



**European
Hydrogen Observatory**

Introduction to the **European Hydrogen Observatory**

European Hydrogen Observatory

What is the purpose?

COLLABORATION



+

Deloitte.

Commissioner

Contractor

OBSERVATORY MAIN GOAL

“The primary role of the Observatory is to act as the official European one-stop shop for reliable information on hydrogen.”

FOR WHOM IS THE OBSERVATORY?

- Industry
- Policy makers
- Academics
- Opinion leaders
- Citizens

The screenshot shows the website's header with the European Hydrogen Observatory and Clean Hydrogen Partnership logos, a search bar, and a navigation menu. The main content area features a large banner for the release of the second report on hydrogen education and research, with an illustration of books and data charts. Below this is a section titled 'The hydrogen landscape at a glance' which includes a year selector (set to 2024) and three data cards:

Metric	Value	Additional Info
PRODUCTION	11.18	Mt hydrogen production capacity in Europe in 2024
PRODUCTION COST (LCOH)	6.71	EUR/kg as European average for renewable hydrogen in 2024
TECHNOLOGY MANUFACTURING	10.60	GW of electrolyser manufacturing capacity by May 2025

European Hydrogen Observatory

Which data are included?

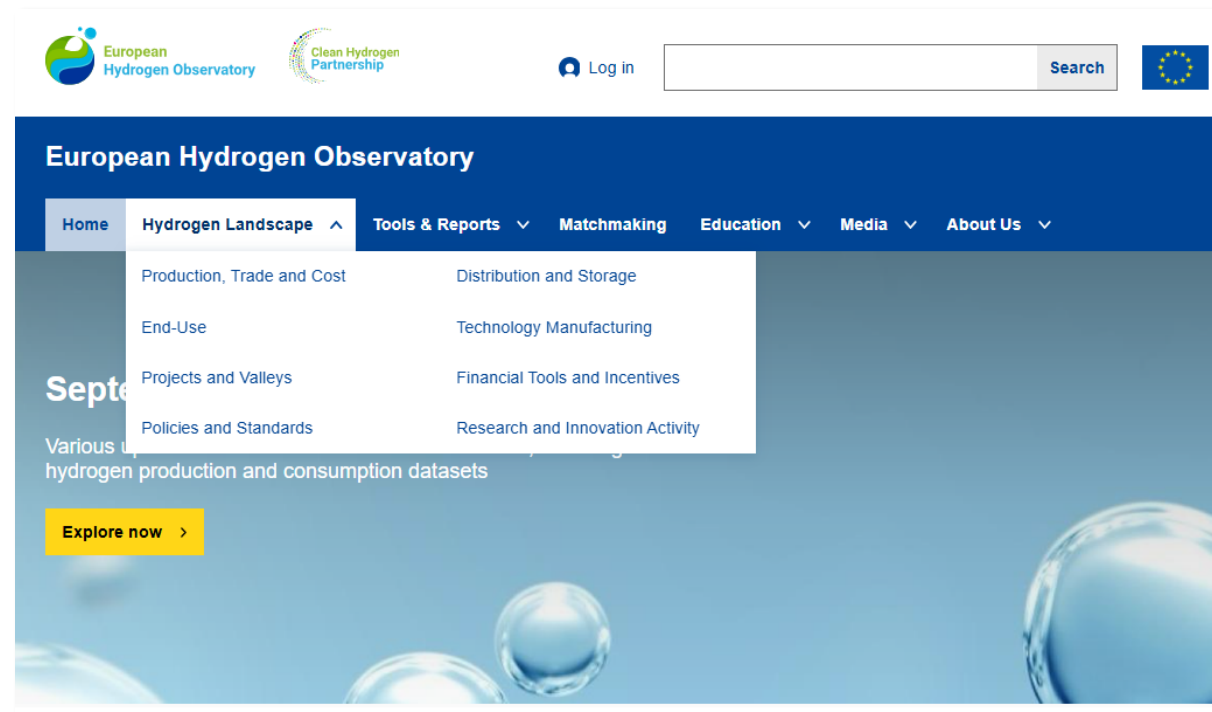
SCOPE OF THE OBSERVATORY

The Observatory presents data for all steps of the hydrogen value chain:

