PROTON

CLEAN, LOW-COST HYDROGEN

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March 9, 2022
CERAWeek

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Anticipating H2

cost < **$0.50**/kg

Carbon Intensity

Lower than Zero

No new

ecological disturbance

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George Mitchell & Known Resources

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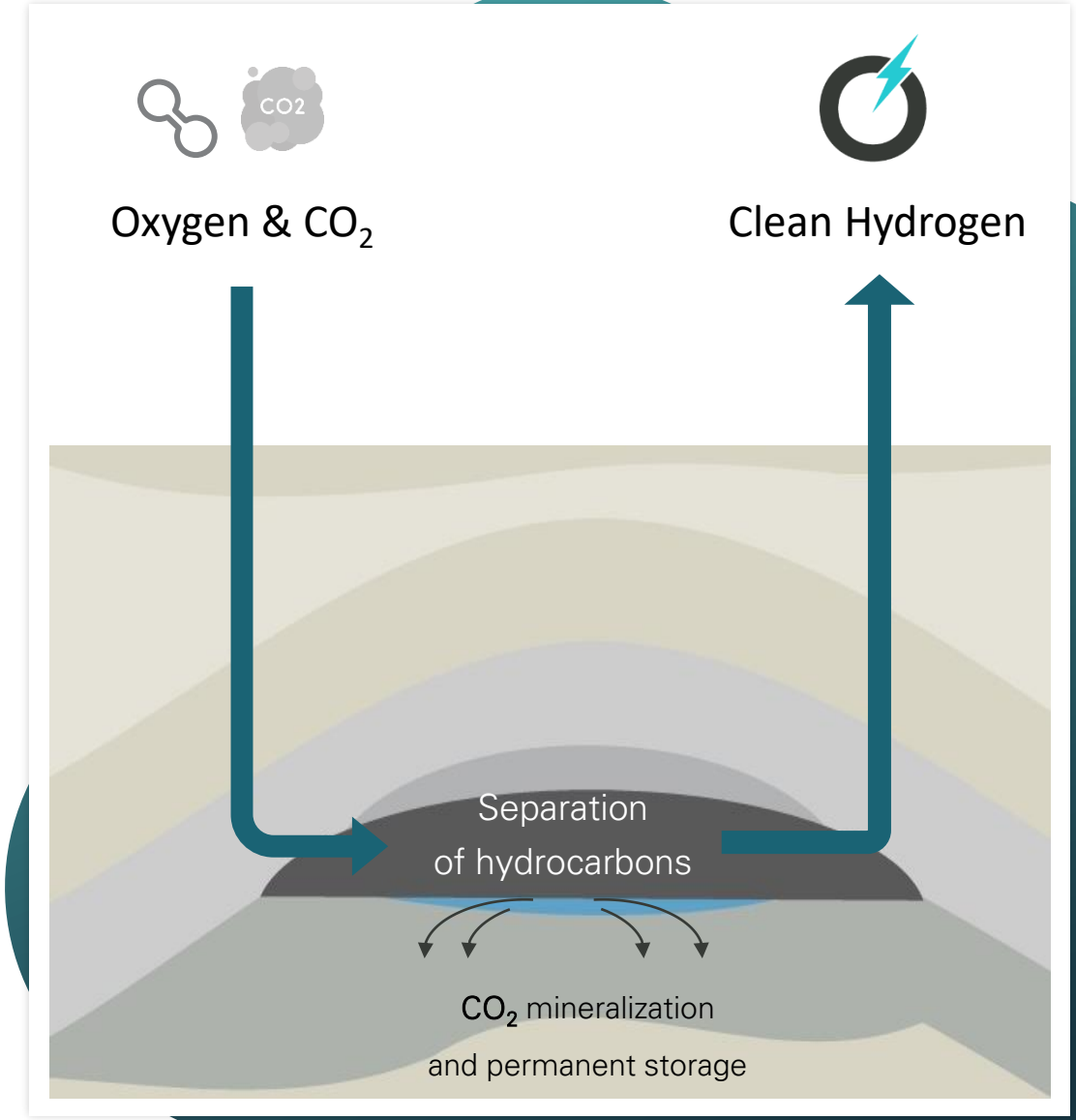
- Hydrogen from hydrocarbons
- Site in Canada
- Fraction of the cost of alternatives
- Can be carbon-negative hydrogen
- Known geology, already drilled



