



# Forecast to 2030 of “green” hydrogen production

Clean Tech unit

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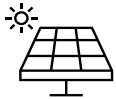
*October 2022*

# Our services – Combining fields of expertise from research, data science to modelling



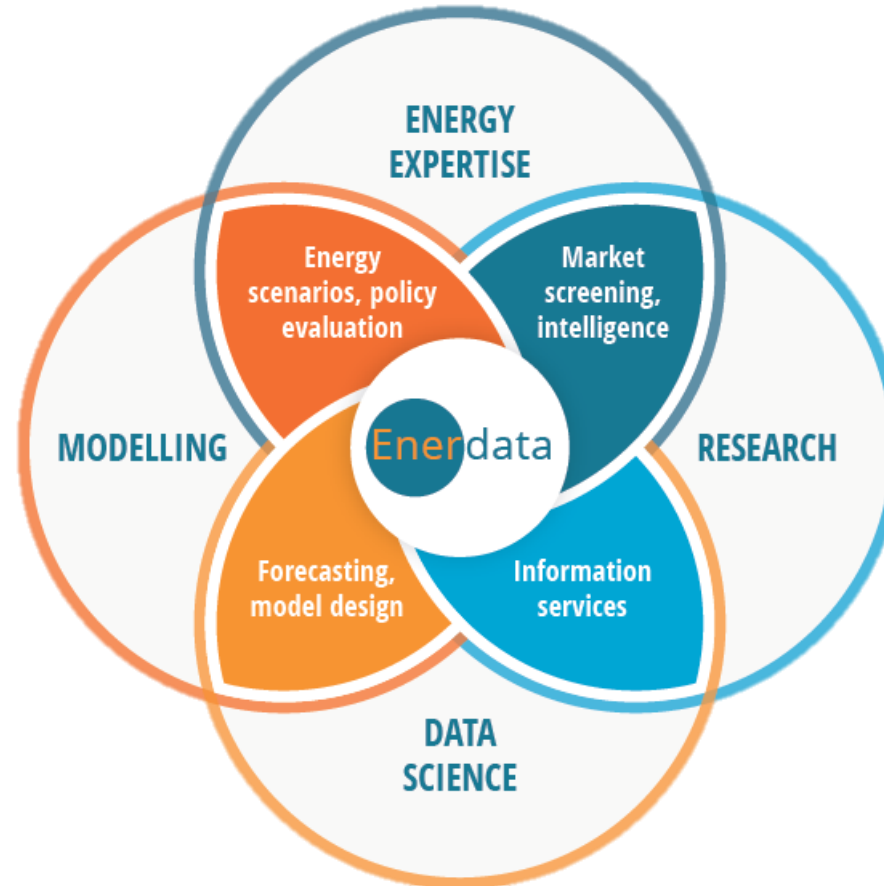
## Modelling

- Creation of E-C scenarios, climate alignment trajectories
- Identification of alignment pathways by sector and by country



## Expert in energy / climate

- Knowledge of market drivers
- Expertise covering all energy transition pillars: mix decarbonisation, energy efficiency, sufficiency
- Deep coverage: all energies, all sectors and 150+ countries



## Market intelligence

- Market Research
- Business intelligence
- Energy market watch
- Tracking of E-C policies worldwide



