



Font Corporation

The Latest Global Concepts of Natural Hydrogen

Republika Slovenija

EU Innovation Fund Info Day

Carmen Font, CEO Font Corporation



1. About Us



Font Corporation
Your Partner in Europe



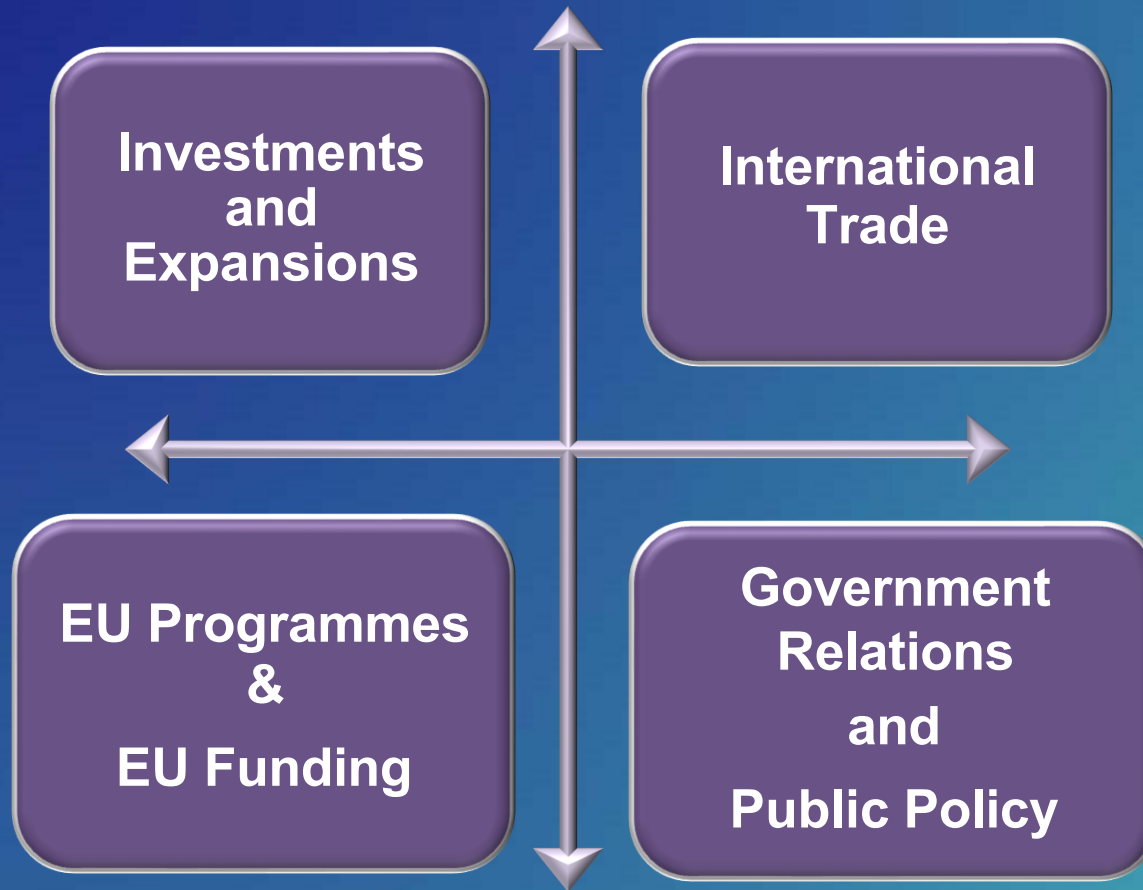
Font Corporation leads Investments and Expansions in Europe.

We accelerate the implementation and scaling up of Deep Tech companies in the European Union.

