TSXV:**HDRO** | OTCQB:**HNATF** | FRA:**83W**

PRIMARY H2

# Sustainable, Natural Hydrogen

INVESTOR PRESENTATION

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The scientific and technical information has been reviewed and approved by Christopher Michael Longton, AIPG CPG #11958, VP Exploration, a "qualified person" within the meaning of National Instrument 43-101 — Standards of Disclosure for Mineral Projects.

# WHY HYDROGEN?

## A Crucial Storage Medium For The Clean Energy Future

### Capable of being stored as a liquid or gas and then burned or converted into electricity (through a fuel cell) – all while producing **no greenhouse gas emissions**[1]

Hydrogen can be combined with carbon from CO2 to produce hydrocarbons and **virtually *any* molecule**:

- It can be used to produce ammonia, which can be used as **feedstock for fertilizers** (the majority of current use) or as **fuel for new applications** such as shipping
- It can also be used to produce methanol, synthetic fuels, or even as a reducing agent to replace coal in iron production

Once it is converted to these commodities, the energy density is increased further, making **long-distance transport and long-term storage cost-effective**:

- Thus, the conversion to hydrogen derivatives effectively **unlocks a global renewable energy trade**
- Liquid Ammonia, for example, has almost **eight times** the energy density (MJ/m3) of lithium-ion batteries and more than **20 times** the gravimetric energy density (MJ/kg)[2]

1. https://www.nytimes.com/2023/10/17/climate/the-hope-and-hype-of-hydrogen.html
2. https://www.irena.org/Energy-Transition/Technology/Hydrogen

# A GLOBAL WHITE GOLD RUSH

NATIONAL ACADEMIES Sciences Engineering Medicine

## ACCELERATING DECARBONIZATION OF THE U.S. ENERGY SYSTEM

"The US will need on the order of 56 to 133 MMt of clean hydrogen by mid-century—roughly 5 to 15 times the amount of current hydrogen production in the US."

## Bill Gates-backed startup says a global gold rush for buried hydrogen is picking up momentum

PUBLISHED THU, SEP 12 2024•1:11 AM EDT | UPDATED THU, SEP 12 2024•2:29 AM EDT

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Sam Meredith
@IN/SAMUELMEREDITH
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CNBC

U.S. DEPARTMENT OF ENERGY

## Biden-Harris Administration Announces $7 Billion For America's First Clean Hydrogen Hubs

## US grants $750 million for hydrogen projects across 24 states

REUTERS

## The Future of Hydrogen

IEA

"Hydrogen is today enjoying unprecedented momentum. The world should not miss this unique chance to make hydrogen an important part of our clean and secure energy future."



1. https://www.cnbc.com/2024/09/12/bill-gates-backed-startup-on-the-global-gold-rush-for-buried-hydrogen.html
2. https://www.reuters.com/business/energy/us-grants-750-million-hydrogen-projects-across-24-states-2024-03-13
3. https://www.energy.gov/articles/biden-harris-administration-announces-7-billion-americas-first-clean-hydrogen-hubs-driving
4. https://doi.org/10.17226/25932
5. https://www.iea.org/reports/the-future-of-hydrogen

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# HYDROGEN SOURCES

Current hydrogen supply is both costly and/or dirty but discovery of natural hydrogen reserves could be the solution:

## GREY/BLUE HYDROGEN

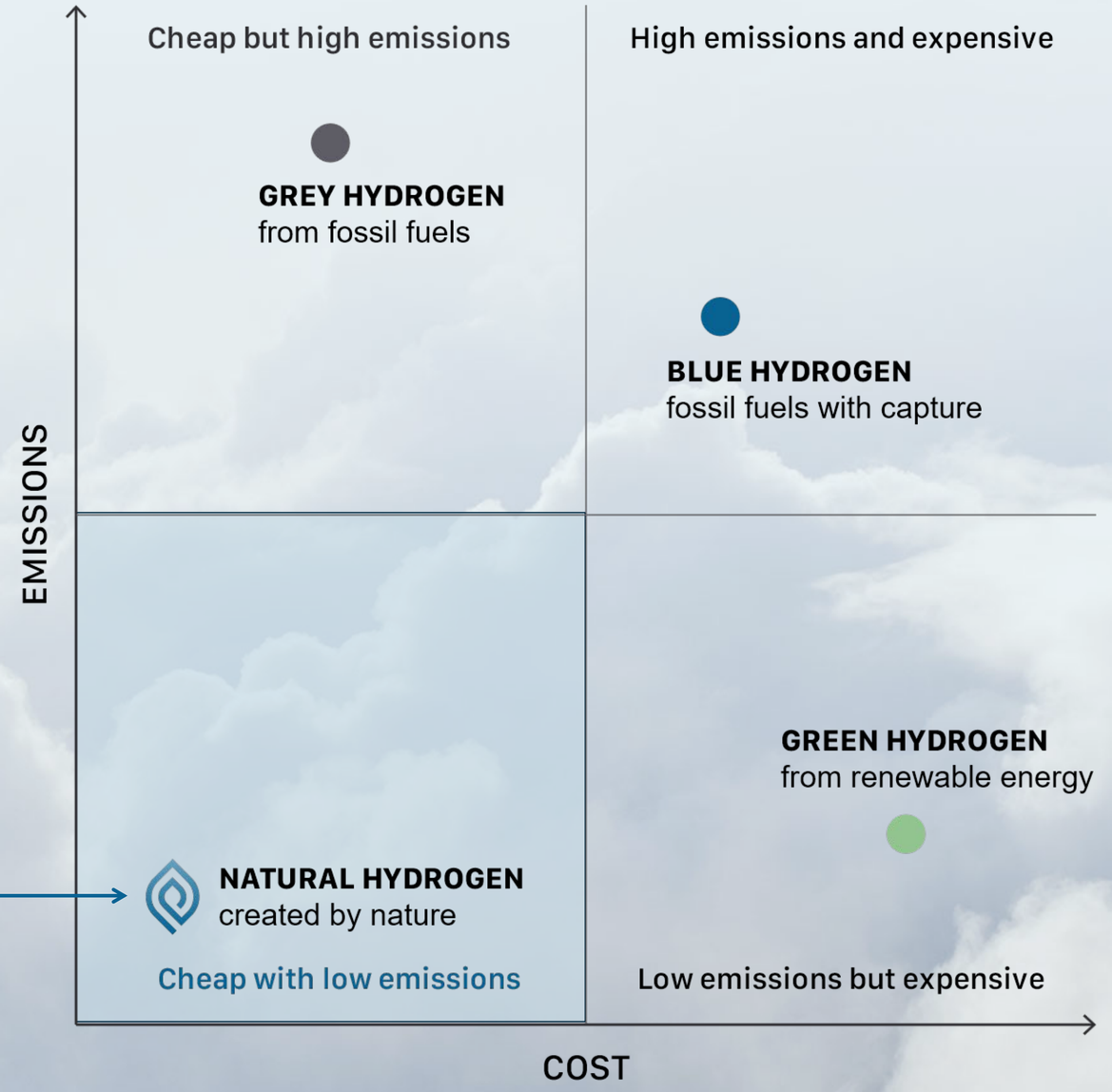
Produced from fossil fuels **accounts for ~95% of production and costs**[1] **~$2/kg**[2]