## Data science

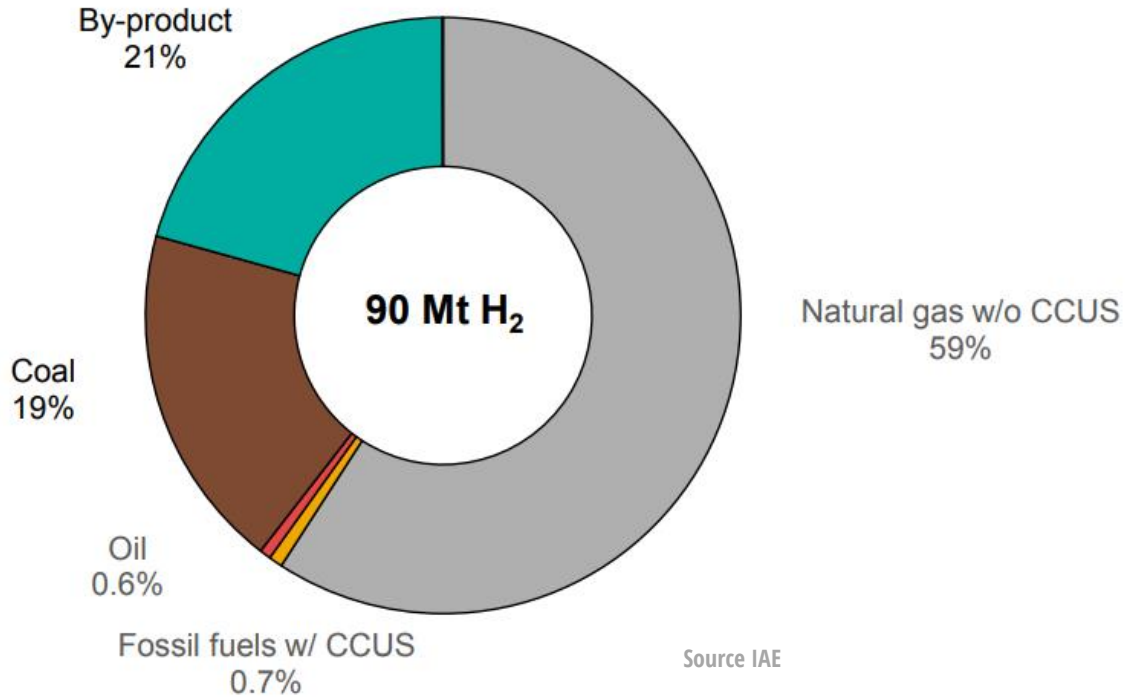
- Gathering, consolidating and analyzing energy data
- Market forecasts: supply, demand and prices

# Agenda

- 1) Introduction : electrolysis, “grey” vs. “green” hydrogen
- 2) Methodology & 2030 electrolyser production forecast
- 3) Associated hydrogen production forecast
- 4) Perspective of EU objectives in terms of hydrogen production
- 5) Conclusion

