

Hydrogen in Bavaria

Introduction to H2.B, Hydrogen Alliance Bavaria and the Bavarian Hydrogen Strategy

Carolin Reiser, Manager International Affairs

H2.B HYDROGEN
CENTER
BAVARIA



Initiated by



Bavarian Ministry of Economic Affairs,
Regional Development and Energy

Hydrogen Center Bavaria (H2.B) and Hydrogen Alliance Bavaria



Hydrogen Center Bavaria (H2.B)

Strategy and coordination center for hydrogen of the Free State of Bavaria

- ▶ Strengthening and accelerating the ramp-up of the Bavarian hydrogen economy
- ▶ Advising, informing and connecting the Bavarian hydrogen players

Tasks:

- ▶ H₂ strategy & H₂ roadmap development
- ▶ Advice to Bavarian government
- ▶ Market & technology analyses
- ▶ Public relations & networking

www.h2.bayern/en

Coordination



Hydrogen Alliance Bavaria

Networking, information and interest platform for hydrogen players in Bavaria

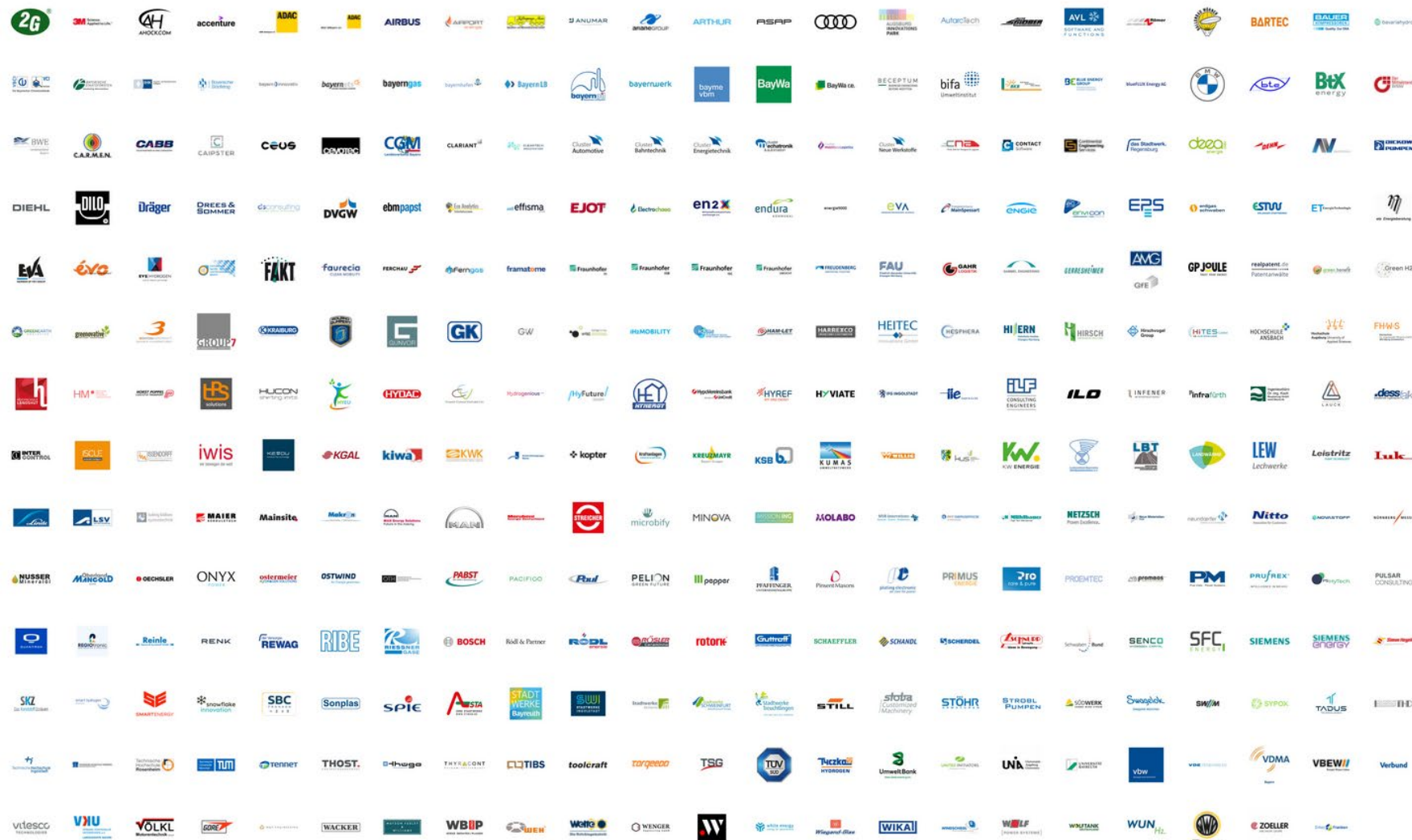
More than 320 partners with a registered office in Bavaria

