



Erneuerbare Energien
Hamburg

Hamburg – A European Hub for Global Hydrogen

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Renewable Energy Hamburg
International cooperation hydrogen

About us

Cluster Network at a Glance



54 Founding Members
in **2010**

240+ Members,
Companies &
Institutions
in **2023**

- Manufacturers
- Project Developers
- Utility Companies
- Grid Operators
- Logistics Specialists
- Lawyers
- Financial Service Providers
- Communication Experts
- Start-ups
- Universities
- Research Institutions
- ...

Cluster Profile

How we manage the network: Our Activities



NETWORKING & MATCHMAKING

- Individual
- Focus groups
- Entire cluster
- International

MARKETING

- Website
- Newsletter
- Blog
- Social Media

EVENTS

- Annual Event: German Renewables Award
- Meeting Points
- Conferences
- Seminars & Web-Seminars
- Open House Events

REGIONAL TRADE FAIRS

- Wind Energy Hamburg
- Hydrogen Technology Expo Europe (from 2024)

Plus: Present at other German and international trade fairs

Stakeholder map Hydrogen

Project Developers / Customers

- Utilities active in renewable energies, hydrogen infrastructure, grid and storage projects
- Strong multinational focus (purchase and offtakers)
- High level of market force that requires a high level of QM, ICT, contract terms

Manufacturers / Suppliers

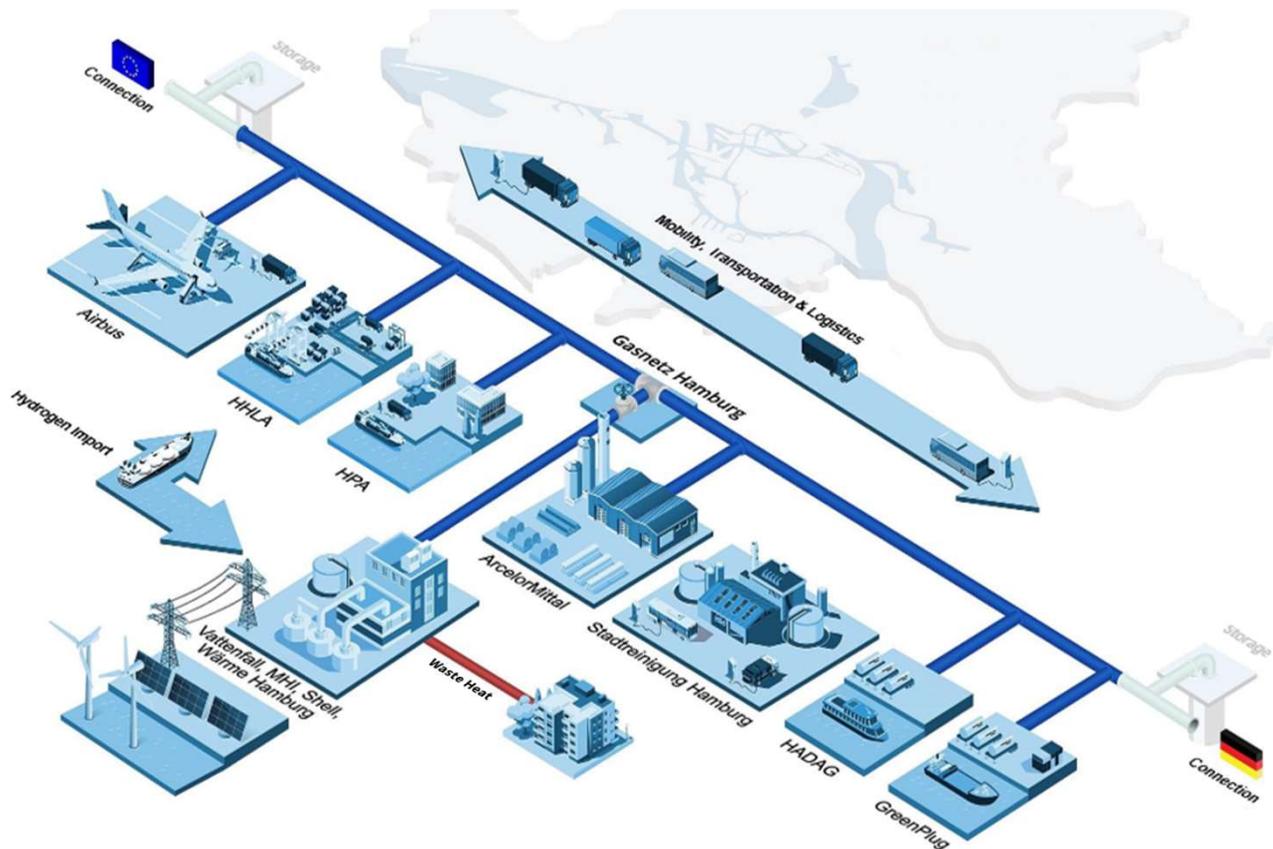
- International Headquarters and Subsidiaries
- Product development & Project Management Hydrogen
- International Sales
- Material Procurement (Logistics, Interfaces)
- Supply & Supplier Management

