Low-and zero-carbon technologies interplay for increasing the RE uptake

Synergies between Hydrogen and RE

Kapil Narula, PhD., Senior Analyst Breakthrough Agenda,
UN Climate Change High Level Champions Team

UN HLCs and CCT

UN CLIMATE CHANGE HIGH-LEVEL CHAMPION FOR THE UAE, COP28

Her Excellency Ms. Razan Al Mubarak

UN CLIMATE CHANGE HIGH-LEVEL CHAMPION FOR EGYPT, COP27

Dr. Mahmoud Mohieldin

Dr. Mohieldin, is an economist with

FORMER UN CLIMATE CHANGE HIGH-LEVEL CHAMPION FROM THE COP26 PRESIDENCY

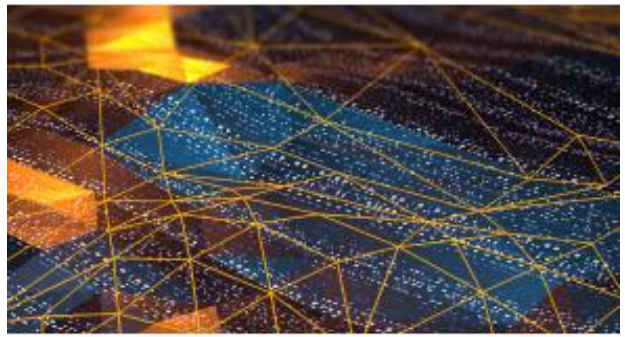
Nigel Topping

UN CLIMATE CHANGE HIGH-LEVEL CHAMPION FROM THE COP25 PRESIDENCY

Gonzalo Muñoz

BREAKTHROUGH AGENDA

THE BREAKTHROUGH AGENDA REPORT **2022**



Accelerating Sector Transitions Through Stronger International Collaboration

Campaigns

- **Race To Zero**
- **2030 Breakthroughs**
- **Race To Resilience**
- **Sharm-El-Sheikh Adaptation Agenda**