# Share of market of green H<sub>2</sub> vs. grey H<sub>2</sub> today

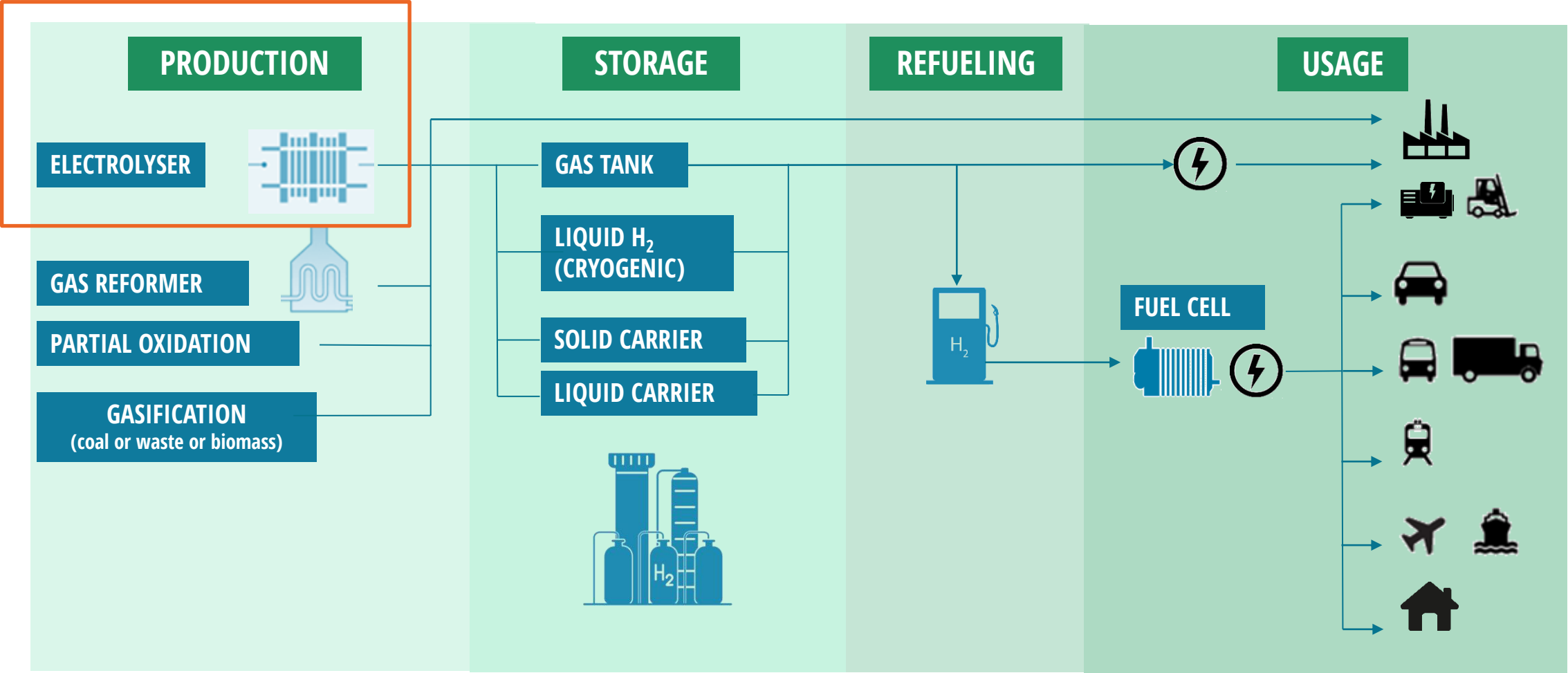
- > 90% of hydrogen usage is dedicated to ammonia production and refineries
- 900 Mt of CO<sub>2</sub> emissions in 2020 due to hydrogen production
- 31.5 Gt of CO<sub>2</sub> emissions in 2020 globally
- < 300 MW of installed electrolysis capacity in 2020 (Enerdata)



Hydrogen production source in 2020

# Water electrolysis vs. other ways of generating H<sub>2</sub>

## Perimeter of analysis







# Methodology

- Using Enerdata's global H<sub>2</sub> database (approx. 140 electrolyser manufacturers)
- Bottom-up approach with 12 industrial players:



<https://www.enerdata.net/research/h2-database.html>

# Methodology

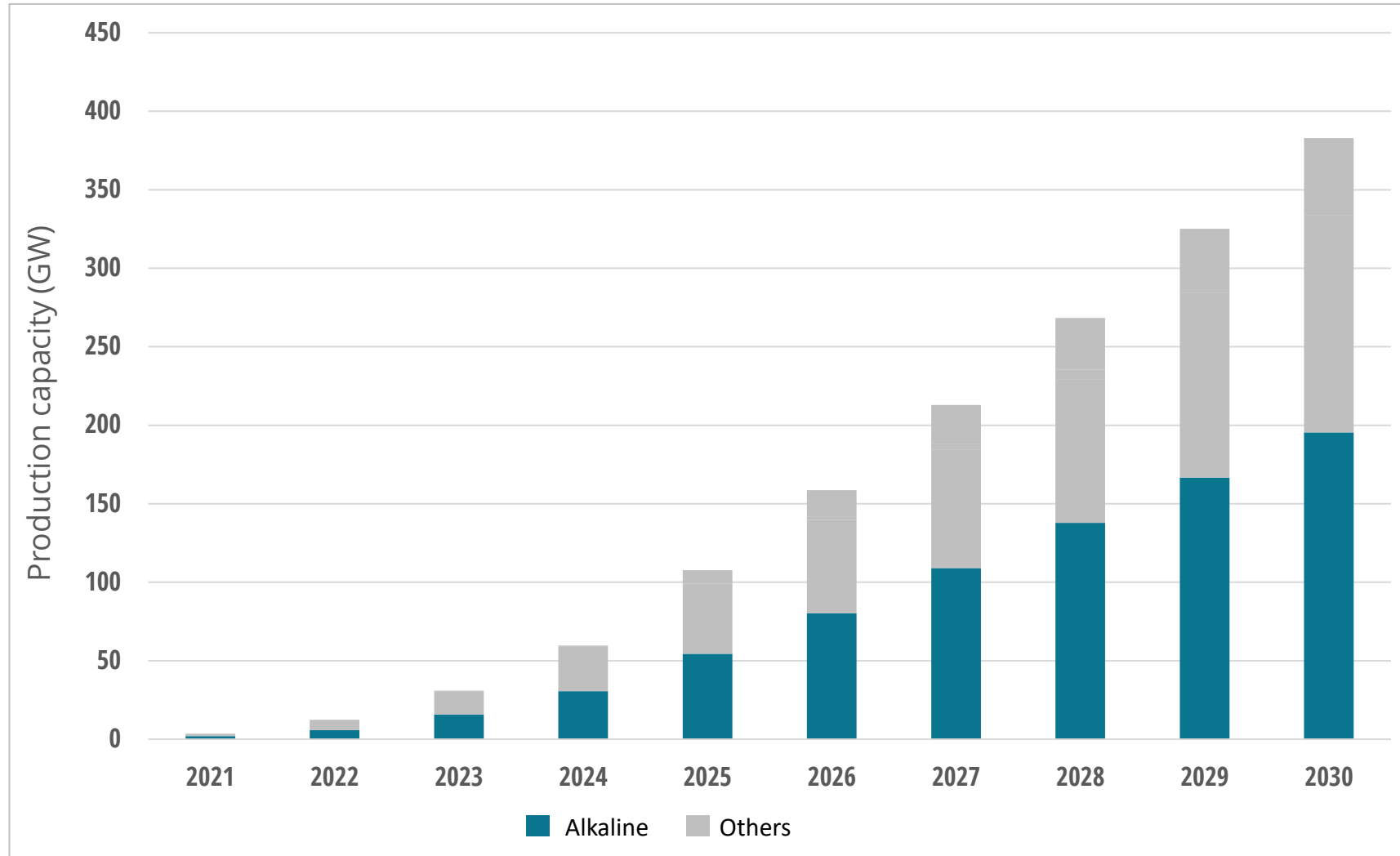
**Analysis of the selected companies regarding :**

- **Financing information**
- **Technology & Products**
- **Production & Supply-Chain**
- **Sales & Projects pipeline**