Service Providers, Know-How SMEs and Universities

- Leading in Certification (Projects, technical)
- Sea Law and RE Law (EEG-Act, international)
- Finance and Insurance
- Technical Services / Engineering
- Components, Special applications



An H₂-Ecosystem along the entire supply chain



Production

of green hydrogen for decarbonization

Infrastructure

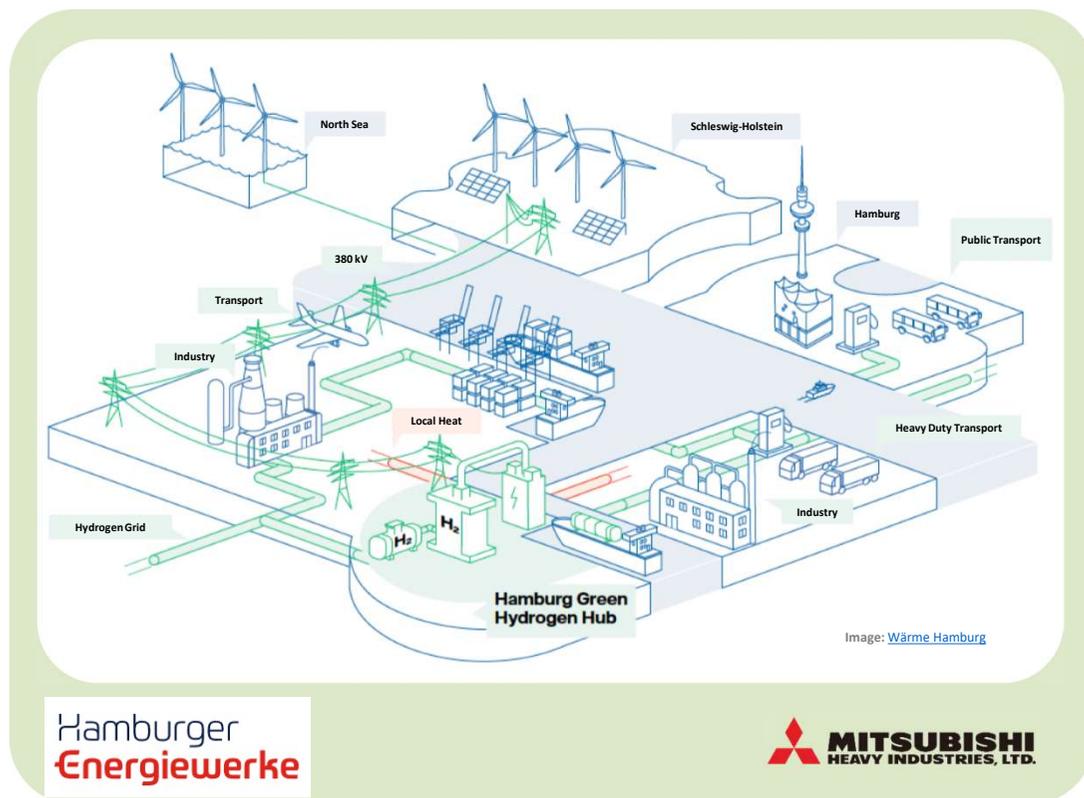
to connect production and utilization

Utilization

of green hydrogen in industry and the mobility sector

Full project list: [Projects - List - Hydrogen Hamburg | EEHH \(h2-hh.de\)](https://www.eehh.de/projects-list-hydrogen-hamburg)

