US Clean Hydrogen Market Outlook

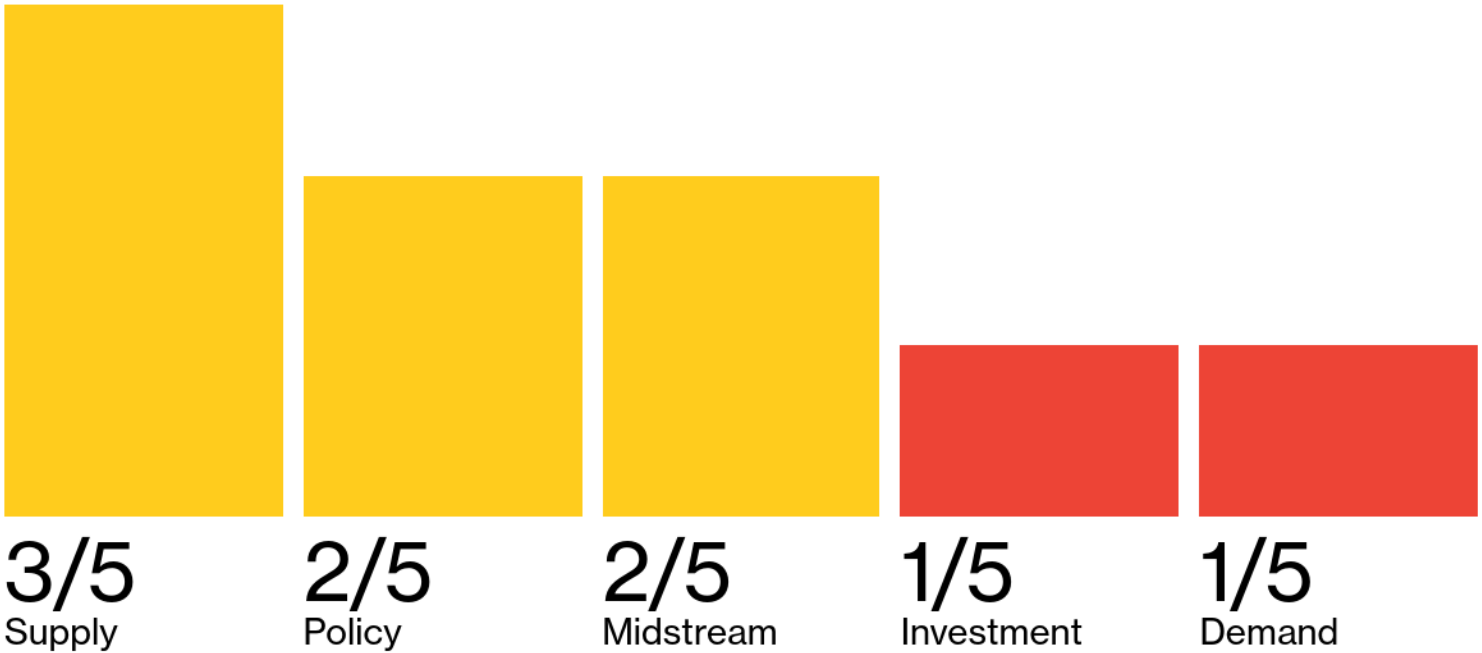
Green Hydrogen Summit USA

Payal Kaur

September 30, 2025

BloombergNEF

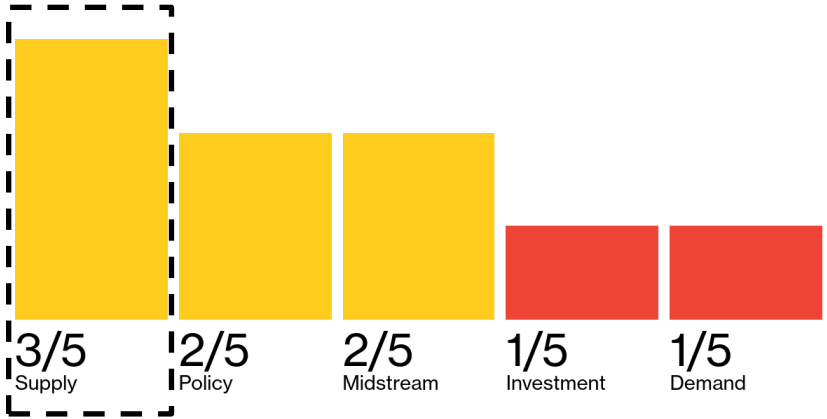
Hard times for hydrogen: BNEF's 1H 2025 H_2 sector scorecard (9/25)



Source: BloombergNEF. Note: 4-5 = on a good track, 2-3 = some progress, 0-1 = more work needed.