Most Governments Are Committed To Decarbonizing Energy

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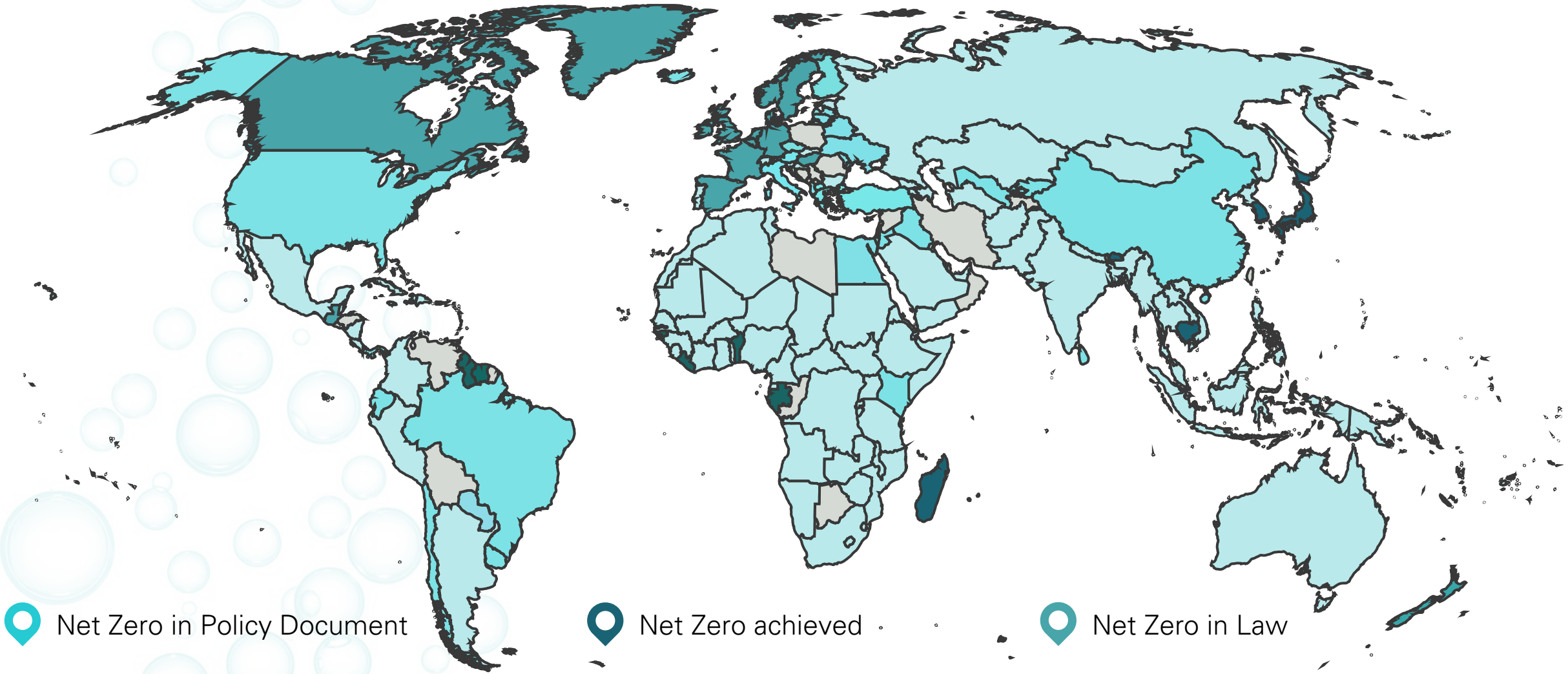

Proton's Patented Process Creates Multiple Revenue Streams

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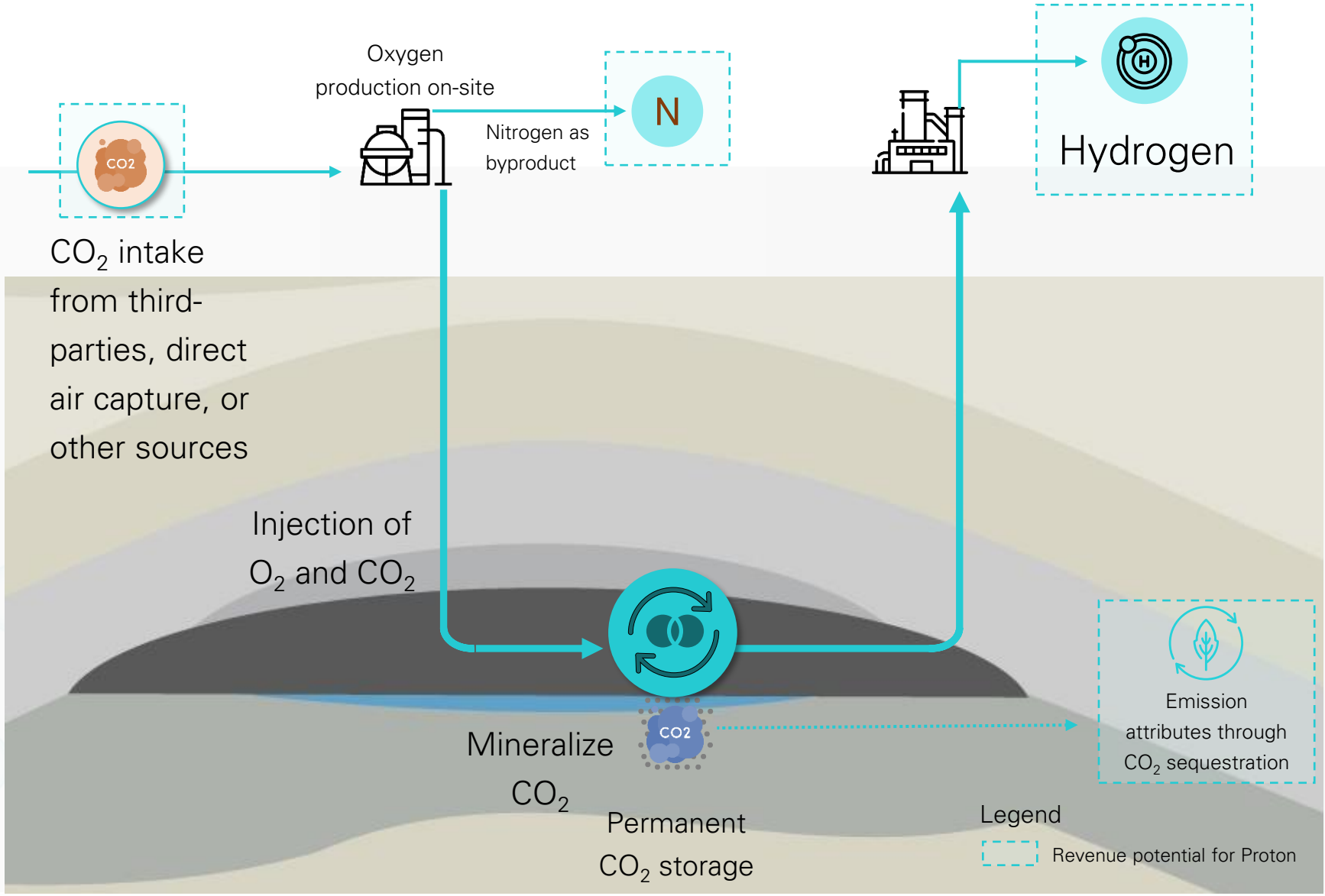
Simplified Process Description

