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Germany's National Hydrogen Strategy and International Cooperation

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COP28 Consensus: “Tripling up, doubling down”

Commitment from all parties to transition away from fossil fuels

COP28 closed with an agreement that signals the “beginning of the end” of the fossil fuel era by laying the ground for a swift, just and equitable transition, underpinned by deep emissions cuts.

Tripling global renewable energy capacity by 2030

In 2023, with 510 gigawatts (GW), there was the largest-ever annual increase in renewable energy capacity. Tripling global renewable capacity from 2022 levels by 2030 would take it above 11,000 GW.

Doubling the average annual rate of energy efficiency improvements

Global energy efficiency progress reached 1.5% between 2010 and 2020. Countries agreed to double the global average annual rate of energy efficiency improvements to over 4%.

Mutual recognition of hydrogen certification schemes

Accelerated and harmonized development of technical standards that will enable mutual recognition of methodologies and certifiers.

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Source: Guidehouse, March 2024 based on COP28, UNFCCC 2023 & Bundesregierung 2023, Icons by flaticon.com

Hydrogen plays a crucial part for achieving climate neutrality by 2045 in Germany

Energy efficiency

Electrification with renewable electricity

Sector coupling, e.g. through green H_2

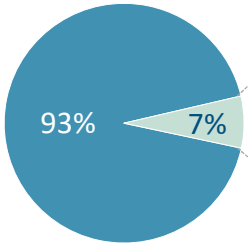
Steel and chemicals

Aviation and shipping

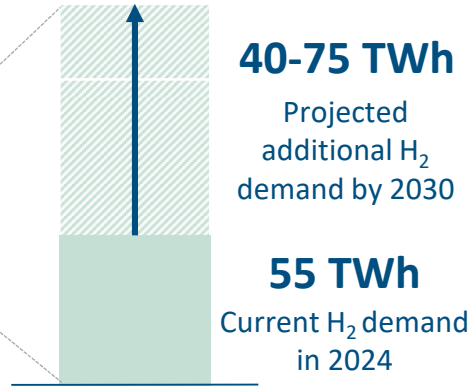
Hard-to-abate sectors, e.g. industry and transport

Source: Guidehouse, March 2024 based on BMWK 2023, Icons by flaticon.com

Germany's hydrogen (H_2) demand in 2030 will be 95-130 TWh



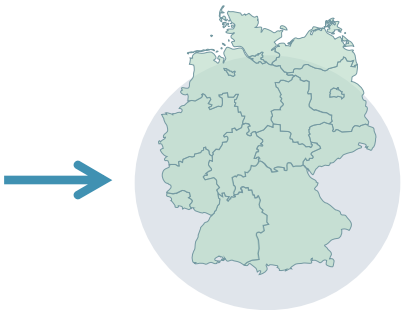
1867 TWh
Targeted final energy demand in 2030



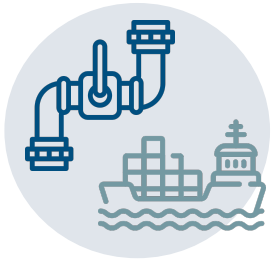
40-75 TWh
Projected additional H_2 demand by 2030

55 TWh
Current H_2 demand in 2024

95-130 TWh
Projected total H_2 demand in 2030



At least 10 GW
28 TWh domestic H2 production in 2030



45-90 TWh
Projected H_2 imports until 2030

Source: Guidehouse, March 2024 based on BMWK 2023; Icons from flaticon.com

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July 2023: update of the National Hydrogen Strategy (NHS) to accelerate the market ramp-up

June 2020

1st Phase: Start of the market ramp-up

2023

2nd Phase: Accelerated market ramp-up

Source: Guidehouse, August 2023 based on BMWK 2023

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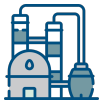
National Hydrogen Strategy 2.0: Key action areas for 2023 – 2030 (Phase 2)

1. Ensuring sufficient supply



- 2030: **10+ GW domestic** ELY capacity, **50-70% H2 imports**
- Domestic, EU and international **funding instruments**

2. Building up H2 infrastructure
(terminals & pipelines; storage; fuelling)

- H2-ready and dedicated **port terminals**
- 1,800 km in Germany (“**Start grid**”) via IPCEI *until 2027/28*
- +4,500 km EHB (“**Core grid**”; 2/3 repurposed) *until 2032*
- H2 storage and fuelling stations

3. Establishing H2 applications

- **Industry** (supported by EU-IPCEI, CCfDs and domestic industrial decarbonization funding programmes)
- Heavy **transport**, **aviation**, maritime **shipping**
- **Power sector** (flexibility, system integration)g

4. Creating an appropriate regulatory and market environment

- Simplified, accelerated **planning** & **permitting** procedures
- Standards & **certification**
- **R&D**, **Innovation**

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The strategy sketches the short term (2023) and medium-term measures (2024/25) for reaching those goals

Germany is working together with European and international partners

EU collaboration

- Infrastructure build-up (European Hydrogen Backbone, Important Projects of Common Interest - IPCEI)
- Joint sourcing of imports
- Support mechanisms (H2-Global, Hydrogen Bank)
- Regulation

Domestic hydrogen market run-up

- National H2 Strategy & Import Strategy
- Infrastructure build-out
- Applications
- Support schemes
- Regulation
- Research & development
- Decarbonisation strategies

International Energy and Climate Partnerships and Hydrogen Cooperation

- Joint project support
- Exchange on regulation and policy
- Offtaker matching

Source: Guidehouse, August 2023 based on BMWK 2023

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Germany provides targeted funding instruments to support green hydrogen projects worldwide

Germany's H2 funding schemes

- H2Global: Auction-based promotion of international green hydrogen projects
- **H2Uppp:** Provision of supporting services to small private-sector projects
- **Green Hydrogen Fund**
- National **Funding Guideline** for bilateral hydrogen projects in non-EU countries
- **Individual project funding** (e.g., grants for projects in Saudi-Arabia and Chile in Dec. 2020)

Source: Guidehouse, March 2024 based on BMWK 2022 & BMWK 2023; Icons by flaticon.com

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Bilateral partnerships with MENA countries play a key role for our National Hydrogen Strategy

Working areas:

- Initiating joint projects
- Research and development
- Cooperation and knowledge exchange

Cooperation:

- Support the implementation of joint lighthouse projects
- Carry out large-scale and economically feasible projects for the production and local (partial) use of green hydrogen
- Germany as a technology provider in the field of renewable energy and hydrogen

First official delivery of hydrogen from the United Arab Emirates, Hamburg

Source: Guidehouse 2023 based on BMWK 2022; Icons by flaticon.com

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Cooperation examples: Hydrogen relations with Morocco and Oman

Oman

- Ambitious targets for scale-up of hydrogen production to achieve its **net-zero target by 2050**
- **HYDROM** is the **focal point** for hydrogen projects in Oman
- **Research and consultancy cooperation** with Fraunhofer and Siemens
- Focus on the **export of green hydrogen**

Morocco

- **“Offre Maroc” (OM)** signals a significant stride towards incentivizing private investments in hydrogen development
- **1 Mio ha** available for hydrogen project development
- Innovative **governance structure** for accelerating hydrogen projects

Outlook: German Hydrogen Import Strategy

Focus on measures Germany must take to secure hydrogen imports from Europe and beyond

Expected content:

Import target (hydrogen & derivatives)

Specific measures & actions for reaching targets

Focus on bilateral energy and hydrogen partnerships

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Thank you
for your attention!

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