

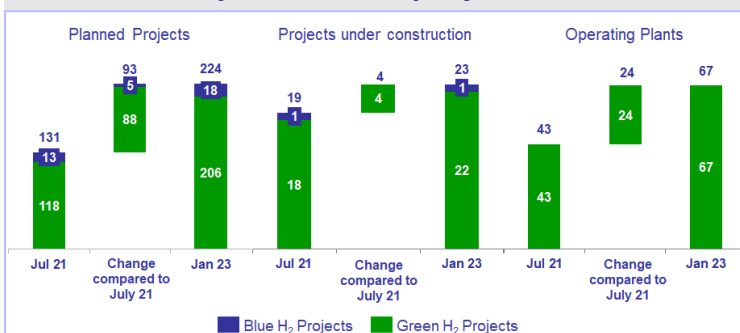
H₂ MARKET RADAR

30.01.2023

KEY FACTS

- Over 300 projects for the production of hydrogen are currently pursued in Northwest Europe. 67 plants with a combined capacity of 100 MWel are now in operation.
- The hydrogen market is still in the phase of island projects. The intended infrastructure expansion aims at a supra-regional supply and should enable global hydrogen trade in the long run.
- Two thirds of the projects planned in Germany with a production capacity of 30 MW or more are aimed at the supra-regional marketing of hydrogen.
- At the international level, a short-term use of hydrogen is intended primarily in the transport sector.

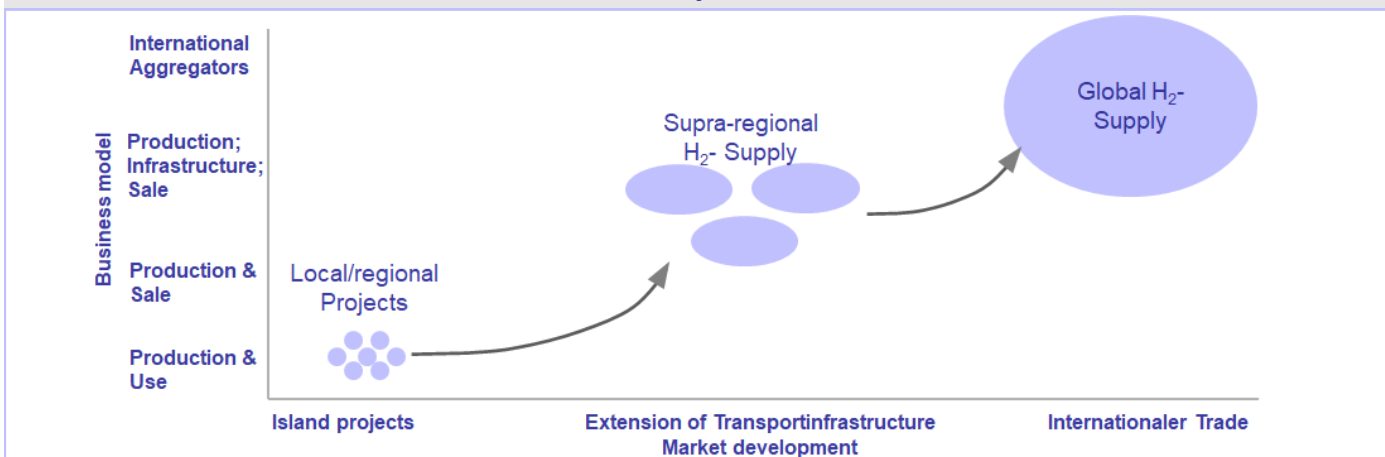
Development of H₂ projects in Northwest Europe (BE, GER, DK, NOR, NL, UK)



Source: Team Consult Analysis

- Our database currently contains more than 300 projects in Northwest Europe for the production of green or blue hydrogen.
- 67 plants with a combined capacity of 100 MWel are now in operation.
- Over 80% of these plants are used to produce green hydrogen.
- Other plants are aimed at the production of green methane or at the research of methanol and e-fuels production.

