



International Partnership
for Hydrogen and Fuel Cells
in the Economy

Opening Remarks

42nd IPHE Steering Committee Meeting

20 – 21 November 2024

Brussels, European Commission

Presenter: Rebecca Maserumule, Chair IPHE

Story about the first marathoner

- Many runners are familiar with the story surrounding the origins of the modern marathon. As the well-worn legend goes, after the badly outnumbered Greeks somehow managed to drive back the Persians who had invaded the coastal plain of Marathon, an Athenian messenger named Pheidippides was dispatched from the battlefield to Athens to deliver the news of Greek victory. After running about 25 miles to the Acropolis, the messenger communicated the victory and he promptly collapsed from exhaustion and died.



Life is a marathon, not a sprint

8 lessons of running a marathon

- **Life is about laying one brick at a time.**
- **The goals are the checkpoint, not the destination**
- **Using the ABC Goals System is a cheat code for life**
- **Happiness is not a byproduct of ease**
- **The goal of preparation is to eliminate as many unknowns as possible.**
- **You never really know what you're capable of until the lights come on.**
- **If your goals don't scare you, you probably aren't thinking big enough.**
- **No matter what happens, run *YOUR RACE*.**

Life is about laying one brick at a time



Laurent ANTONI, IPHE
Executive Director



Michael DIDERICH,
IPHE Project Officer

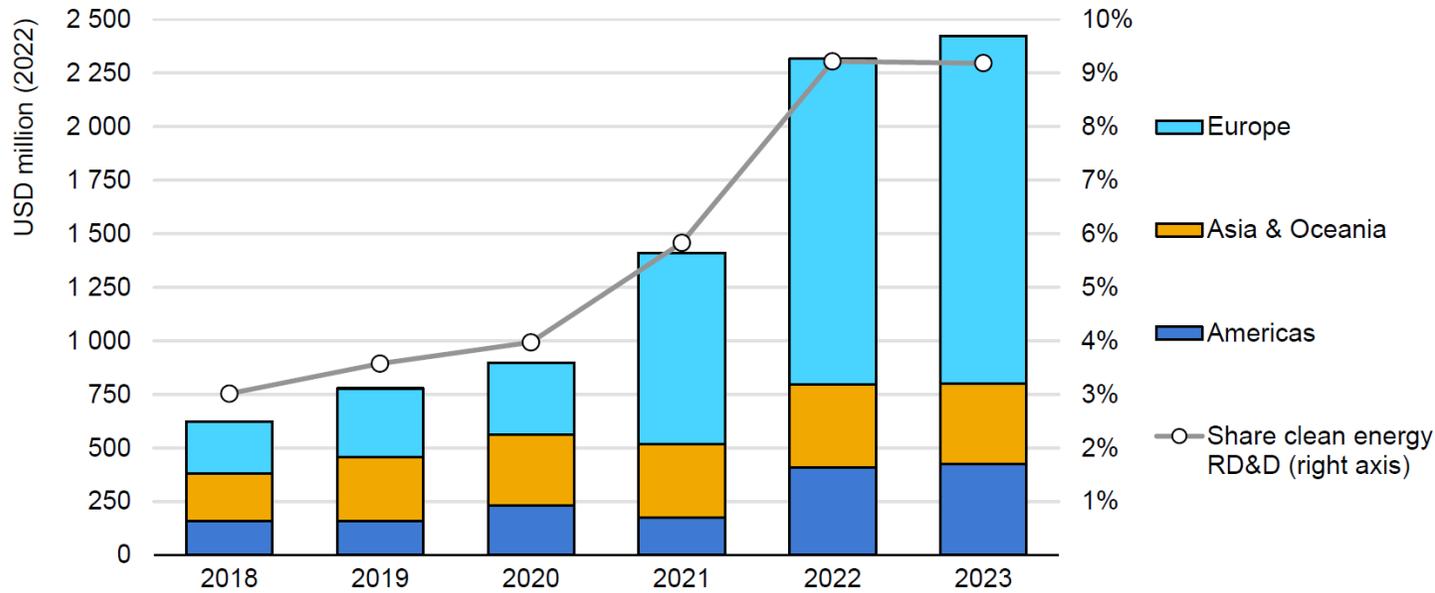


Harley HIGGENS-
WATSON, Breakthrough
Facilitator



Happiness is not the byproduct of ease

Promotion of R&D innovation



Source: GHR 2024, IEA

- ❑ Government investment in RD&D in hydrogen technologies remained robust in 2023, exceeding the historical record of 2022 by almost 5%.
- ❑ In the past 5 years alone, RD&D spending on hydrogen technologies has nearly quadrupled to reach a share of more than 9% of total clean energy RD&D spending.
- ❑ Two-thirds of the RD&D funding come from Europe. At the EU level, the Clean Hydrogen Partnership has an average funding of EUR 170 million/yr for 2021-2027
- ❑ In the US, the R&D budget has increased rapidly from just USD 150 million in 2020-2021 to USD 430 million in FY2023.

The goal of preparation is to eliminate as many unknowns as possible.



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INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Position Paper
May 2024

Impact of Atmospheric Hydrogen on Climate Change