Hamburg Green Hydrogen Hub



100 MW Hydrogen Electrolysis Plant

- Declaration of Intent published on 22 January 2021
 - Location of former coal-fired power station „Moorburg“
 - Start of green hydrogen production expected in 2025
 - One of the largest electrolysis plants in Europe
 - Funding as „Important Projects of Common European Interest“ (IPCEI) is targeted
 - Partners: Hamburger Energiewerke, Mitsubishi Heavy Industries
 - Connection to 380 kV national transmission grid and 110 kV local distribution grid
 - Accessibility for overseas ships as a hydrogen import terminal
 - Hydrogen grid within the harbor area is planned
 - Proximity to hydrogen consumers: Industry, Transportation, Heating
- **Great starting point in Hamburg and Northern Germany to ramp up a hydrogen economy**

Import strategy of the City of Hamburg

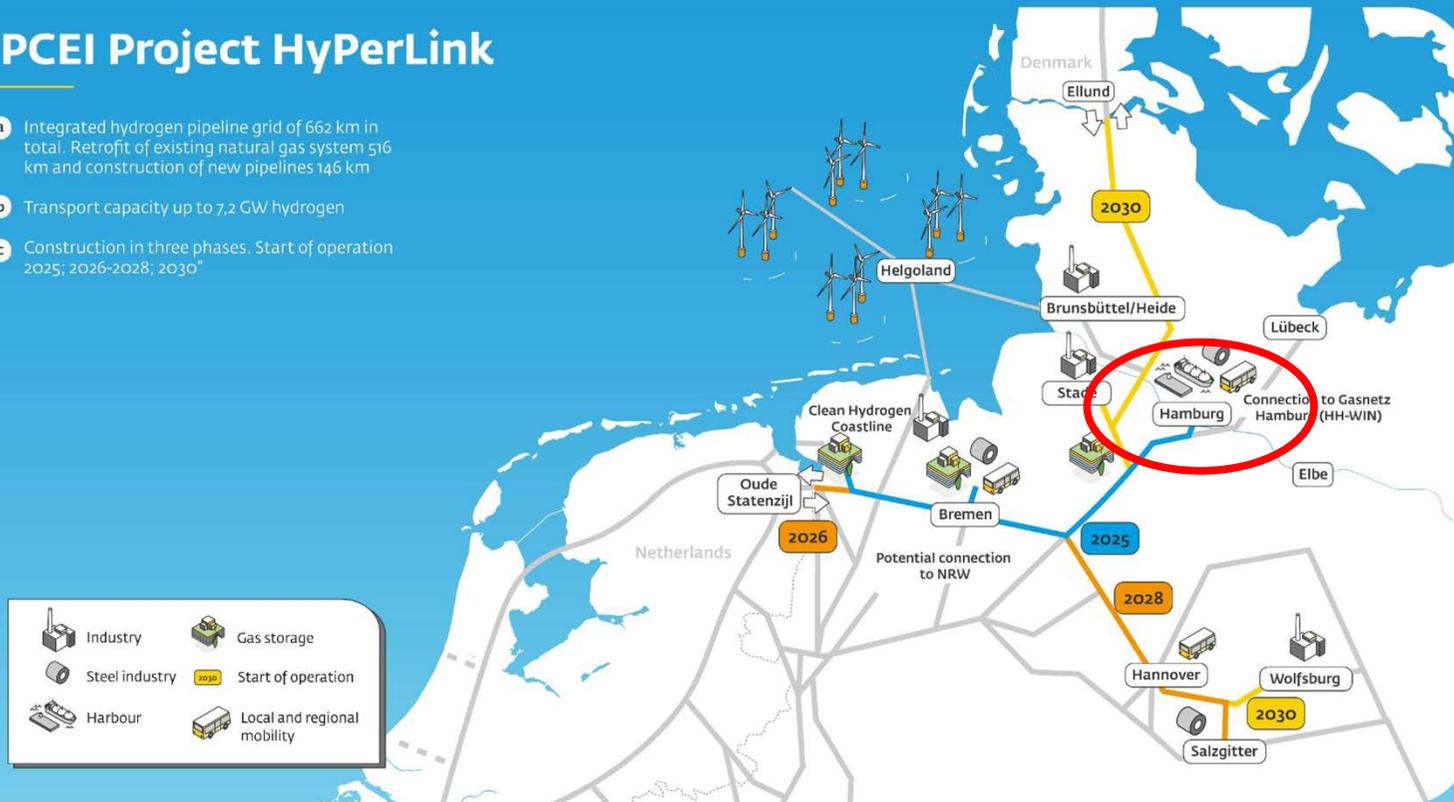
- Published in March 2022 by the Ministry for Economy and Innovation
- Predicted **demand** for green hydrogen **by 2030 of around 7,6 TWh/a** comprising industrial uses (approx. 5.7 TWh/a) and the mobility sector (approx. 1.9 TWh/a solely for the transport flows directly associated with goods transshipment in the port)
- Focus Areas:
 - Import from North Sea region (pipeline, ship; European Hydrogen Backbone III)
 - Import from other countries further away (ship)
 - Site assessment for terminals in Hamburg port
 - Liquid hydrogen, LOHC and ammonia