We are leading the development of natural hydrogen exploration in Europe



2. Business Areas



2.2 International Trade



Font Corporation execute investments and develops international partnerships to maximise the scalability of projects in Europe

**International
Partnerships
and Trade**

European market entry and scale ups

European and International Partnerships

Business Expansions for Deep Tech

International Business Network

Brokerage

Advisory and Management

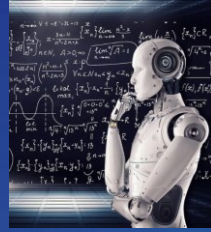


3. Industry Expertise

Energy



Technology



ICT



Healthcare & Biotech



Automotive



Logistics



Aerospace



4. Success Cases

Font Corporation achieved the milestone of €2.4 million European Funding for RAVEN SR Iberia

Implementation of the Steam/CO₂ Reforming technology producing hydrogen in Spain and scaling up in the European Union



5. The International Energy Agency and Natural H2

IEA – Technology Collaboration Programme

Task 49 - Natural Hydrogen

The CEO, Carmen Font, is part of the international Team of Experts invited by the International Energy Agency (IEA) working on Task 49, Natural Hydrogen

Natural hydrogen is entering a new phase, it is now recognised as an important topic by the International Energy Agency's Hydrogen Technology Collaboration Program. Objective:

The TASK 49 brings together 31 experts to act jointly on research, exploration/production methods, evaluation of economic reserves, public policy, public acculturation, financing, infrastructures and environmental impacts.



6. Natural Hydrogen in Europe

Font Corp leads the production of natural hydrogen in Europe's first natural hydrogen production site



Appraisal well to be drilled in Q4 2024-Q1 2025 (€14m investment)

The production phase will start being implemented in 2026 involving €900m investment and it will be operational in 2029. The production of helium a resource considered as “critical raw material” in the EU is also expected.

The project was declared “Investment of Regional Interest” by the Government of Aragón in May 2023. Font Corporation is driving change in the Spanish legislation and shaping the future of clean energy in Europe.

We are scaling up in Poland, Germany and Kosovo



7. What is Natural Hydrogen?



A CLEAN ENERGY REVOLUTION

Natural hydrogen:

- **Generated continuously by the Earth and can form large accumulations**
 - *USGS forecasts provide for hundreds of years of human use*
- **Lowest CO₂ source of hydrogen**
 - *50 times lower than grey hydrogen*
- **Developed using existing technology**
 - *Drilling and processing facilities from geothermal and natural gas industries*
- **Lowest cost source of hydrogen**
 - *Break-even cost <€1/kg (green hydrogen €4-€10/kg)*
- **Produced 24/7 and requires no storage**
 - *No intermittency, utilises 100% of capacity (wind turbines use one-third)*
- **Lowest footprint of any source of hydrogen**
 - *One well provides energy equivalent of 150 wind turbines*
 - *No water required (green hydrogen uses 9 litres for every kg)*