Supply

Lots of announced supply, but very little of it is materializing

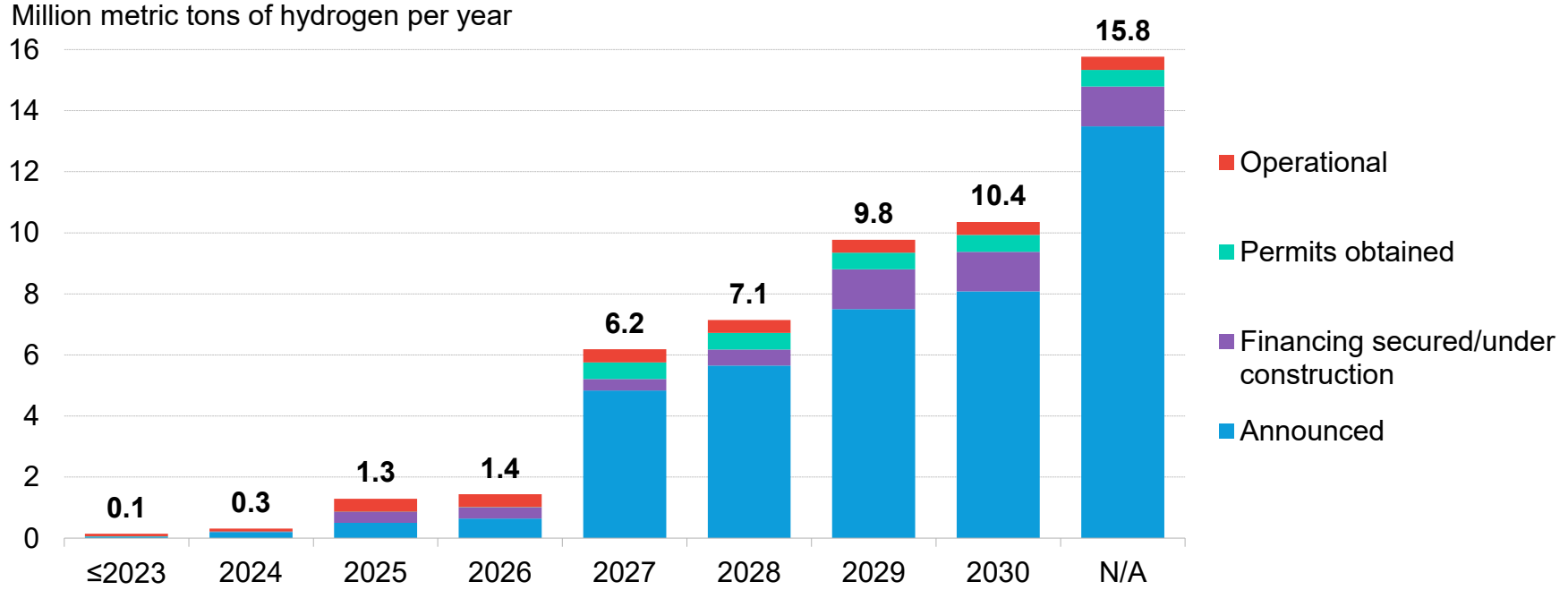


BloombergNEF

Supply

About 11% of planned US volumes are committed

Cumulative annual clean H_2 production announced to come online, by year

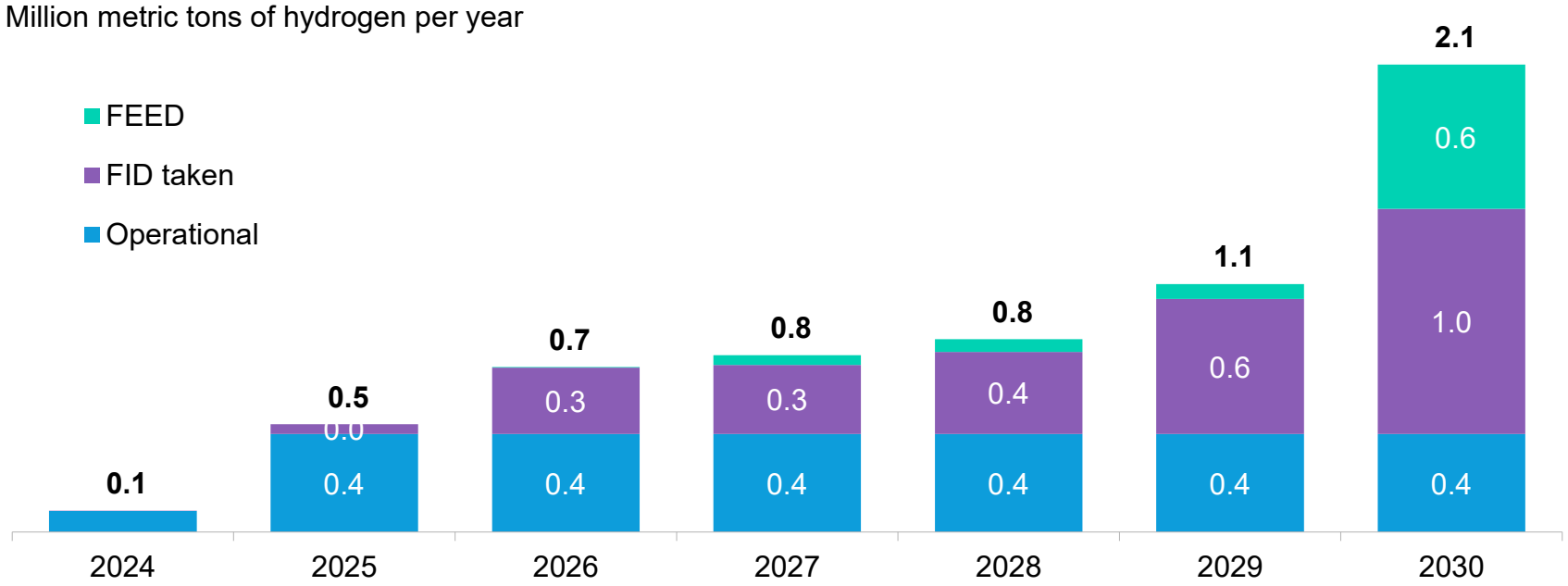


Source: BloombergNEF. Note: Data as of September 9, 2025.

BloombergNEF

US leads global supply thanks to overseas demand for its blue H_2

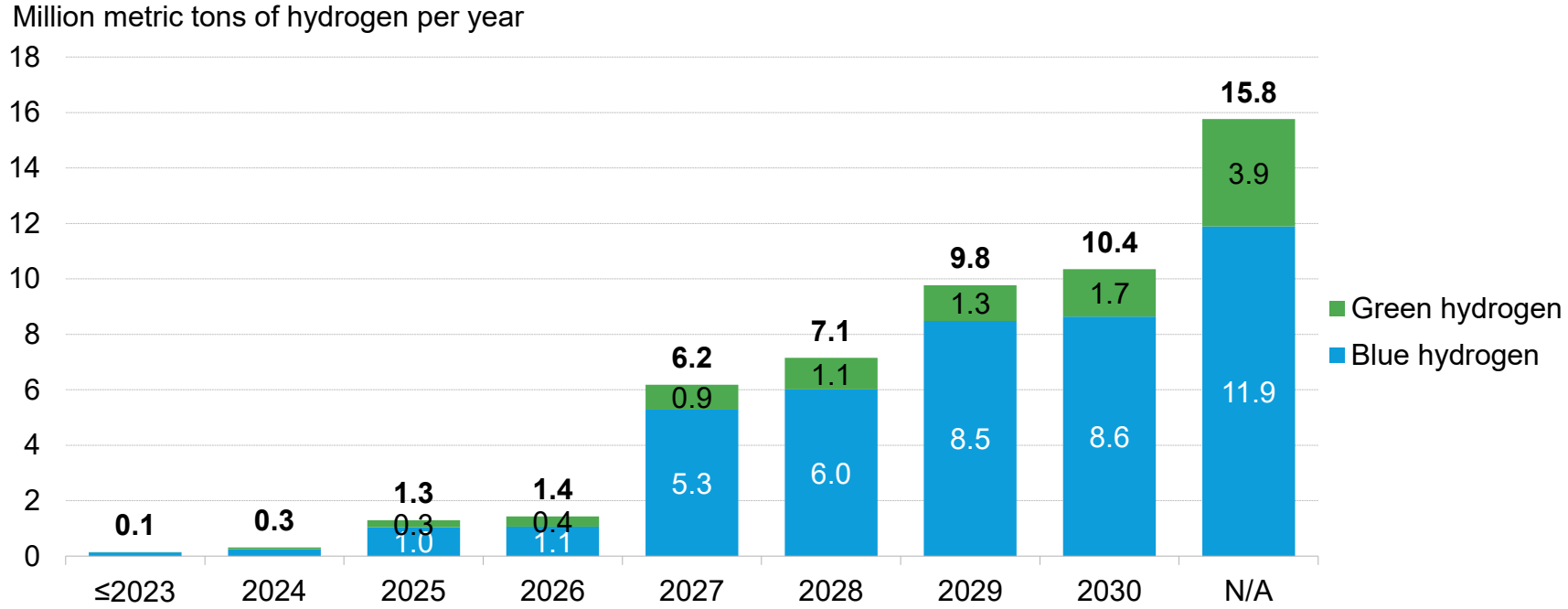
Probability-adjusted US clean hydrogen supply forecast by project status



Source: BloombergNEF. Note: FEED is front-end engineering design. FID is final investment decision.

Blue hydrogen dominates planned US volumes

Cumulative annual clean H_2 production announced to come online, by year

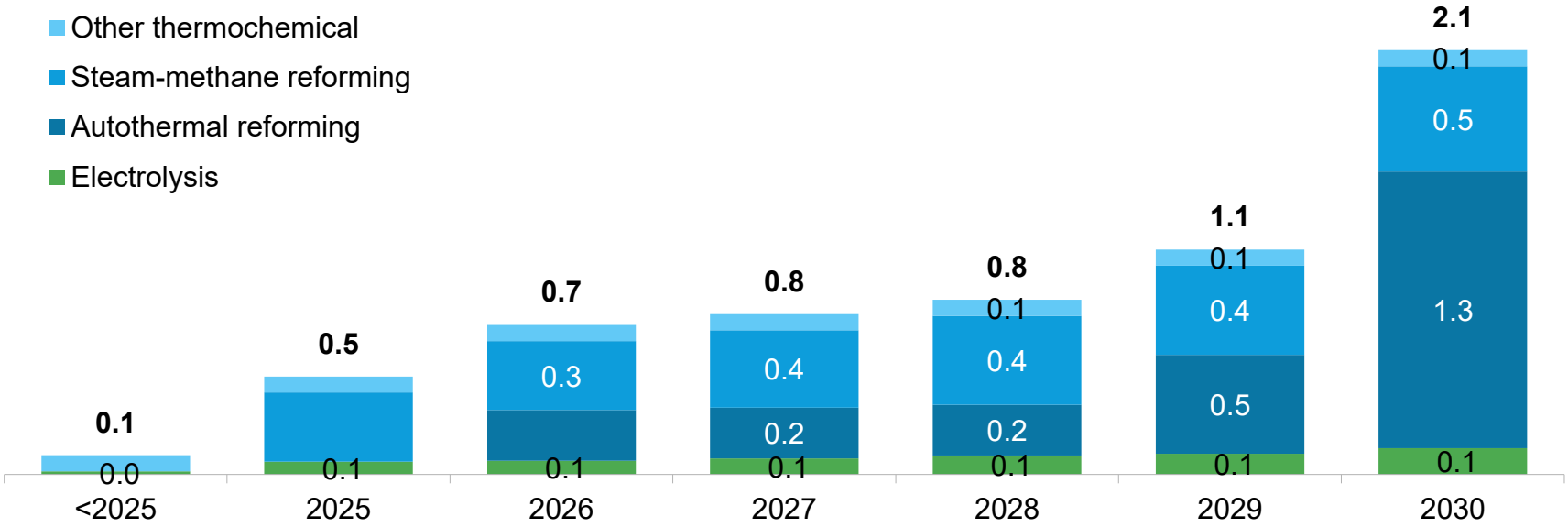


Source: BloombergNEF. Note: Data as of September 9, 2025.

