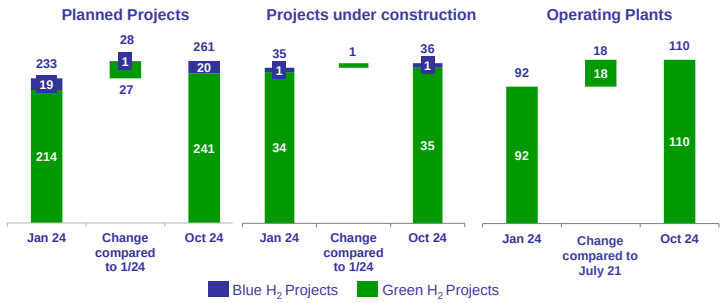
H_2 MARKET RADAR

25.11.2024

KEY FACTS

- In Northwest Europe, 110 electrolysis facilities with a combined capacity of 207 MWel are now in operation. A further 297 projects are in the planning stages or are already under construction.
- The approval of the German hydrogen core network has paved the way for the construction of the transport infrastructure.
- Of the four corridors planned for the import of hydrogen to Germany and Northwest Europe the construction of a major part of the Northwestern corridor was cancelled in September. This is a setback for the further hydrogen ramp-up.
- The results of the first auction of the European Hydrogen Bank show that the buyers of hydrogen from the eligible projects are prepared to pay a substantial premium compared to grey hydrogen.

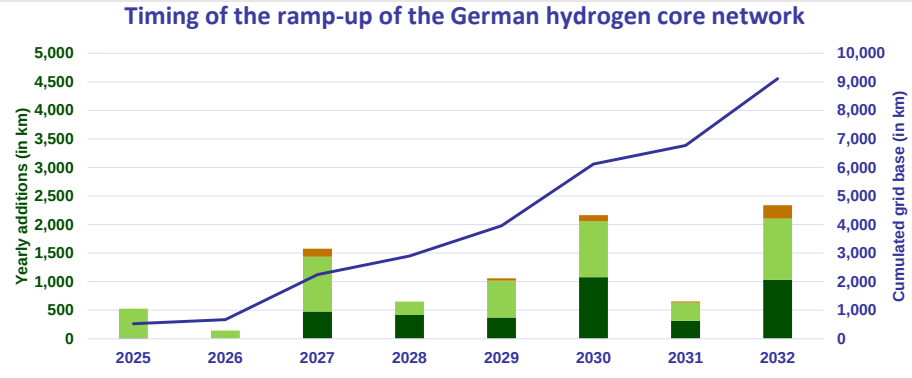
Development of H_2 projects in Northwest Europe (BE, GER, DK, NOR, NL, UK)

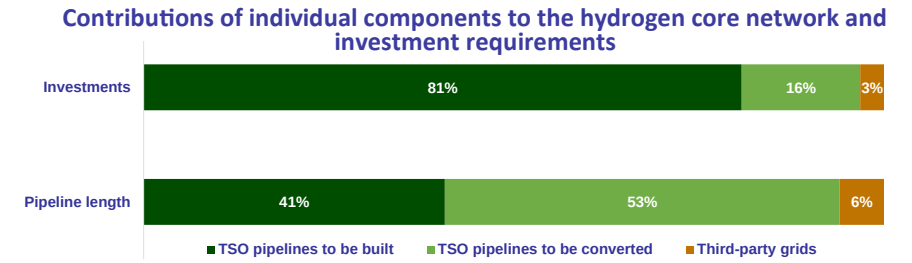


Source: Team Consult Hydrogen Database

- 110 production facilities with a capacity of 207 MWel are now in operation in Northwest Europe. Since January, 18 plants have commenced operations.
- The vast majority of projects pursues the production of green hydrogen (rather than blue hydrogen)
- Projects for the production of blue hydrogen have not evolved beyond the announcement stage in recent years. Some initial projects have been cancelled in the meantime as was recently announced for an Equinor project in Norway.

The German hydrogen core network



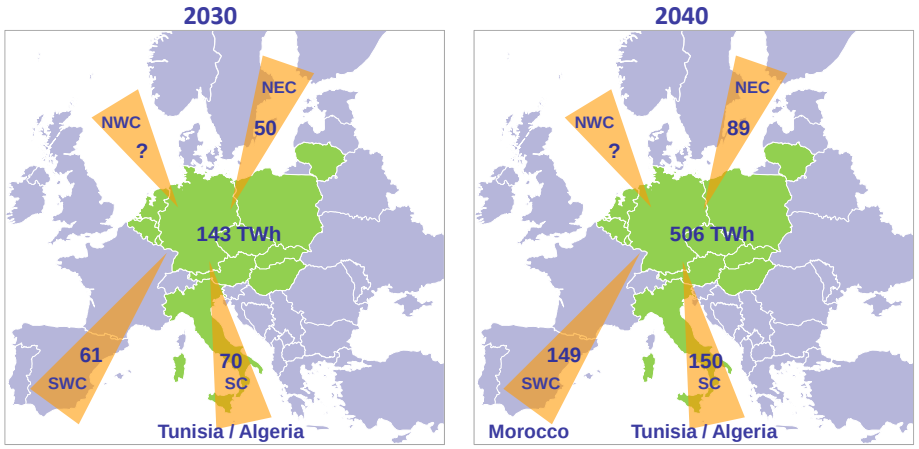


Source: Federal Network Agency & Team Consult analysis

- The application to implement the German H_2 core network was approved with amendments by the Federal Network Agency on 22 October 2024.
- The core network with a length of approx. 9,000 km is to go into operation gradually from 2025 to 2032.
- By 2032, the annual transport volume is expected to reach approx. 278 TWh with an entry capacity of 101 GW and an exit capacity of 87 GW.
- Of the 307 hydrogen measures originally applied for, 275 were approved. The prerequisites for the approval of an individual measure were: Integration into the European H_2 network; support for the decarbonisation of selected industrial sectors/processes and the connection of future H_2 storage facilities and sites of future H_2-ready gas fired power plants.