Hydrogen (H_2) has an important role to play in the transition to a clean energy economy, particularly in reducing greenhouse gas (GHG) emissions, in achieving global climate objectives and the transition to a net zero economy, as well as supporting energy security and resilience and providing economic benefits.

However, when present in the atmosphere, hydrogen reacts with other gases and prolongs the lifetime of GHGs like methane (CH_4). Therefore, additional anthropogenic releases of hydrogen into the atmosphere can have indirect global warming impacts.

In order to maximize hydrogen's positive potential, it is crucial to manage H_2 emissions, which can dampen the climate change mitigation potential of using clean hydrogen in its main applications.

By learning historical lessons from methane (CH_4) emissions and being proactive and transparent in addressing the issue early, the benefits of hydrogen can be maximized while minimizing the economic and environmental drawbacks associated with emissions. This position paper examines the topic and discusses potential measures to minimize climate impacts.

Measures to be taken to maximize the Climate Benefits

As mentioned at COP 28, transitioning away from fossil fuels in general and reducing hydrogen emissions along the whole value chain are key priorities to maximize the climate benefits of H_2 . Appropriate management is therefore essential.

By adopting proactive measures, the global community can maximize the benefits of hydrogen while minimizing the economic and environmental drawbacks associated with emissions. The International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE) therefore recommends a holistic and collaborative approach to tackling the challenge of H_2 emissions, involving industry, governments, academia and broader society to ensure a sustainable and climate-friendly energy transition based on:

1. Reduce current major sources of H_2 in the atmosphere—in particular, reduce emissions of methane (CH_4) from all sources. Methane is not only a potent GHG in itself, but is also the single largest source of hydrogen in the atmosphere;
2. Improve performance of containment technologies: Develop and implement more efficient H_2 production, storage and transport technologies to work towards eliminating releases (such as boil-off, venting and purging) and unintentional emissions (such as leakage);
3. Develop and improve monitoring, measurement, and detection techniques and guidance: Establish standard hydrogen loss detection and monitoring systems to identify and quantify sources of releases to promote equipment design improvements to minimize losses;

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Page 1 / 4

Launch of Position paper:

