



# Low-emissions hydrogen-based fuels in shipping decarbonisation

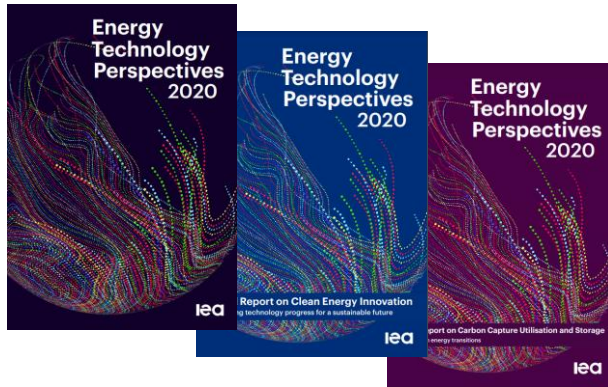
Jose M Bermudez, Energy Technology Analyst – Hydrogen Lead

UNCTAD Trade and Development Commission, Geneva, 24 April 2024

- Annual Global Hydrogen Review
- Energy Technology Perspectives



2020



2023

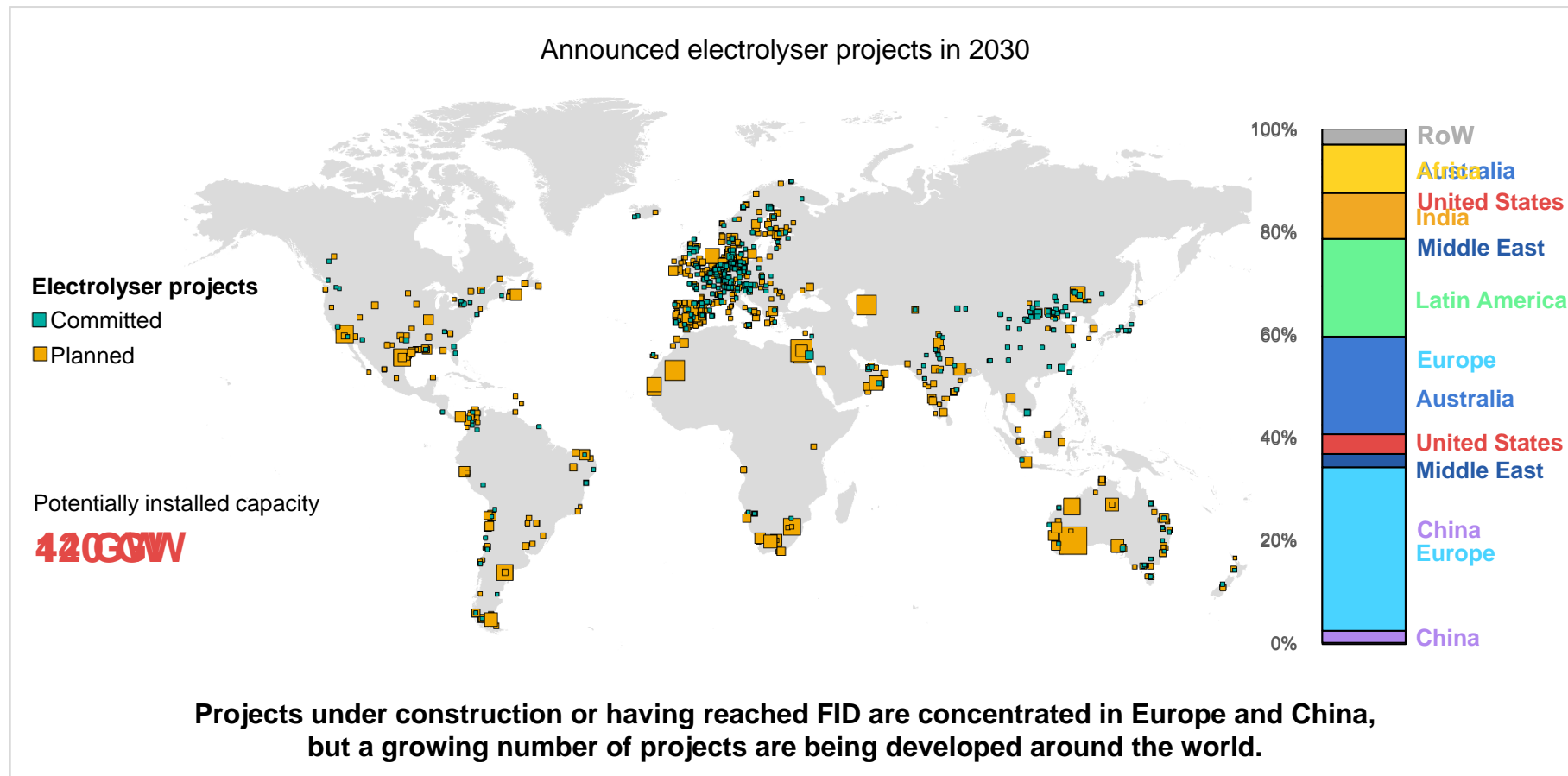


2024

Upcoming: focus impacts on international shipping of clean energy technology supply chains

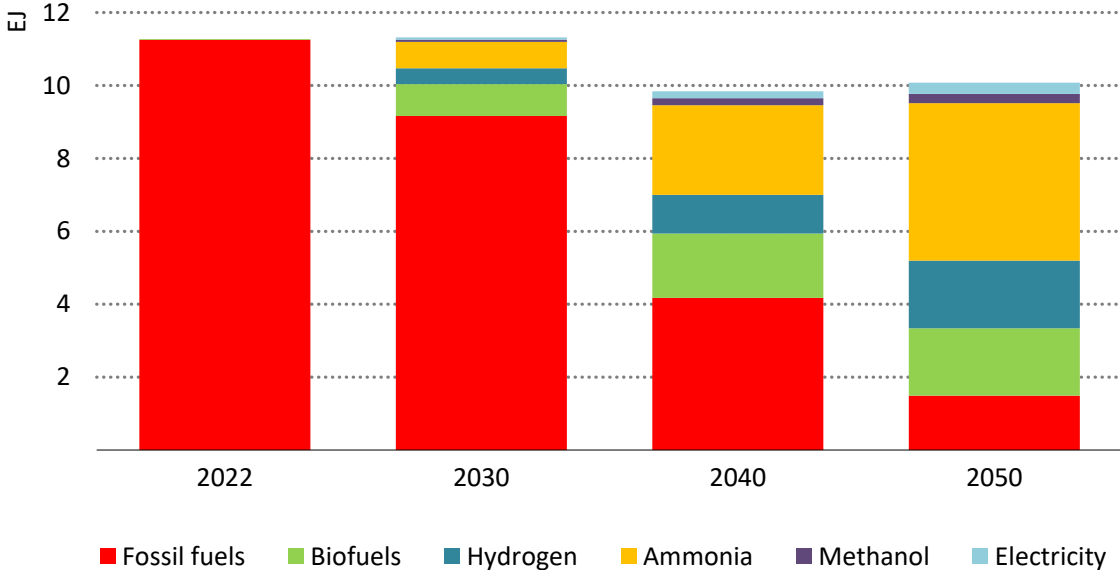
- Hydrogen momentum is strong thanks to three drivers: decarbonisation, energy security and industrial strategies
- Production can increase massively but faces cost challenges
  - Number of announced projects growing rapidly
  - Slow implementation of government support schemes delaying investment decisions
  - Increasing equipment and financial costs putting projects at risk
- Efforts to stimulate demand are not sufficient to meet climate ambitions
  - Limited policy action on demand creation
  - First off-take agreements small and non-binding