- Use existing oil and gas wells and infrastructure
- Inject O2 and CO2
- Downhole reactions generate H2
- Recover H2
- Sequester CO2



Source: Proton

Note: Graphic for illustrative purposes

Proton's Optimizations Of Previous Findings

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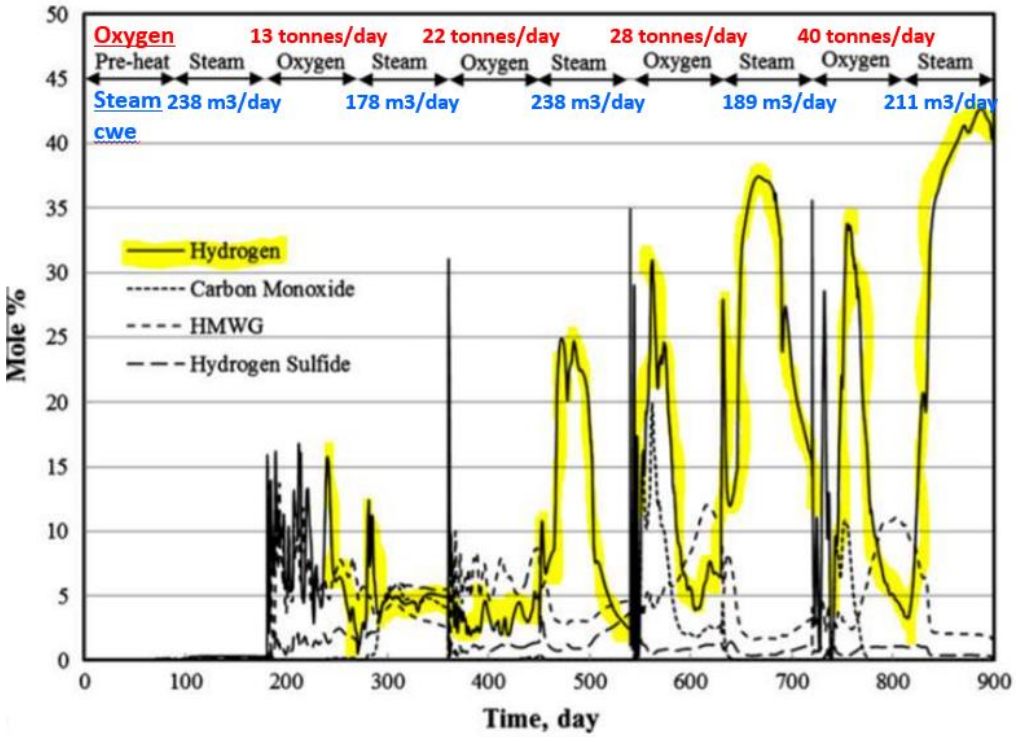
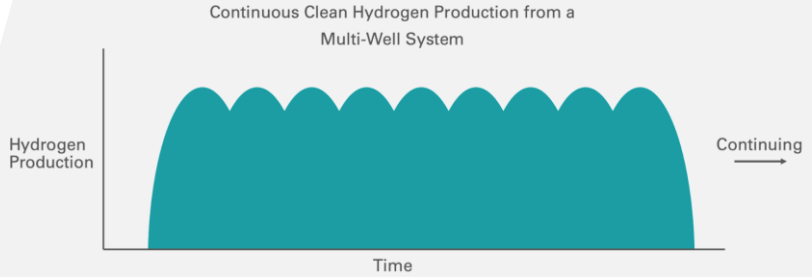
- Marguerite Lake 1983 (Alberta, Canada) produced H2 as a by-product of oxidation after injection of oxygen and steam1
- Over 500 other fire floods (oxidized reservoirs) around the world also produced H22