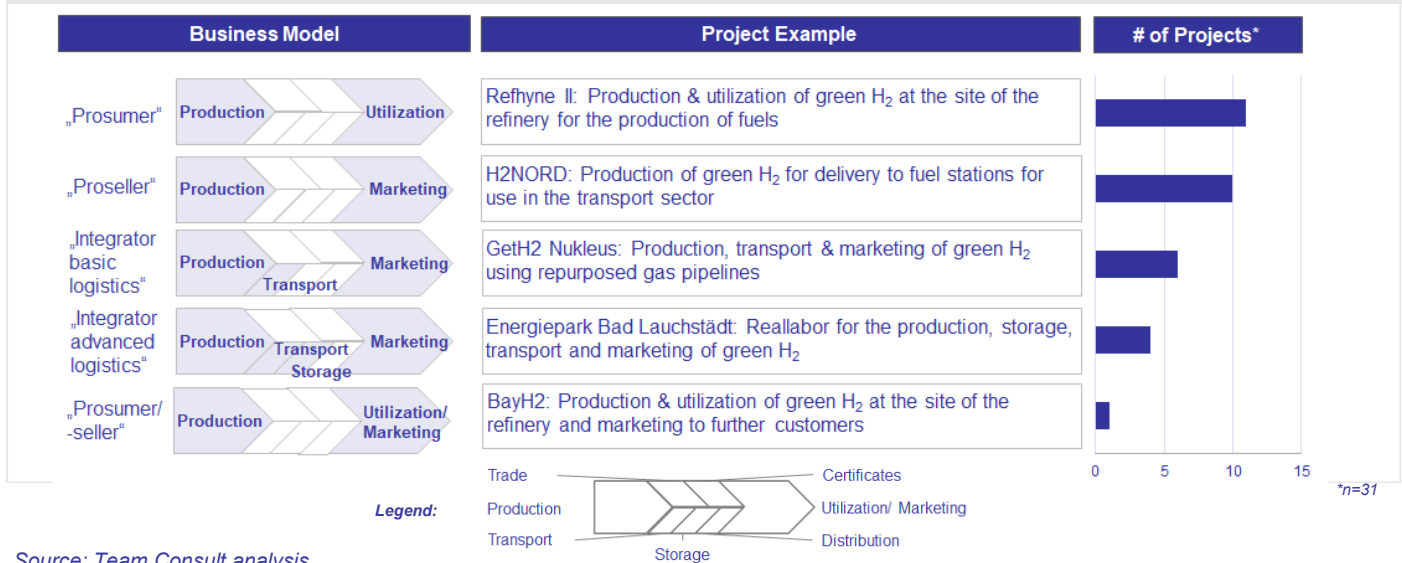
Market development forecast



Source: Team Consult Analysis

- With a clear focus on decarbonizing the supply of energy, the development of the hydrogen market is still in the starting blocks. At present, the market in Germany is in the phase of a large number of small island projects directed at the local supply of hydrogen, either for direct use at the point of production (e.g. in a refinery) or, for example, for use in the transport sector via a connected filling station.
- In the further development, projects are planned that will connect the different regions by expanding the transport, storage and distribution infrastructure and thus successively enable the supra-regional sale of hydrogen. With demand and competitiveness of hydrogen growing, trading markets for various products and certificates (e.g. for proof of a low or zero carbon footprint) will develop in analogy to the existing markets for natural gas.
- Projects for the import of hydrogen are already being planned in Europe, and global projects are aimed at the large-scale production of hydrogen or hydrogen derivatives (e.g. ammonia). With the further expansion of the infrastructure (pipelines, tankers, import terminals), increasing economic efficiency of production, the emergence international aggregators and growing liquidity of the traded markets, hydrogen can develop into a globally traded commodity in the future.

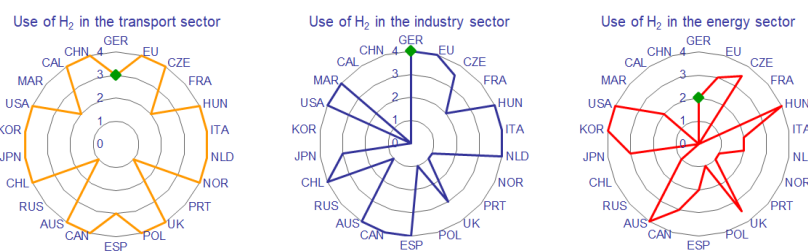
Business models of German hydrogen projects (from 30 MW)



Source: Team Consult analysis

- Around a third of the planned hydrogen projects with a production capacity of 30 MW or more pursue business models in which H₂ is to be consumed directly at the point of production, for example in steel production or for use in refineries to decarbonize fuel production.
- Around two thirds of the projects aim beyond the boundaries of the production site. In addition to production, they focus on transport and, in some cases, storage as well as marketing to end customers. This is made possible by project partners with access to the required infrastructure. These projects have the potential to get the market started and to initiate a regional growth of the market.
- A future trade of hydrogen or certificates is, as of now, not yet anticipated by the hydrogen production projects examined. However, trading opportunities will improve in the future due to the tenders for international procurement and resale of hydrogen in Germany which are currently launched by the H2Global foundation.

Evaluation of international hydrogen strategies by fields of application



0 = not explicitly mentioned 1 = Use without time designation 2 = long-term use 3 = mid-term use 4 = short-term use

GER = Germany, EU = European Union, CZE = Czech Republic, FRA = France, HUN = Hungary, ITA = Italy, NLD = Netherlands, NOR = Norway, PRT = Portugal, UK = United Kingdom, POL = Poland, ESP = Spain, CAN = Canada, AUS = Australia, RUS = Russia, CHL = Chile, JPN = Japan, KOR = South Korea, USA = United States of America, MAR = Morocco, CAL = California, CHN = China

Source: DECHEMA, acatech, 2022: Internationale Wasserstoffstrategien im Vergleich

- Hydrogen will also play an important role globally in the transition to energy supply based on renewable energies.
- The figure shows an evaluation of national hydrogen strategies with a focus on the planned fields of

application in the transport, industry and energy sectors.

- The use of hydrogen for the decarbonization of the transport sector is taken into account in all strategies considered and 70% of the countries want to use hydrogen here in the short term.
- The use of hydrogen in the industrial sector in the short to medium term is also considered important.
- A considerably different picture emerges with regard to the energy sector. Here, the use of hydrogen is often considered in the medium to long term only.

Imprint

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