



Navigating Hydrogen Finance

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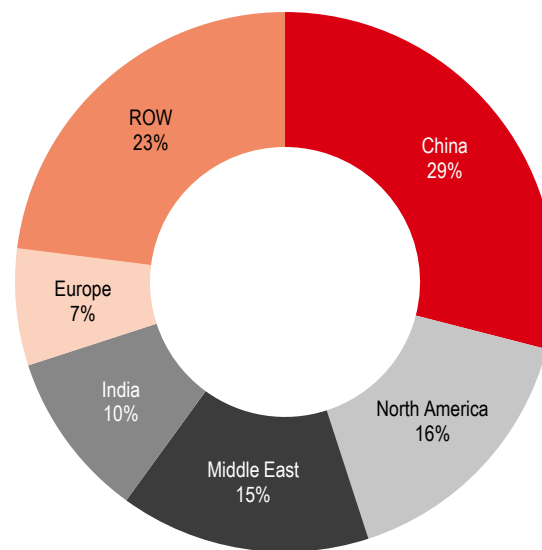
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Global hydrogen demand is inflecting

- **Demand increased by 2% to c100 Mt in 2024**, in line with overall energy demand growth
 - China remains the largest consumer (29%) and driver of demand growth (2%)
 - North America is only 16% of global demand, with modest growth of 0.5%
 - Middle East (15%) and India (10%) are experiencing strong growth at 6% and 4%, respectively
 - Europe rounds out top 5 consuming region at 7% but demand growth was flat
- **Select governments have set hydrogen production and consumption targets:**
 - China – 100-200 kt of green hydrogen production by 2025
 - During the UN Climate Summit (24 September 2025), President Xi announced China's new climate plans for 2035, which aims to: 1) cut GHG emissions by 7% to 10% off the peak, 2) increase non-fossil fuel mix in energy consumption to >30% from 25% in 2030 target, and 3) double wind & solar capacity to 3,600GW from 1,700GW currently
 - On the same day, the National Energy Administration published a new commentary, highlighting the use of wind & solar for the production of green hydrogen, methanol and ammonia as clean fuels for industrial inputs
 - India – 5 Mtpa of green hydrogen production by 2030
 - Japan – 3 Mtpa of hydrogen consumption by 2030
 - Saudi Arabia – 4 Mtpa of clean hydrogen production by 2030, of which 1.2 Mtpa is green
 - UAE – 1.4 Mtpa by 2031 and 14 Mtpa of blue and green hydrogen by 2050
 - Oman – 1 Mtpa by 2030 and 8.5 Mtpa by 2050

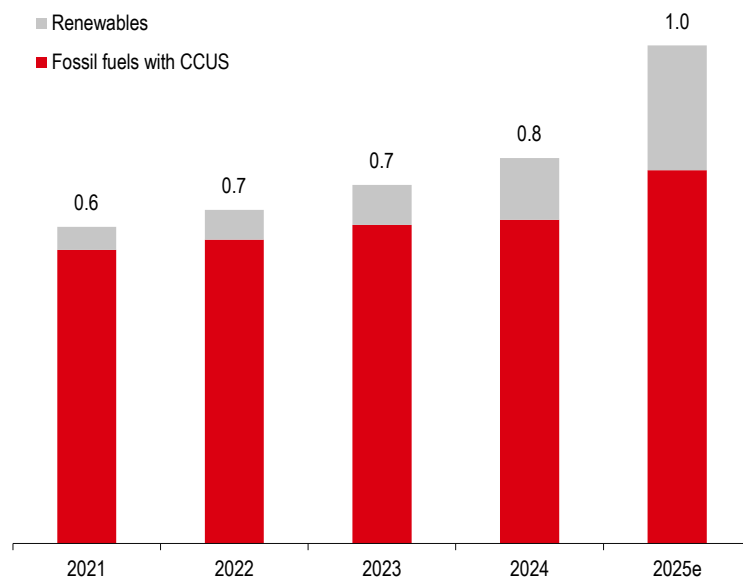
2024 global hydrogen consumption (c100 MT)



