



From Orbit to Extraction

Unlocking Natural Hydrogen in Burundi

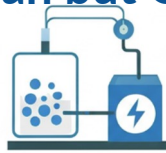
Prof. Colin Price
colin@tauex.tau.ac.il

Dr. Jacques Amselem
jacques.amselem@gmail.com

Hydrogen

An Essential Clean Energy Source for the Future

Green Hydrogen: Clean but Costly



Source	Electrolysis (H ₂ O)
Cost	High (energy-intensive)
Emissions	Zero
Challenge	Energy input

Naturally occurring, zero-emission fuel

White Hydrogen: Abundant but Undetected



Source	Natural underground reserves
Cost	Low (if detected)
Emissions	Zero
Challenge	Detection & mapping

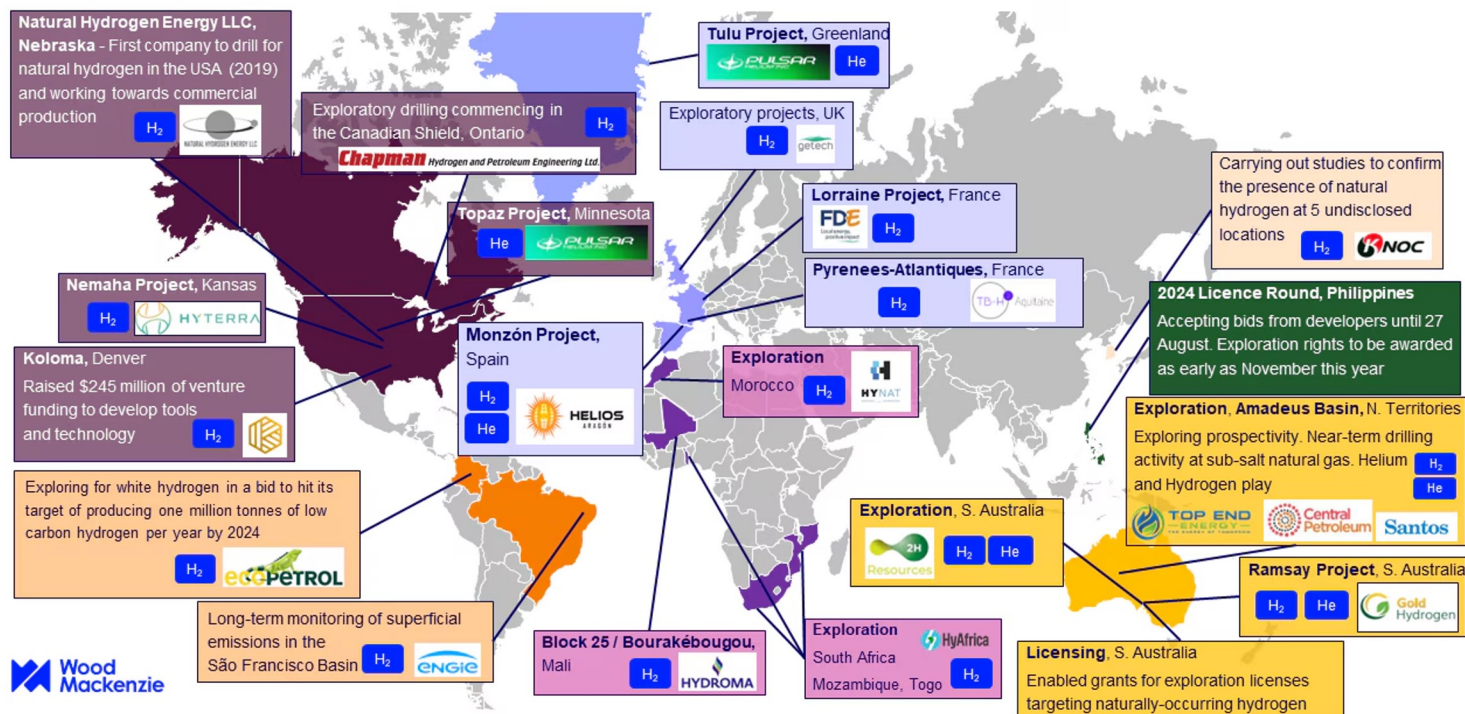
Why White Hydrogen Matters?

