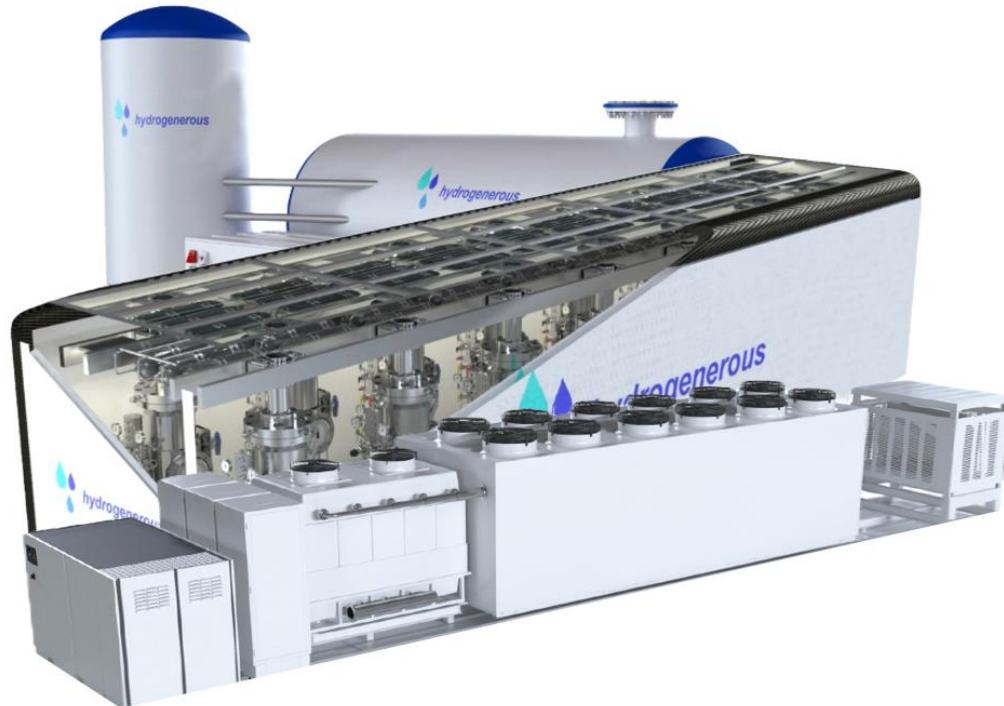
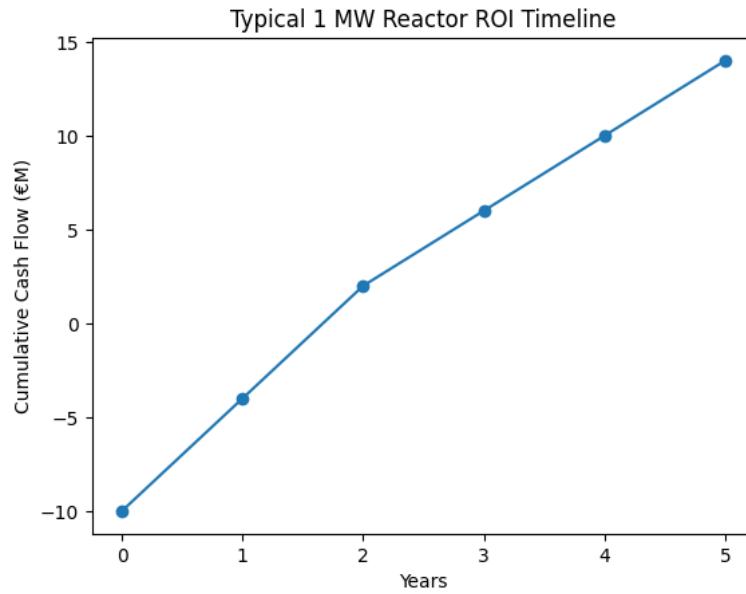
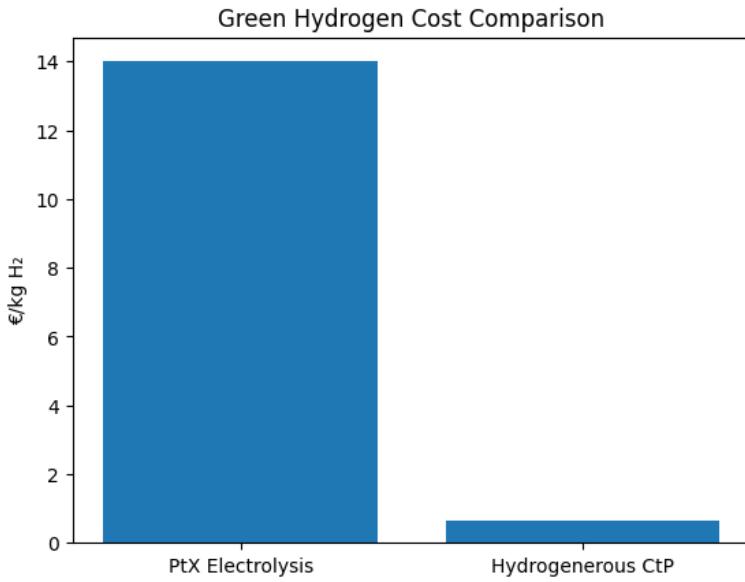