- Stable produced
- Volumes and concentrations

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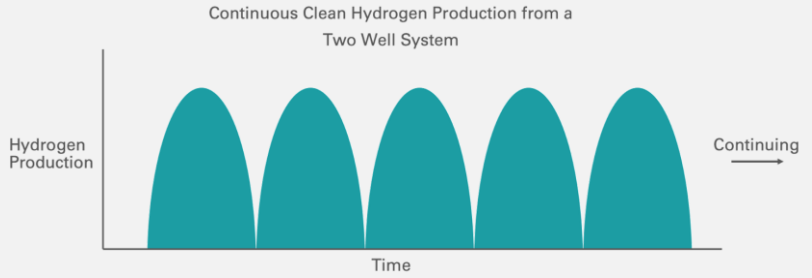
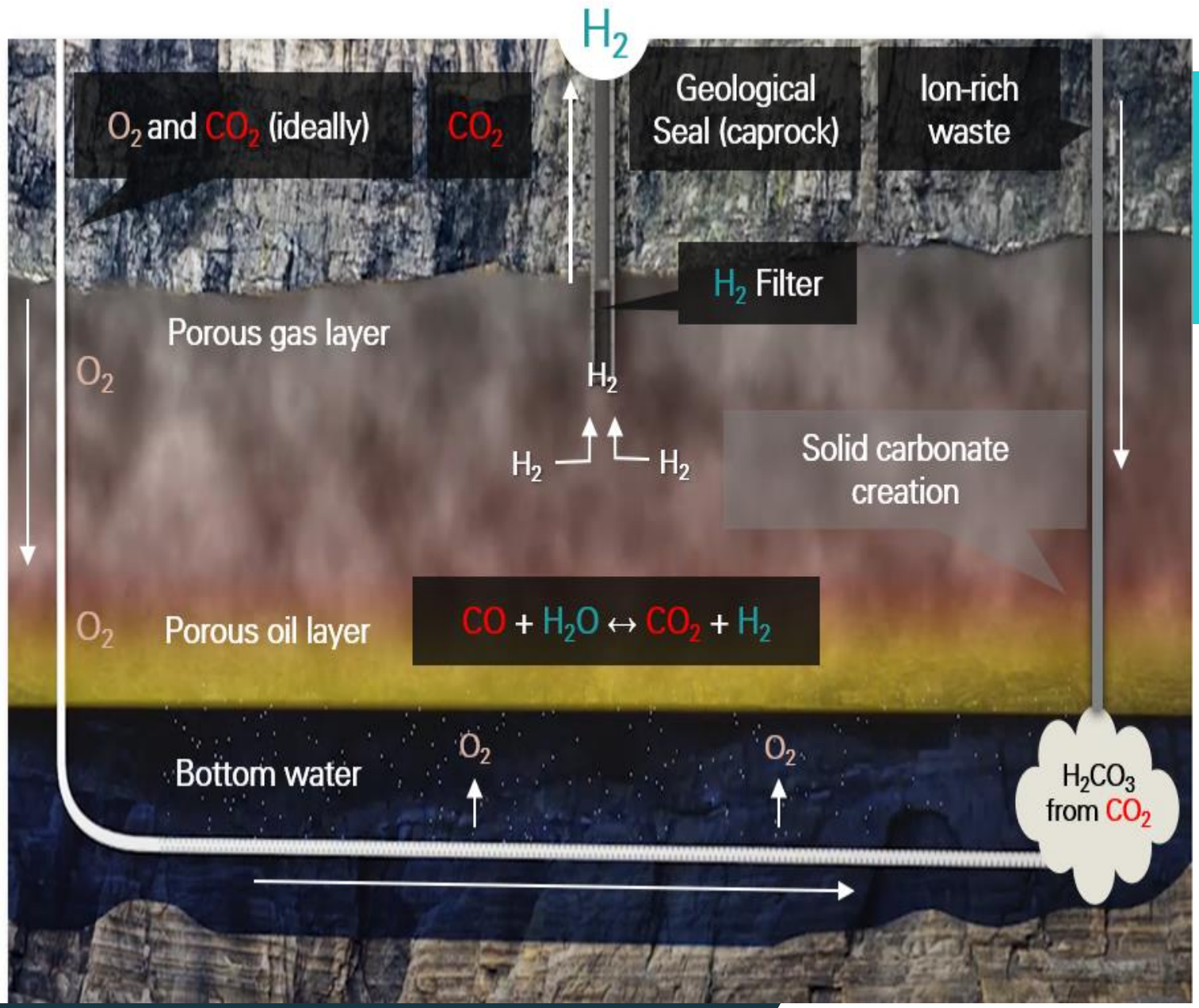


- Intermittent output
- Variable composition

Source: (1) Applied energy, Practical process design for in situ gasification of bitumen, Kapadia, Wang, Kallos and Gates. (2) See References slide



Aspects Of Proton's Process (Underground)

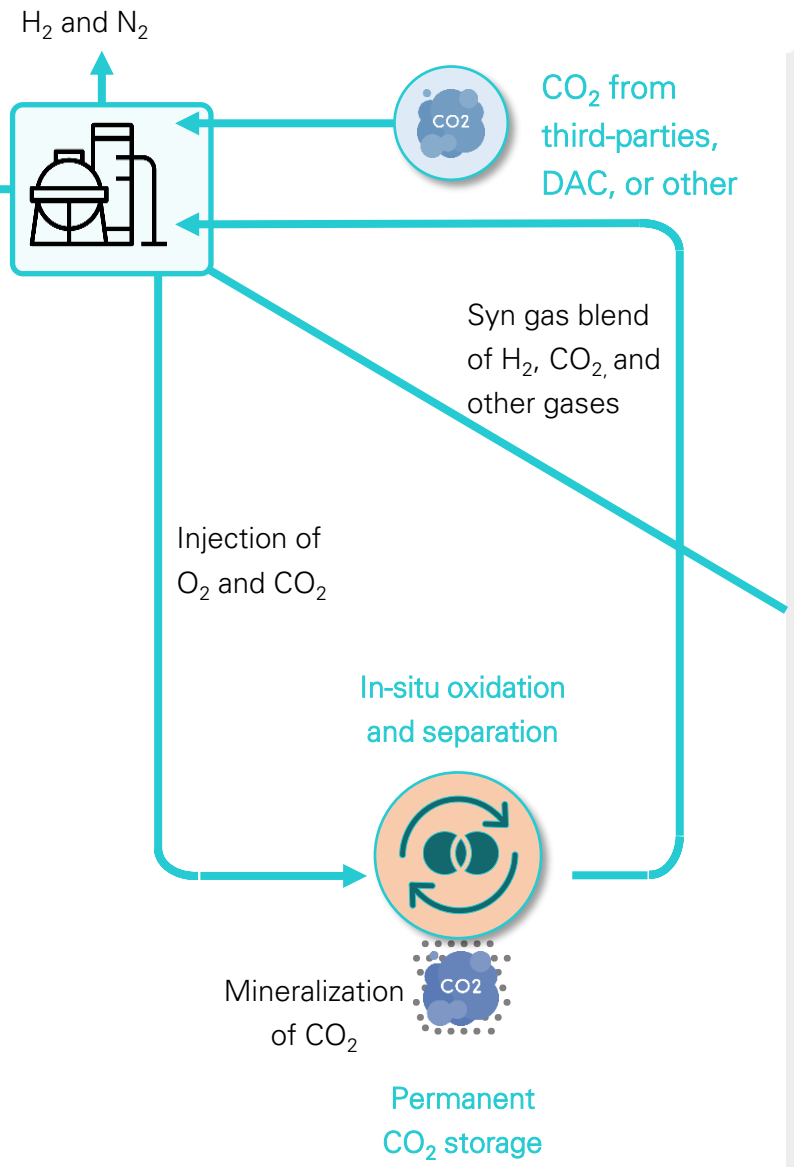
- Numerous reactions which ultimately liberate H2
- Most H2 productive reactions "Water Gas Shift" equilibrium reaction, and carbonate creation
- Thousands of reactions occur as the reservoir is oxidized, and they will vary based on the characteristics of each reservoir
- Some other **H2** productive reactions:
  - Partial oxidation
  - Aquathermolysis
  - Pyrolysis
  - Thermal decomposition
  - Gasification
  - Water Gas Shift
  - Reverse Methanation

