

# Introduction to Hydrogen Investing Worshipful Company of Fuellers



*November 2023*

**Investing in clean hydrogen  
for a climate-positive impact**

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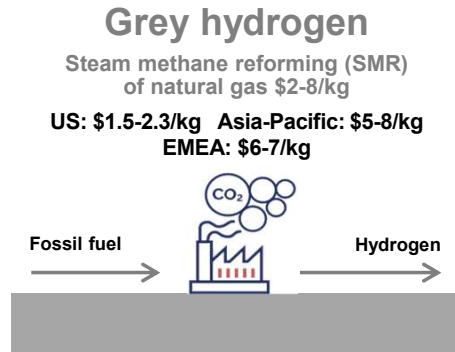
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# The colours of hydrogen

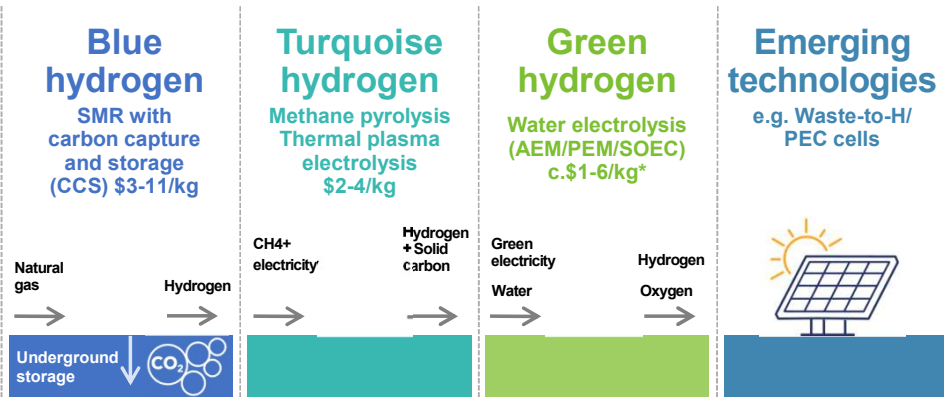


## \$175 billion “grey” market today...

- Industrial gas: refining, steel, cement, ammonia
- Cleaning up 830mtpa GHG emissions

## ...and >\$2 trillion clean hydrogen growth

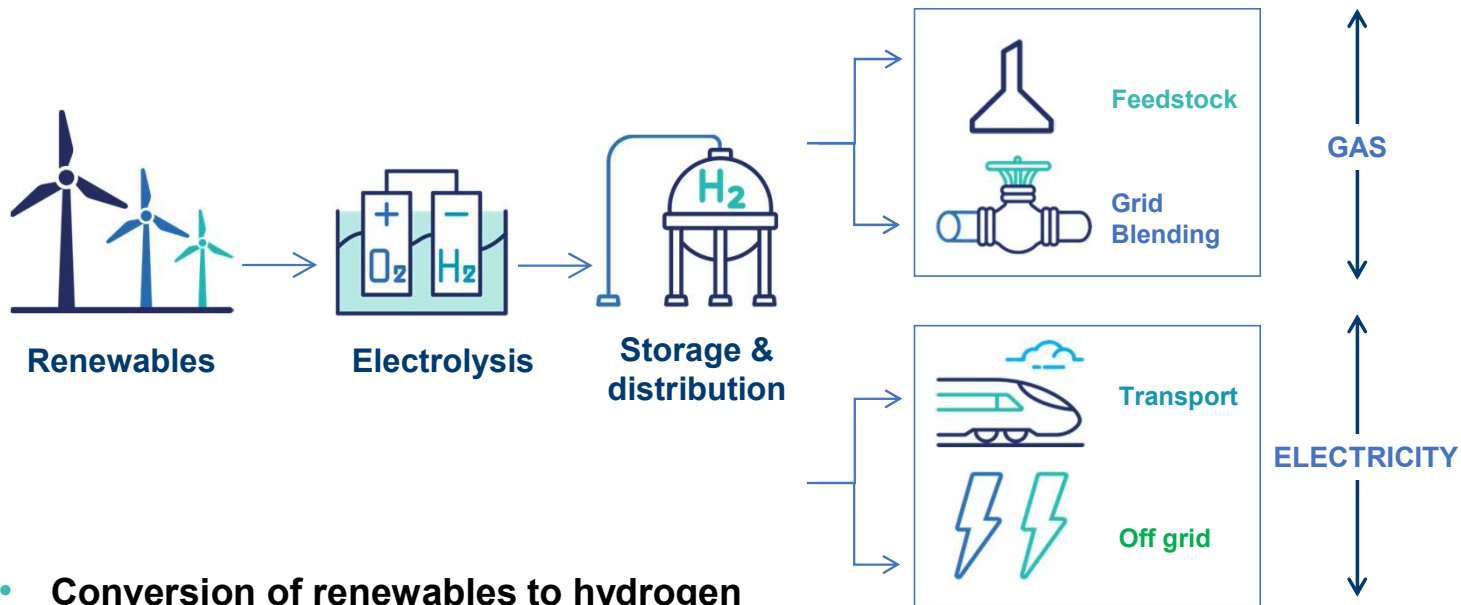
- Replacing oil: buses, trucks, ships, forklift, portable power
- Gas grid blending: eventual shift to 100% hydrogen
- Grid balancing via hydrogen storage



Total addressable market, \$b	2030	2050
Hydrogen Production	600	1,650
Storage & Distribution	20	75
Supply Chain	40	525
Hydrogen Applications	30	350
<b>Total</b>	<b>690</b>	<b>2,600</b>