Services:

- ▶ Workshops (for networking & information)
- ▶ Technological matchmaking
- ▶ Initial project consulting
- ▶ Infoletters
- ▶ Delegation visits
- ▶ Joint exhibition booths

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Partners in the Hydrogen Alliance Bavaria



Founding Partners 2019:



Strategic Partners:



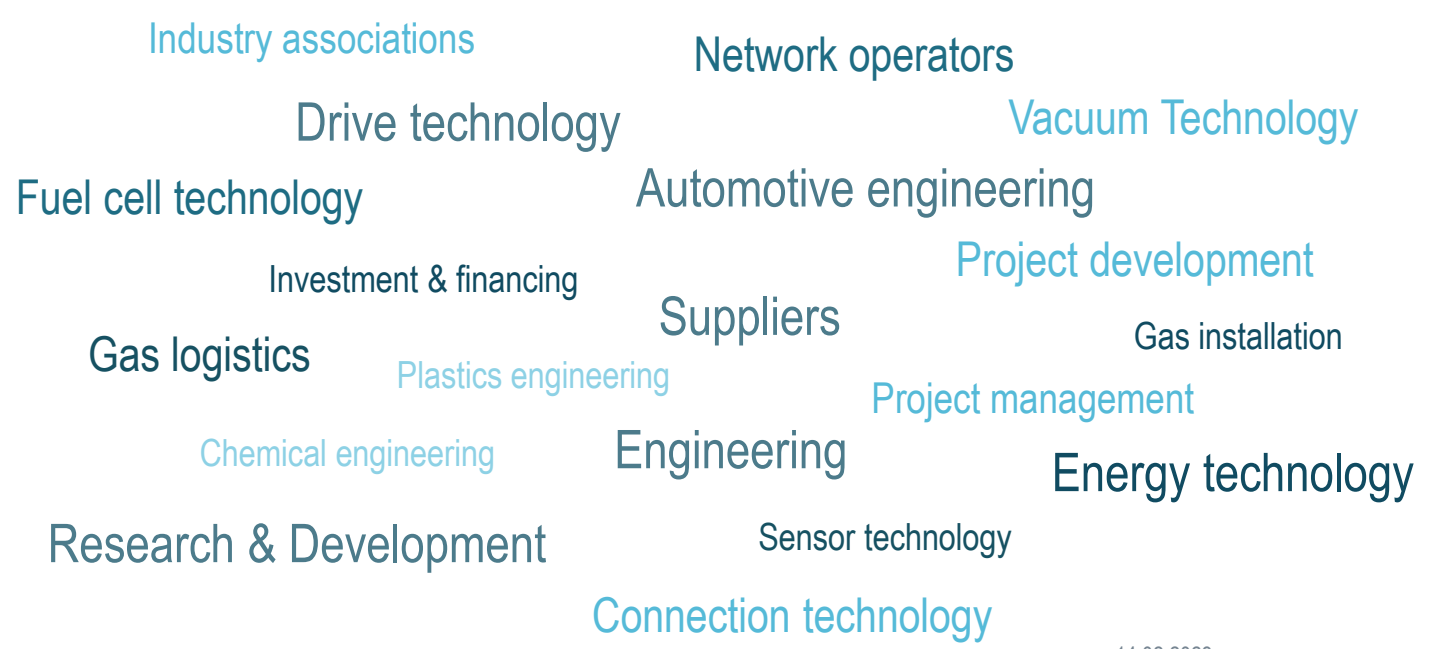
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-  **321 Alliance Partners**
-  **265 Companies**
-  **23 Research institutions / universities**
-  **28 Associations / clusters**
-  **7 Other organizations**