## GREEN HYDROGEN

Produced from renewable electricity via electrolysis **costs 3x higher (vs. grey hydrogen)**[2]

## NATURAL HYDROGEN

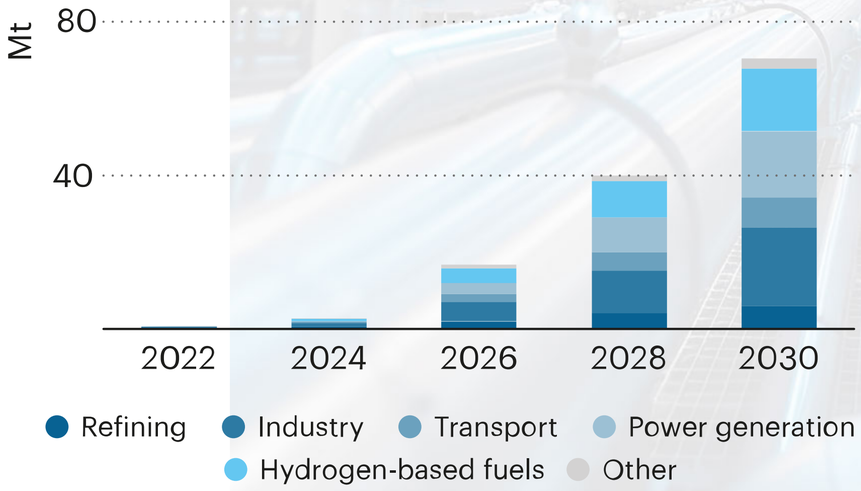
**Produced at a cost as low as $0.5-1/kg** before taking into account subsidies or production tax credits which go up to $3/kg[2]

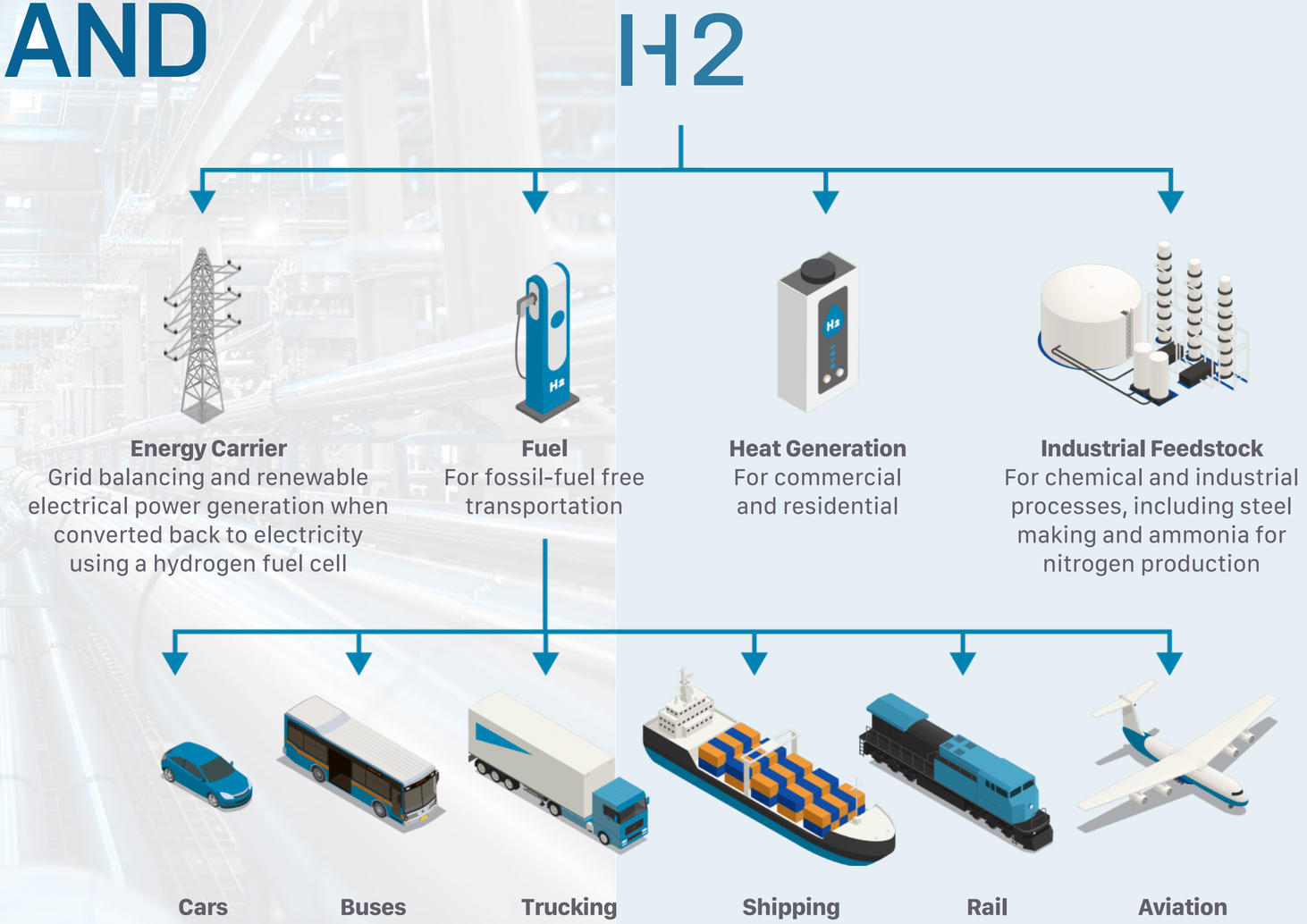



1. https://climate.mit.edu/explainers/hydrogen#:~:text=Unlike%20most%20fuels%2C%20hydrogen%20does,different%20parts%20of%20our%20economy
2. https://www.rystadenergy.com/news/white-gold-rush-pursuit-natural-hydrogen