\*USA \$1-5/kg including up to \$3/kg green hydrogen tax credit (PTC) under 2022 IRA

# Clean hydrogen: summary



- Conversion of renewables to hydrogen
- Multiple hydrogen applications to replace fossil
- 20 billion tonnes/yr GHG reduction potential





# Invested in significant manufacturing capacity and scale

## NanoSUN's hydrogen distribution and mobile refuelling equipment, UK

NanoSUN



- Completed first serial production and delivery of units
- Germany distribution agreement
- Plans to expand in EU and Middle East

## Gen2Energy, green hydrogen project developer, Norway

Gen<sub>2</sub> Energy



- Leading green hydrogen project developer, with over 900MW projects on the pipeline
- Plans for Gen2 Energy's hydrogen facility in Mosjøen approved, hydrogen offtake being signed

# Developer companies – well established project flow

## Norway



## Germany



• Illustration of the G2E hydrogen production facility in Mosjøen in Norway

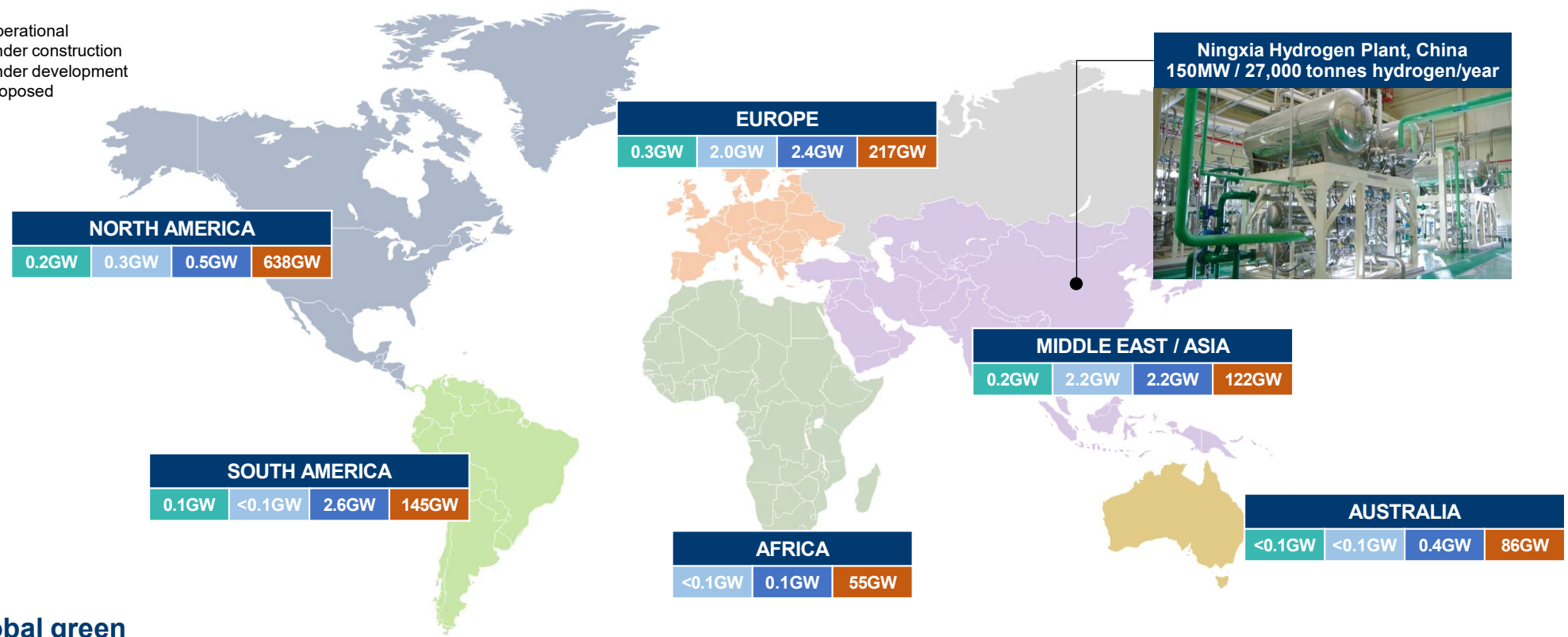


• HH2E Thierbach site, Germany  
• 6,000 tonnes of green hydrogen per year (100 MW)

- 13projects
- GW-scale sites

# Large-scale clean hydrogen deployment is underway

**Key:**  
■ Operational  
■ Under construction  
■ Under development  
■ Proposed



## Global green hydrogen projects:

	Operational:	Under construction:	Under development:	Proposed:
<b>Capacity:</b>	0.8 GW	4.5 GW	8.2 GW	1,260 GW
<b>Avoided GHG:</b>	1.0 MTPA	5.7 MTPA	10.3 MTPA	1,600 MTPA



## Contact us

### **HydrogenOne Capital LLP:**

Dr JJ Traynor, Managing Partner  
Richard Hulf, Managing Partner

E: JJ.Traynor@hydrogenonecapital.com  
E: Richard.Hulf@hydrogenonecapital.com

5 Margaret St  
London W1W 8RY

[www.hydrogenonecapitalgroupthplc.com/](http://www.hydrogenonecapitalgroupthplc.com/)

### **Barclays Bank PLC:**

Dion Di Miceli  
Stuart Muress

E: BarclaysInvestmentCompanies@barclays.com  
T: +44 20 7623 2323