**Summary of existing and planned manufacturing sites from these electrolyser suppliers**

# Electrolyser Production Forecast

## a. Global cumulated production capacity by technology in GW





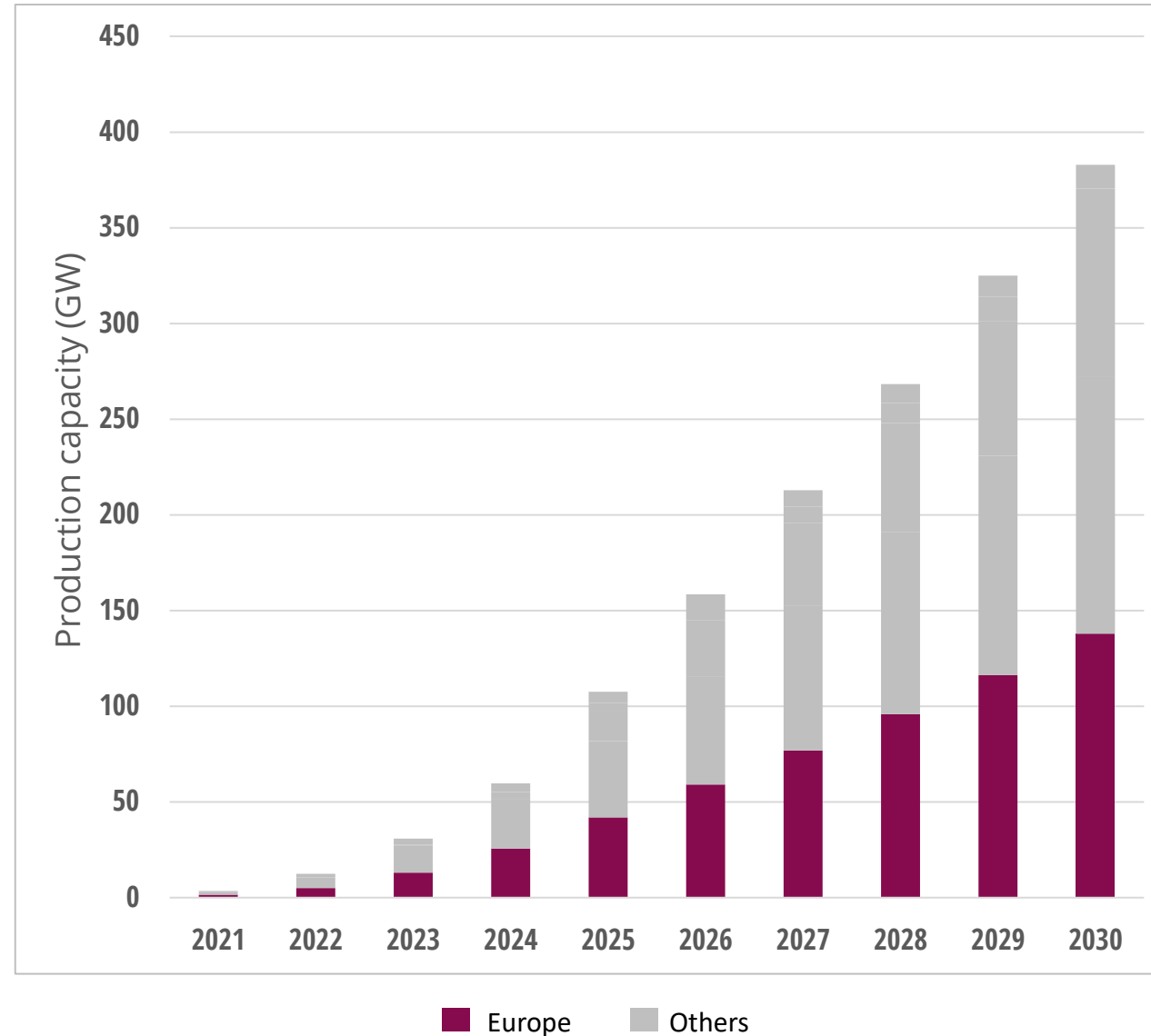
# Mapping of all electrolyser factories

- > 30 sites identified worldwide
- Information about project location, project status, technology, current capacity and planned, and more.



