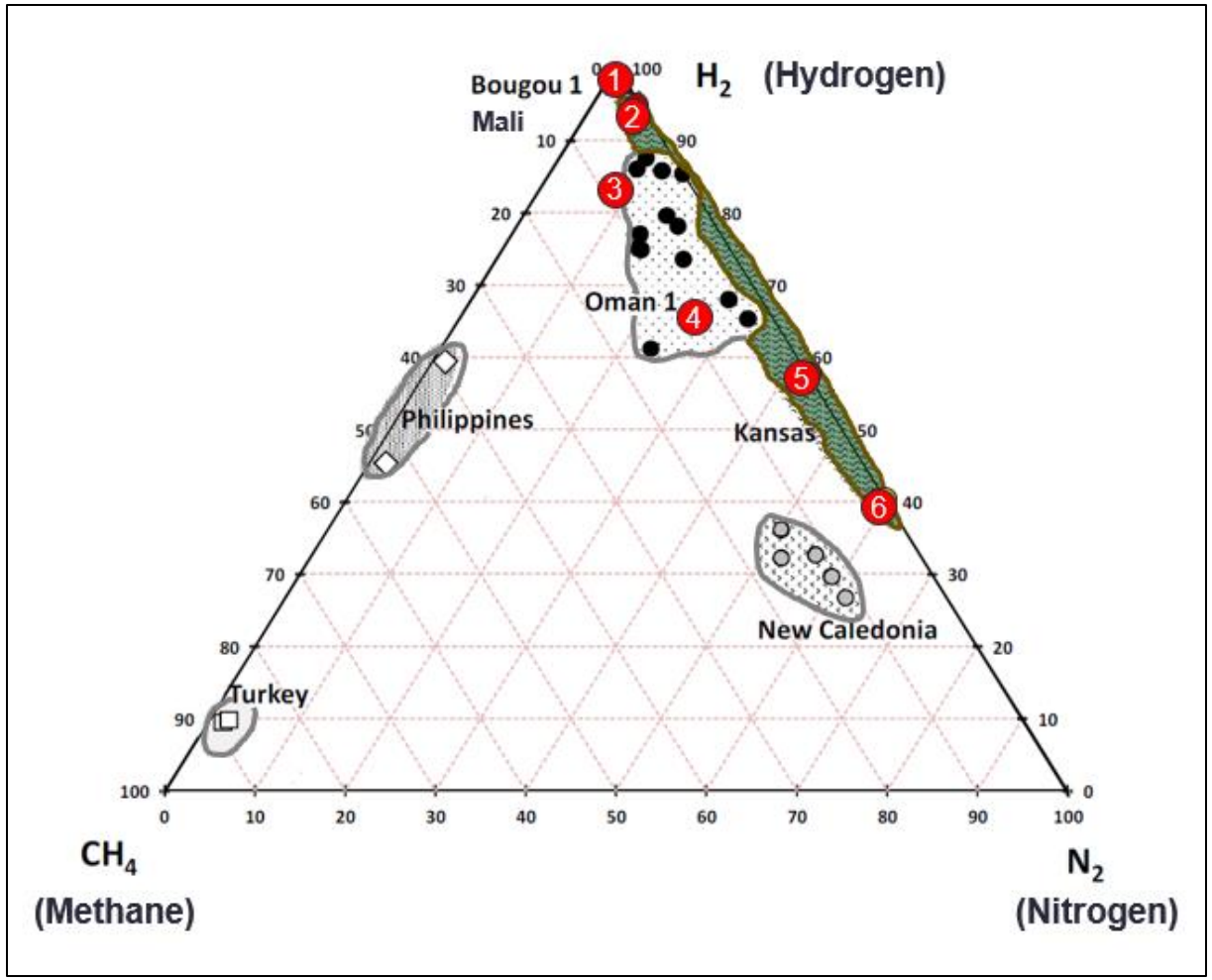
A. Kansas hydrogen occurrences are globally competitive

B. Geneva Project, Nebraska USA

C. White hydrogen. Demand accelerating

KANSAS HYDROGEN OCCURRENCES ARE GLOBALLY COMPETITIVE

These hydrogen molecules are advantaged due to negligible carbon gases present.



#	Well Name	Location	Permit Holder
1	Bougou-1	Mali, Africa	Hydroma
2	Sue Duroche-2	Kansas, USA	Hyterra
3	Minlaton Bore (Ramsay-1),	South Australia	Gold Hydrogen
4	American Beach Bore	South Australia	Gold Hydrogen
5	Scott-1	Kansas, USA	HyTerra
6	Heins-1	Kansas, USA	*unheld*

Modified from Prinzhofer, A, Cheick Sidy Tahara Ciss, C, Boubacar Diallo, A, Discovery of a large accumulation of natural hydrogen in Bourakebougou (Mali), International Journal of Hydrogen Energy 43 (2018), 19315-19326.