Import per pipeline

Hamburg Hydrogen Industry Grid (HH-WIN) in the European context

IPCEI Project HyPerLink

- a Integrated hydrogen pipeline grid of 662 km in total. Retrofit of existing natural gas system 516 km and construction of new pipelines 146 km
- b Transport capacity up to 7,2 GW hydrogen
- c Construction in three phases. Start of operation 2025; 2026-2028; 2030"



Map European hydrogen backbone:
<https://www.ehb.eu/page/european-hydrogen-backbone-maps>

Infrastructure: Import per pipeline

Hamburg Hydrogen Industry Grid



- 60 km of grid;
- First 40 km as IPCEI project

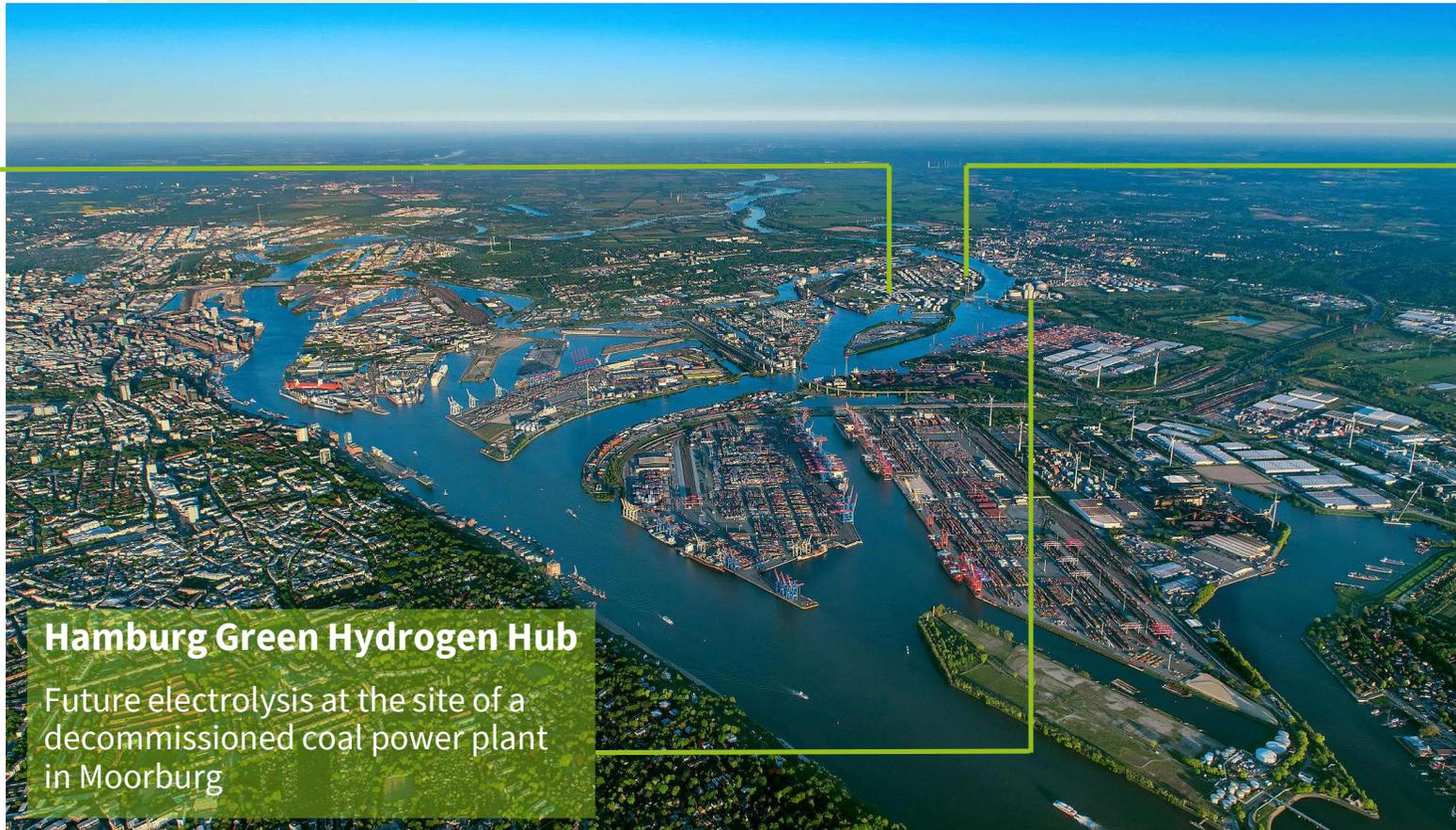
Import by ship

Terminals operational by 2026



E-fuels terminal

Open trading point and distribution for synthetic fuels supplied by the Chilean project Haru Oni as well as for hydrogen & its derivatives



Hamburg Green Hydrogen Hub

Future electrolysis at the site of a decommissioned coal power plant in Moorburg



Green Ammonia terminal

Import and distribution infrastructure with hydrogen cracker, supplied mainly by Saudi Arabia and the United Arab Emirates



An innovation cluster of HHLA

- HHLA goal of climate-neutrality of port handling and the associated logistics by 2040
- Real life test site for hydrogen-powered equipment at the Container Terminal Tollerort of Hamburger Hafen und Logistik AG (HHLA)
- Objectives:
 - Accelerated industrial H₂ market maturity
 - decision-making basis for the use of hydrogen as a propulsion energy
 - Exchange among participating partner companies