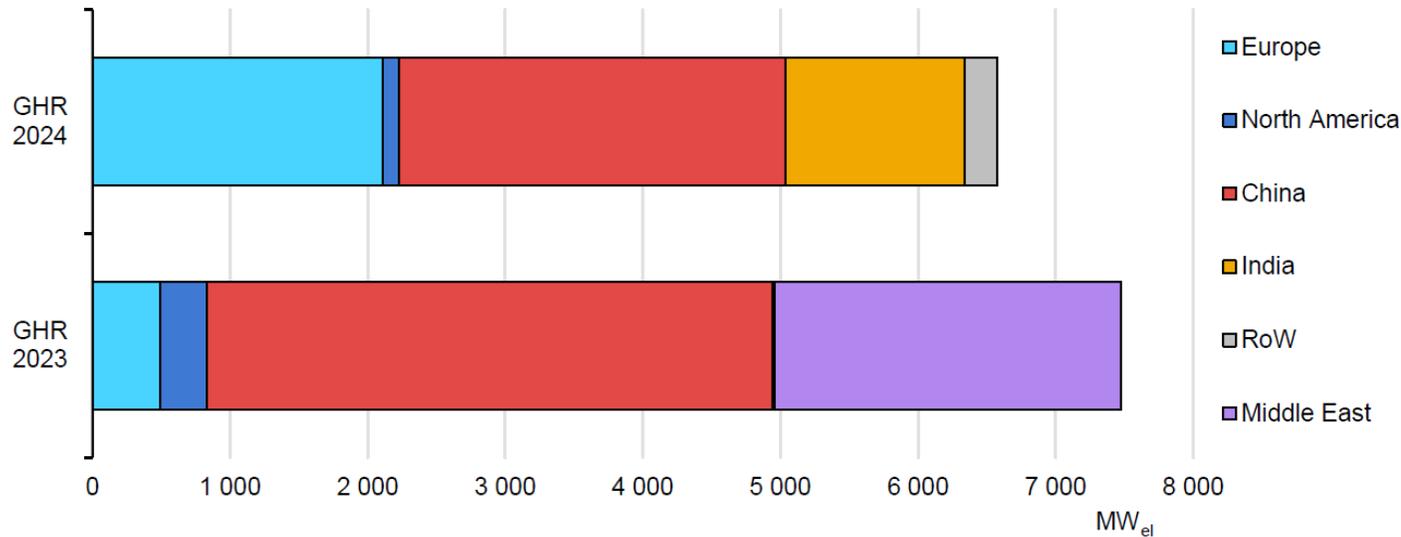
- Impact of Atmospheric Hydrogen on Climate Change
- Launched May 2024.
- Discussed at a side-event hosted at the US Center during COP 29 in Baku, Azerbaijan.



If your goals don't scare you, you probably aren't thinking big enough



Electrolyser capacity to reach FID



Overview of projects at FID:

- ❑ FID capacity in 2023 was driven by the NEOM H₂ project in Saudi Arabia (2.2GW)
- ❑ FIDs in Europe between Sept 2023 and Sept 2024 reached 2GW
- ❑ FIDs in China between Sept 2023 and Sept 2024 reached 2,8GW
- ❑ FIDs in India reached 1,3GW due to the FID by AM Green Ammonia fertilizer plant.

Source: GHR 2024, IEA



No matter what happens run YOUR Race

Strategies and Targets published by countries

2017	2018	2019	2020	2021	2022	2023	2024
Japan	France	Australia Korea	Canada Chile European Union Germany Netherlands Norway Spain Portugal Russia	Belgium Colombia Czech Republic Denmark Hungary Luxembourg Morocco Poland Slovak Republic United Kingdom	Austria China Costa Rica Croatia Namibia Oman South Africa	Algeria Argentina Bhutan Brazil Bulgaria ECOWAS Ecuador Estonia India Indonesia Ireland Israel Kenya Malaysia Mauritania New Zealand Panama Romania Singapore Sri Lanka Türkiye United Arab Emirates United States Uruguay	Iceland Egypt Kazakhstan Lithuania Tunisia Viet Nam

- ❑ A total of 58 governments, the EU and ECOWAS, accounting for 84% of energy-related CO₂ emissions, have now adopted hydrogen strategies.
- ❑ 19 governments have published a new strategy the past 12 months (incl. 7 European, 4 African, 3 ASEAN nations)
- ❑ 3 governments issued updates to their strategy in the past year
- ❑ All new strategies depict a future with strong exports and a vibrant domestic industry.
- ❑ No new strategy envisages the importation of hydrogen
- ❑ In China, several provinces announced plans and targets for hydrogen production and road transport, including incentive measures to be used.

Source: CSIR Analysis



Thank you



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