1. *Production, Trade and Cost;*
2. *Distribution and Storage;*
3. *End-Use;*
4. *Technologies Manufacturing;*
5. *Projects and Valleys;*
6. *Policies and standards;*
7. *Research and Innovation activities;*
8. *Financial tools, support and incentives;*
9. *Education Materials;*
10. *Training Programmes;*
11. *Company Matchmaking.*

And also:

- *A customisable and interactive geomap;*
- *A Levelised Cost of Hydrogen Calculator;*
- *A customisable comparison of the leading scenarios for future; hydrogen demand in Europe in 2030, 2040 and 2050 by sector;*
- *A news and events interface.*



TIMING

The revamped European Hydrogen Observatory launched in **September 2023**. All datasets are (at least) **annually updated**.

European Hydrogen Observatory

How are the data visualized?

DATA VISUALIZATIONS

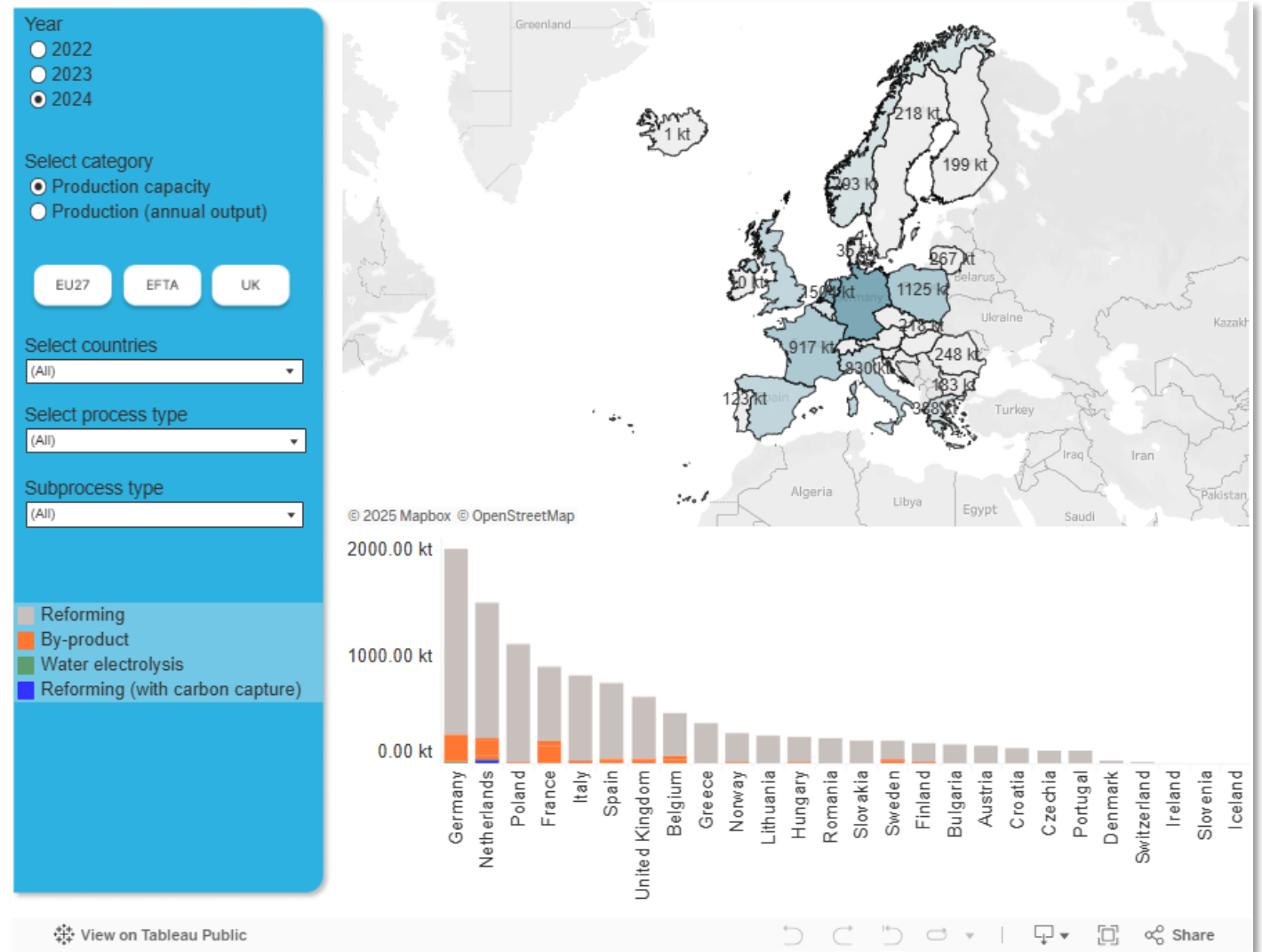
The focus on the Observatory is not only on aesthetics, but also on **user-centric experience**, facilitating seamless navigation and effortless collaboration. The Observatory mainly visualizes data via geographical maps and bar plots to show trends over the years.