Blue hydrogen dominates forecast US volumes

Cumulative annual clean H_2 production forecast to come online, by year

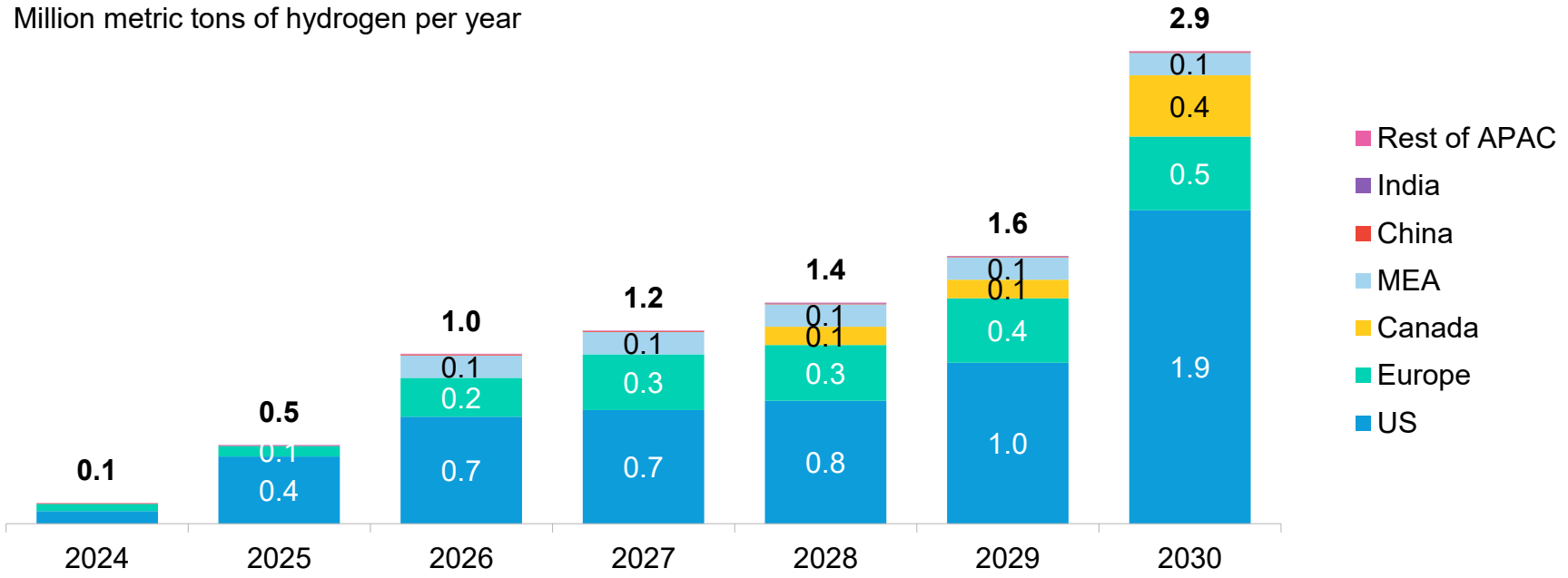
Million metric tons of hydrogen per year



Source: BloombergNEF

Blue H_2 supply is concentrated in North America due to tax credits and cheap gas

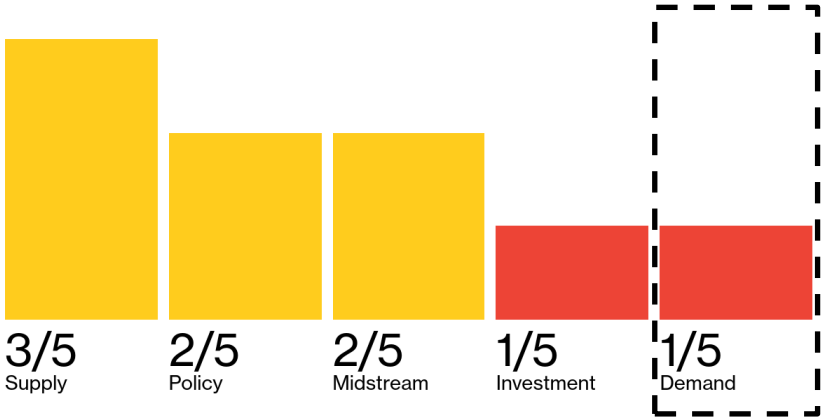
Probability-adjusted thermochemical clean hydrogen supply forecast by market



Source: BloombergNEF. Note: 'APAC' stands for Asia Pacific. 'MEA' stands for Middle East and Africa.

Demand

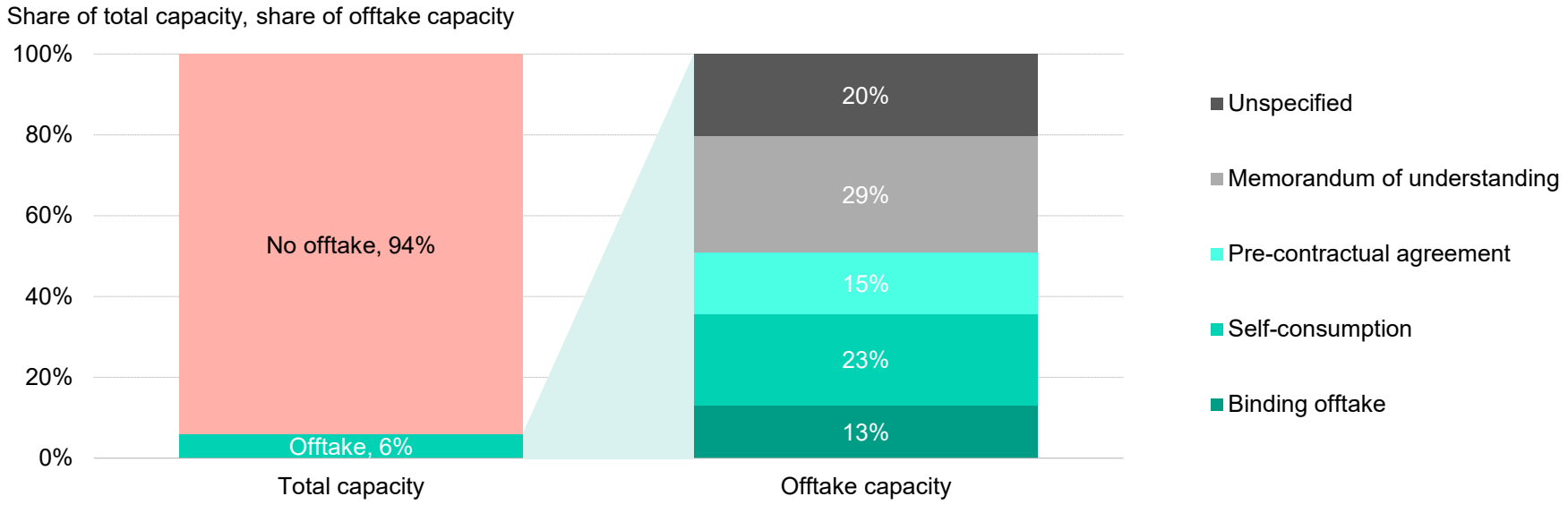
Binding offtake continues to remain elusive



BloombergNEF

Only 13% of contracted H_2 offtake volume is binding

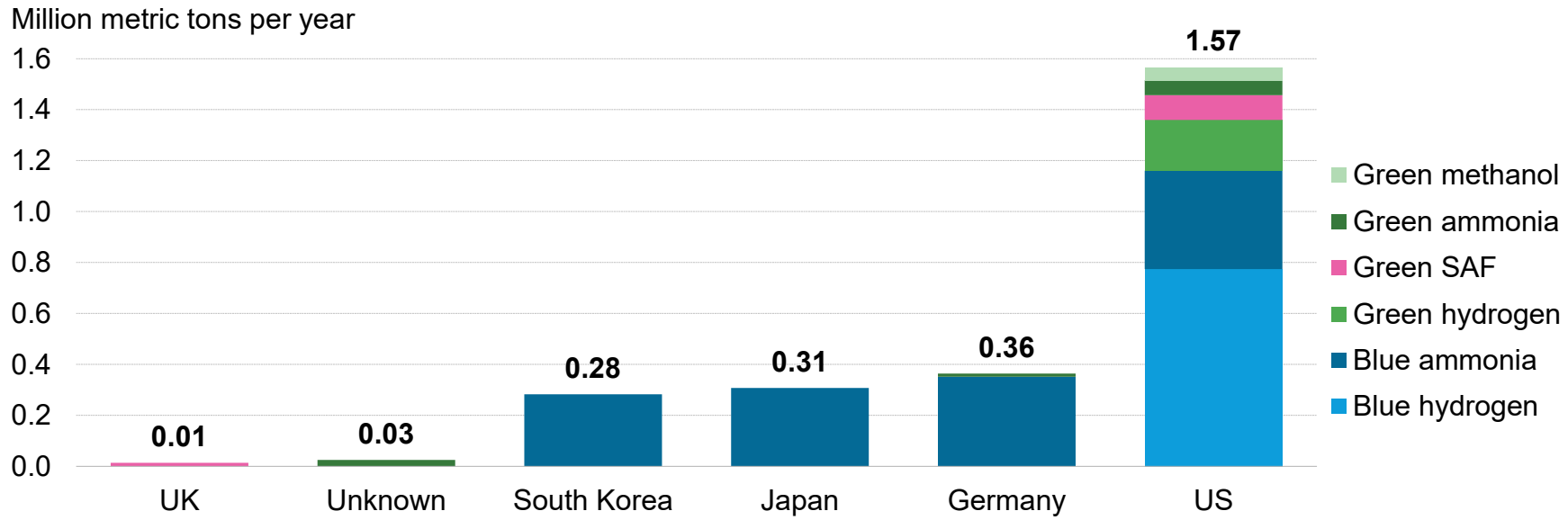
Clean hydrogen offtake by agreement type



Source: BloombergNEF. Note: Data as of May 30, 2025. BNEF's Hydrogen Offtake Agreement Database only includes projects of at least 20 megawatts or 2,800 metric tons per year of capacity. Pre-contractual agreements include term sheets, letters of intent, and heads of agreements.