# Geographical diversity of electrolyser projects is increasing



# Fuel switching is key for achieving NZE emissions reductions

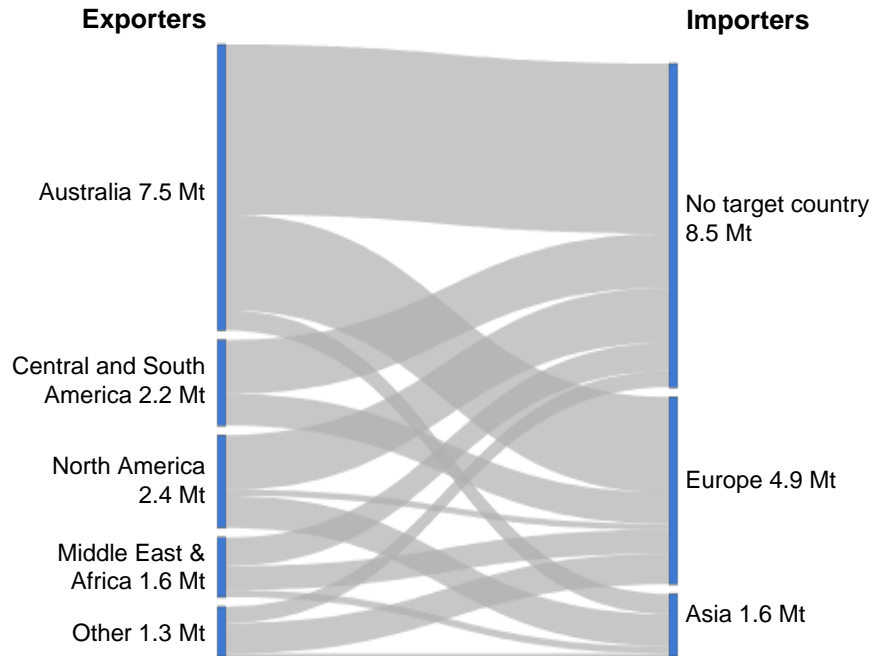
Global energy consumption for shipping in the Net Zero by 2050 Scenario (NZE), 2022-2050



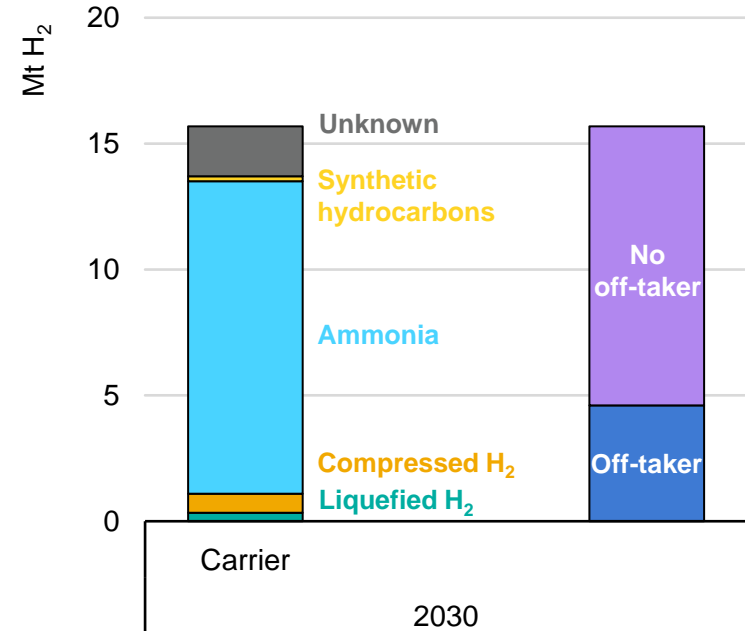
**Biofuels are constrained by the availability of sustainable biomass; hydrogen-based fuels are key to decarbonise the shipping sector.**

# Interest in hydrogen trade is growing, but barriers remain

Announced low-emissions hydrogen trade flows in 2030



Low-emissions hydrogen trade



**Planned hydrogen exports could reach 16 Mt by 2030, though almost all projects are at early stages and less than one-third have identified a potential off-taker.**

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