DATA OBJECTIVITY

Aim is to illustrate **neutral and objective information** and only limited forecasting with clearly documented assumptions.

REPORTS

Next to visualizations on the website, **annual reports** are published covering the EU hydrogen market, policy, education and research landscape to discuss key insights.



Hydrogen production capacity and production output by technology in Europe (EU27, United Kingdom, Iceland, Liechtenstein, Norway and Switzerland).

European Hydrogen Observatory

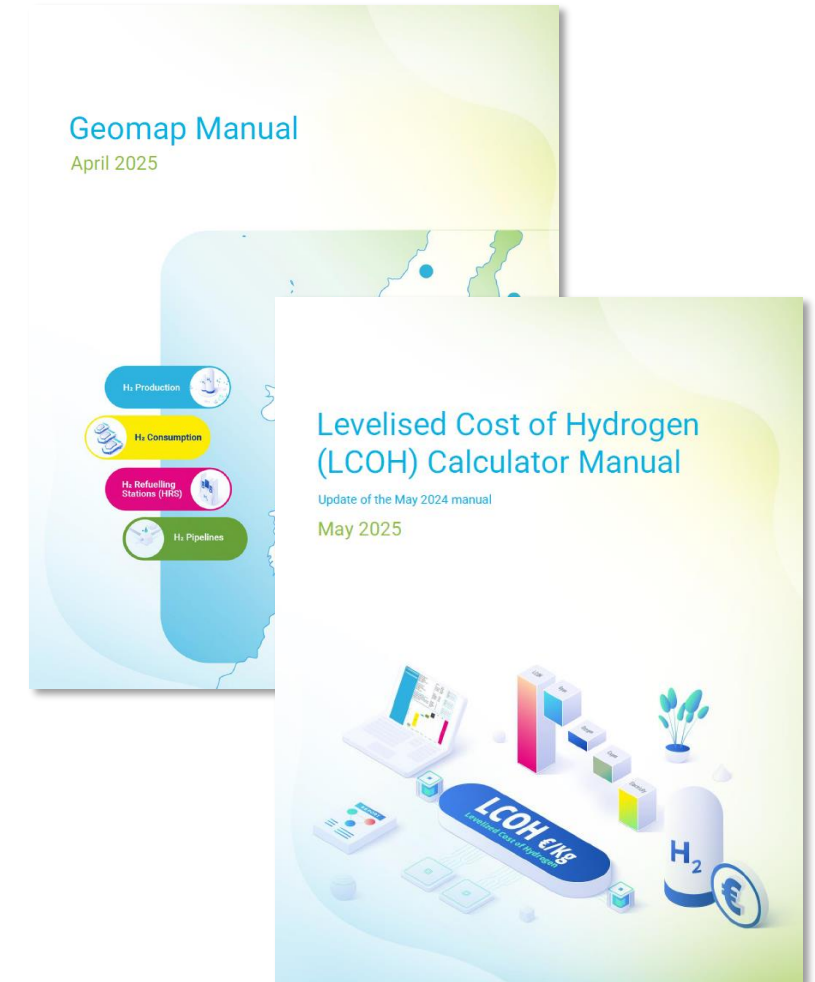
Which reports does the website provide?