US is supplying clean H_2 mainly for domestic use

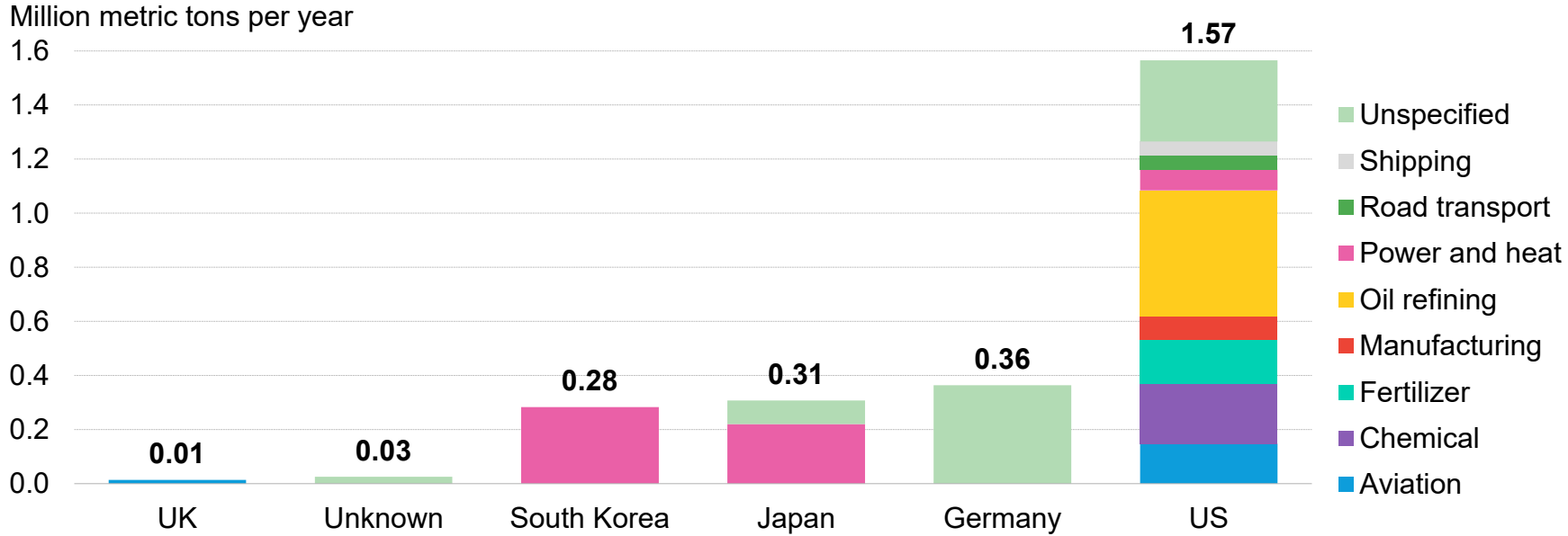
Clean hydrogen offtake volumes by demand market



Source: BloombergNEF. Note: Data as of May 30, 2025. BNEF's Hydrogen Offtake Agreement Database only includes projects of at least 20 megawatts or 2,800 metric tons per year of capacity.

Offtake from US supply is largely for existing uses of H_2

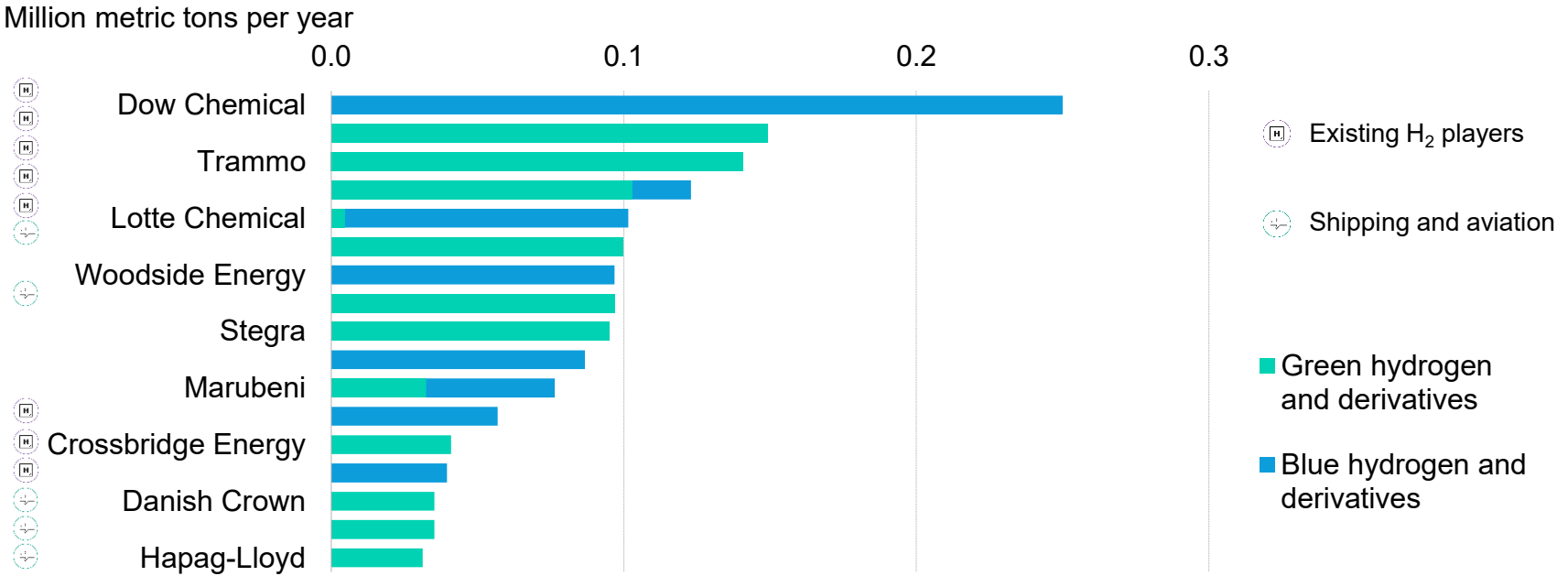
Clean hydrogen offtake by demand market



Source: BloombergNEF. Note: Data as of May 30, 2025. BNEF's Hydrogen Offtake Agreement Database only includes projects of at least 20 megawatts or 2,800 metric tons per year of capacity.

Gray H_2 users, shippers and airlines have signed the largest binding offtake deals

Top 15 binding clean hydrogen offtakers, by offtake product type



Source: BloombergNEF. Note: Data as of May 30, 2025.