iea

CLEAN ENERGY
MINISTERIAL
Advancing Clean Energy Together

HYDROGEN
INITIATIVE
International Energy Agency

Global Hydrogen Review 2023

International
Energy Agency

Table 3.1 Selected developments for natural hydrogen production

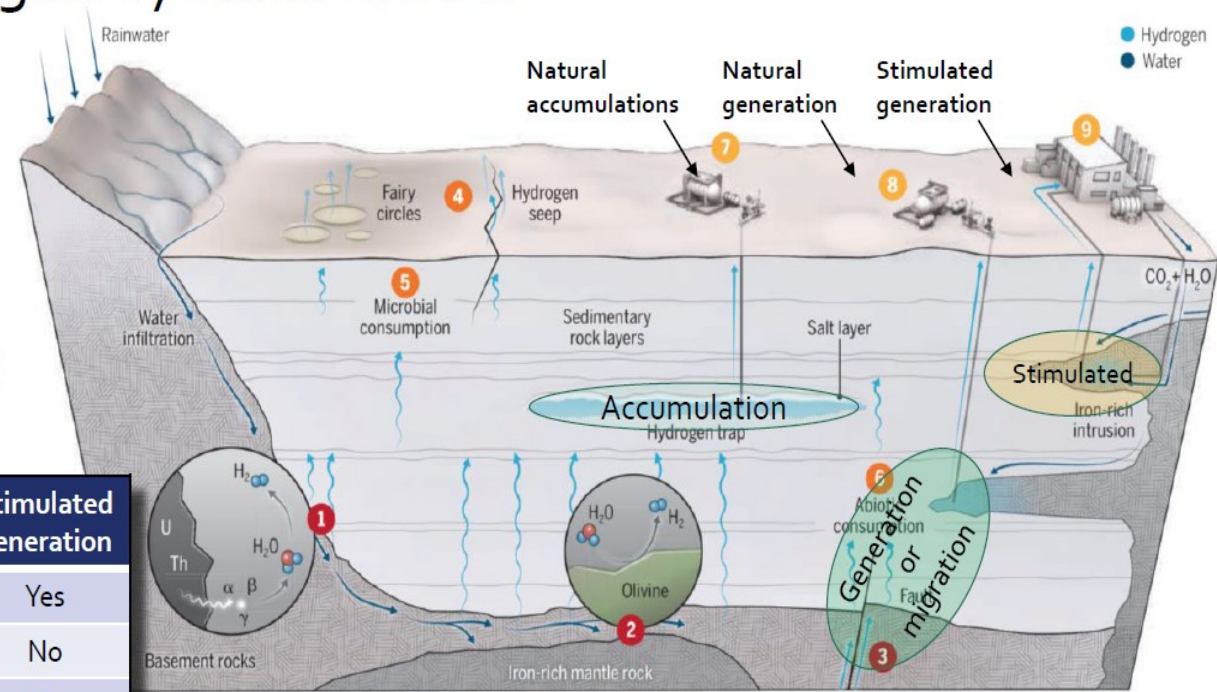
Country	Location	Developers	Status
Australia	Yorke peninsula	Gold Hydrogen	Drilling permit granted. Exploration from October 2023.
Australia	Eyre Peninsula	H2EX	Permit granted.
Australia	Amadeus Basin	Santos	Drilling wells to evaluate resource.
France	Lorraine basin	La Française d'Énergie	Application for exclusive mining exploration permit submitted.
Mali	Bourakebougou	Hydroma	Operational since 2012, demonstration.
Spain	Pyrenees	Helios Aragon	Drilling permit granted. Exploration from 2024.
United States	Arizona	Desert Mountain Energy	Application for exploration permit submitted*.

7. What is Natural Hydrogen?

Geologic hydrogen system model

3 conceptual types of exploitable hydrogen resources

Hydrogen system model based on the petroleum system



Hidden Hydrogen - Science 2023

Component	Natural accumulations	Natural generation	Stimulated generation
Source	Yes	Yes	Yes
Migration pathway	Yes	Maybe	No
Reservoir	Yes	No	No
Trap/seal	Yes	No	No
Preservation	Maybe	No	No
Timing	Maybe	No	No

Global in-place resource estimate only for natural accumulations


Natural or stimulated generation could provide additional resources

8. Storage of H2 in Natural Hydrogen Reservoirs

Depleted reservoirs could storage H2

TSOs in Europe are seeking this opportunity to connect it with the European Backbone

- A green hydrogen economy requires significant underground storage at multiple sites
- The natural gas economy in Spain has required a storage capacity (in depleted reservoirs) of 35TWh
- The Monzón Field can be part of the solution. Once the reservoir is depleted it can be used as a low-cost, proven storage site for green hydrogen at annual rates of c.55 million kg
- Storage solutions for green hydrogen are lagging well behind the progress which is being made on electrolyzers
- Legislation is required to promote investment. Australian States (South Australia and NSW) have recently included hydrogen storage and natural hydrogen production in their Hydrocarbon or Mining Acts



“Widespread adoption of hydrogen in Australia as an energy carrier will require storage options to buffer the fluctuations in supply and demand, both for domestic use and for export. Once the scale of storage at a site exceeds tens of tonnes, underground hydrogen storage is the preferred option for reasons of both cost and safety”