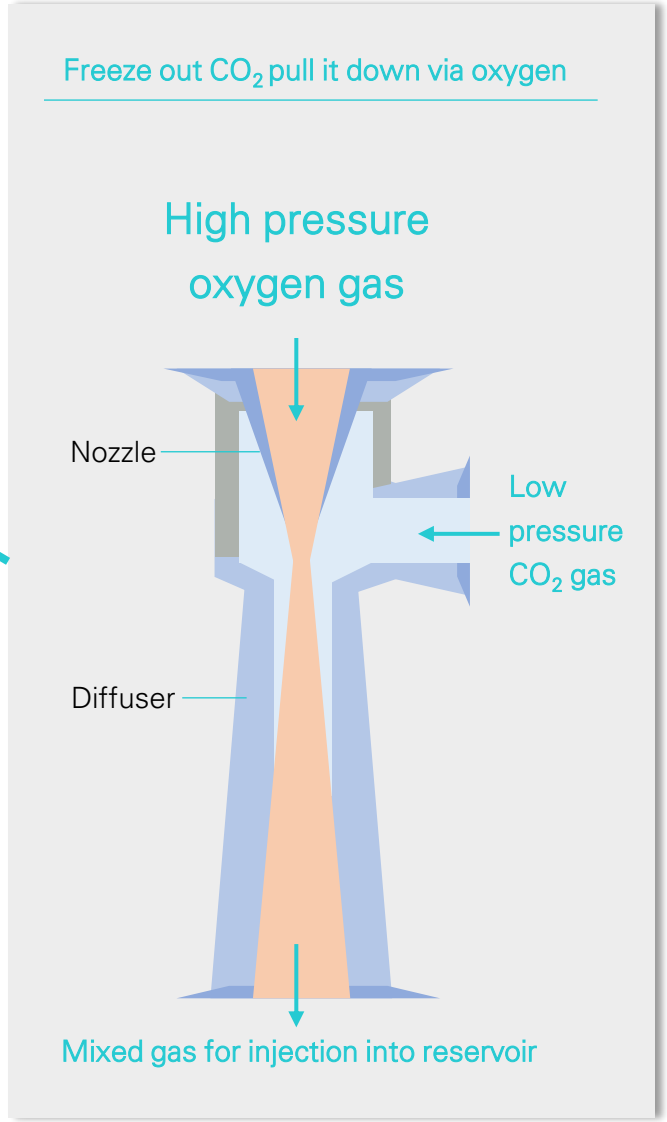
Source: Proton and (1) https://www.aer.ca/regulating-development/rules-and-directives/directives/directive-086

Cryogenic Fluids Help With Mixed Gas Distillation & Heat Exchange

Example of Air Separation Unit

Note: (1) Photo for illustrative purposes





Main Hydrogen Production Pathways Still Place A Burden On The Environment

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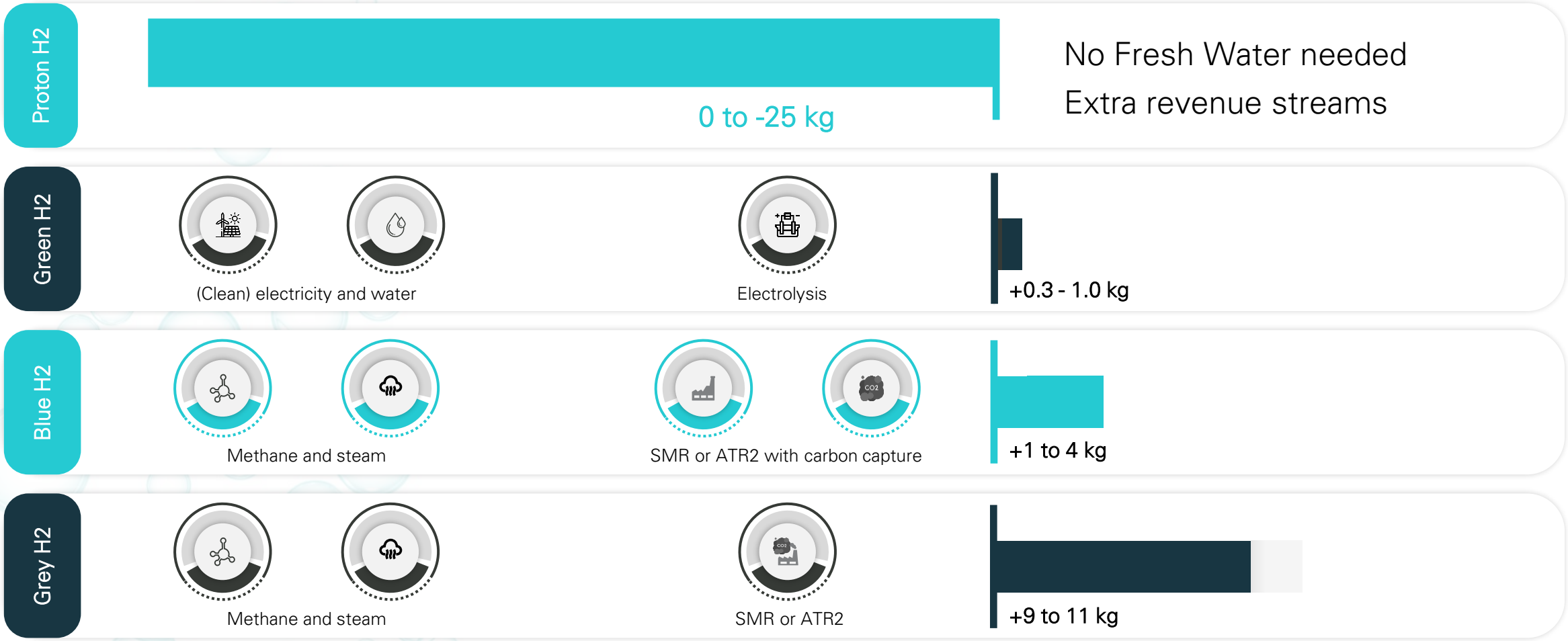
Lifetime GHG emissions1