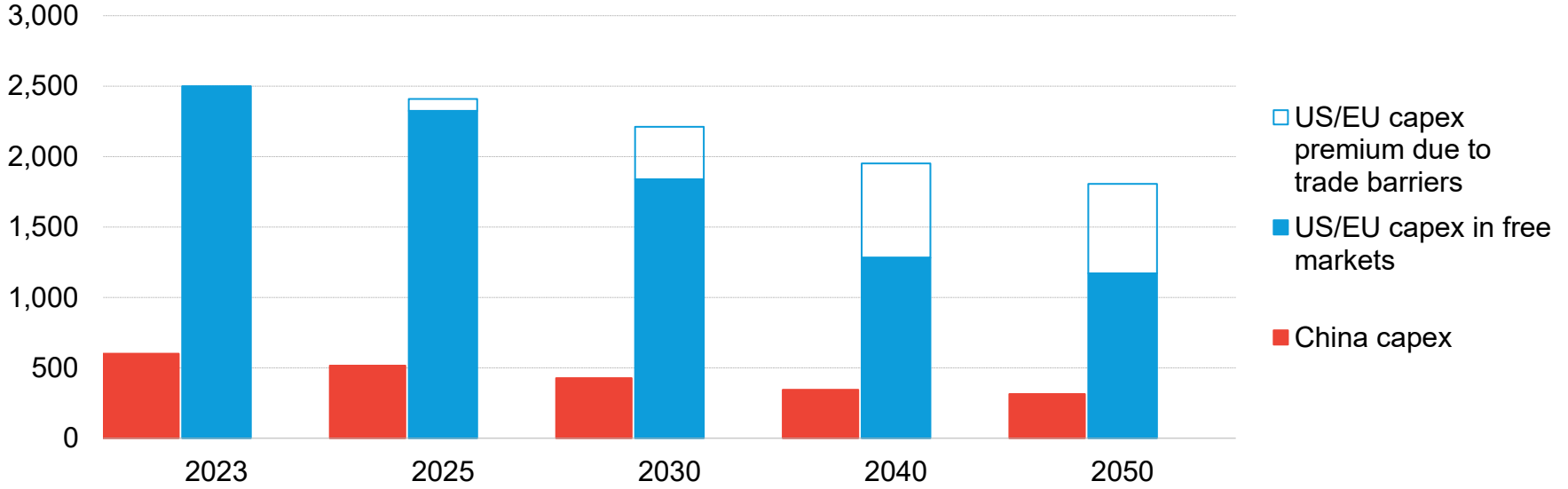
Costs

Higher than anticipated

Electrolysis system costs will fall, and the extent will depend on trade policy

Forecast of benchmark capex for electrolysis projects

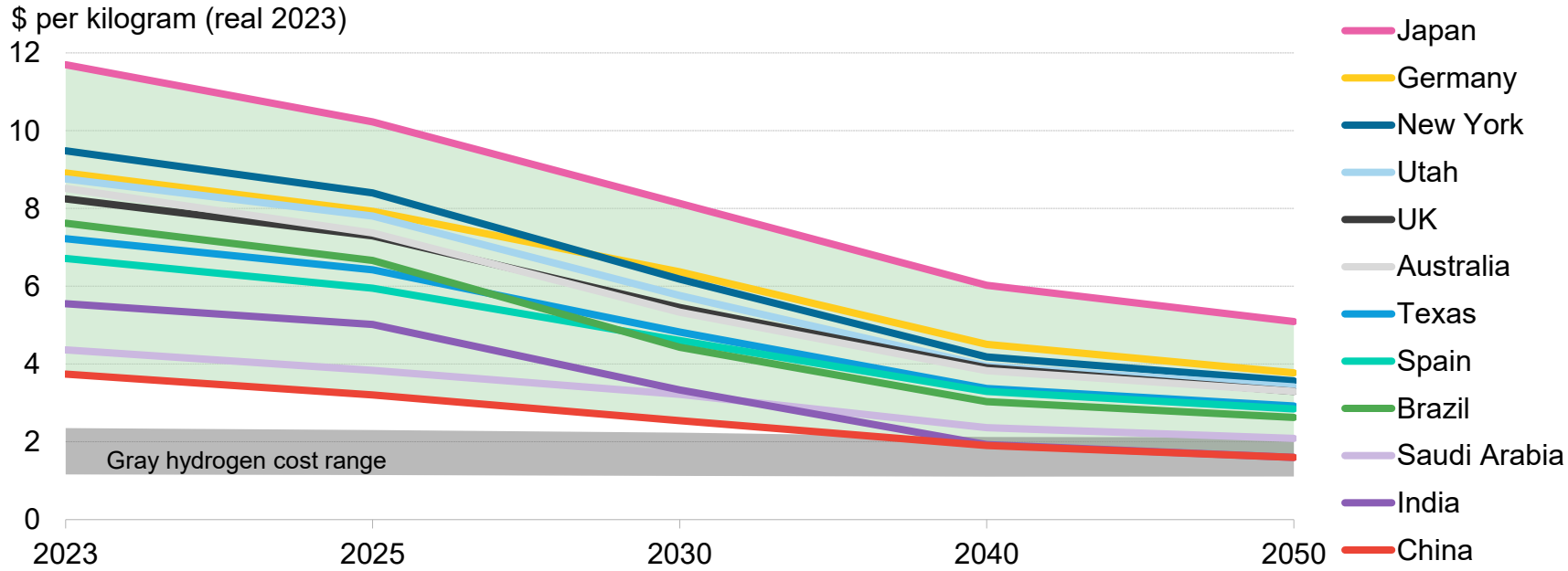
$ per 0.2 normal cubic meters of hourly hydrogen yield (2023 real)



Source: BloombergNEF. Note: Year refers to time of final investment decision (FID); engineering, procurement, and construction (EPC) bidding closure or equipment purchase. There was no trade barrier in 2023, so the 'premium due to trade barriers' was not available then. The unit '0.2Nm³/h' is equivalent to 'kilowatt' under the current industry consensus.

Renewable H_2 may always need supportive policy to compete with gray hydrogen

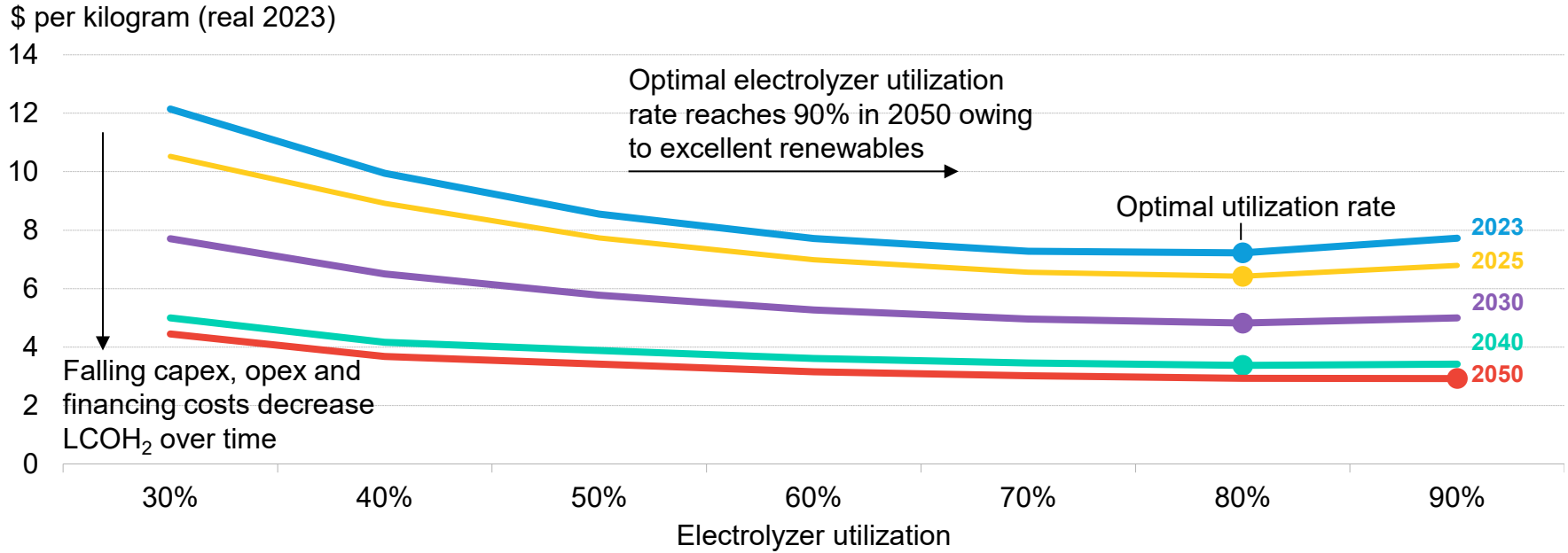
Green $LCOH_2$ for new plants in 12 markets, by financing year



Source: BloombergNEF Hydrogen Levelized Cost Outlook 2025: Forget $1/Kilogram (web | terminal). Note: $LCOH_2$ stands for levelized cost of hydrogen production.

Texas's strength in renewables means cheaper green H_2

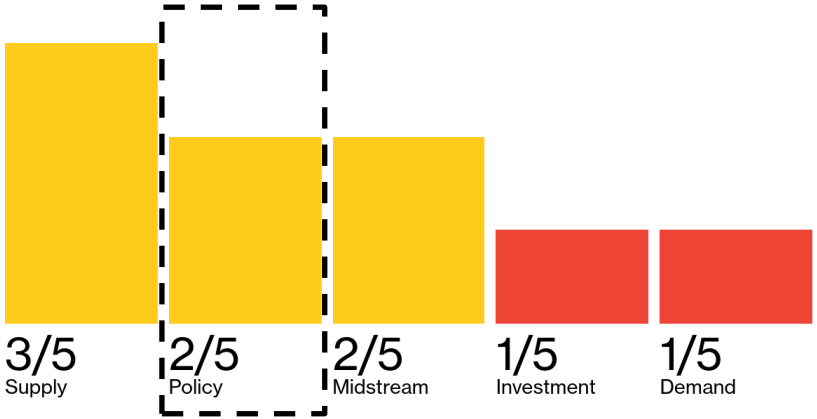
$LCOH_2$ by electrolyzer utilization and financing year, Texas



Source: BloombergNEF. Note: Years represent financing years. The colored circles represent the levelized cost of hydrogen production ($LCOH_2$) at the optimal utilization rate, which is the rate at which an electrolyzer produces the lowest $LCOH_2$. The utilization rate may vary based on coordinates input for the renewables.