ANNUAL HYDROGEN LANDSCAPE REPORTS



The new European hydrogen market landscape will be launched soon!

TOOL MANUALS

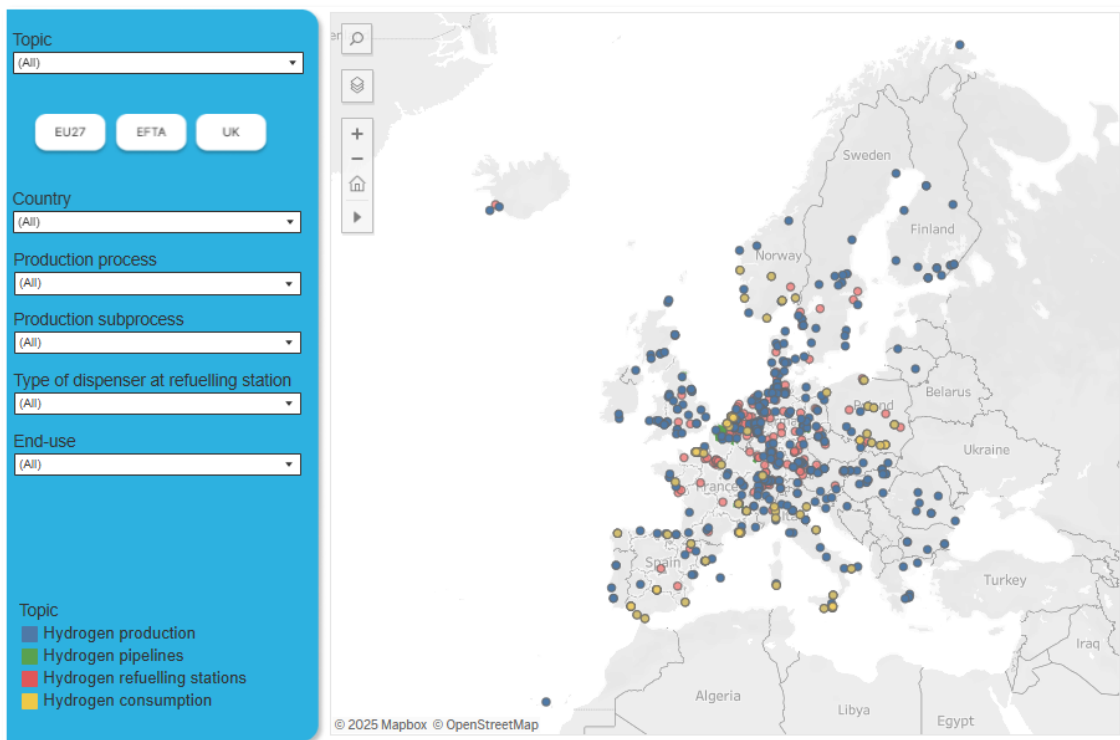


European Hydrogen Observatory

Popular tools

GEOMAP

This customisable geomap brings together data on (1) hydrogen production plants, (2) hydrogen refuelling stations, (3) hydrogen pipelines and (4) hydrogen consuming plants



LCOH CALCULATOR



European Hydrogen Observatory

Some key insights

Production

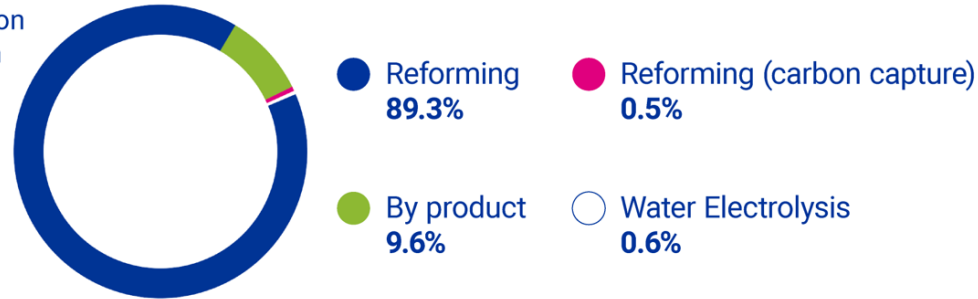
Hydrogen production capacity by production process in 2024