Competencies & Industries in the Hydrogen Alliance Bavaria

- Activities and interests along the hydrogen value chain:
H₂ production – H₂ storage, conversion and transport – H₂ utilization – H₂ key components
- Broad-based alliance with self-employed, SMEs, large corporations, financial service providers, research institutes, associations & clusters



Bavarian Hydrogen Strategy

Bavarian Hydrogen Strategy Process



May 2020:
Position Paper on Hydrogen in Bavaria



May 2020:
Bavarian Hydrogen Strategy



April 2022:
Hydrogen Roadmap Bavaria



www.h2.bayern/en/bavarian-hydrogen-strategy/

Bavarian Hydrogen Strategy

- Published by StMWi in May 2020
- Strong focus on green hydrogen and H2 in mobility
- Innovative strength and technological leadership in H₂ technology, but low potential for renewable energies
 - Mainly hydrogen imports to Bavaria and technology exports from Bavaria
- Implementation steps (excerpt):
 - Hydrogen research initiative "H2 Hightech Bavaria"
 - Establishment of facilities for development, testing and application
 - Funding program for HRS (for utility vehicles; 20 million EUR)
- upcoming: • Funding program for electrolysers (150 million EUR)
- upcoming: • Investments in hydrogen pipeline infrastructure (100 million EUR)



Hydrogen Roadmap Bavaria

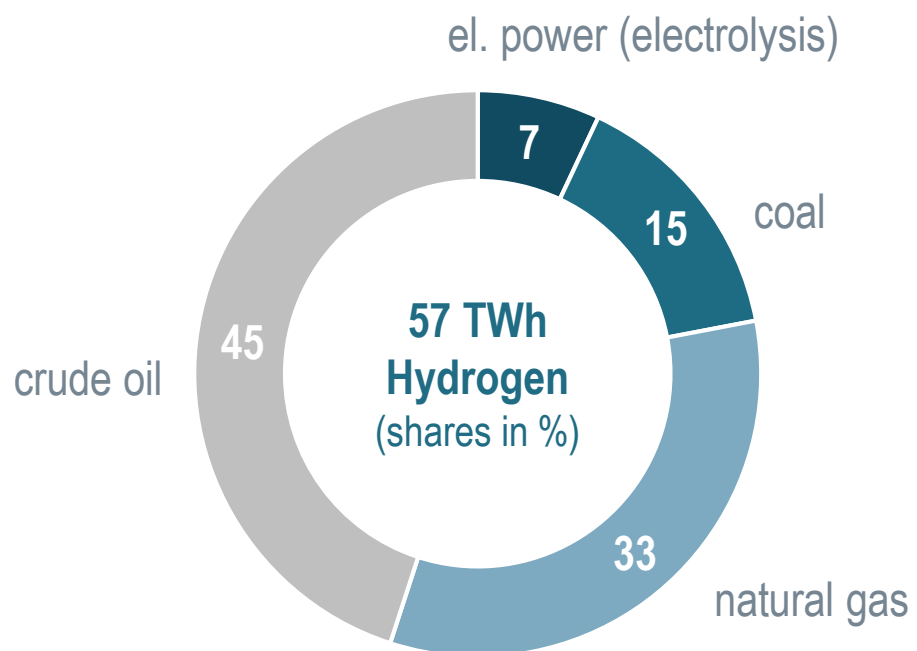
- Published by H2.B in April 2022
- Goals:
 - Identification of perspectives, concrete needs for action and important milestones for the rollout of hydrogen in Bavaria
 - Estimation of possible hydrogen consumption in Bavaria
- **Note: War in Ukraine and energy policy consequences not considered!**
 - Demand forecasts should be seen as minimum!
 - Faster ramp-up of the H₂ economy required
 - Faster increase in H₂ demand → Technology-open ramp-up of climate-friendly H₂ production
 - Increasing importance of H₂ imports in the medium term
 - Need for a much more ambitious and consistent expansion of H₂ infrastructure