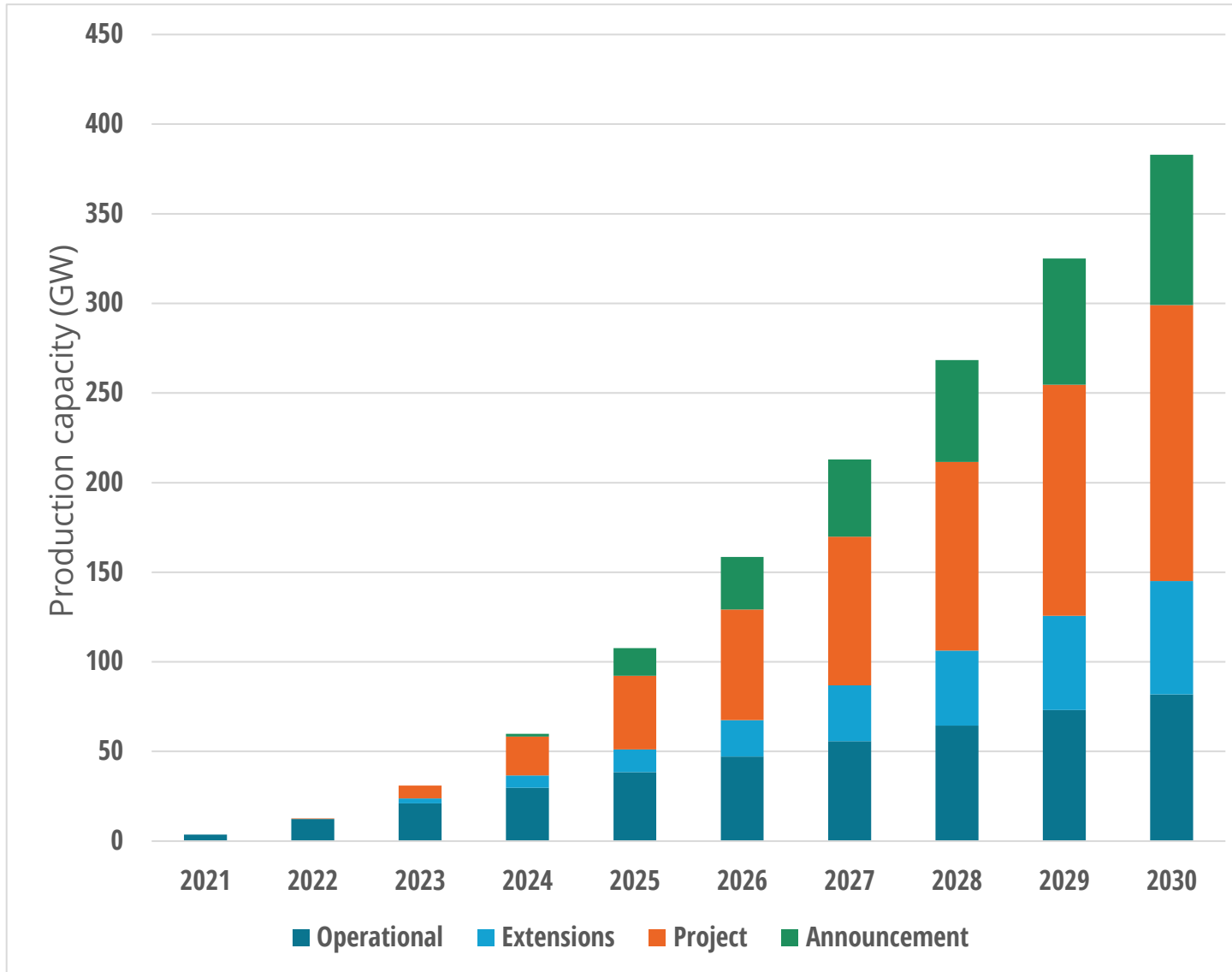
# Electrolyser Production Forecast

## b. Cumulated production capacity by region in GW

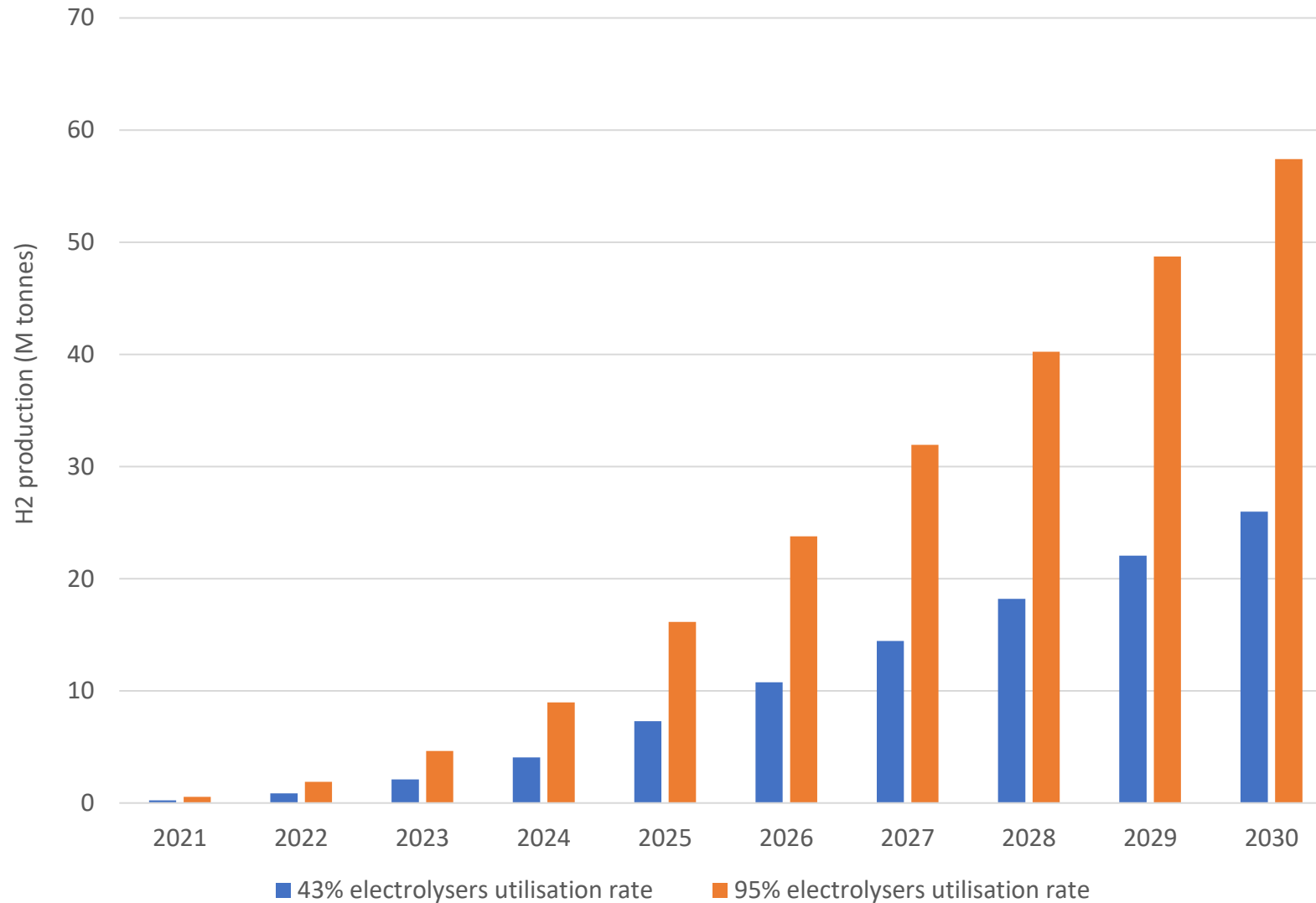


# Electrolyser Production Forecast

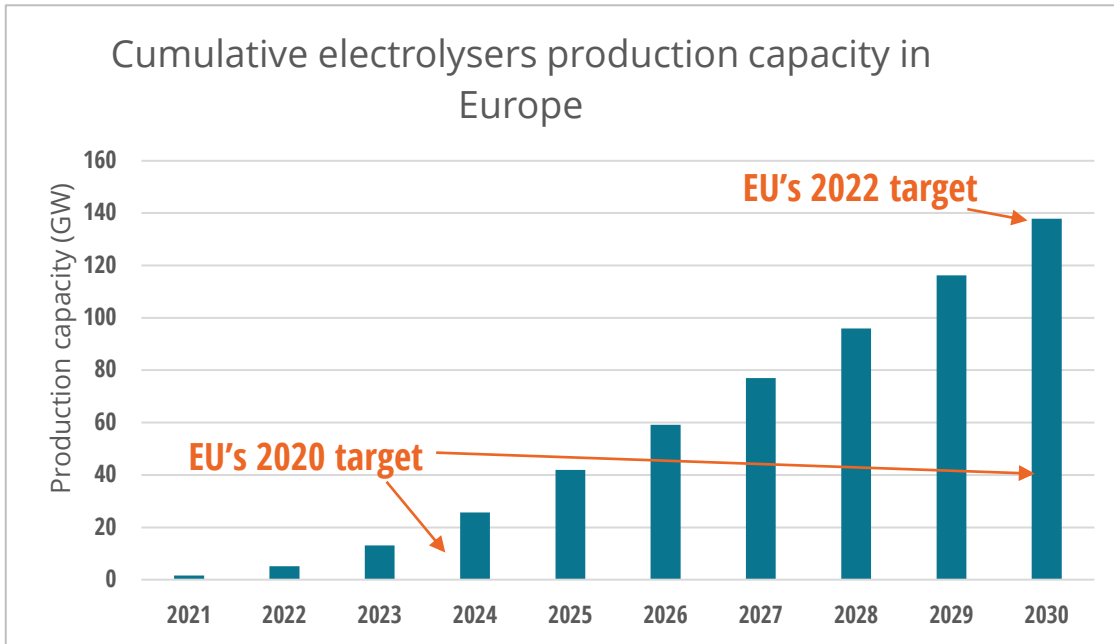
## c. Global cumulated output of electrolysers by project status in GW



# Global forecasted production of hydrogen



# Cumulated manufacturing capacity & H<sub>2</sub> production in Europe



- The European Union published a dedicated hydrogen strategy in 2020:
  - By 2024, 6 GW of electrolyzers & 1 million tonnes of renewable hydrogen produced in the EU
  - By 2030, 40 GW of electrolyzers & 10 million tonnes of renewable hydrogen produced in the EU
- The European Commission's RepowerEU Communication from 2022 has set new targets:
  - 10 million tonnes of annual domestic production and 10 million tonnes of annual hydrogen imports by 2030