# HYDROGEN DEMAND

Hydrogen demand is poised to surge as countries transition towards greener energy solutions, driven by increasing investments in hydrogen fuel technologies and a growing focus on decarbonizing industries and transportation.



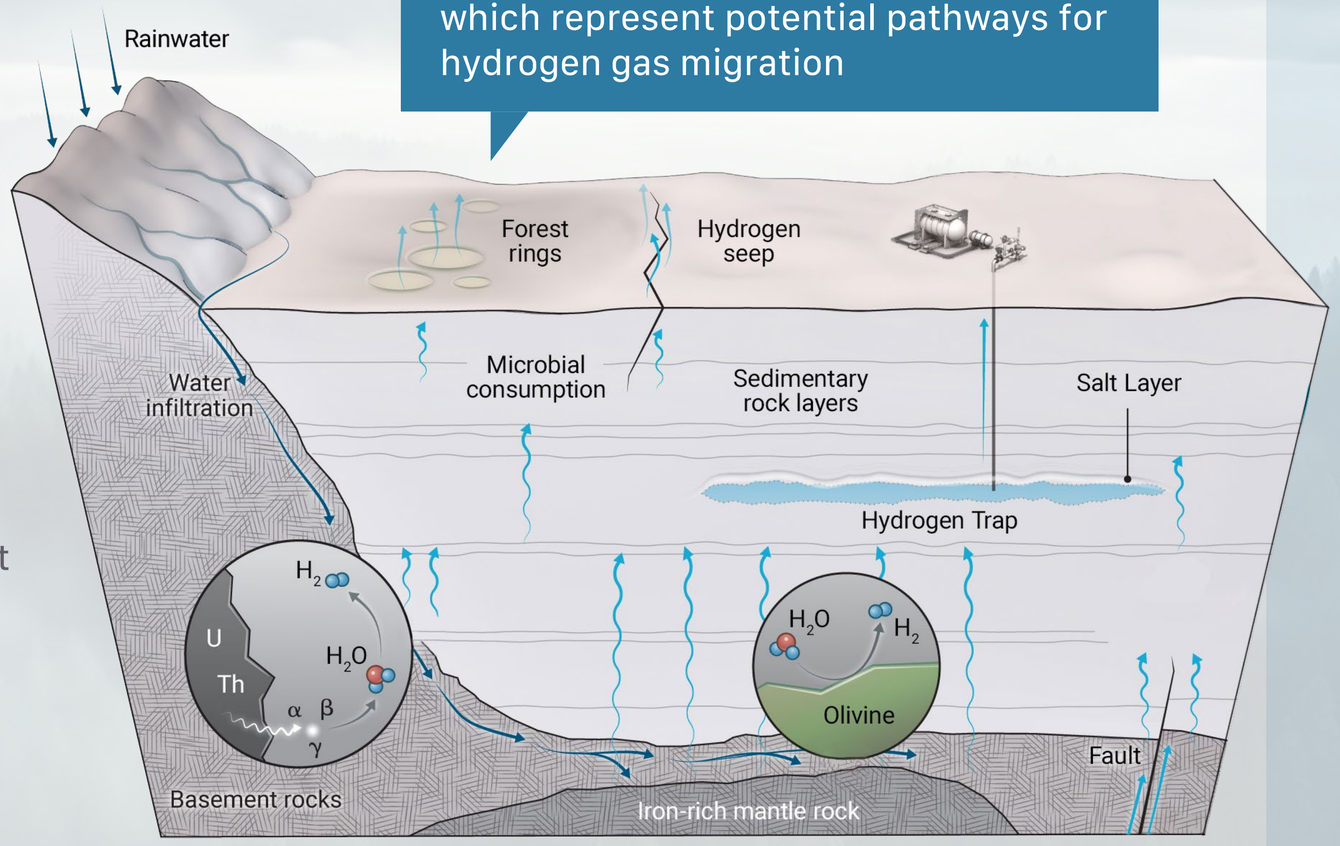

*Source: https://www.iea.org/reports/hydrogen-2156*

PRIMARY $H_2$

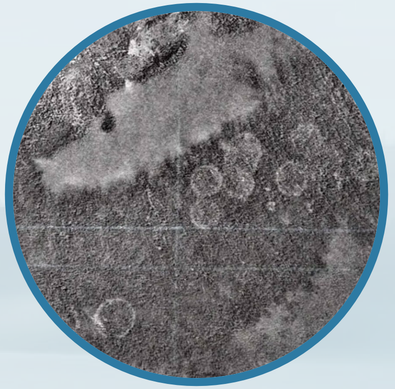
# PRIMARY HYDROGEN GENERATION SOURCES

- **SERPENTINIZATION**: the interaction of water with iron-rich rocks resulting in the generation of H2 as a by-product. Thes rocks include crystalline basement rocks (i.e. mafic and ultramafic rocks), granitic rocks, and sedimentary rocks (i.e. shales).
- **RADIOLYSIS**: the interaction of water with trace radioactive elements (i.e. thorium and uranium) contained within the rocks which leads to the generation of H2 as a by-product
- **DEEP-SEATED**: hydrogen generated from the Earth's core or mantle that may travel through tectonic plate boundaries and faults (such as volcanic degassing detected during or after eruptions)

Surficial detection includes the observation of subcircular depressions, which represent potential pathways for hydrogen gas migration




*Source: science.org/content/article/hidden-hydrogen-earth-may-hold-vast-stores-renewable-carbon-free-fuel*



**SUBCIRCULAR DEPRESSIONS** are peculiar circular impressions in boreal forests of northern Canada which are commonly hundreds of meters in diameter and centered on accumulations of chemically reduced substances in groundwater, overburden, or rock.

