

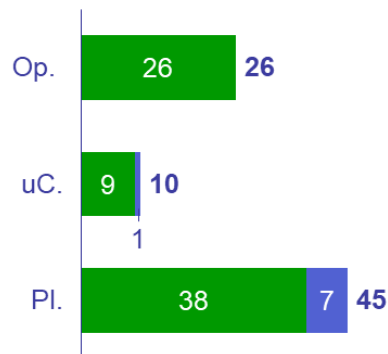
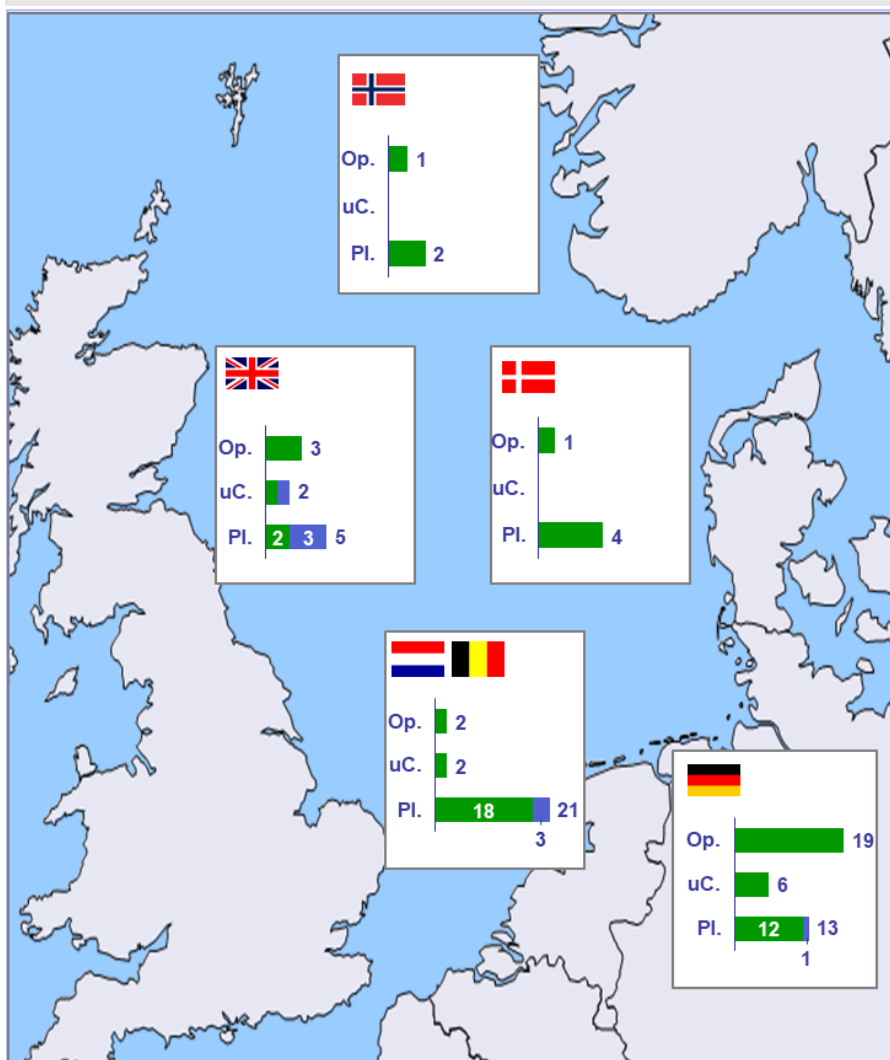
H₂ MARKET RADAR

30.06.2020

KEY FACTS

- On April 6, 2020, the Dutch government published its hydrogen strategy. On June 8th and June 10th, Norway and Germany followed suit and presented their national hydrogen strategies. In addition to national measures the strategies are banking on international cooperation.
- Thanks to new offshore wind farms and the existing gas infrastructure Northwest Europe has excellent conditions for developing a hydrogen economy.
- In its national hydrogen strategy, the federal government of Germany has also announced a funding program in the double digit billion Euro range to ramp-up the hydrogen market. A key funding priority lies on the transport sector.
- The stock price development of companies engaged in the field of hydrogen shows that the capital markets see considerable future potential in the topic.

H₂-map of Northwest Europe (Number of projects)