Underground storage of Hydrogen: Mapping out the options for Australia

Deliverable 5: Final Summary Report

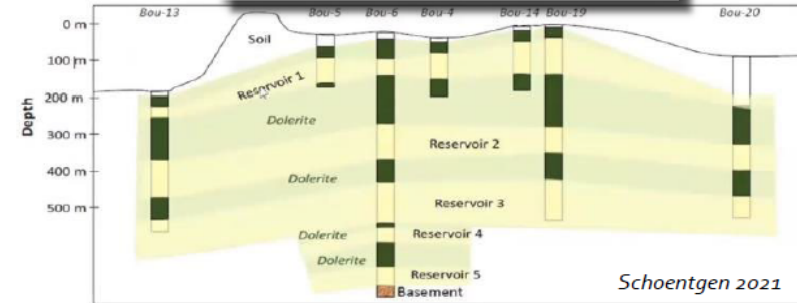
July 2021



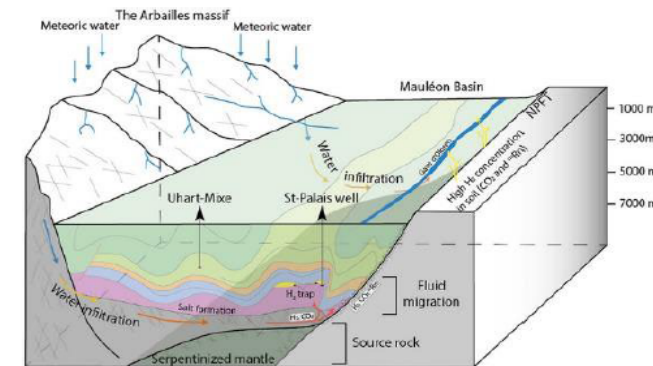
9. Natural Hydrogen worldwide

Recent hydrogen resource activity

- Natural hydrogen accumulation discovered in Mali in 2012
- Research and exploration
 - Africa: *Mali, Morocco, Djibouti, and Namibia*
 - Europe: *Pyrenees, Aquitaine Basin, Corsica, the Alps, and Iceland*
 - S. America: *Brazil and Colombia*
 - Australia: *Amadeus and Perth Basins*
- Early in 2021 570,000 km² (~1/3) South Australia leased for natural hydrogen exploration
- 1st wildcat well in US drilled for hydrogen in NE being flow tested, and exploration in NE, KS, and AZ
- 2022 USGS initiated the first and only funded research project in N. America dedicated to understanding hydrogen resource potential