The circular outlines are defined by a change in vegetation at the rims of the rings.[1]

1. *Hamilton, S.M. and Hattori, K.H. (2008). Case History. Spontaneous potential and redox responses over a forest ring. Geophysics May 2008 Issue. Pages B67-B75*

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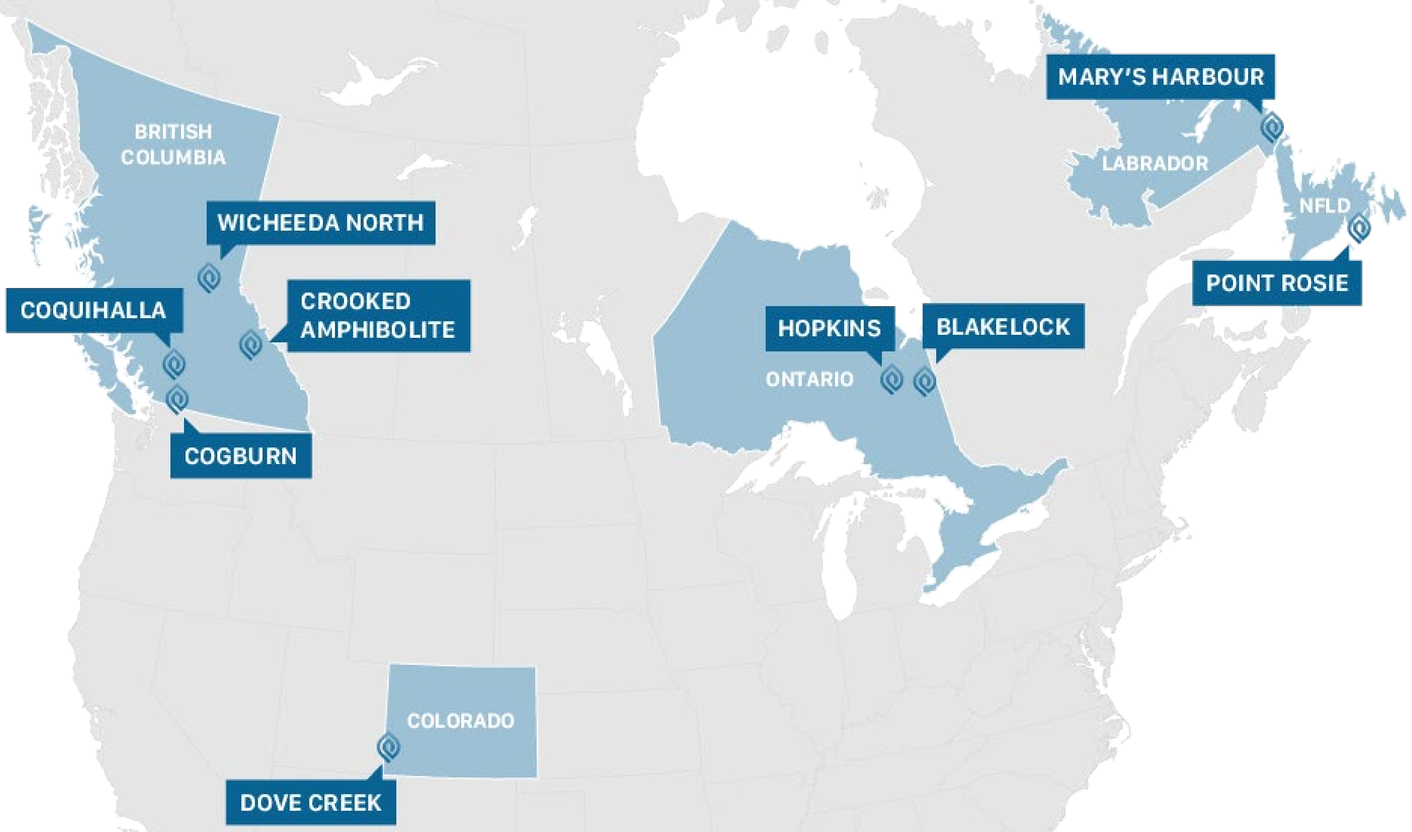
# A PORTFOLIO OF NATURAL HYDROGEN PROJECTS THROUGHOUT NORTH AMERICA




## ONTARIO

- Hopkins & Blakelock Projects
- 100%-owned projects covering 9,127 hectares

## NEWFOUNDLAND & LABRADOR

- Mary's Harbour & Point Rosie Projects
- 100%-owned projects covering 8,550 hectares

## BRITISH COLUMBIA

- **Hydrogen:** Crooked Amphibolite, Coquihalla, and Cogburn Projects: 100%-owned projects covering 3,346 hectares
- **REE/Hydrogen:** Wicheeda North (75% earn-in project covering 2,138 hectares)

ALL PROJECTS

# EXPLORATION STRATEGY

## PHASE 1: TARGET IDENTIFICATION

Remote sensing surveys to generate targets for follow-up on-ground exploration

## PHASE 2: SITE SAMPLING

Field sampling to determine concentrations of dissolved hydrogen ($H_2$) in soils and water

## PHASE 3: GEOPHYSICAL SURVEYING

Geophysical surveying to identify potential hydrogen sources, reservoirs or traps, and migration pathways

## PHASE 4: EXPANDED SITE SAMPLING

Follow-on field sampling to gather additional concentration results in addition to potential flow rates over time