Rising hydrogen demand in Bavaria

Current hydrogen demand in Germany

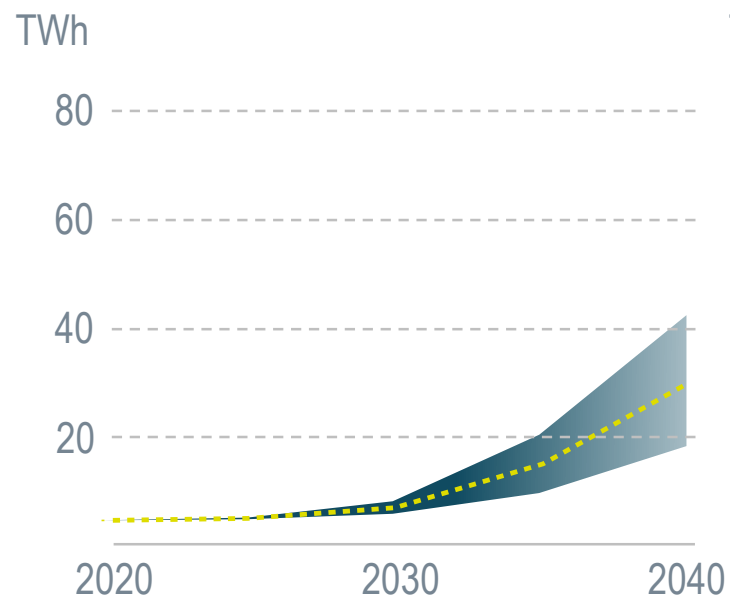
Total energy consumption: approx. 2.500 TWh



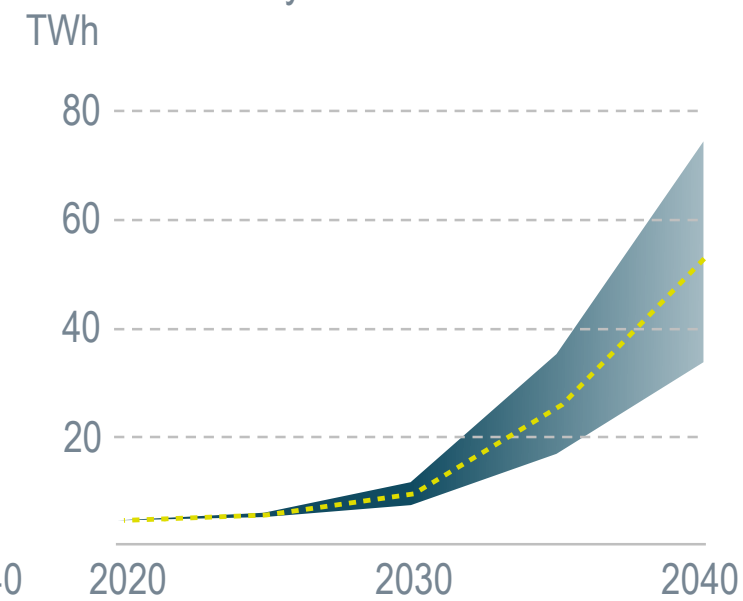
Data from 2020

Expected hydrogen demand in Bavaria until 2040

cumulated hydrogen demand



cumulated hydrogen and synfuel demand



Hydrogen Roadmap Bavaria: Key points



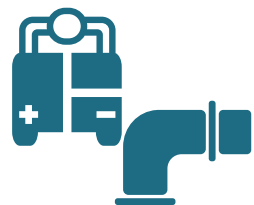
Hydrogen demand

Cumulative demand by 2040: at least 33-75 TWh, mainly for mobility, petrochemicals, power and heat generation



Science hub

Outstanding expertise of Bavarian universities and colleges, especially in electrolysis, H₂ storage and conversion



Hydrogen supply

Connection to the international hydrogen network needed by 2030; at least 1 GW domestic electrolysis capacity needed by 2030



Regulatory framework

Creation of an investment-friendly environment; acceleration of approval procedures



Business location

Great opportunities for export-oriented Bavarian industry; strong position in the field of H₂ technologies