Working together to acheive the Breakthroughs

United Nations Climate Change Global Climate Action

Marrakech Partnership

RACE TO RESILIENCE

RACE TO ZERO

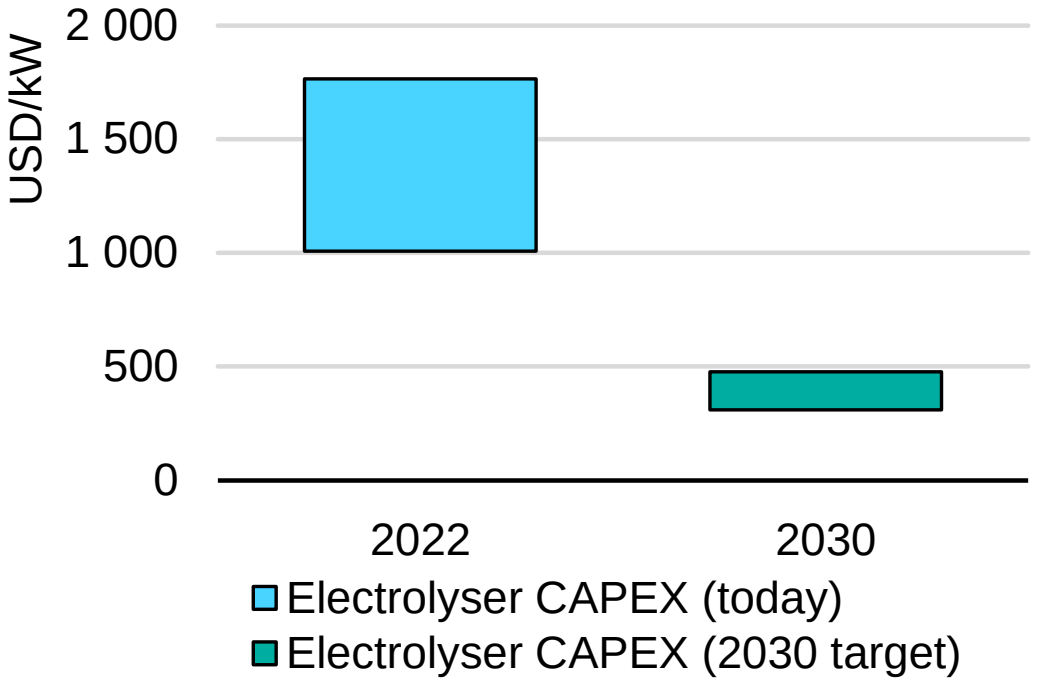
GFANZ

iea

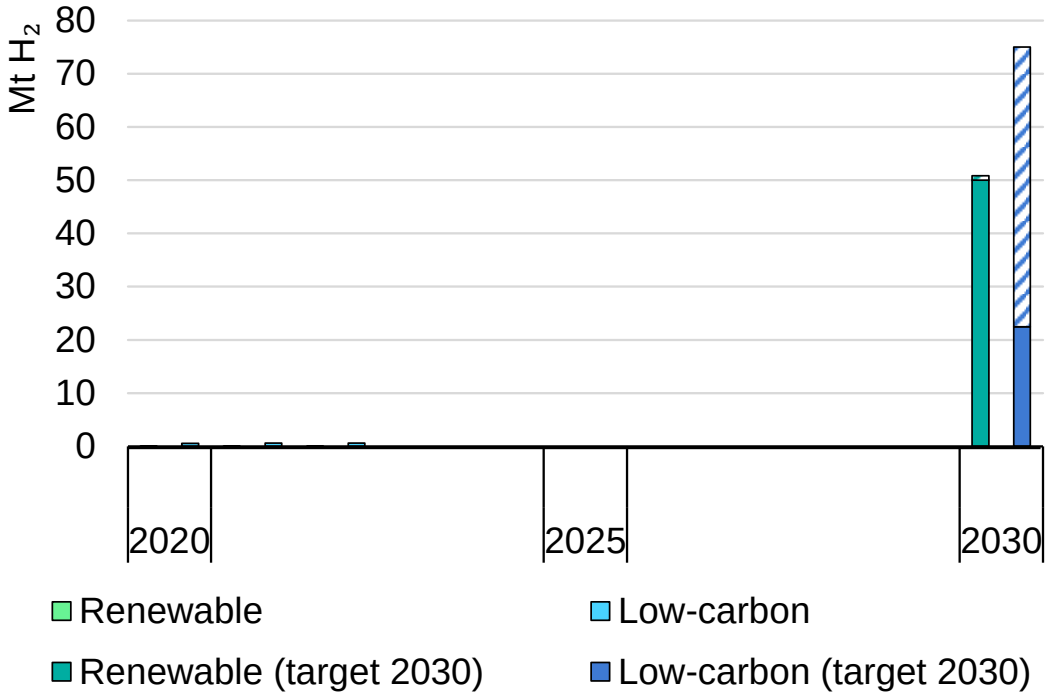
IRENA

State of the transition

Cost



Deployment