Geologic model for hydrogen accumulation in the French Pyrenees



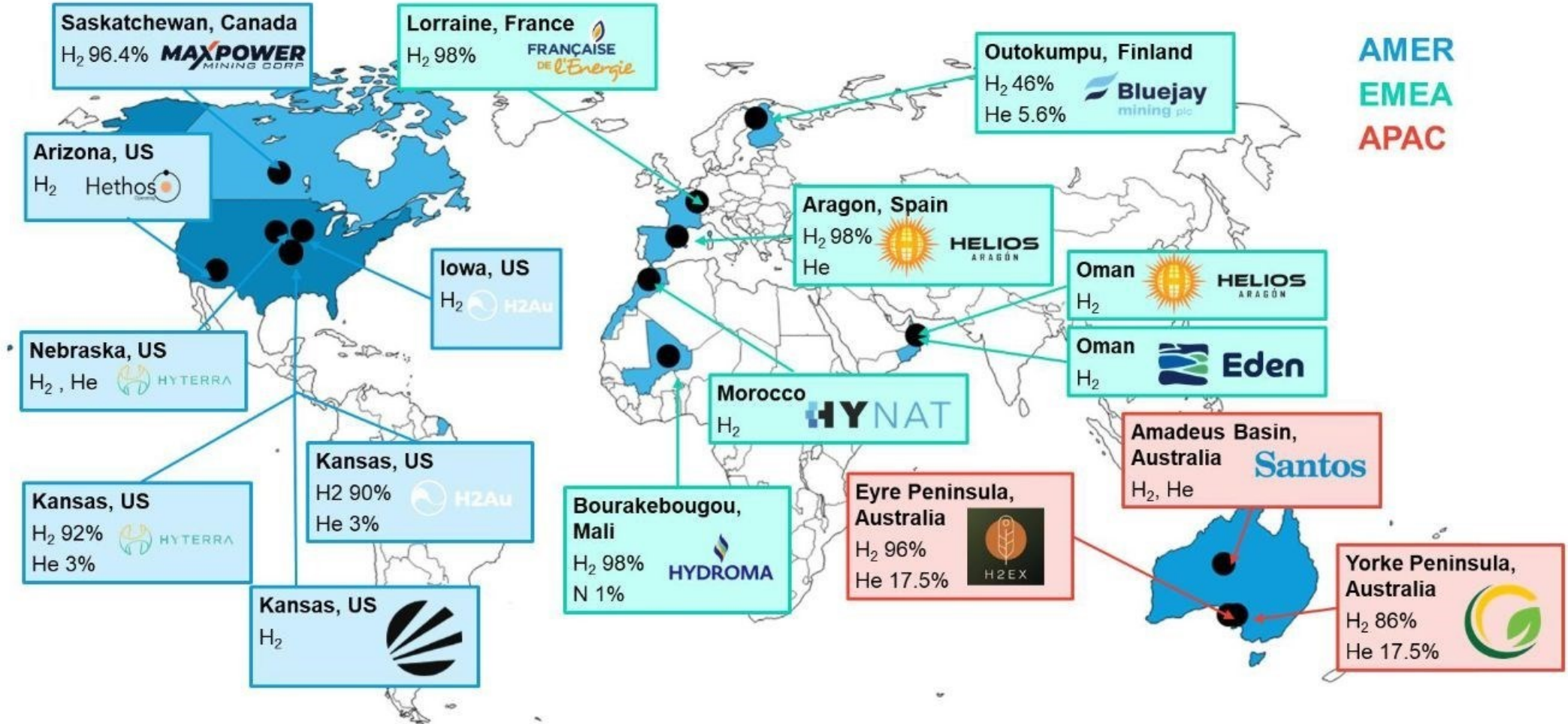
Lefevre et al., 2022





9. Natural Hydrogen worldwide

Figure 7: Active geologic hydrogen exploration projects



AMER
EMEA
APAC

Source: BloombergNEF. Note: This is not an exhaustive list of projects.



10. Natural Hydrogen worldwide Background

The United States of America

The United States Geological Survey (USGS) is developing a global resource model, led by the Energy Resource Department. This initiative will estimate global reserves of natural hydrogen.

Leveraging knowledge from natural gas analogues, the USGS has advanced understanding of hydrogen behaviour in the subsurface and promoting private investments in the field supported by the US Government.



U.S. Department of Energy Announces \$20 Million to Explore Potential of Geologic Hydrogen

ARPA-E Unveils Two Initiatives Focused on Low-Cost, Low-Greenhouse Gas Emissions Hydrogen Production

09/07/2023

More information: <https://arpa-e.energy.gov/news-and-media/press-releases/us-department-energy-announces-20-million-explore-potential-geologic>