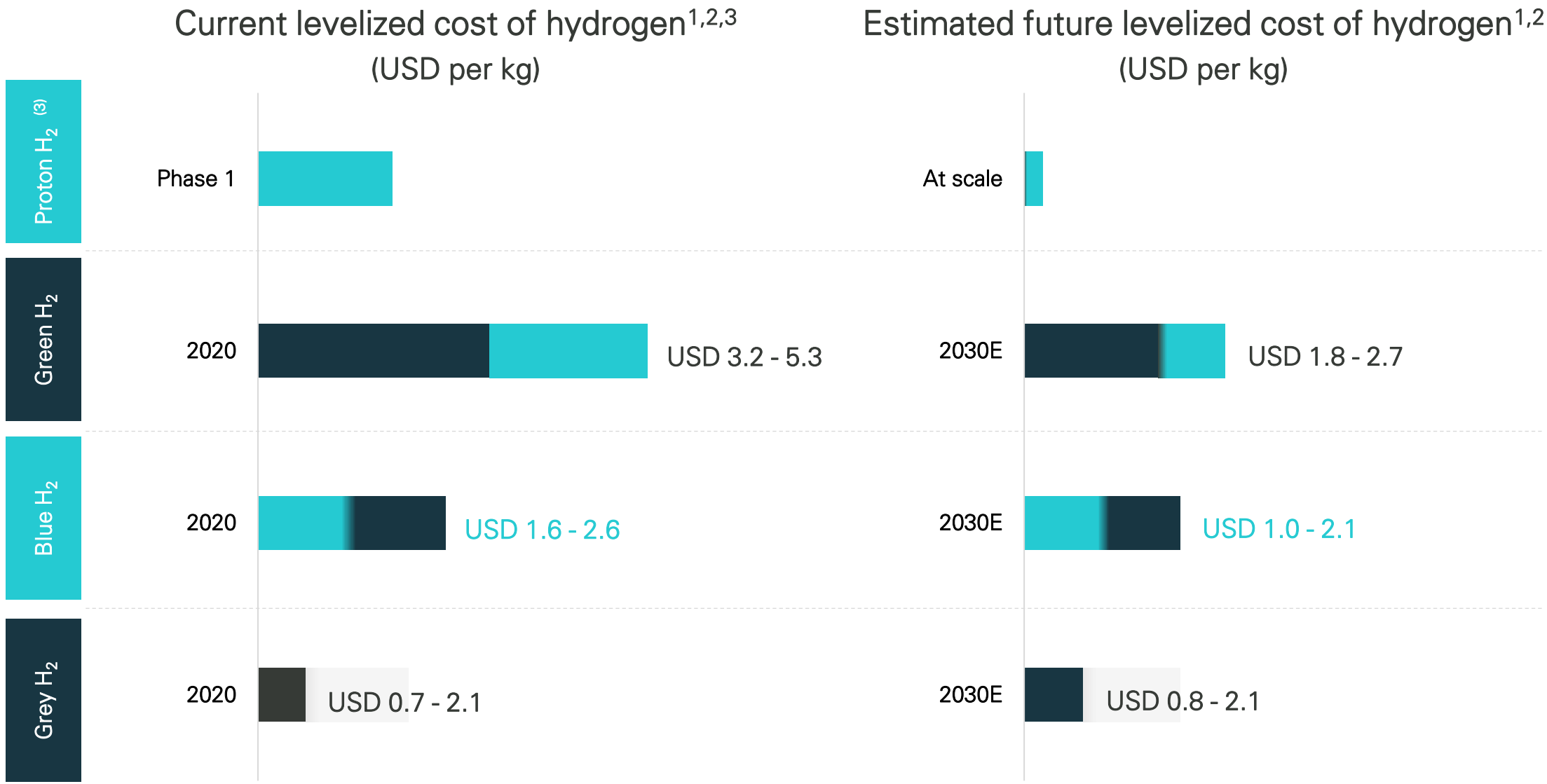
(kg GHG per kg H2, in 2030E)



Source: (1) International Energy Agency (2021), Net Zero by 2050, IEA, Paris; IEA Global Hydrogen Review 2021; Hydrogen Council; and British Columbia Hydrogen Study

Note: (2) Autothermal reforming also uses oxygen. (3) Proton calculations assuming CO2 sequestration

Hydrogen At Lower Cost Than Methane



Sources: (1) Hydrogen Council (2021) and BloombergNEF (2020). (2) Energy Transition Commission (2021), (3) Proton calculations assume all capital allocated to hydrogen production. (4) Government of Canada Carbon Pollution Pricing

Notes: Cost benchmarking for 2020 based on average of report by Hydrogen Council and Energy Transition Commission, while 2030 is based on the former.

Hydrogen Is Not The Only Revenue Source From Proton's Production Process

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Main revenue source

Additional revenue sources over time1

Hydrogen

Description
- Main output from the production process, with multiple potential sales paths ranging from direct feeding into the natural gas grid, direct sales for industrial and transportation applications, or conversion to power.

Potential customers
- Utilities, transport, vertical farmers

Production basis
- 1 tonne

Nitrogen

Description
- Coproduct of oxygen production from on-site ASUs. Can be combined with hydrogen or sold separately.

Potential customers
- Fertilizer

Estimated output per tonne of H2
- 12-16 tonnes

CO2 sequestration

Description
- Third-party CO2 injected and sequestered as part of the hydrogen production process. CO2 is permanently stored underground in the form of carbonate rock (mineralization). Generates emissions credits/offsets.

Potential customers
- Numerous. All potential buyers of emissions credits in the voluntary and compliance emissions markets.