487 Operational hydrogen production plants in Europe in 2024 (+6.8% from 2023)

11.18 Mt of total annual production capacity in 2024 (+1.2 from 2023)

7.86 Mt produced in 2024 (+0.6% from 2023)



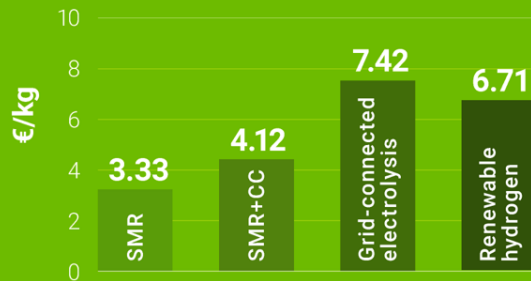
376.45 MW
(+45.7% from 2023)
of water electrolysis capacity in operation in 2024 coming from 121 projects



Another 94 projects were under construction in 2024, totalling a capacity of 2,840 MW

Costs

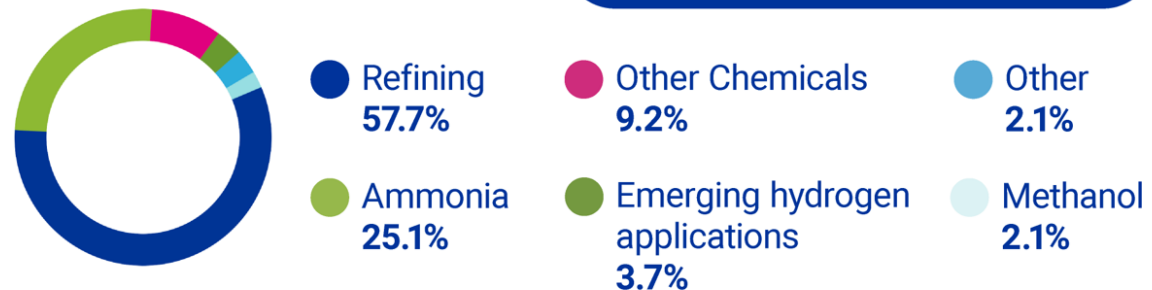
Average levelised hydrogen production costs by technology in 2024.



Compared to 2023, the cost gap between SMR and grid-connected electrolysis decreased by 0.09 €/kg

End Use

7.87 Mt of total hydrogen demand in 2024 (-1% from 2023)



A total fleet of 6,509 (+9.6% from 2023) hydrogen fuel cell electric vehicles in 2024, of which 5,107 were passenger cars

European Hydrogen Observatory

Contact us

For further information we invite you to consult the Observatory at <https://observatory.clean-hydrogen.europa.eu/> or contact our Belgian colleagues Eline Brugman, Stijn Vercammen and/or Gino Heremans.



Eline Brugman

Partner at Deloitte Belgium, Climate & Energy Lead

ebrugman@deloitte.com



Stijn Vercammen

Director at Deloitte Belgium, Climate & Energy co-Lead

svercammen@deloitte.com



Gino Heremans

Senior Consultant at Deloitte Belgium, Climate & Energy

gheremans@deloitte.com



Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee (“DTTL”), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as “Deloitte Global”) does not provide services to clients. Please see www.deloitte.com/about for a more detailed description of DTTL and its member firms.

Deloitte provides audit, tax and legal, consulting, and financial advisory services to public and private clients spanning multiple industries. With a globally connected network of member firms in more than 150 countries, Deloitte brings world-class capabilities and high-quality service to clients, delivering the insights they need to address their most complex business challenges. Deloitte has in the region of 460,000 professionals, all committed to becoming the standard of excellence.