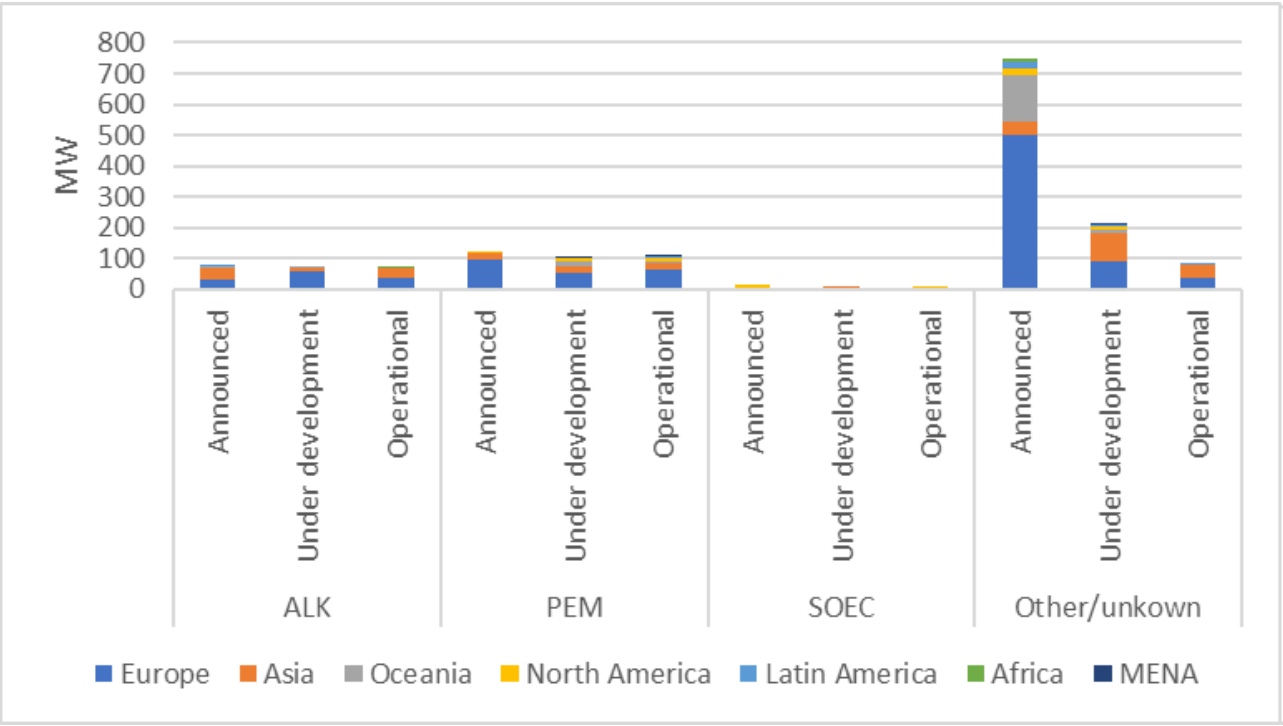


Renewable and low-carbon hydrogen remains below 1% of global hydrogen production, compared to the 50% that is needed by 2030

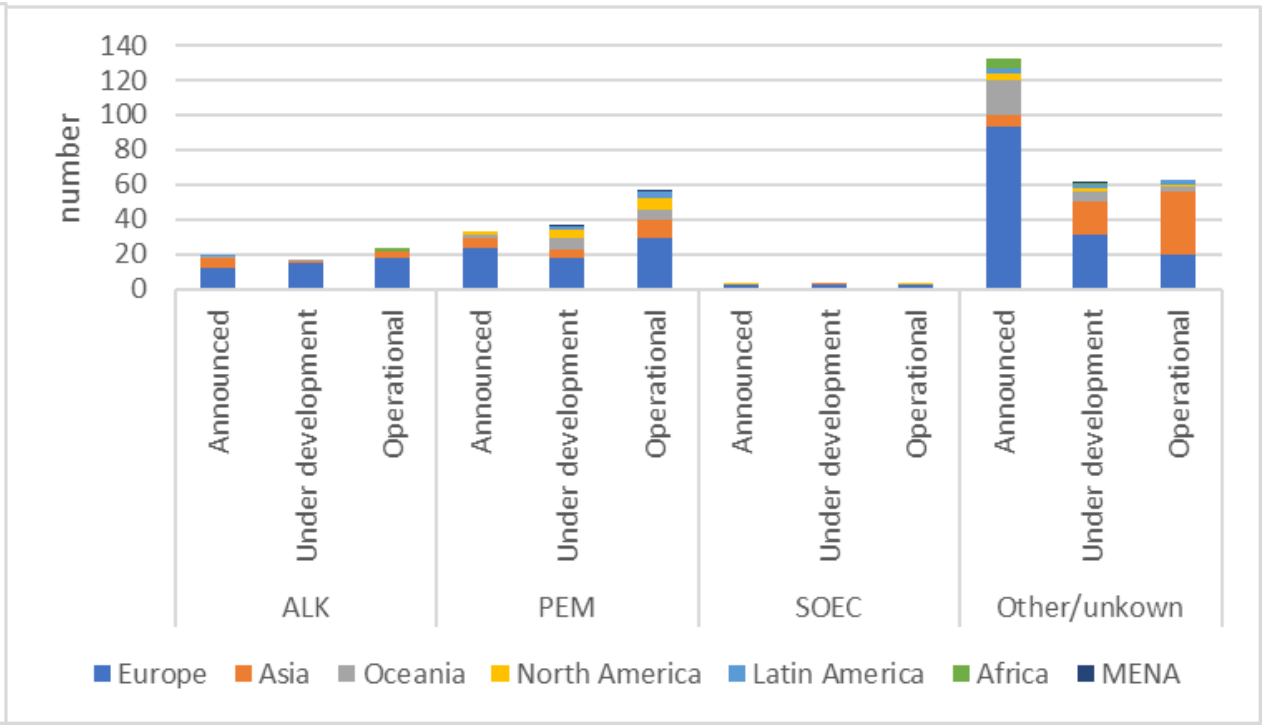
Pilot projects

Status of renewable hydrogen pilot projects by electrolyser type and region (as in late 2022)