Demonstration projects

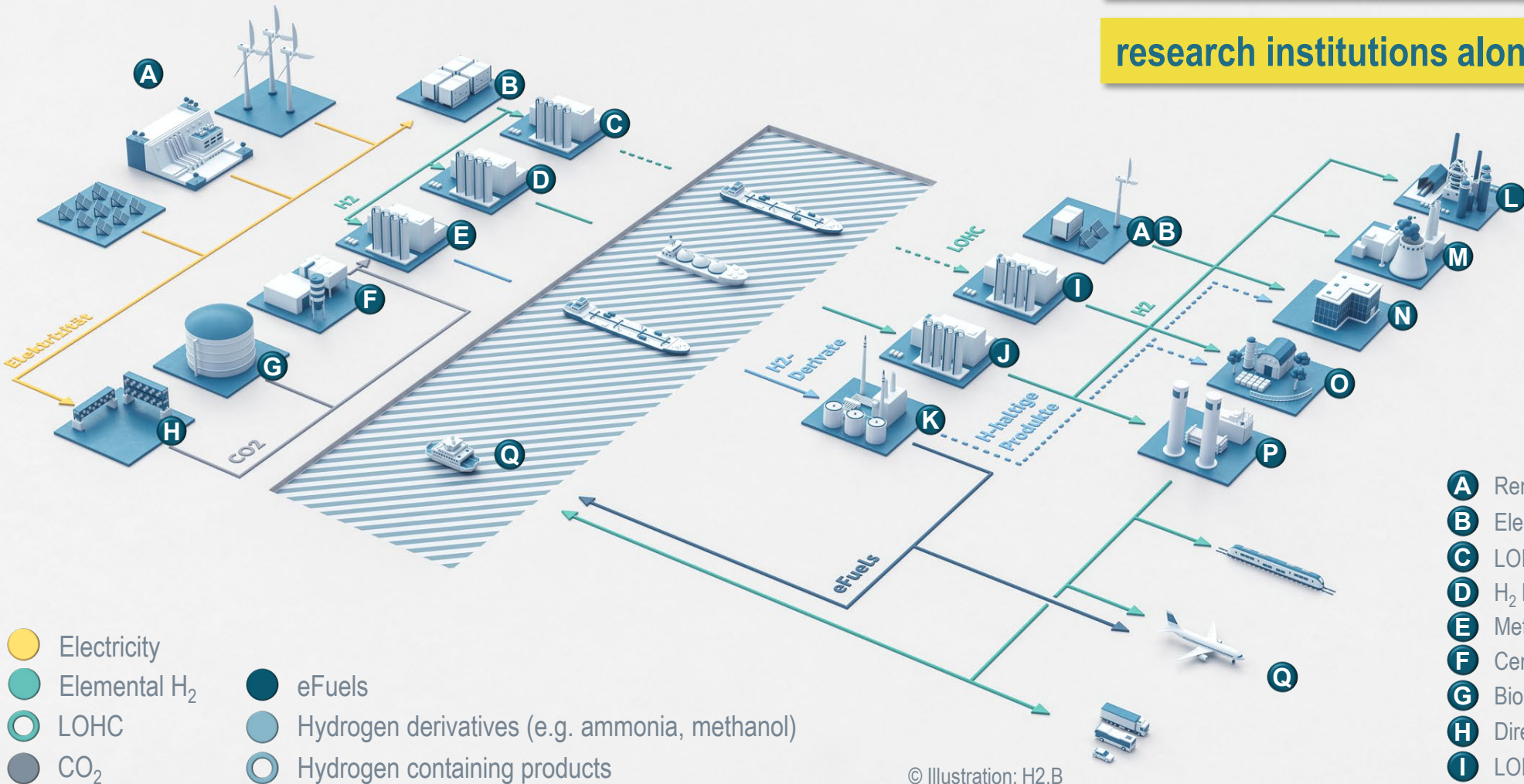
Targeted support of projects to test technologies under real conditions and generate regional spill-over effects

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International Hydrogen Value Chains

Bavaria has highly competent companies and

research institutions along the entire value chain!



- Electricity
- Elemental H₂
- LOHC
- CO₂
- eFuels
- Hydrogen derivatives (e.g. ammonia, methanol)
- Hydrogen containing products

- A Renewable energies
- B Electrolyser
- C LOHC hydrogenation
- D H₂ liquefaction
- E Methanol synthesis
- F Cement plant
- G Biomass
- H Direct Air Capture
- I LOHC dehydration
- J Evaporator
- K Chemical industry
- L Industry
- M Power plant
- N Buildings (heat)
- O Agriculture
- P HRS
- Q Mobility

Contact us

Services:

- Information about Bavarian H2 economy
- Networking & technological matchmaking
- Workshops & events

Hydrogen Center Bavaria (H2.B)
Fuerther Str. 250
90429 Nuremberg, Germany

international@h2.bayern

www.h2.bayern/en