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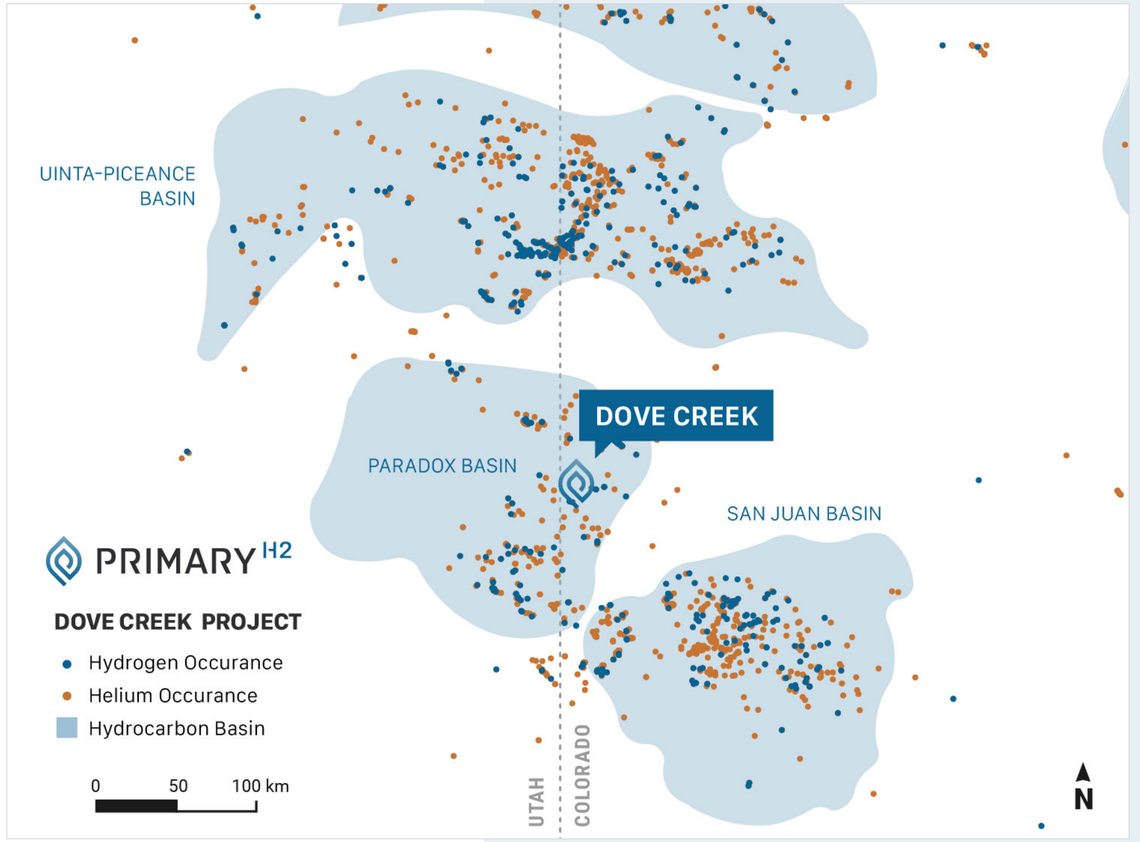
# DOVE CREEK H2 PROJECT

**LOCATION**: Dove Creek, Colorado

**OWNERSHIP**: 100%

**SIZE**: 744 acres

- Project located in southwestern Colorado near the Colorado-Utah border within the borders of the Paradox Basin and near the San Juan Basin to the south and the Uinta-Piceance Basin to the north.
- Hydrogen potential underscored by generation through radiolysis of uranium-rich basement rocks.
- Deep-seated fault systems in the region provides potential migration pathways for hydrogen, which may accumulate in structural or stratigraphic traps.
- Geophysical data reveals strong gravity anomalies corresponding to fault structures and magnetic anomalies linked to deep crustal features.
- The presence of helium wells in the area indicates active subsurface gas migration.



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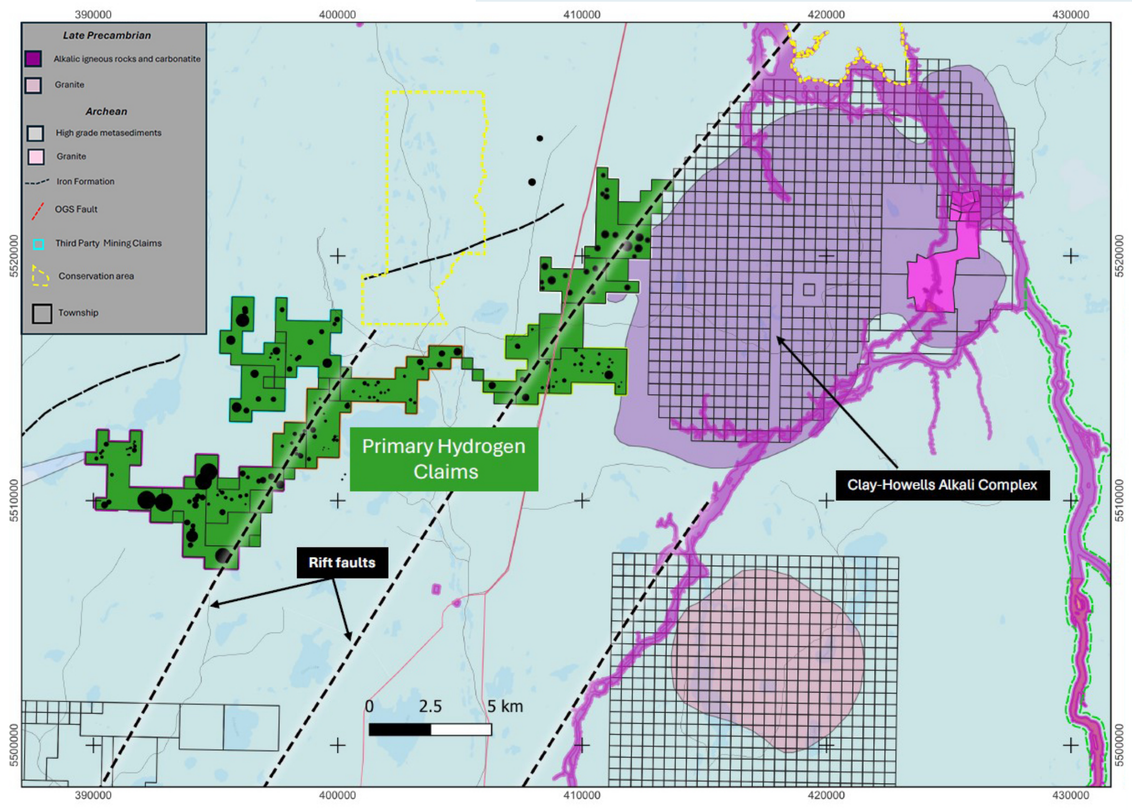
# HOPKINS H2 PROJECT