11. Natural Hydrogen worldwide Background

Australia

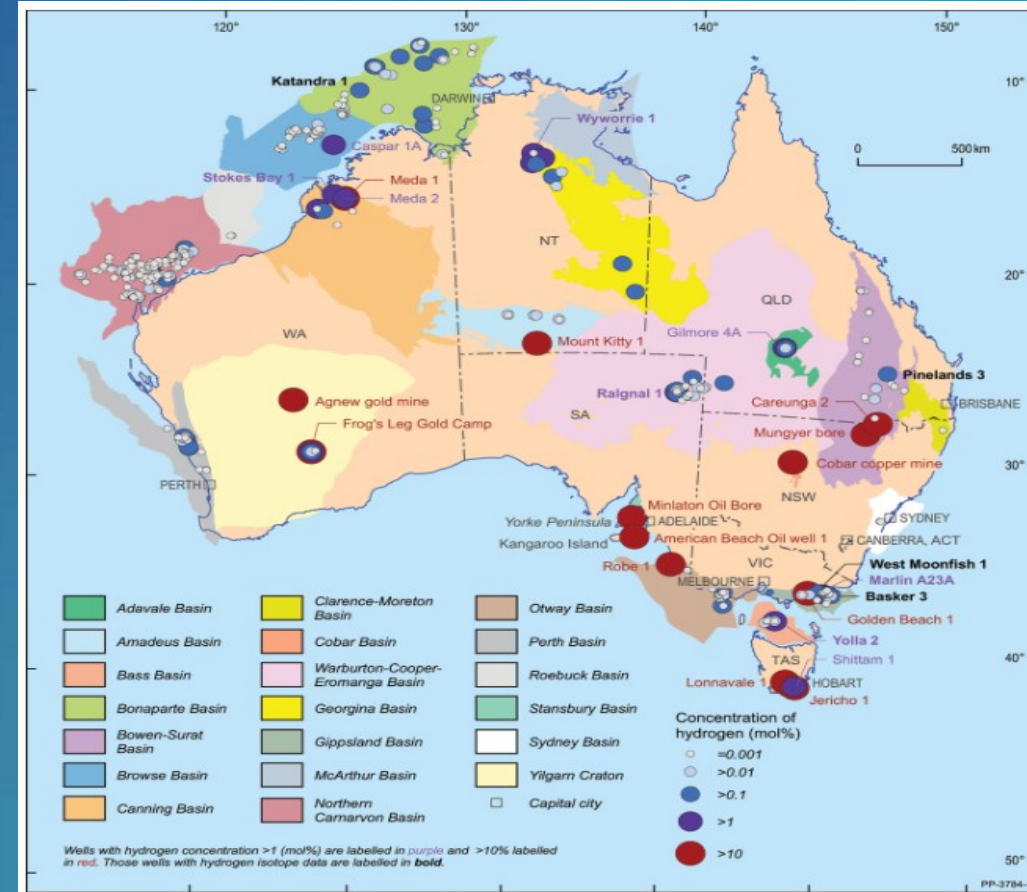
Two States in Australia have included natural hydrogen and helium under the "Petroleum and Geothermal Energy Act" and two other states under the "Mining Code".

Governments in Australia are working on activities to implement the Natural Hydrogen Strategy led by the Federal Government's Department of Industry, Science, Energy and Resources.

The Government of South Australia amended legislation in 2021 to make hydrogen a regulated substance. Part of that allowed the exploration and tapping natural hydrogen reserves.

One kilogram of green hydrogen (produced with renewable energy) currently costs between \$4 and \$8 to manufacture in Australia, though prices have steadily declined. Brown, blue and black processes (using fossil fuels) cost about \$2.

More information: <https://www.ga.gov.au/scientific-topics/energy/resources/hydrogen/australias-hydrogen-production-potential>
<https://www.energymining.sa.gov.au/industry/energy-resources/geology-and-prospectivity/natural-hydrogen>





12. What Natural Hydrogen Exploration will enable

- Part of the Energy Mix in the European Union**
 - ✓ Complementing the pipeline of energy resources in Europe
 - ✓ Supporting the energy transition at very competitive cost (\$1/kg H₂ production)
 - ✓ Limited emissions that could be captured

- Increasing Energy Sovereignty and self-sufficiency**
 - ✓ Reducing dependence on third countries
 - ✓ Increasing local production of sustainable hydrogen at very competitive cost

- Hydrogen storage**
 - ✓ There will not be a truly hydrogen economy without storage. Natural hydrogen reservoirs would allow not just producing it competitively but also unveil hydrogen storage in depleted reservoirs



