European Commission

Technology factsheet:

Competitiveness of clean energy technology – Water electrolysis and hydrogen

December 2023

Key technologies

Some technologies have achieved commercial-level maturity with commercial demonstration projects only just coming online.

tech 1

Technological Readiness Level (TRL) 3-4: Proton Conducting Ceramic (PCC) electrolysis

tech 2

TRL 9: Alkaline (AWE); Polymer Exchange Membrane (PEM) Anion Exchange Membrane, Solid Oxide Electrolysis Cells (SEOC)

Key value chain figures

- **EU employment:** hydrogen-related investments and operations are estimated to generate 29 270 – 106 980 direct jobs by 2030.

Key facts

Fact 1

Hydrogen is useful both as an energy carrier to produce other fuels and can be used to produce renewable electricity via fuel cells. It may be important in the quest to decarbonise hard to abate sectors.

Fact 2

The EU aims to produce up to 10 million tonnes annually and the European Hydrogen Bank has issued a call for long-erm offtake agreements between suppliers and purchasers, helping to reduce investment risks.

Fact 3

Thanks to increased support, manufacturing capacity is expected to accelerate globally in the coming years, including in the EU.

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