# Hydrogenerous Carbon-Negative Green Hydrogen

Chemical-to-Power (CtP) Technology



Licensing & JV Opportunities | [www.hydrogenerous.com](http://www.hydrogenerous.com) | [mail@hydrogenerous.com](mailto:mail@hydrogenerous.com)



## Investment Highlights

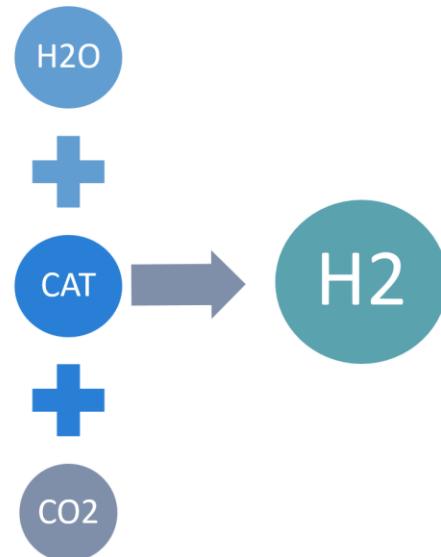
- €0.50–€0.78/kg green hydrogen (-90% vs PtX)
- No electricity, no electrolysis, no heat input
- Consumes 3 kg CO<sub>2</sub> per 1 kg H<sub>2</sub>
- 99.75% H<sub>2</sub> purity – lab verified
- ROI in 24–28 months

# HYDROGENEROUS

## REDEFINING THE ECONOMICS

### OF GREEN HYDROGEN

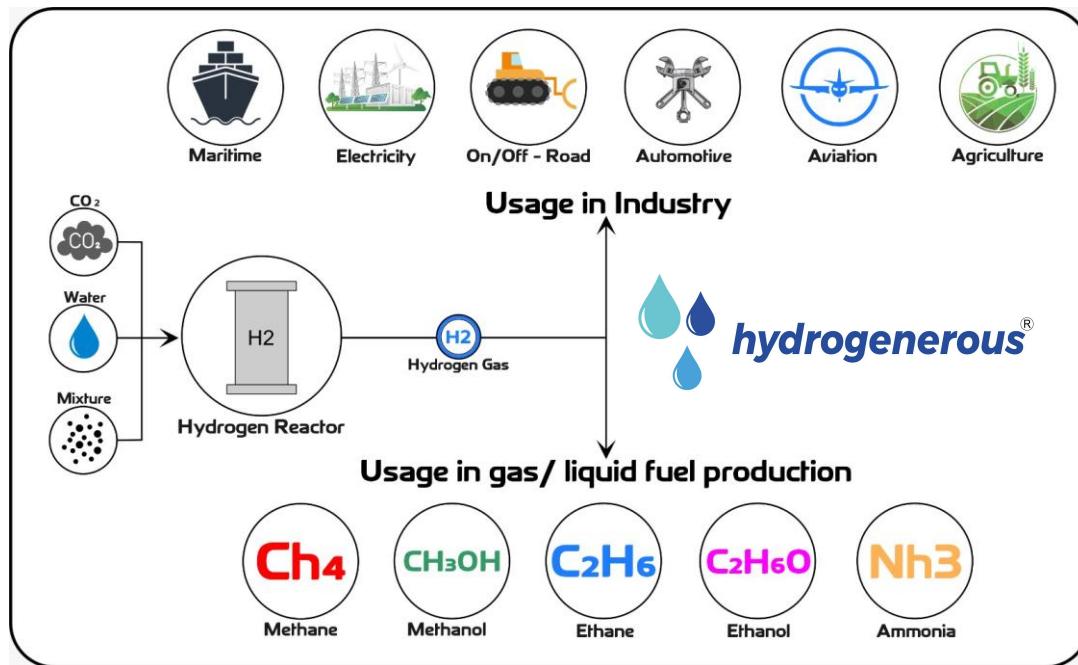
- Utilising patented Chemical to Power (CtP) technology for a carbon-negative future
- Catalysing assets into sustainable, environmentally friendly fuels