GENEVA PROJECT
NEBRASKA, USA

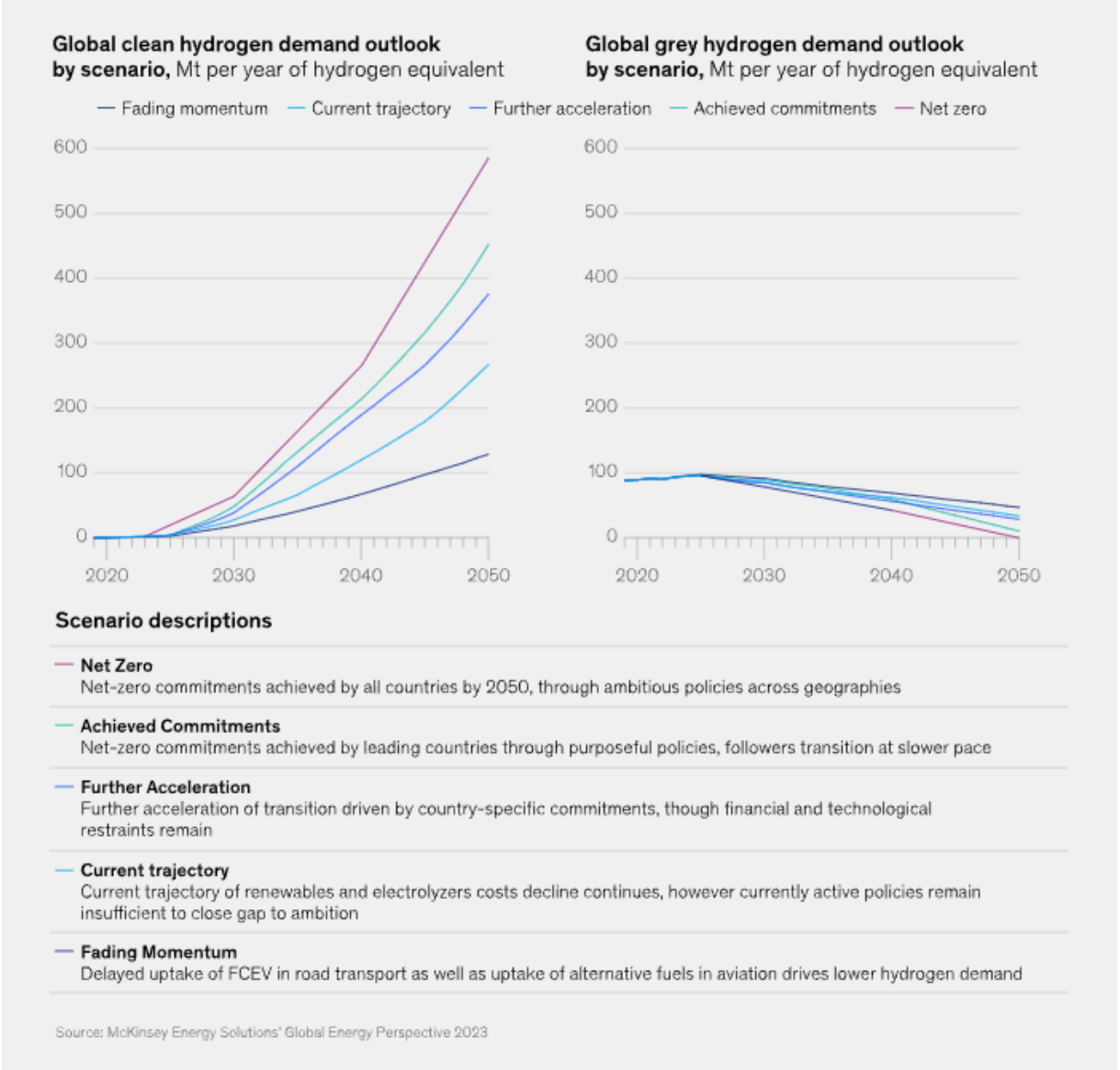
HyTerra has a 16% interest (and the right to earn up to 51%) in a Joint Development Agreement with Natural Hydrogen Energy LLC

- Wildcat well specifically targeting white hydrogen (Hoarty NE3) in Geneva, Nebraska.
- Well is situated on margin of mid-continental rift and was drilled to 11,200ft (3,400m)
- Elevated hydrogen and helium was detected during drilling and gas was flared during swab testing.
- Joint development partners are awaiting the provision of key data and metrics to make a joint decision on flow testing operations and the work program going forward.

WHITE HYDROGEN
DEMAND ACCELERATING

Clean hydrogen demand is expected to reach 125-585 million tons per year by 2050*

- Nearly all hydrogen consumed today is grey hydrogen (approx. 90 million tons per annum), using fossil fuel-based steam methane reforming.
- However, grey hydrogen demand is projected to decline as demand for clean hydrogen rises.
- McKinsey predicts clean hydrogen demand could account for up to 73 to 100 percent of total hydrogen demand by 2050.
- After 2025, nearly all new hydrogen production coming online is expected to be clean hydrogen.



*Source: https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2023-hydrogen-outlook