14. Latest Investments in Natural H2 worldwide



Hydrogeninsight

Production

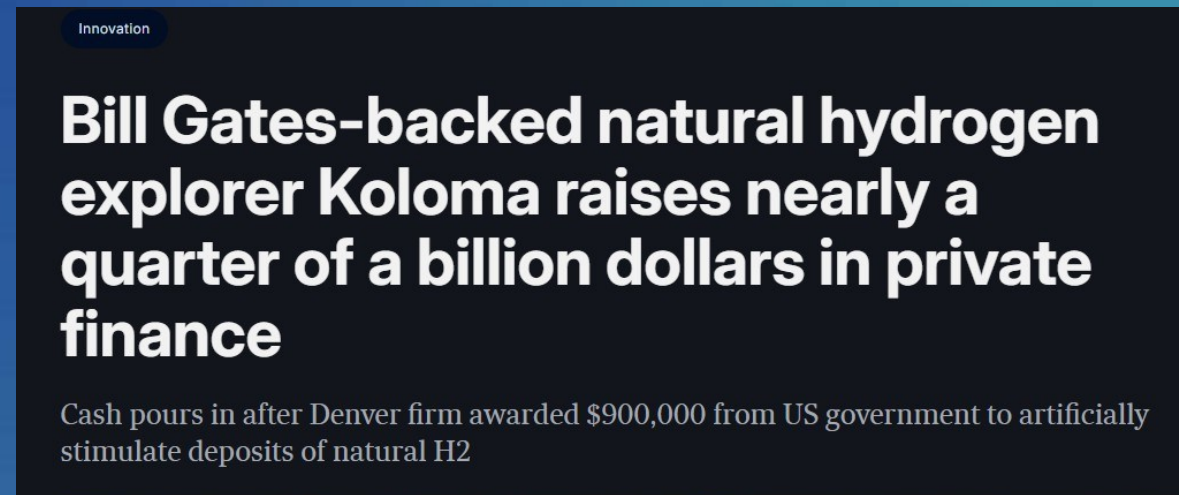
Japanese industrial giants invest in Bill Gates-backed natural hydrogen start-up

Osaka Gas and Mitsubishi Heavy Industries agree to take equity stakes in Koloma



**MITSUBISHI
HEAVY INDUSTRIES**

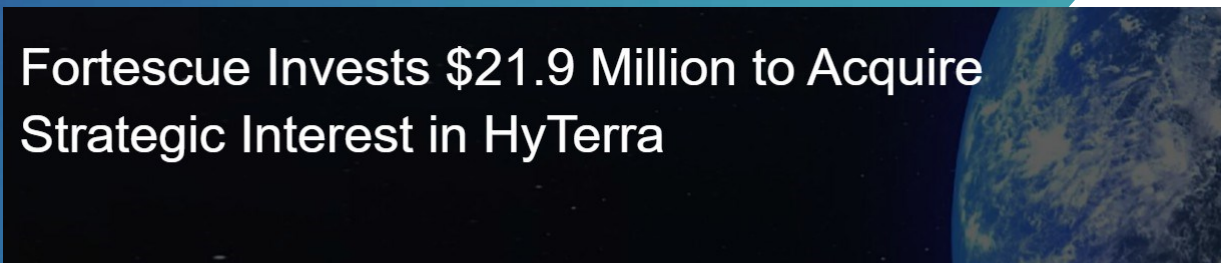
Accelerating the Energy Transition to Meet
Critical 2040 Decarbonization Targets




Innovation

Bill Gates-backed natural hydrogen explorer Koloma raises nearly a quarter of a billion dollars in private finance

Cash pours in after Denver firm awarded \$900,000 from US government to artificially stimulate deposits of natural H2



Fortescue Invests \$21.9 Million to Acquire Strategic Interest in HyTerra



29 August 2024

"An investment by Fortescue is a testimony to the hard work and delivery performance of the HyTerra team, the diverse geological plays available within our Nemaha project leases and our global growth opportunities in the pipeline." – Executive Director, Benjamin Mee

Many media outlets including [Small Caps](#), [Fuel Cell Works](#), [Hydrogen insight](#), [Market Open](#) and [Just Stocks](#) have covered our announcement of a potential cornerstone investment to fund exploration at the Nemaha Project by Fortescue Future Industries Technologies (FFIT).

15. The World Economic Forum



The World Economic Forum in Davos

Moderator of the Round Table, **Harnessing a Clean Energy for a Sustainable Future** hosted by the House of Kosovo, discussing the actual Clean Energy Transition taking place in the country and the role that natural hydrogen could play in the energy mix in Kosovo.

Honourable Minister, Mrs Artane Rizvanolli took part in the Round Table discussion.





Thank you!

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