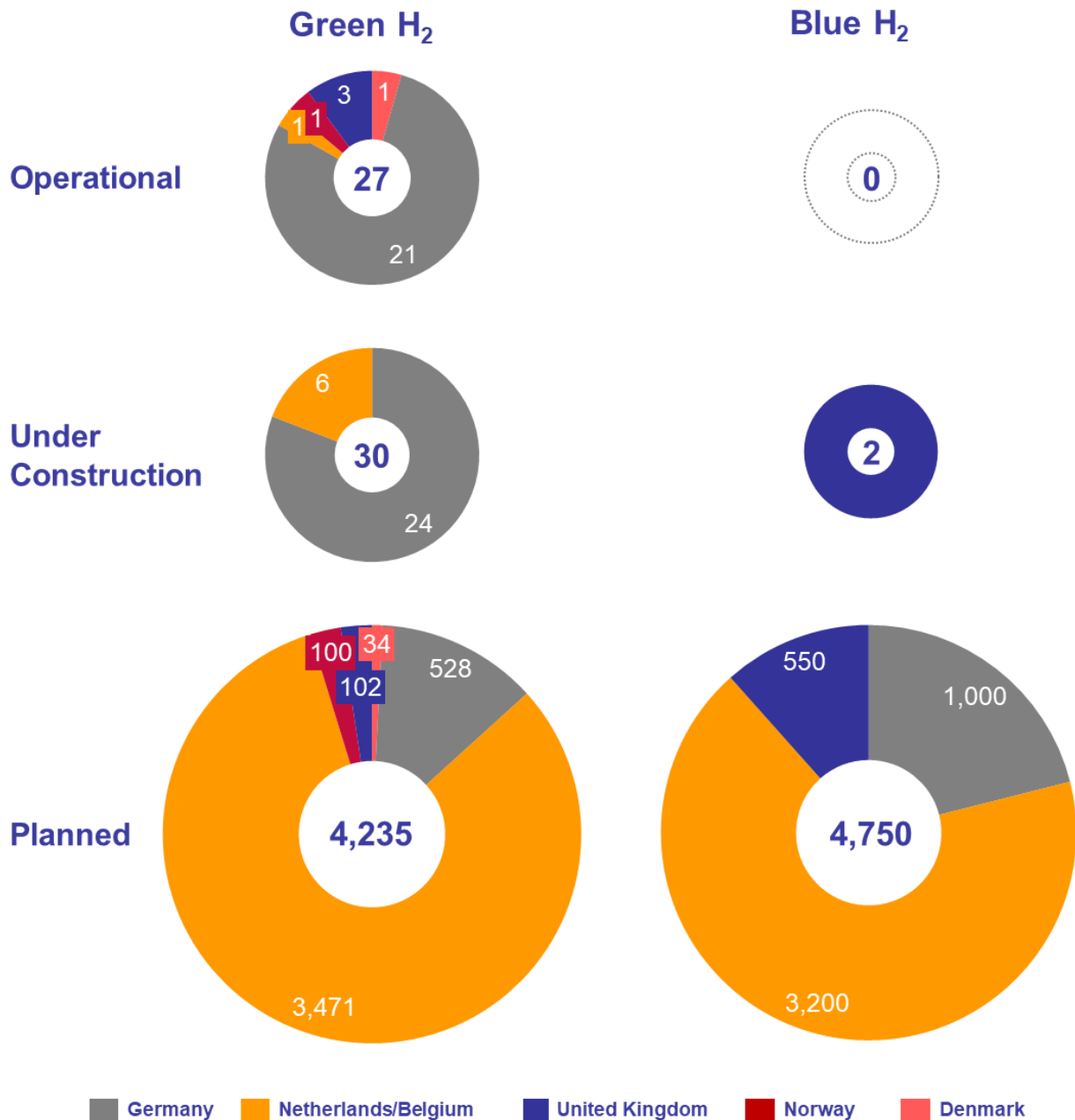


- There are currently over 80 hydrogen projects under way in Northwest Europe.
- 32% of these projects are already operational and a further 12% are under construction.
- The majority of projects are related to the production of "green hydrogen", i.e. hydrogen produced via electrolysis from renewable electricity.
- Germany currently has the highest share of operational plants; with 21 planned projects between them, the Netherlands and Belgium could surpass Germany in the mid-term.
- The first projects with blue hydrogen are currently under construction in the UK.

Green H₂ projects Blue H₂ projects Op: operational, uC: under construction, Pl: planned