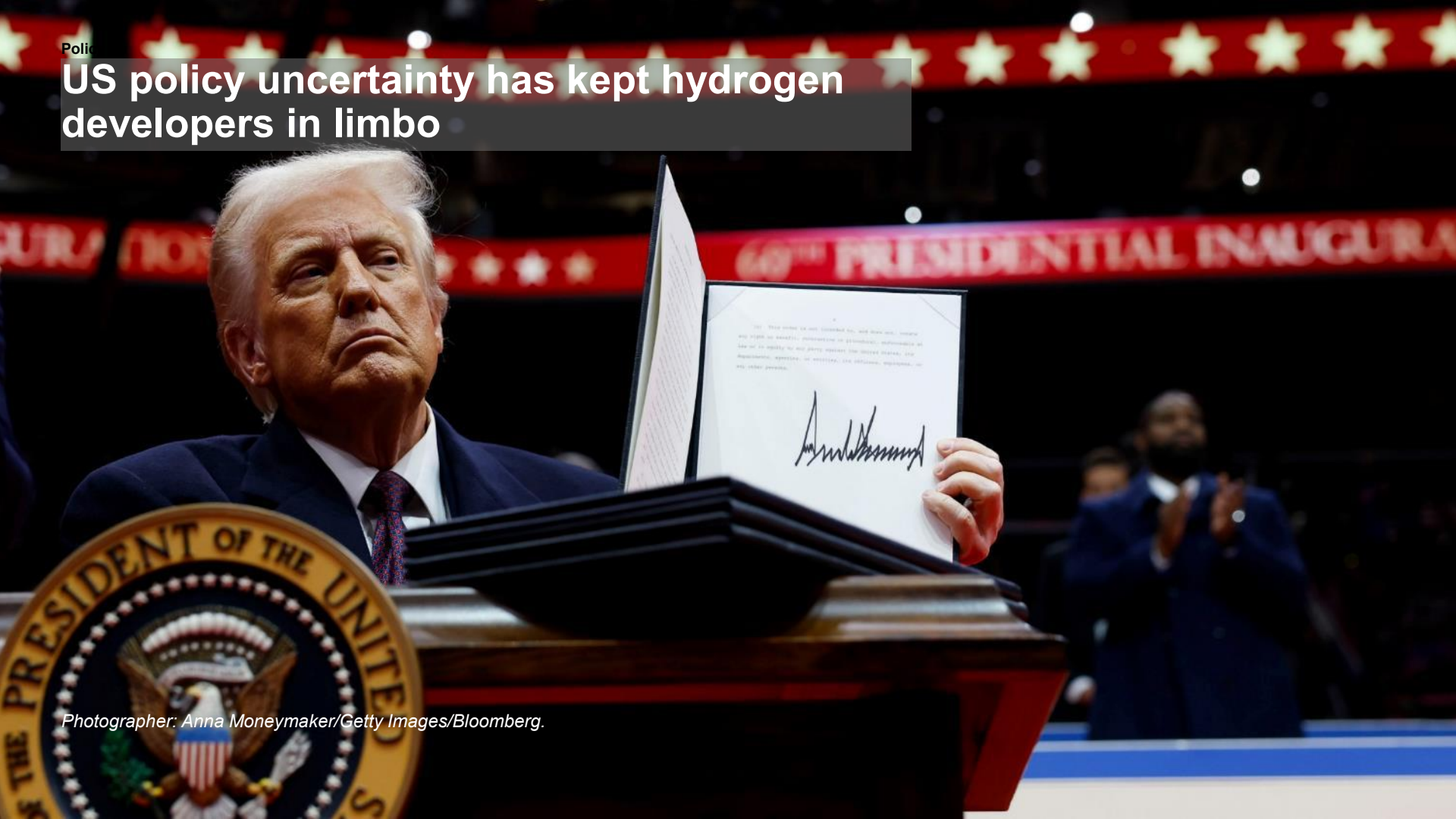
Policy

Uncertainty



Polic

US policy uncertainty has kept hydrogen developers in limbo

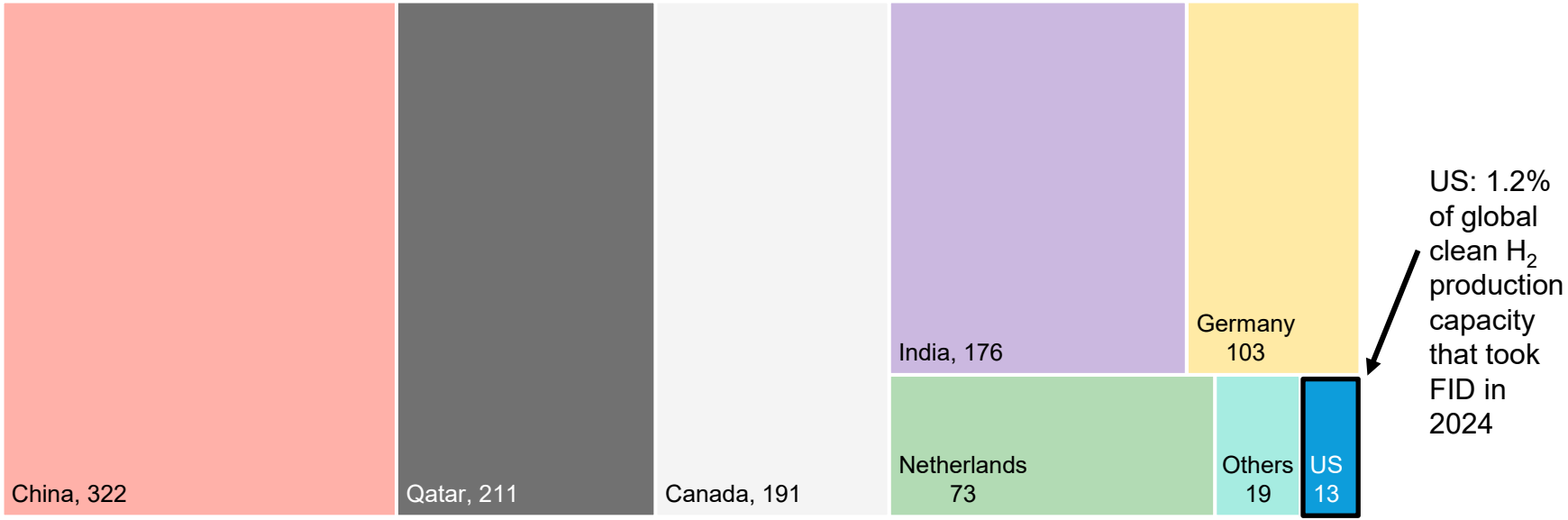


Photographer: Anna Moneymaker/Getty Images/Bloomberg.