- Naturally occurring, zero-emission fuel
- Potentially 10x cheaper than green hydrogen

The White Hydrogen Rush

6 trillion tonnes of geologic hydrogen could be present

Projects and exploration activity: naturally occurring hydrogen and helium

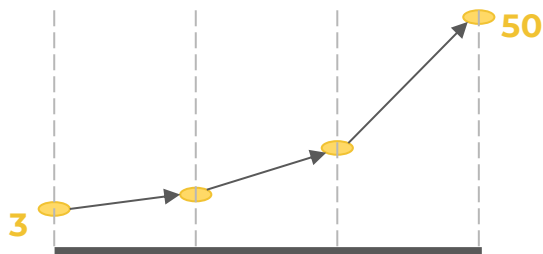


Global Momentum

World-Wide Hunt

Total Market: \$80B–\$100B

Global hydrogen market projected at \$400B+ by 2030
White hydrogen could supply 20–25% of total demand



Number of companies searching white hydrogen Increased from 3 to 50 within 4 years

- Active projects in
 - USA,
 - France,
 - Australia,
 - Mali,
 - South Africa

Burundi is well-positioned to join the ~~energy~~ transition

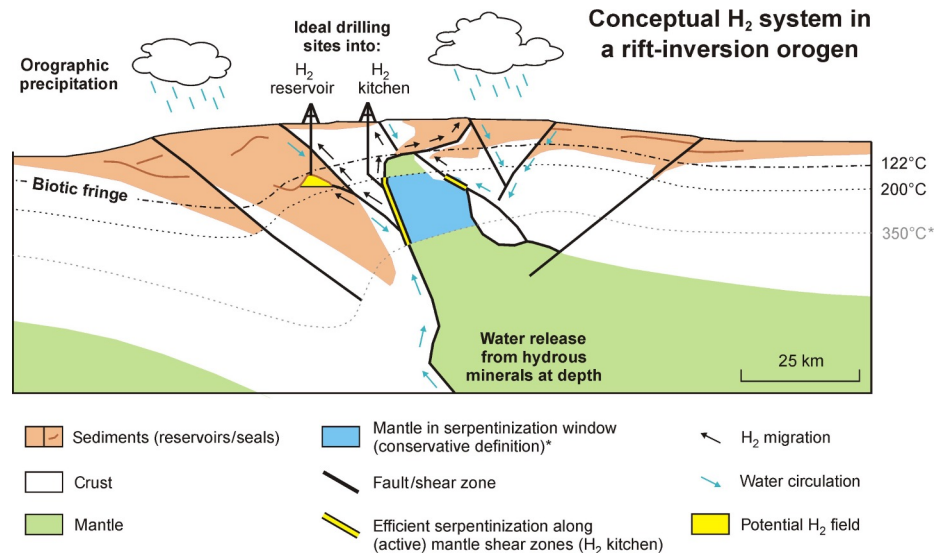


How does this happen?

Serpentinization: Nature's Hydrogen Generator

Serpentinization

-  **Water Infiltration:** Seawater or groundwater penetrates deep into Earth's crust.
-  **Rock Reaction:** Water reacts with olivine and pyroxene in ultramafic rocks.
-  **Hydration & Oxidation:** These minerals transform into serpentine group minerals (antigorite, lizardite, chrysotile), magnetite, and brucite.
-  **Hydrogen Release:** The chemical reaction produces H_2 gas, often trapped in subsurface reservoirs.



Our Technology Advantage

Multi-Layer Sensing

World-Leading Tech, Born in Israel



AI-Based Satellite Analysis

Detect high-potential H₂ sources via machine learning and proxies modeling



Airborne /In Situ Laser-Based Validation

Deploy proprietary sensors to confirm H₂ presence)



Unique Tech Stack

Combination of public +private proprietary sensing data



AI Analysis
Layer



Airborne
Laser
Based



Data
Validation



MicroSat
Expansion
Path

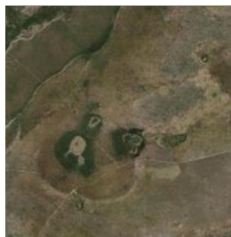
Brazil Case Study

Validating Hydrogen Detection at Scale

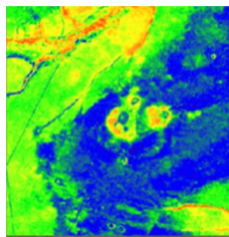
What We Set Out to Prove

- AI-driven detection of subsurface hydrogen signals
- Integration of satellite proxies and airborne sensing
- Generation of high-confidence drill target

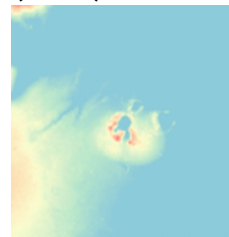
Sao Francisco Basin (Brazil)



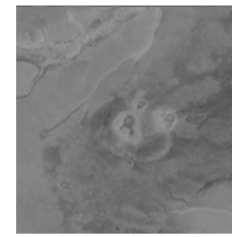
Circular surface anomaly
consistent with
subsurface structure
(RGB)