Estimated output per tonne of H2
- 1-5 tonnes

Shared carbon tax savings

Description
- Proton's process has a lower carbon intensity compared to other types of hydrogen production. The lower carbon intensity is monetized through sharing of carbon tax savings on abated methane. Alternatively, it could be monetized through emissions credits.

Potential customers
- Numerous. All customers using hydrogen to displace methane.

Estimated value per tonne of H2
- USD 0.15[2]

Sources: (1) Current Proton estimates for relationship between hydrogen, nitrogen, and CO2 sequestration volumes. (2) Shared carbon tax savings assumes Proton can share in 25% of the CO2 tax savings, which are expected to increase over time according to the planned CO2 tax escalation in Canada, as published by the Canadian Federal Government.

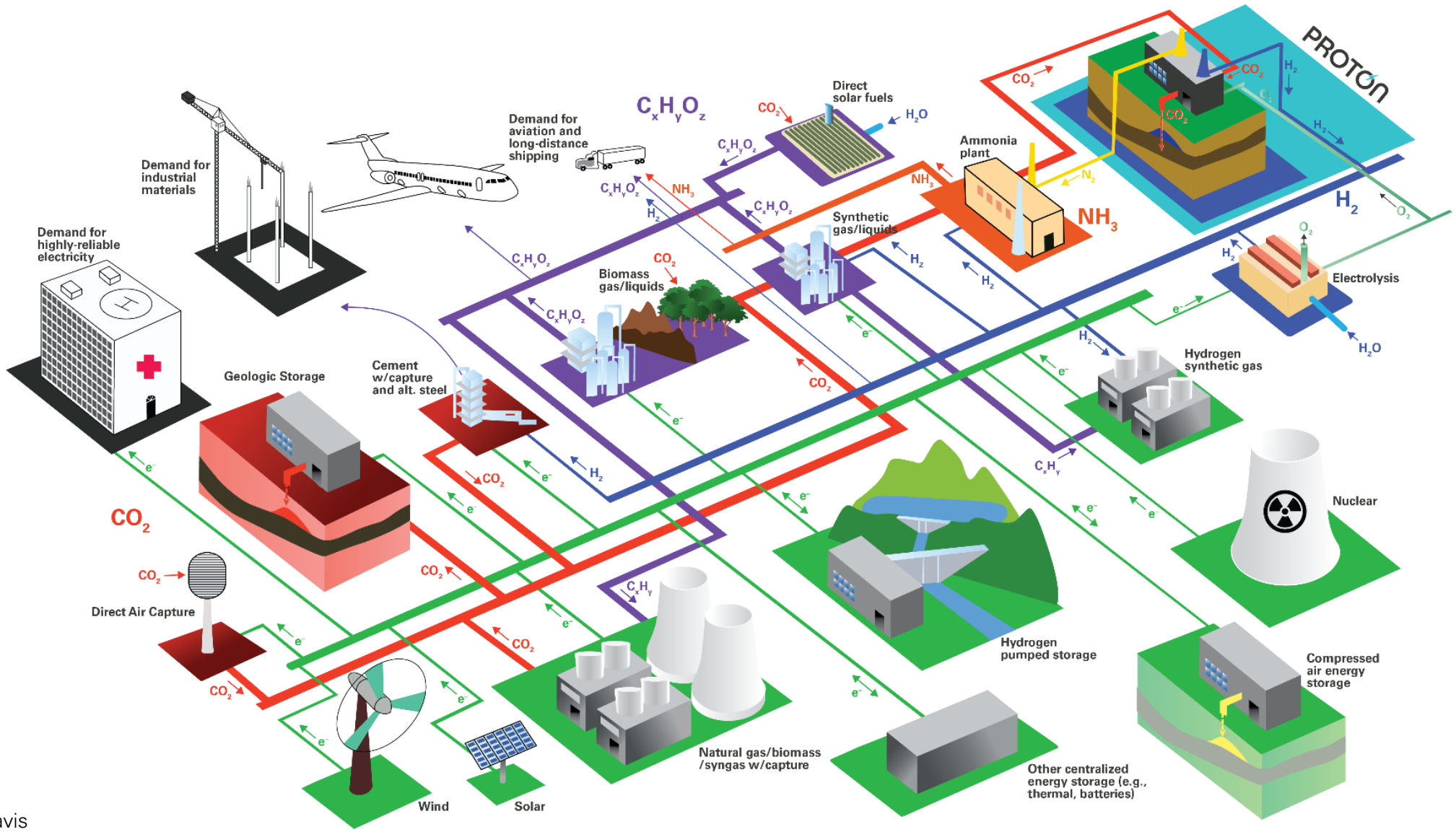
Note: Excludes potential byproduct revenues from oil or asphalt production as Proton ramps up the individual phases at Kerrobert

Proton Produces Hydrogen In Canada

Sources: (1) GLJ Reserves Report, effective Sept 30, 2021, Mechanical Look Ahead. (2) H2 production potential based on Proton calculations. See footnote on slide 10.

Note: (3) PPA generation set and hydrogen separation expected to be completed with use of IPO proceeds