  - According to industry estimates, producing 10 million tonnes of renewable hydrogen in the EU would require an installed electrolyser capacity of 140 GW

# Enerdata's offering on Hydrogen

## Global Electrolysers manufacturing capacity report

- Available end of October 2022
- Detailed analysis on >10 leaders
- **Detailed production forecasts up to 2030** on both electrolysers & associated H<sub>2</sub> production
- Worldwide coverage
- Analysis on national/regional ambitions on H<sub>2</sub> production

## Global Hydrogen Companies Database (industry)

- Full hydrogen database with the latest update
- New release every 6 months
- **Worldwide coverage: over 1000 companies** located in >40 countries
- **Coverage of all the value chain:** from H<sub>2</sub> production to storage to fuel cell manufacturing and includes all major technologies
- Information on **each company's fields of activity**
- Specific details on these companies: size, targeted markets, and more.

## Power Plant Tracker (projects)

- Power Plant Tracker
- Power Generation Database: 85% of the world's capacities covered, 127 countries
- **Operational capacities and new capacity projects covered.**
- Includes H<sub>2</sub> electrolysis and fuel cell capacities

## Custom consulting

- Market Research
- Actors Mapping & Benchmarking
- Due Diligence

# HELPING YOU SHAPE THE ENERGY TRANSITION

## About Enerdata:

Enerdata is an independent research company established in 1991, specializing in the analysis and forecasting of energy and climate issues, at world and country level.

Leveraging our globally recognised databases, intelligence systems and models, we assist our clients in designing their policies, strategies and business plans.



**Thank you for your attention!**

<https://www.enerdata.net/>