**LOCATION**: Northern Ontario

**OWNERSHIP**: 100%

**SIZE**: 6,920 hectares (69.2 km$^2$)

- Hydrogen potential is present through both serpentinization and radiolysis, with the presences of subcircular depressions which may be indicative of gas and fluid percolation to the surface.
- Exploration target are structures near alkali intrusives which are associated with the mid-continent rift. The Project is adjacent to the Clay-Howells Alkali carbonatite intrusive, which is host to a rare earth element, thorium and iron resource.[1]
- Given the radiogenic nature of the intrusive, this has the potential to produce naturally occurring hydrogen (NOH) through radiolysis.
- The intrusives are associated with northeast trending regional faults that are likely linked to their emplacement, which may serve as a conduit for deeper seeded fluids and gasses.
- Additionally, the presence of magnetite or iron-rich rocks such as olivine have the potential to generate hydrogen through the interaction with water during oxidation and radiolysis.




1. *NI 43-101 Technical Report on the Clay-Howells Fe-REE Project, Ontario, Canada by Tetra Tech Wardrop dated September 26, 2011*

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# BLAKELOCK H2 PROJECT

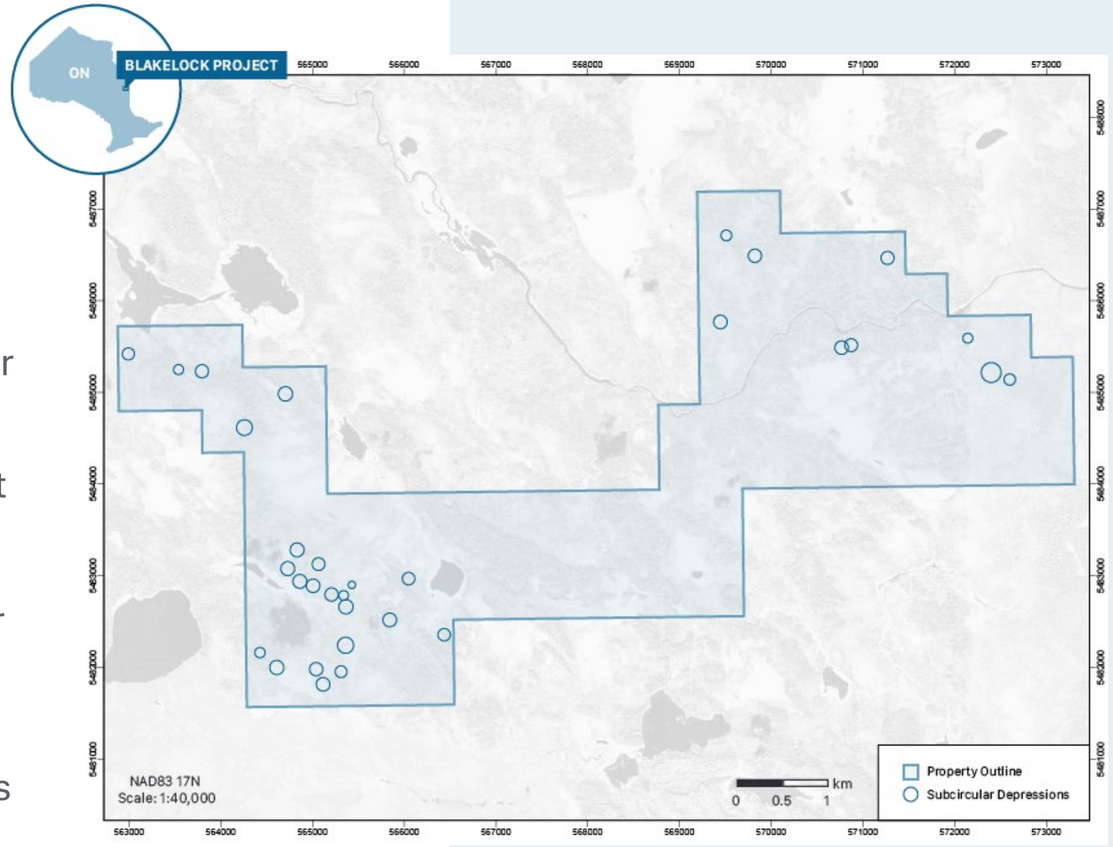
**LOCATION**: Northern Ontario

**OWNERSHIP**: 100%

**SIZE**: 2,207 hectares (22.1 km$^2$)

- Hydrogen potential present through serpentinization with subcircular depressions highlighting gas or fluid percolation to the surface.[1]
- Forest rings in northern Ontario are abundant above glaciomarine and marine sediments of Quaternary age and commonly occur over Phanerozoic bedrock.[2]

- According to the Ontario Geological Survey, the forest rings are caused by giant, naturally occurring electrochemical cells — big centres of negative charges (reduced chimneys) that are frequently situated over metal or mineral deposits.
- Hydrogen is theorized to form at the redox boundary at the ring edge, with the oxidation of transitional metals and/or sulfur species (producing hydrogen H+).[3]
- When hydrogen (H2) emanations affect the soils, small depressions and vegetation gaps are observed which are referred to as fairy circles or forest rings.[4]




1. *Hydrogen Emanations in Intracratonic Areas: New Guidelines for Early Exploration Basin Screening*
2. *Veillette and Giroux, 1999; Hamilton et al., 2004a*
3. *Spontaneous potential and redox responses over a forest ring, Hamelton & Hattori, May 2008*
4. *Hydrogen Emanations in Intracratonic Areas: New Guidelines for Early Exploration Basin Screening*

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# MARY'S HARBOUR H2 PROJECT

**LOCATION**: SE Labrador coast

**OWNERSHIP**: 100%

**SIZE**: 3,275 hectares (32.8 km$^2$)

- The region is characterized by mafic to ultramafic rocks associated with the Grenville Province, including gabbros, pyroxenites, and peridotites, which are conducive to serpentinization and hydrogen generation.
- The area is intersected by several fault systems, including deep-seated thrust faults, which provide potential conduits for hydrogen migration from deeper crustal levels.
- The structural complexity of the region suggests the possibility of both hydrogen generation and accumulation: as ultramafic rocks and serpentinization provides the basis for hydrogen generation with faulting facilitating the accumulation and migration of generated hydrogen.