# THE GREEN HYDROGEN PARADOX

- Current PtX electrolysis is inefficient and costly €8.00 to €14.00 per kg of Green H<sub>2</sub>
- Requires massive renewable infrastructure
- Equipment lifespan ~3 years

The industry needs a simpler, cheaper CO<sub>2</sub>-based solution



# THE CTP BREAKTHROUGH – A TWO-IN-ONE SOLUTION

- Patented low-temperature chemical process
- Simultaneous hydrogen production and CO<sub>2</sub> sequestration (binding/absorbing CO<sub>2</sub>)
- Exothermic reaction – no external energy input
- Ambient temperatures (from <0 °C > 25°C <100°C)



# THE CHEMISTRY OF SUSTAINABILITY

## Inputs:

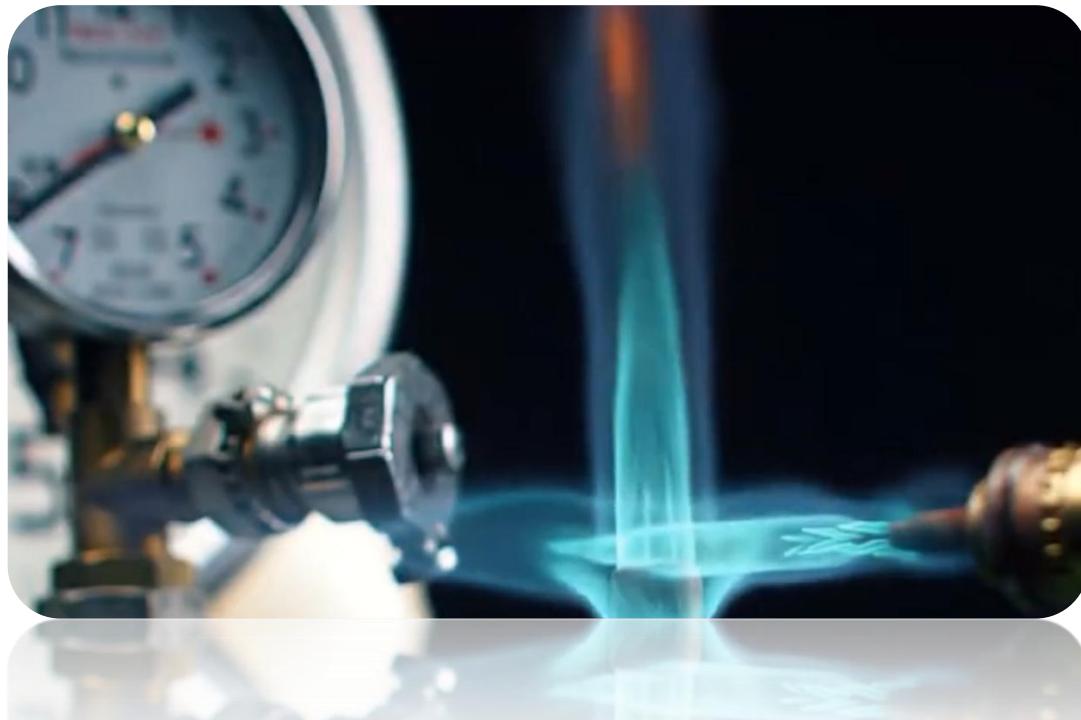
- Combustion powdered byproduct in total four powders are mixed with
- Any kind of Water is suitable, Ocean Water/Sea Water/Tap Water/Brackish or Waste Water
- $\text{CO}_2$  or precursor  $3 \text{ kg CO}_2 + 9 \text{ L water} + \text{powdered materials/catalyst} \rightarrow 1 \text{ kg green hydrogen}$

Reusable catalyst based on abundant ferrous materials and separators



# TECHNICAL **VALIDATION** & SPECIFICATIONS

- 99.75% hydrogen purity (IRPC-LS-17-00114)
- 1 MW reactor output: ~1,560 kg H<sub>2</sub> / 24h
- Outlet pressure up to 150 bar
- Exothermic process (~38°C self-heating)
- Continuous 24/7 operation