Vegetation stress
index aligned with
subsurface signal



Drill coordinates
validated by vertical
depression



High backscatter
signature correlated
with fault-aligned
seepage zones

Fast, Remote, Cost-Efficient

Step-by-Step Process

- **Defining Exploration Zone:** Zone scoping (strategic/geological) 2 w
 - **Satellite Detection:** AI flags hydrogen zones, no ground teams 2 to 3 w
 - **Drone Validation:** Laser-equipped drones confirm hydrogen emanations 4 to 6 w
 - **Target Confirmation:** Data yields drill-ready coordinates 1 to 2 w
 - **Drill FID Handover:** Final Investment Decision 1 w
- Drill go/no-go decision - 10 to 14 weeks** 10 to 14 w

Our Differentiation



Fully Remote: No ground teams, fewer risks



Rapid Targeting: <10 weeks vs. months



Cost-Efficient: 80% savings pre-drill



Globally Scalable: Works anywhere, no infrastructure



Driven by Unique Data: proprietary, precise, predictive, proven

Burundi's Geologic Edge

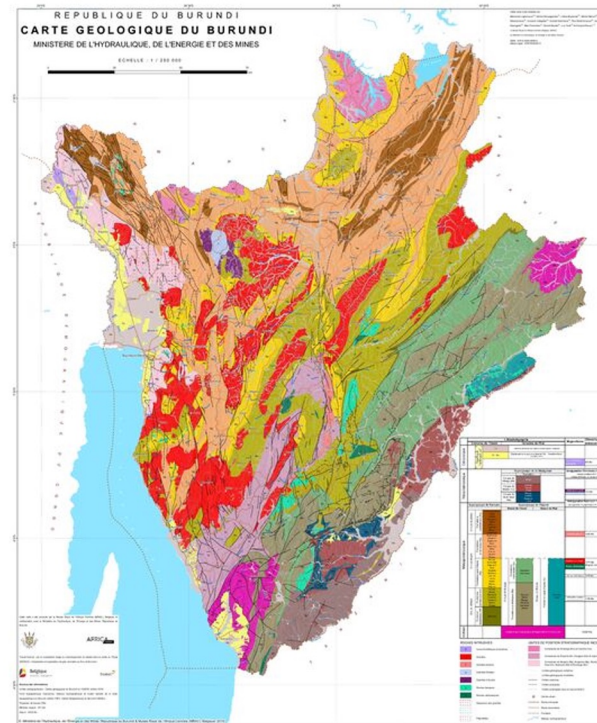
Ideal conditions for natural hydrogen formation

Geologic Favorability

- **Ultramafic rocks** support hydrogen-generating reactions
- **Tectonic faults** enable hydrogen migration and trapping
- **Groundwater access** drives subsurface geochemical processes

Resource-Rich Landscape

- **Nickel, Rare Earths, Uranium:** signal hydrogen-prone geology
- **Peat and Organic Sediments:** may support biogenic hydrogen



Use Case 1

Local Hydrogen-to-Power for Mining & Industry

Complementing Burundi's Hydro Power with Hydrogen

- **Hydrogen amplifies hydro**—not replaces it
- **Hybrid systems** improve reliability and reach
- Positions Burundi as a **multi-source clean energy hub** in East Africa



Commercial Opportunity

- **On-site hydrogen power** replaces diesel or grid dependency
- **Lower operating costs** and carbon footprint for mining operations
- **Fast deployment** with modular fuel cell systems
- **Energy security** in remote or unstable grid regions

ROI Potential

- Immediate cost savings on fuel and logistics
- ESG compliance boosts investor appeal
- Potential to monetize excess hydrogen via local microgrids

Use Case 2

Exporting Clean Fuel to Global Markets

Imagine this

**Burundi discovers a large
hydrogen reservoir!**

- **Global companies** buy the clean fuel to power ships, factories and clean energy systems
- Burundi earns **millions** in export revenue



Co-occurrence of Helium and Hydrogen

Byproduct of White Hydrogen Discovery

Helium present with White Hydrogen

Helium is ~70x more valuable than hydrogen



Rare



Natural



Profitable

(Helium market price is
~70x higher than H₂)

Hydrogen–Helium separation technologies are emerging,
unlocking dual-revenue potential

Meet The Founders

Bios



Prof. Colin Price

Leading atmospheric scientist at Tel Aviv University, specializing in the weather, climate change and remote sensing.



Dr. Jacques Amselem

Experienced entrepreneur and technologist focused on sensing innovations and their commercial applications.

August 2025



Thank you!

Prof. Colin Price
colin@tauex.tau.ac.il

Dr. Jacques Amselem
jacques.amselem@gmail.com