Capacity



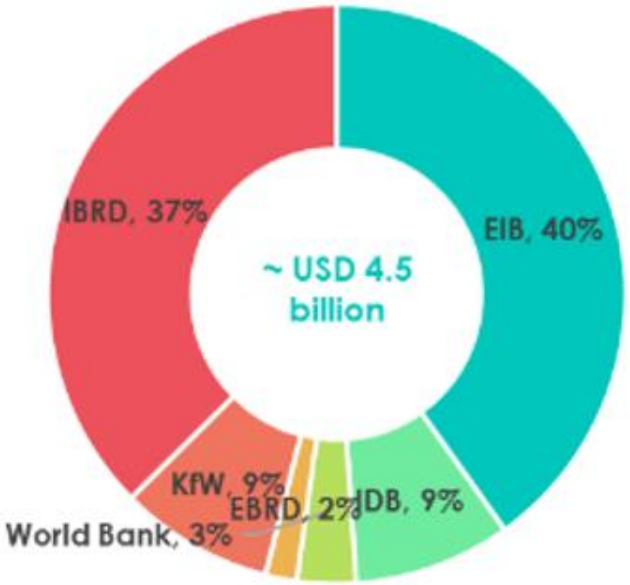
Number of projects



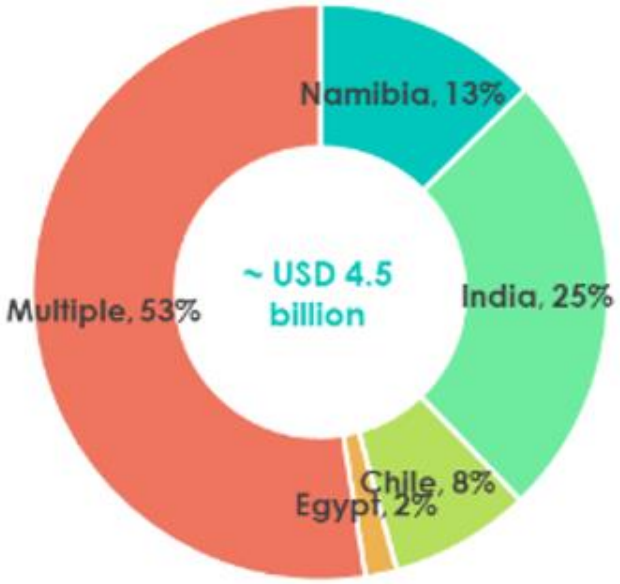
Financial commitments

Financial commitments by DFI and MDBs for hydrogen projects in developing countries (as of June 2023)

By agency



By country



Progress summary

Theme	What progress has been made?
Standards and certification	• IPHE leading major efforts on methodologies, in partnership with ISO • IEA Hydrogen TCP has set a task on certification harmonisation • Work from the European Clean Hydrogen Alliance, Hydrogen Council, UNECE
Demand creation	• Initiatives to assess the potential demand that could result from pledges • Notable individual efforts from individual countries including near-term commitments and policies
Research and innovation	• MI CHM to identify 100 leading projects by COP 28 • Hydrogen Valley Platform had identified 83 projects from 33 countries (as of July 2023)
Finance and investment	• UNIDO, World Bank and IRENA mapping currently available assistance and financing best practices • Hydrogen for Development Partnership (WB) to catalyse improved in-country project funding support

Recommendations

Theme	Actions
Standards and Certification	Development & implement portfolio of standards Adopt common methodology to calculate the carbon footprint of the hydrogen value chain Facilitate mutual recognition and interoperability of certification systems Build technical capacity to verify compliance with international hydrogen standards
Demand creation	Increase commitments for using low carbon and renewable hydrogen in fertilisers and refining Specific policies and purchase agreements, to mobilise investment Share learning to accelerate early deployment while ensuring level playing field for trade
Research & Innovation	Increase the number and geographical distribution of hydrogen demonstration projects Agree on minimum reporting principles to share lessons learned from demonstration projects
Finance and investment	Identify projects that are being delayed by high costs of capital and help unlock their progress Support to technical assistance programmes, policy design, scale-up of projects

Reports

- Making the Hydrogen Economy Possible: Accelerating Clean Hydrogen in an Electrified Economy (ETC, 2021)
- Global Hydrogen Review 2022 (IEA, 2022)
- Geopolitics of the Energy Transformation: The Hydrogen Factor (IRENA, 2022)
- Global Hydrogen Trade to Meet the 1.5°C Climate Goal: Green Hydrogen Cost and Potential (IRENA, 2022)
- International Trade Rules for Hydrogen and its Carriers: Information and Issues for Consideration (IPHE, 2022)
- Roadmap on hydrogen standardisation (European Clean Hydrogen Alliance, 2023)
- Creating a global hydrogen market: Certification to enable trade (IRENA, 2023)
- Towards hydrogen definitions based on their emissions intensity (IEA, 2023)