- Newly built pipelines will make up over 40% of the future hydrogen core network; the investment required for these pipelines is around € 15 billion. Investments totalling € 3-4 billion will be required for the almost 60% of repurposed gas pipelines (including pipelines from third-party providers).
- A share of 60% of repurposed gas pipelines is also targeted for the European hydrogen backbone.

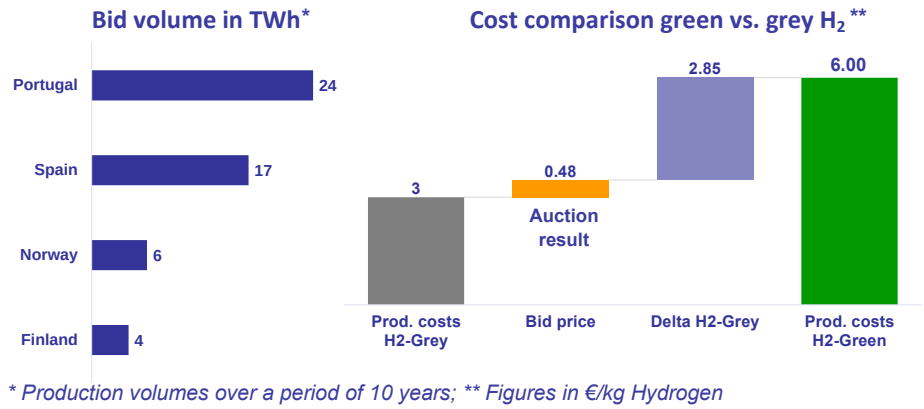
Hydrogen import corridors, demand and available volumes



Source: European Hydrogen Backbone, Team Consult analysis

- To supply hydrogen to those European countries with a future hydrogen demand that exceeds their own production, four import corridors could be available from 2030 to connect demand regions with prospective export regions
- The hydrogen potential of the North Sea and its neighbours (NWC), Scandinavia (NEC), southern Europe and Tunisia or Algeria (SC) and southwestern Europe and Morocco (SWC) is to be tapped via these four corridors (see map).
- The realisation of a part of the Northwestern corridor for the import of blue hydrogen from Norway, which had already acquired PMI status, was cancelled by Equinor in September 2024. One of the reasons given was the lack of demand for blue hydrogen and the resulting lack of economic viability of the investment. At the same time, projects to produce blue hydrogen in Norway were also cancelled by Shell and Equinor. However, Equinor is endeavouring to produce blue hydrogen in the Netherlands, whereby the CO_2 captured is to be transported back to Norway by ship.
- By 2030, the forecast hydrogen demand could arithmetically also be covered by the other three corridors. If demand continues to rise until 2040, a supply gap of around 120 TWh could emerge. Part of this gap could be closed via the planned Aquaductus pipeline, which will connect the planned offshore production projects in the North Sea with the German core grid from 2030. The prerequisite for this is the expansion of the planned green generation capacities in the North Sea.

European Hydrogen Bank (EHB) - Results of the first auction for green hydrogen



** Production volumes over a period of 10 years; ** Figures in €/kg Hydrogen*

Source: Energate Messenger Hydex Nov. 2024, European Commission Team Consult analysis

- The results of the first EHB auction were announced in April. Seven projects were selected from 132 bids to receive 720 million euros in funding for a period of 10 years from the start of production.
- In October, six of the projects signed their funding agreements and can now be realised.
- The aim of these projects is to use the green hydrogen to produce green fuels (ammonia, methane, liquid fuels).
- Combined, they will achieve an installed capacity of approx. 1.5 GWel and enable the production of about 50 TWh of hydrogen over a period of 10 years (approx. 5 TWh/a). The qualified projects will receive a subsidy of between €0.37/kg (11.1 €/MWh) and €0.48/kg (14.4 €/MWh) of renewable hydrogen produced.
- By comparison, the production costs for renewable hydrogen are currently around 6 €/kg (180 €/MWh). This support only partially offsets the significantly higher production costs compared to grey hydrogen (approx. €3/kg). The projects have obviously found buyers who are willing to pay the remaining premium to cover the delta between the production costs of grey and green hydrogen.

Imprint

Editor: Team Consult G.P.E. GmbH, Robert-Koch-Platz 4, 10115 Berlin

Contact details: +49.30.400 556 0, info@teamconsult.net

Legal disclaimer & copyright: The H_2 Market Radar was produced with the utmost care. Team Consult cannot assume any liability for the completeness, accuracy and up-to-date nature of the data used. All content is protected by copyright.