Protons' Long-term Role In The Energy Transition



Source: UC Davis

Example Western Canadian Hydrogen Hubs And Industrial Infrastructure

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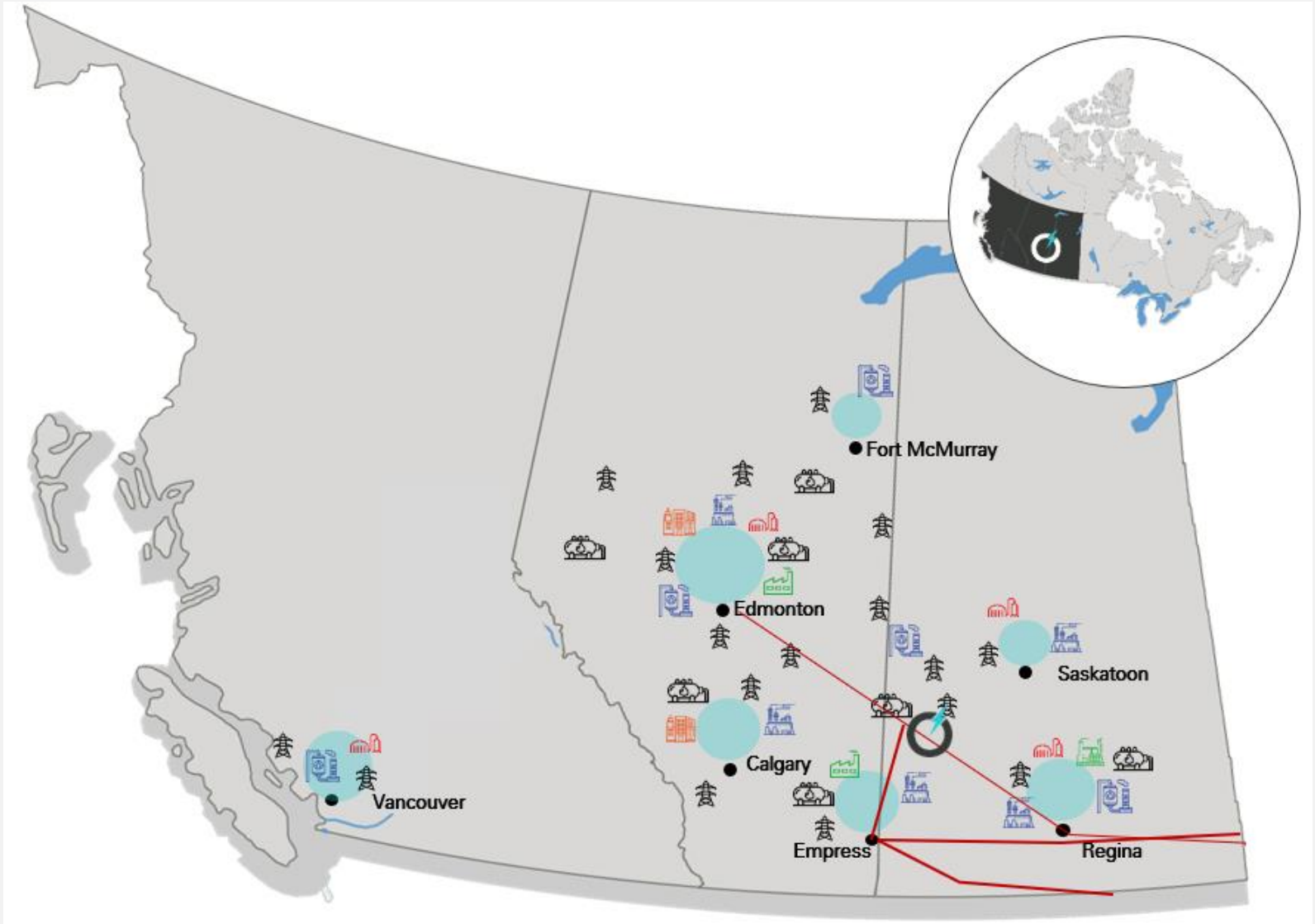

Energy Infrastructure

- Power Gen
- Refining/Upgrader
- NG/NGL Storage
- Cement
- Petro-chemical
- Chemical
- Steel
- Agriculture
- CCUS

Sources: (1) Proton, Alberta Hydrogen Strategy, and Canada's Hydrogen Strategy

Notes: (2) Hydrogen will initially be trucked to local hubs. Truck loading facilities will be built with proceeds. Other markets will require pipeline connections at Kerrobert, or additional on-site generation facilities to be constructed. (3) See license section of the presentation

Beyond Kerrobert, Targeting Further Growth Through Partnerships And Licensing

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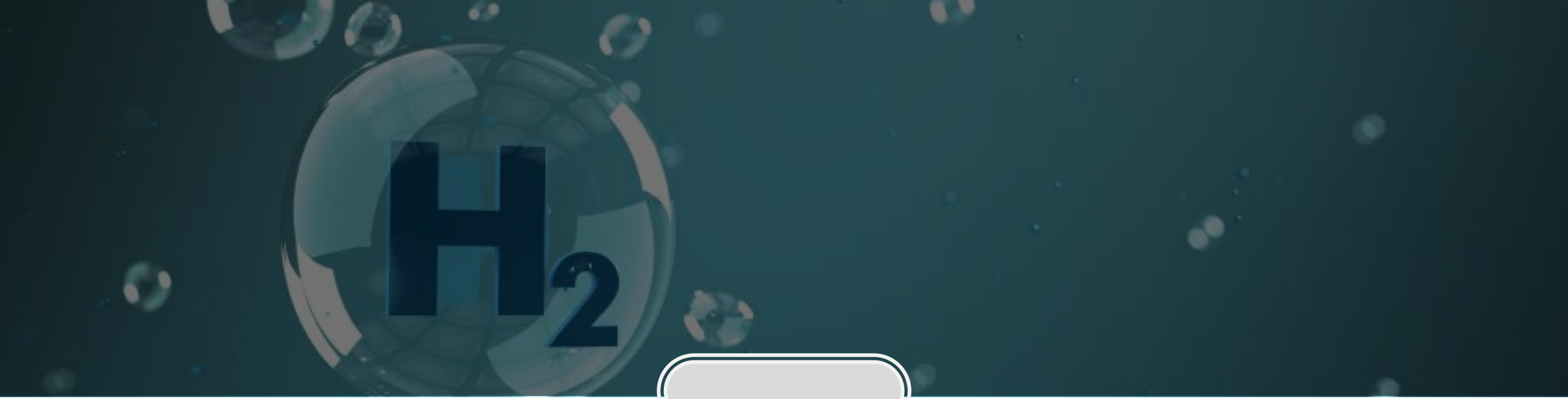
Source: Proton

Note: (1) See company overview section for more details



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