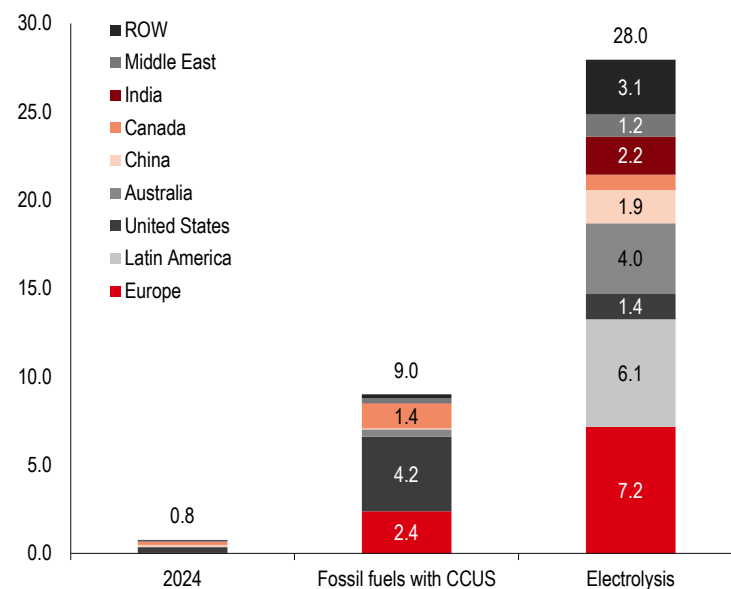
Supply met with unabated fossil fuel

- **Low emissions growth remains challenged**; production grew by 10% but at c1 Mt in 2025 will account for less than 1% of global production
- **Development costs increasing** from construction delays, supply-chain pressures and inflation, high interest rates, and an uncertain regulatory environment while demand is challenged by low US natural gas prices and weak domestic demand-side incentives
- **BloombergNEF cut its 2030 clean hydrogen supply estimate to 5.5 Mtpa**, down from an optimistic 16.4 Mtpa a year ago, primarily for slower policy implementation

Production of low emissions hydrogen (Mtpa)



2024 production vs. 2030e announced capacity (Mtpa)

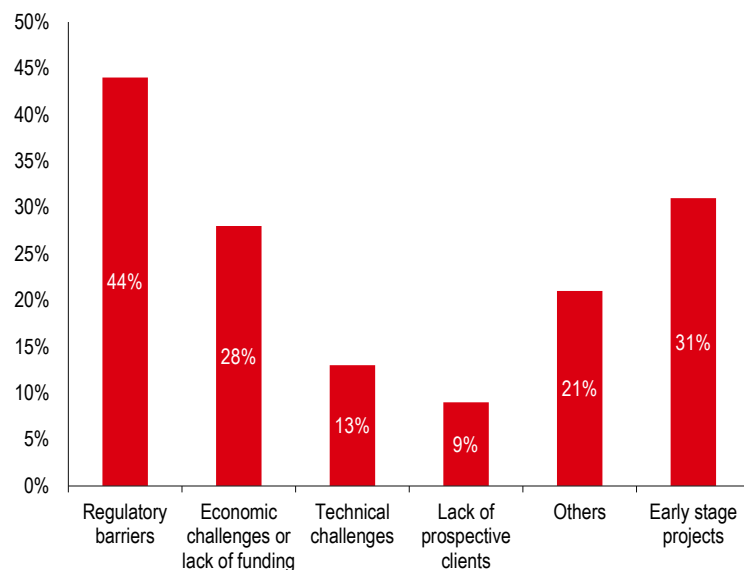


Sources: EIA, HSBC Global Investment Research

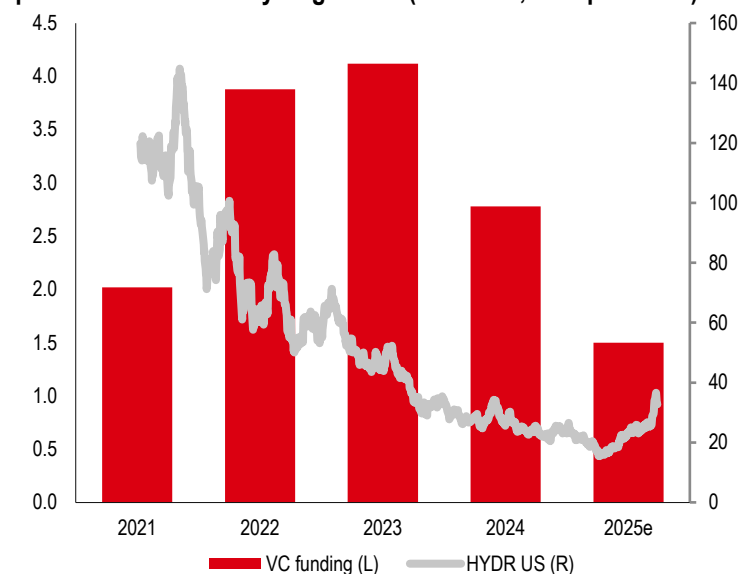
Low emissions supply growth faces financial challenges

- Neom Green Hydrogen Project required USD8.4bn in financing, up 70% from the initial USD5bn estimate, including USD6.1bn in non-recourse loan from 23 banks and institutions
- **Venture capital funding for hydrogen start-ups have declined since 2023**, trailing the declining share price of publicly traded hydrogen companies
 - One-third decline in 2024 outpaced the decline in broader energy VC funding

Reasons cited for cancellation of 32 select low emissions hydrogen production projects