- Currently around 50 project partners
- Total investment ca. 2 million €, co-financed by the Federal Ministry of Transport and Digital Infrastructure as part of a national innovation programme for hydrogen and fuel cell technology
- **A milestone towards green transformation of the port of Hamburg and an essential component of the Hamburg's hydrogen strategy**

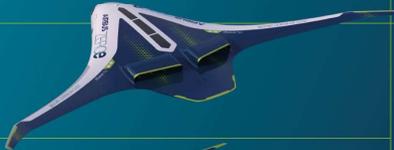
Application

Hydrogen application in aviation

- CO₂-neutral production at Airbus facility in Finkenwerder (IPCEI-project WIPLiN)
- Hydrogen intralogistics and Hydrogen Aviation Lab at Hamburg Airport
- Regional production of sustainable aviation fuel (SAF)
- Concepts for hybrid-hydrogen aircraft (ZEROe)



Introducing Airbus ZEROe

Turboprop		 <100 Passengers	 1,000+nm Range
		 Hydrogen Hybrid Turboprop Engines (x 2)	 Liquid Hydrogen Storage & Distribution System
Blended-Wing Body		 <200 Passengers	 2,000+nm Range
Turbofan		 Hydrogen Hybrid Turbofan Engines (x 2)	 Liquid Hydrogen Storage & Distribution System

AIRBUS

Application

Greater4H – Decarbonizing HDV in Northern Europe

- A hydrogen corridor between Oslo (NO) and Hamburg
- Every 150 km a hydrogen refueling station – 14 in total
- EU funding 12.4 million EUR (30%; CEF), 2022-2025
- PPP
 - Everfuel, GP JOULE Hydrogen and Hynion
 - 10 public authorities from NO, DK, DE, incl. City of Hamburg
- Stations accessible 24/7, 350 and 700 bar dispensers



Questions?



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