# ECONOMIC DISRUPTION – SLASHING COSTS BY 90%

PtX Electrolysis: ~€ 8.00- € 14.00 / kg Green H2

Hydrogenerous CtP: €0.50-€0.78 / kg Green H2

- ROI in 2 years
- 1 MW reactor  $\approx$  €1.8M KPI value per year



# CO<sub>2</sub> Utilisation – Turning Waste into Wealth

- Traditional CCS: cost with no return
- CtP CCU: CO<sub>2</sub> and Ocean Water becomes feedstock
- Ideal for power plants, steel mills, cement plants, logistic mission green fuel, biogas facilities, as direct utilization of flue gasses from diesel, petrol and gas.
- Enables climate-negative nations and save large infrastructure cost.



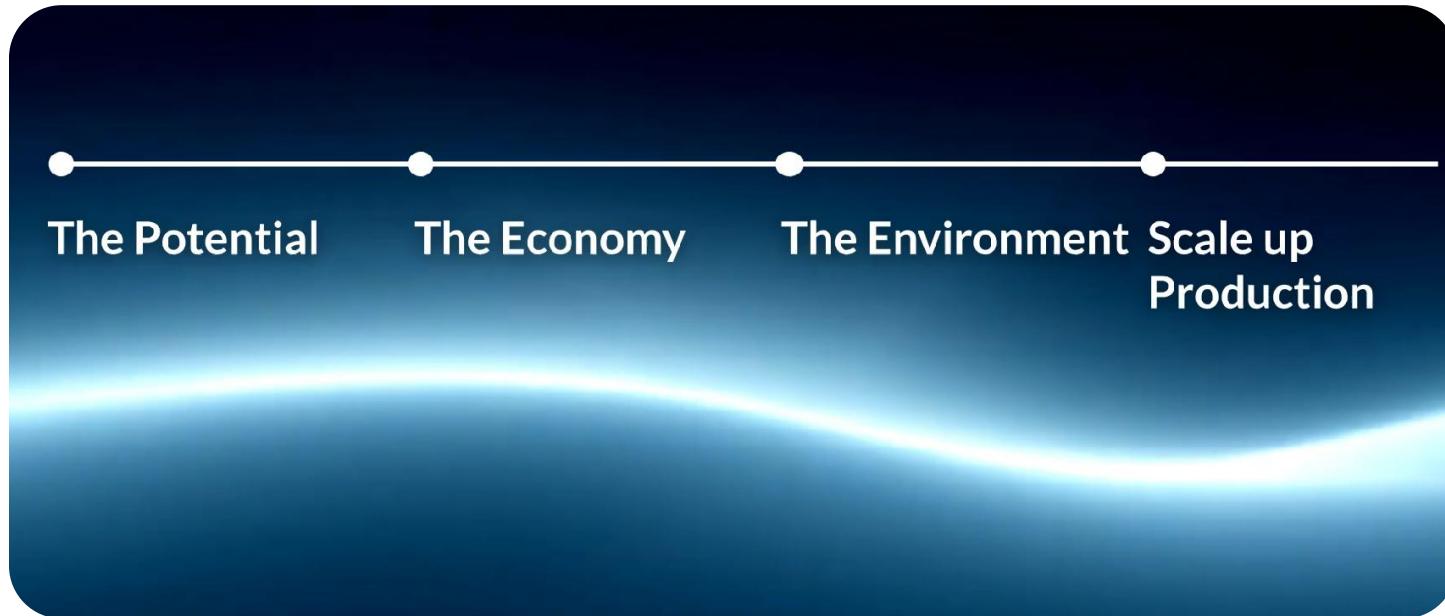
# SCALABILITY – FROM CONTAINERS TO SUBMERGED POOLS

Phase 1: Test facility

Phase 2: 65 m<sup>3</sup> container reactor – 261,818 kg/year

Phase 3: 6,500 m<sup>3</sup> pool reactor – 26M kg/year

Licensing/Partnering and JV-driven global rollout



# IMPACT ON GLOBAL MOBILITY

- 180-200 km heavy transport per 1 kg H<sub>2</sub>
- Fuel cost < €0.50 per 180-200 km
- Decentralized filling stations without grid dependency for trucks and shipping



# CONCLUSION – JOIN THE FUTURE

- Affordable, scalable green hydrogen
- Integrated CO<sub>2</sub> removal/utilization
- Ready for global deployment

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mail@hydrogenerous.com