Case study: US policy uncertainty has kept hydrogen developers in limbo

Clean H_2 project capacity that closed financing in 2024, by market

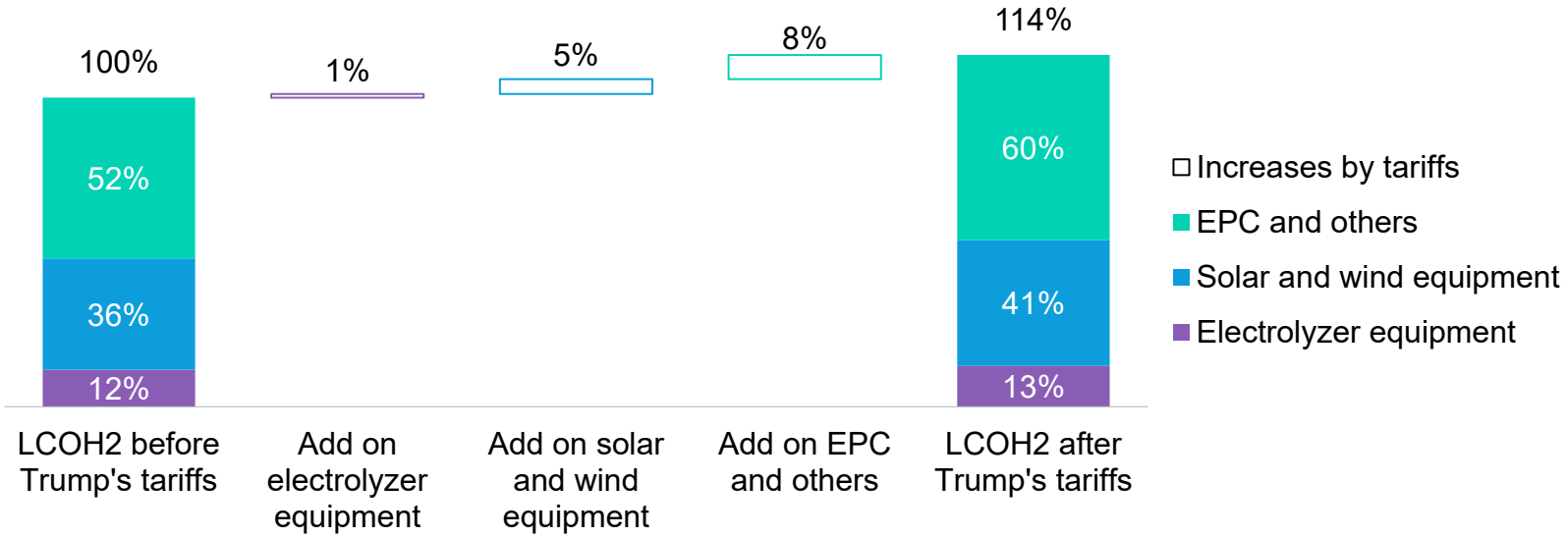
Thousand metric tons of hydrogen



Source: BloombergNEF

President Trump's tariffs could raise US green hydrogen costs by 14%

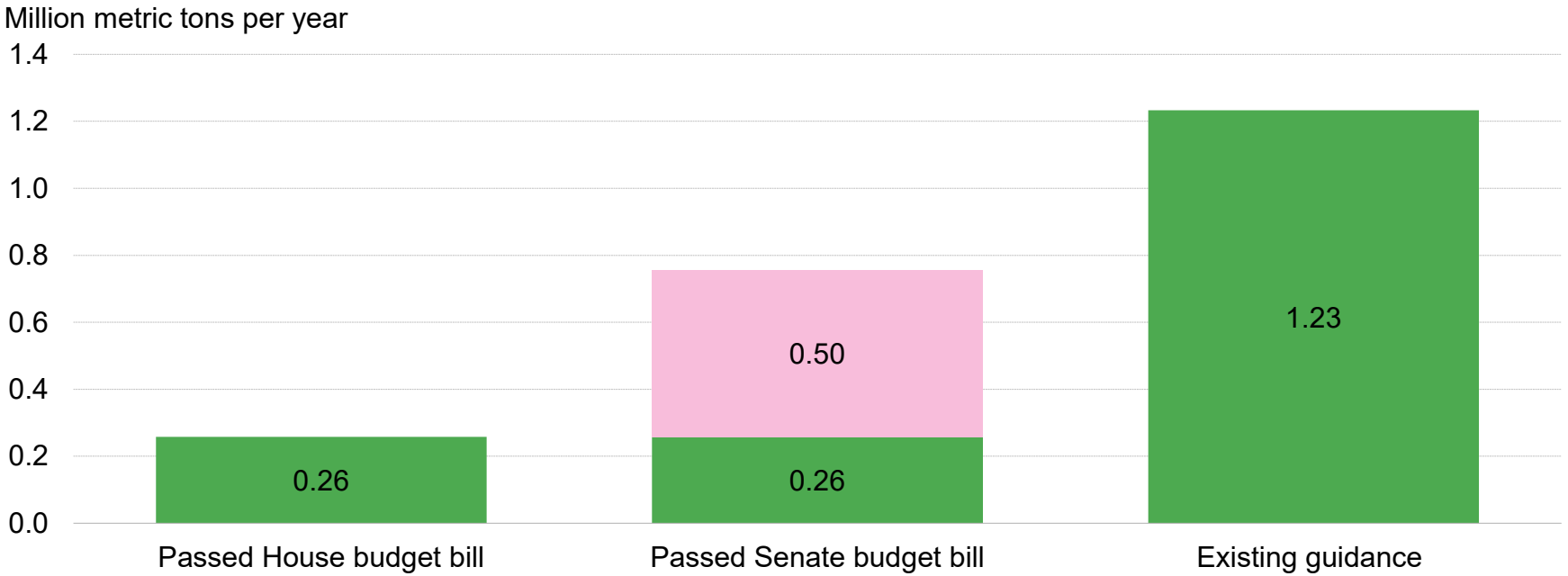
Impacts of Trump's new tariffs on green hydrogen costs in the US, 2025



Source: BloombergNEF. Note: LCOH2 stands for levelized cost of hydrogen production. The year 2025 refers to when final investment decision (FID) is reached. Calculations of tariff impacts are based on announcements by April 8, 2025.

The “One Big Beautiful Bill Act” boosts blue hydrogen, takes a jab at green supplies

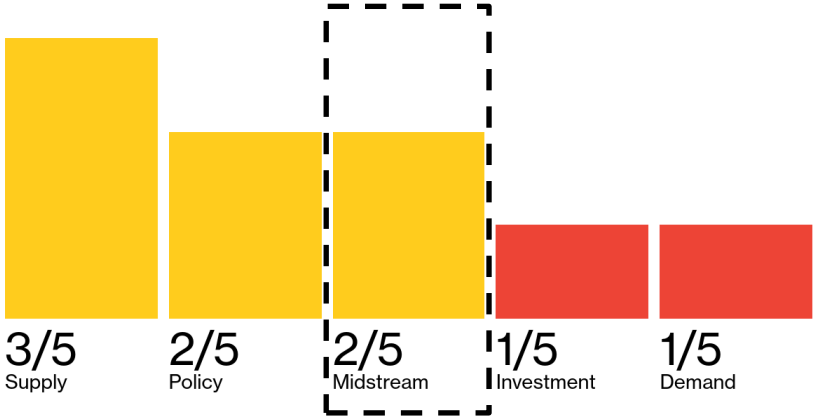
Green hydrogen volume eligible for 45V tax credit



Source: BloombergNEF. Note: Forecast is based on clean hydrogen projects in the optimistic scenario of BNEF's supply forecast as of May 2024.

Midstream

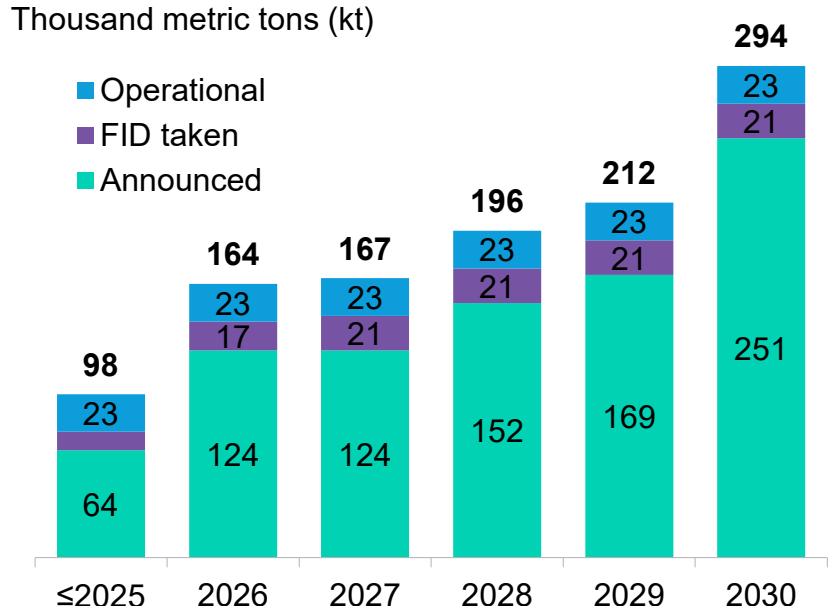
- Europe and China start building pipelines
- Storage mostly remains an afterthought



BloombergNEF

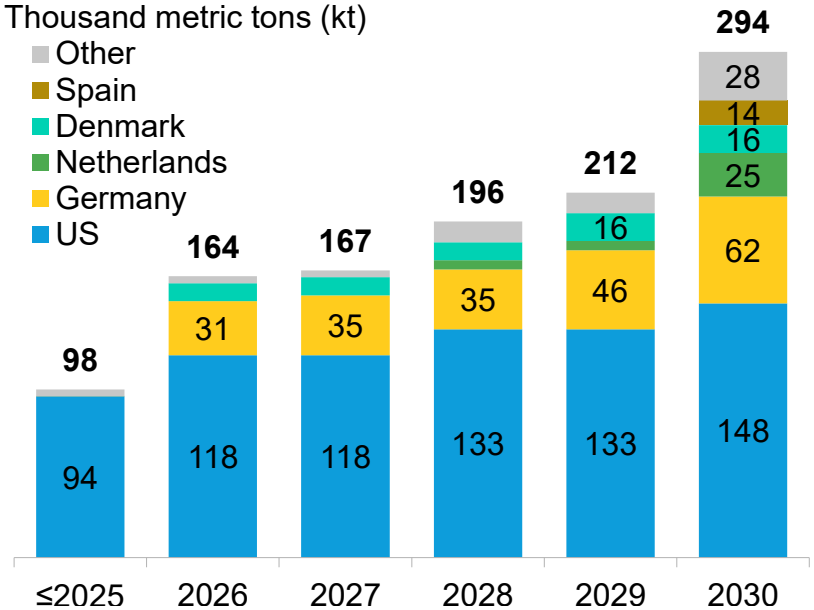
Underground H_2 storage announced, but few projects are actually built

Cumulative underground H_2 storage by status and planned commissioning year



Source: BloombergNEF, IEA, H2Tools. Note: Data as of February 10, 2025.