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# POINT ROSIE H2 PROJECT

**LOCATION**: South coast of Newfoundland

**OWNERSHIP**: 100%

**SIZE**: 5,275 hectares (52.6 km$^2$)

- The region is characterized by mafic intrusions and volcanic sequences, and known for its extensive mafic dikes and sills, which are ideal candidates for serpentinization and hydrogen production.
- The region contains several prominent fault zones, particularly along the contact between mafic intrusions and older basement rocks, which serve as potential migration pathways for hydrogen originating from deep crustal or mantle sources.
- The presence of mafic intrusive rocks and faulting allows for serpentinization to occur along faulted contacts and for hydrogen to migrate through the fractured mafic rock units.

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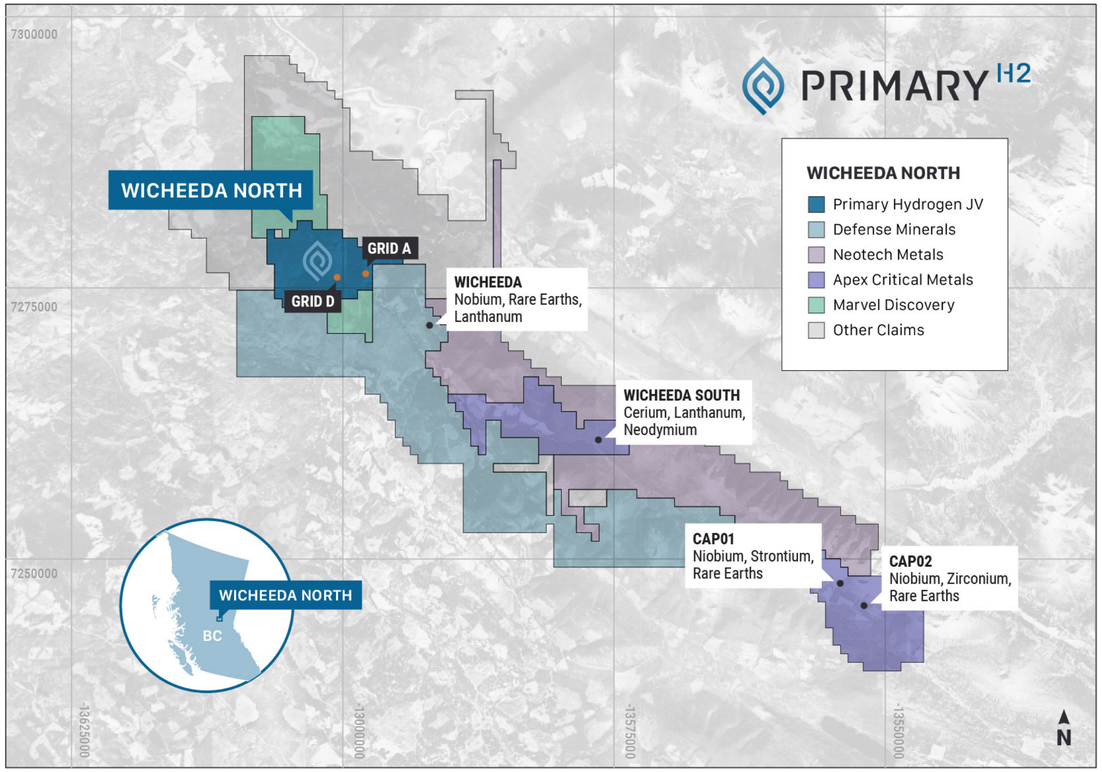
# WICHEEDA NORTH PROJECT

**LOCATION**: Central British Columbia

**OWNERSHIP**: 75% Earn-in

**SIZE**: 2,138 hectares (21.4 km$^2$)

- **Infrastructure**: Located 80 km N-NW of Prince George, a paved provincial highway, CN Rail mainline, power transmission and gas pipeline are located 60km to the east.
- **Regional Setting**: Located within the Rocky Mountain Trench, recognized to host carbonatite intrusions which is the host for REE mineralization, in addition to deep-seated regional faults which present the potential for natural hydrogen.
- **Exploration Opportunity**: Geophysics (693 line-km) and soil sampling (870 samples) have identified multiple targets defined by 99th percentile REE anomalies which is indicative of a potential concentrated source.
- **Adjacent Projects**: Located 5km north along strike from the Defense Metals' PFS-stage Wicheeda Deposit (P&P Reserves of 25.5 Mt @ 2.4% TREO), and adjoining Neotech Metals TREO project (grab samples up to 28.97% TREO), and Apex Critical Metals' CAP project (drilling up to 0.35 Nb2O5 over 10.4m).



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## CROOKED AMPHIBOLITE

**LOCATION**: Kamloops Mining Division, BC

**OWNERSHIP**: 100%

**SIZE**: 2,005 hectares (20.0 km$^2$)

- Part of a high-grade metamorphic complex, consisting of amphibolites derived from mafic volcanic rocks. These rocks have been heavily metamorphosed, and in association with ultramafic intrusions, there is potential for serpentinization processes to occur.
- The region is characterized by significant deformation, with deep-seated faults running through the area, which act as conduits for the migration of hydrogen from deeper-seated sources.
- The presence of amphibolites and ultramafic rocks, along with significant faulting, provides for multiple environments for serpentinization to occur.


## COQUIHALLA

**LOCATION**: New Westminster Mining Division, BC

**OWNERSHIP**: 100%

**SIZE**: 710 hectares (7.1 km$^2$)

- Composed predominantly of serpentinized ultramafic rocks with structurally complex underlying geology, major thrust faults and strike-slip faults crisscrossing the region, which act as both migration pathways and potential accumulation mechanisms for hydrogen.

