



European
Commission

Policy brief: Competitiveness of clean energy technology – Water electrolysis for renewable hydrogen

October 2023

Headline findings

- Water electrolysis is the only key technology able to produce renewable hydrogen at scale and therefore has a pivotal role in the European Union's green transition. Electrolysers have found applications in a wide range of industries, including energy storage, transportation, and industrial processes.
- The Renewable Energy Directive establishes targets for increased use of renewable hydrogen by 2030 and the European Hydrogen Bank plans to secure long-term 'offtake agreements between producers and buyers worth up to **EUR 800 million**.
- Global electrolyser deployed capacity is expected to have reached about **2 GW** by end-2023, more than double the capacity at end-2022.

Key (competitiveness) challenges for Water electrolysis

Challenge 1

The price of electricity required in electrolyser systems is a challenge for cost competitiveness.

Challenge 2

There is not yet a specific trade code for renewable hydrogen but some voluntary certification schemes exist.

Challenge 3

Projects are experiencing delays due to the nascent nature of the market, large volumes and economic and technical complexities of projects.

Key policy recommendations

Recommendation 1

Identify bottlenecks for increased project deployment.



Recommendation 2

Implement financial incentives to make green hydrogen more competitive and reduce risk.

Recommendation 3

Expanded European manufacturing capacity should be matched with proper recycling infrastructure.



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