Cumulative underground H_2 storage by market and planned commissioning year



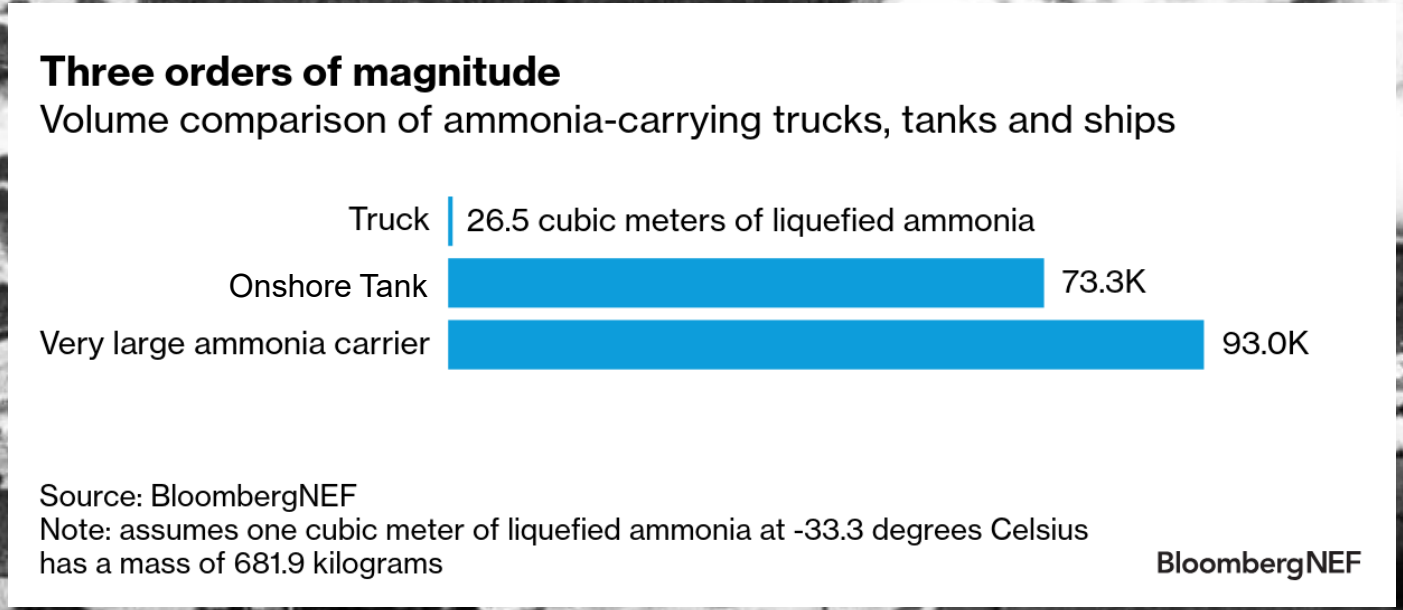
Source: BloombergNEF, IEA, H2Tools. Note: Data as of February 10, 2025.

We must not forget about safety

Source: Houston Chronicle. Picture shows clouds of ammonia spreading over the West Loop 610 overpass at the Southwest Freeway about a minute after a crash on May 11, 1976, left seven dead and 200 injured.

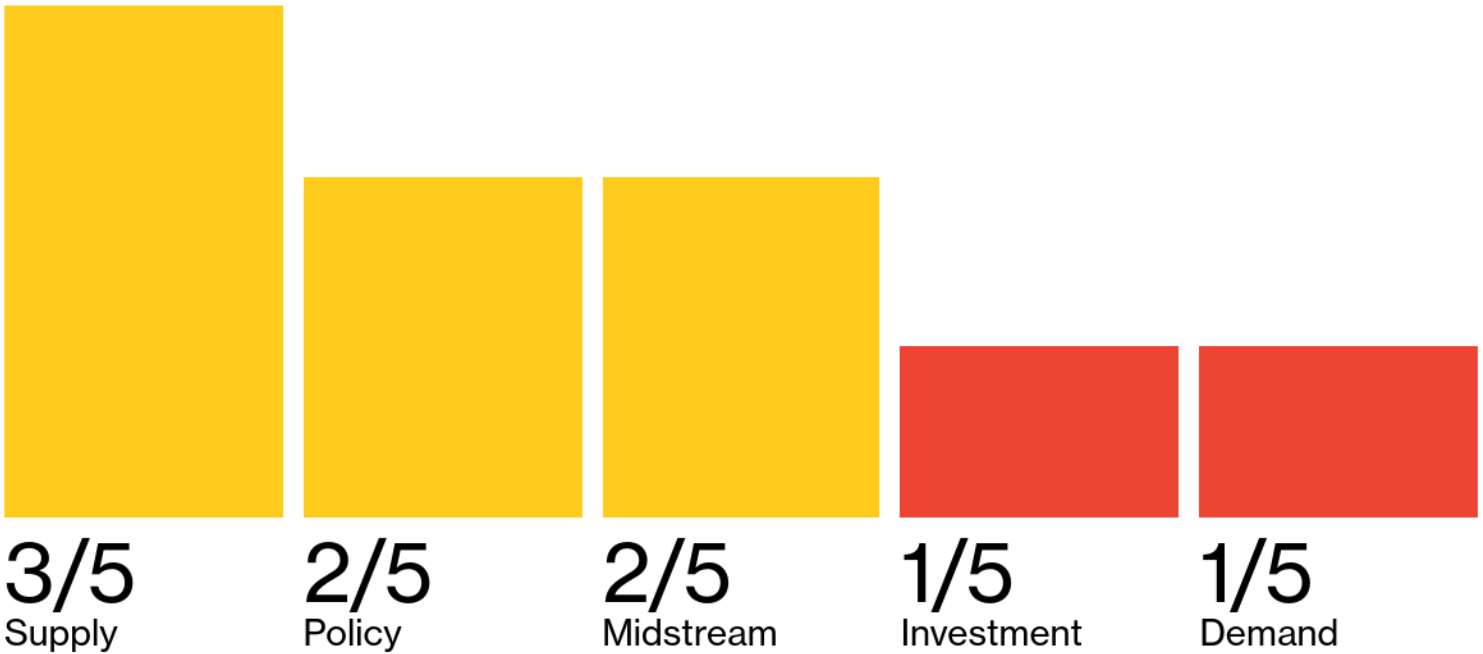
Midstream

Accident on a VLAC could be catastrophic and stop the industry in its tracks



Source: Houston Chronicle. Picture shows clouds of ammonia spreading over the West Loop 610 overpass at the Southwest Freeway about a minute after the crash on May 11, 1976, left seven dead and 200 injured.

Hard times for hydrogen: BNEF's 1H 2025 H_2 sector scorecard (9/25)



Source: BloombergNEF. Note: 4-5 = on a good track, 2-3 = some progress, 0-1 = more work needed.

Copyright and disclaimer

BloombergNEF (BNEF) is a strategic research provider covering global commodity markets and the disruptive technologies driving the transition to a low-carbon economy.

Our expert coverage assesses pathways for the power, transport, industry, buildings and agriculture sectors to adapt to the energy transition.

We help commodity trading, corporate strategy, finance and policy professionals navigate change and generate opportunities.

BloombergNEF

Payal Kaur

pkaur91@bloomberg.net

Client enquiries:

Bloomberg Terminal: press <Help> key twice
Email: support.bnef@bloomberg.net

Learn more:

about.bnef.com | @BloombergNEF