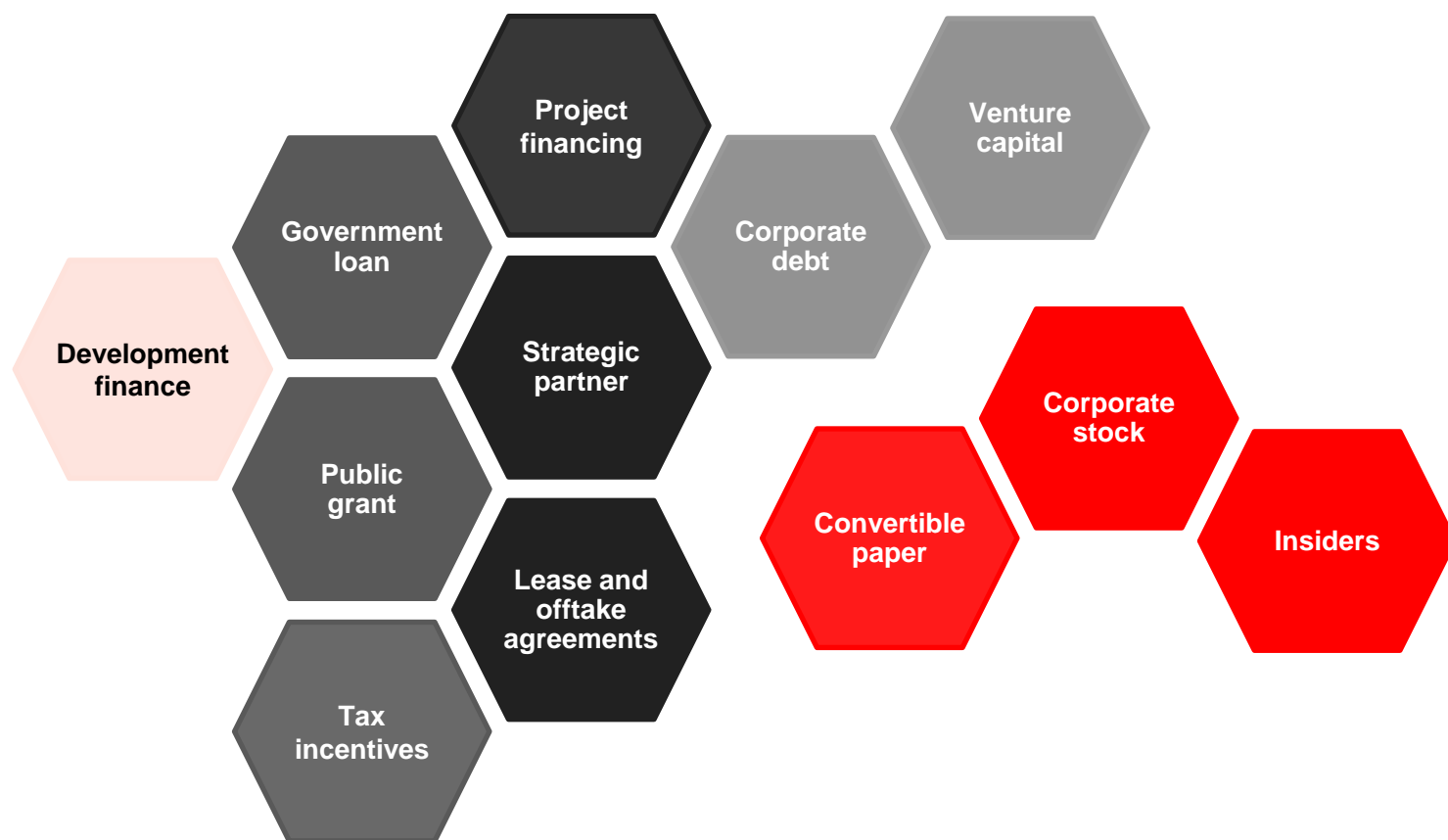
Annual VC funding of hydrogen start-ups (USD billion) vs. daily price of the Global X Hydrogen ETF (HYDR US, USD per share)



Sources: EIA, Bloomberg, HSBC Global Investment Research

Blended financial structures are necessary for mitigating risk

- The IEA's Global Hydrogen Review 2025 forecasts global low-emissions hydrogen project capital spending to reach **USD8bn in 2025**, building on an 80% increase to USD4.3bn in 2024
- Hydrogen Council's Global Hydrogen Compass notes global committed investments of **USD110bn from 510 clean hydrogen projects by 2030**, representing 5 Mtpa of new capacity



Intermediate considerations

- New era of easing interest rates, tariffs, rapid load growth, long interconnection queue and lead times for gas power equipment
- One Big Beautiful Bill Act accelerates construction timelines and supports shovel-ready projects, but favors fossil fuel with CCUS
- Technology readiness as first-of-a-kind demonstration prepares to execute at scale
- Colocation trends, especially for AI data centers and crypto mining
- Emergence of geologic hydrogen as a new primary source of energy
 - Koloma was the largest beneficiary of US VC funding (USD400m) in 2024

Bankability: support customers with capital and connections

HSBC targets net zero banking by 2050

- HSBC provided USD54.1bn in sustainable finance in 1H 2025, +19% y-o-y, and USD447.7bn since 2020 vs. **2030 goal of facilitating USD750bn to USD1trn of sustainable finance and investments**
- **HSBC Innovation Banking** focus on early stage/portfolio companies, with sector expertise (institutional knowledge, networking, and best practices) and lending capital to support in various aspects of their growth (runway extension, acquisition financing, working capital), venture capital and pre-series A to post IPO
- **Corporate and institutional Banking** extends into capital markets and advisory services, with financing capabilities supported by the strength of HSBC's balance sheet and global network



Sources: HSBC

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