Source: Research/Analysis Team Consult

Development status of H₂-capacities in Northwest Europe (in MW) *



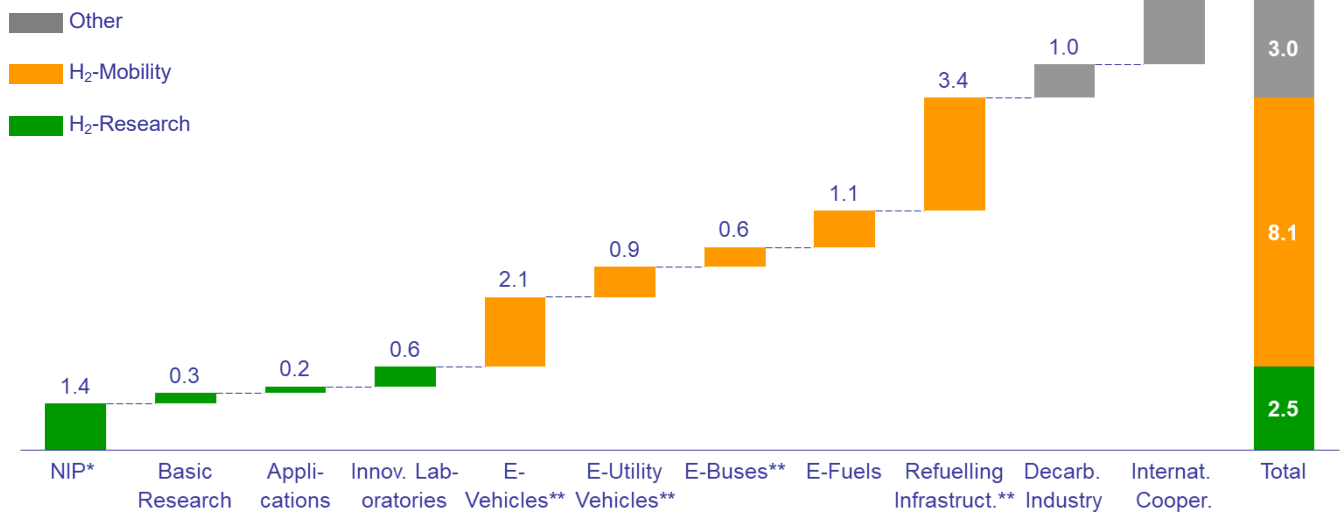
Source: Research/Analysis Team Consult

A look at the H₂ generation capacities associated with the projects shows,

- that the projects that are currently operational and under construction are rather small scale and thus have a pilot character. The aim of these projects was and is to gain initial operational experience which can be used in the development of second generation hydrogen projects,
- that the projects currently planned are moving into completely new dimensions in terms of their size and, if successfully implemented, could lay the solid foundations for a CO₂-neutral hydrogen production in Northwest Europe,
- that the lion's share of the planned capacities are located in the Netherlands and Belgium; with the projects North2 at Groningen/Eemshaven (green H₂; ca. 2,400 MW) and H-Vision in Rotterdam (blue H₂; 3,200 MW) the region is host to the most ambitious projects.

* Note: Project capacities according to publications in press releases or as stated on websites. If no explicit information on the H₂ production capacity was provided we estimated the capacity on the basis of the electric input.

Germany's public funding of the development of an H₂-economy (in bn €)



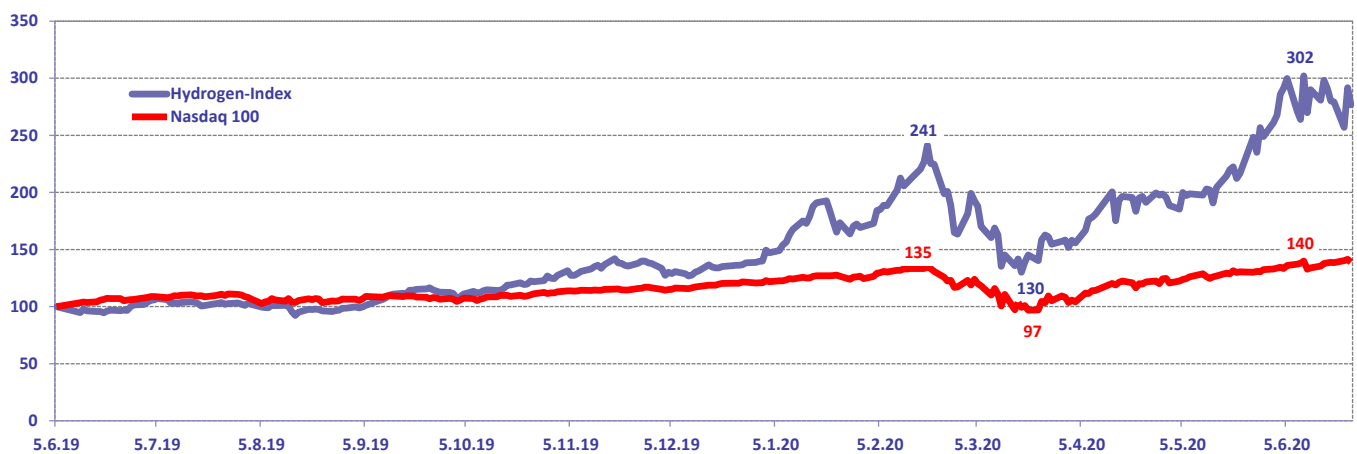
* NIP = National Innovation Programme Hydrogen and Fuel Cell Technology

** Funds for the development of alternative drives, charging infrastructure and H₂-fuelling stations

Source: BMWi 06.2020 - The national hydrogen strategy, Team Consult analysis

- The German hydrogen strategy contains a comprehensive set of measures for the H₂ market ramp-up which is to take place in two phases. The success of the first phase (2020 – 2023) should be ensured through the funds shown above.
- A key funding priority lies on the transport sector, which accounts for around 60% of the funding.

Comparison of the price development of hydrogen and technology stocks



Source: www.ariva.de, Team Consult analysis

- The hydrogen index has been listed for a year and reflects the stock price development of companies that are involved in the H₂ value chain (e.g. Air Liquide, Linde, Ballard Power, ITM Power or Hexagon Composites).
- A comparison to the Nasdaq 100 (e.g. Apple, Amazon, Alphabet or Tesla) shows that the capital market perceives H₂ as a topic with a high future potential. Even at the beginning of the Coronavirus crisis, the index was still 30 points above its starting value; meanwhile it has reached new highs.

Imprint

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