## COGBURN

**LOCATION**: New Westminster Mining Division, BC

**OWNERSHIP**: 100%

**SIZE**: 632 hectares (6.3 km$^2$)

- Consists of a mixture of ultramafic and mafic rocks, including serpentinites, which are part of the Cache Creek Terrane and are known to undergo serpentinization.
- The intersection of several regional fault systems also serves as potential migration paths for hydrogen from deep crustal sources.
- The prospectivity of the project is highlighted by the large volumes of ultramafic rocks coupled with significant faulting, providing an environment for the generation of natural hydrogen.

# MANAGEMENT

**David Jackson**
CEO & Director

Former President and Managing Partner of a veterinary technology manufacturer selling into 56 countries. Led the company's growth and its 2024 acquisition by a global healthcare technology company, then served as Managing Director of the acquirer through a two-year integration. BA and BComm, University of Alberta.

**Christopher Longton, CPG**
VP Exploration

Field geologist with experience from greenfields exploration through to production across North America. Formerly Vice President, Exploration with Hercules Metals Corp. and Senior Exploration Manager for Integra Resources' DeLamar project. Principal Geologist with Rangefront Mining Services. BSc Geology, Illinois State University. CPG (AIPG #11958) and qualified person under NI 43-101.

**Jelena Veljovic**
CFO

Ms. Veljovic provides accounting services to public companies through Treewalk Consulting Inc., a growing professional services advisory firm in Vancouver, British Columbia. Prior to her time at Treewalk Consulting Inc., Ms. Veljovic worked as an accounting technician with Focus LLP, a public accounting firm in the Calgary, AB market, supporting with taxation services for private companies and individuals.

# DIRECTORS & ADVISORS

David Jackson, CEO, also serves as a director.

**Benjamin Asuncion**
Director

Mr. Asuncion has nearly 20 years of experience in the capital markets and natural resources sector. Since 2017, he has acted as principal of a private company that provides management consulting services to public companies and has held senior management, board of director and advisory roles with several public companies in the mineral exploration, healthcare, technology, and life sciences sectors. From 2007 through 2016, Mr. Asuncion acted as a mining analyst with Haywood Securities Inc.

**Tim Heenan, QP-Geologist**
Director

Mr. Heenan has over 30 years of exploration experience, mostly within Central and South America, with a focus in Chile and Argentina. Over his career, he has worked within a wide range of companies from junior through mid-tier and also major multinationals both as an employee and consultant. He has worked in all aspects of exploration from grassroots through advanced exploration and he was directly involved in several discoveries, including the famous Cerro Negro Mining District in the Province of Santa Cruz, Argentina and several other high-profile projects throughout the region.

**Martin Kowcun, P.Eng**
Director

Mr. Kowcun has over 20 years of experience as a Sr. Process, Facility and Project Engineer in operation, technical support, plant design and project management of upstream raw-material processing facilities in Western Canada. He currently provides comprehensive on-site engineering support to Operations & Maintenance teams in Heavy Oil (SAGD) processing plants with major Canadian Oil Producers; Cenovus and Suncor Energy. He previously worked with consulting firms on projects for Exxon Mobile, Chevron, EnCana, PennWest and Conoco-Phillips.

**Stephan Séjourné, P.Geo.**
Technical Advisor

Mr. Séjourné is the President and founder of Enki GeoSolutions, a Montreal-based consultancy specializing in subsurface energy resources. With a background in petroleum exploration, Séjourné has emerged as a thought leader in natural hydrogen, applying his expertise to identify and assess Canada's geological potential for this emerging energy source.

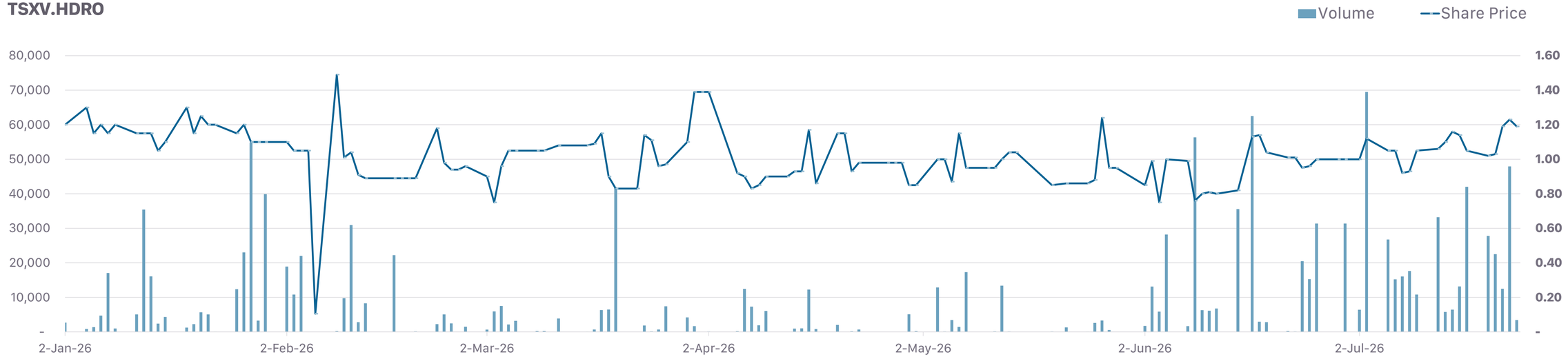
# CAPITAL STRUCTURE

| | Shares (M) |
|---|---|
| **Basic Shares O/S** | **7.4** |
| Warrants | 3.8 |
| Options | 0.7 |
| **Fully Diluted** | **11.9** |

| | C$(M) |
|---|---|
| **Working Capital** | **2.4** |
| ITM Warrants | - |
| ITM Options | 0.6 |
| **Working Capital & Potential Proceeds** | **2.9** |
| **Market Cap** | **8.8** |

Market capitalization as of July 24, 2026

**TSXV.HDRO**




info@primaryh2.com
www.primaryh2.com

AMEC Place
Suite 2010, 801 – 6th Avenue SW
Calgary, AB T2P 3W2