

HYDROGEN: OVERVIEW AND INVESTMENT OPPORTUNITIES

APAC 2025 - WEBINAR

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Ambitious EU and national policies are accelerating carbon management in Germany

Greenhouse Gas Emissions Reduction

(compared to 1990 levels, including all sectors)

EU

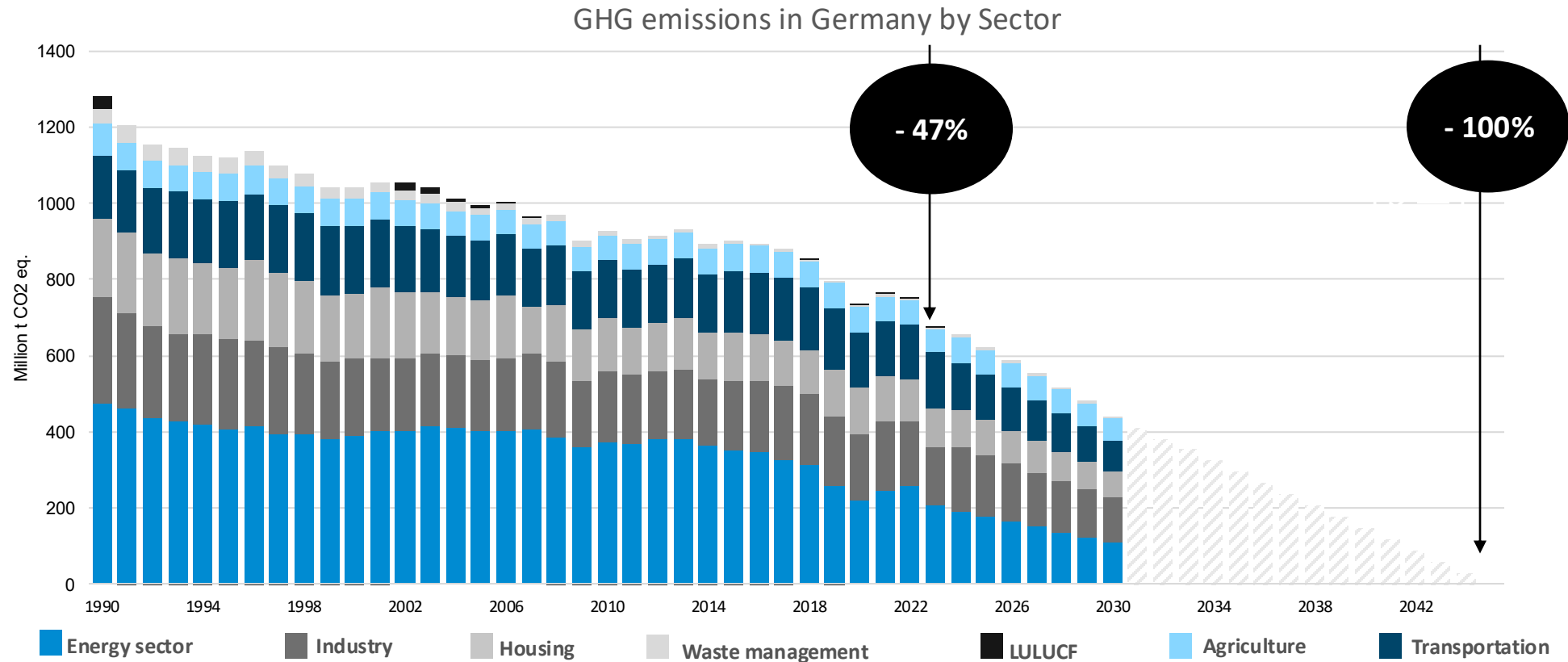


Germany



Source: Guidehouse based on BMWK 2022, Federal Government 2022 & EC 2023

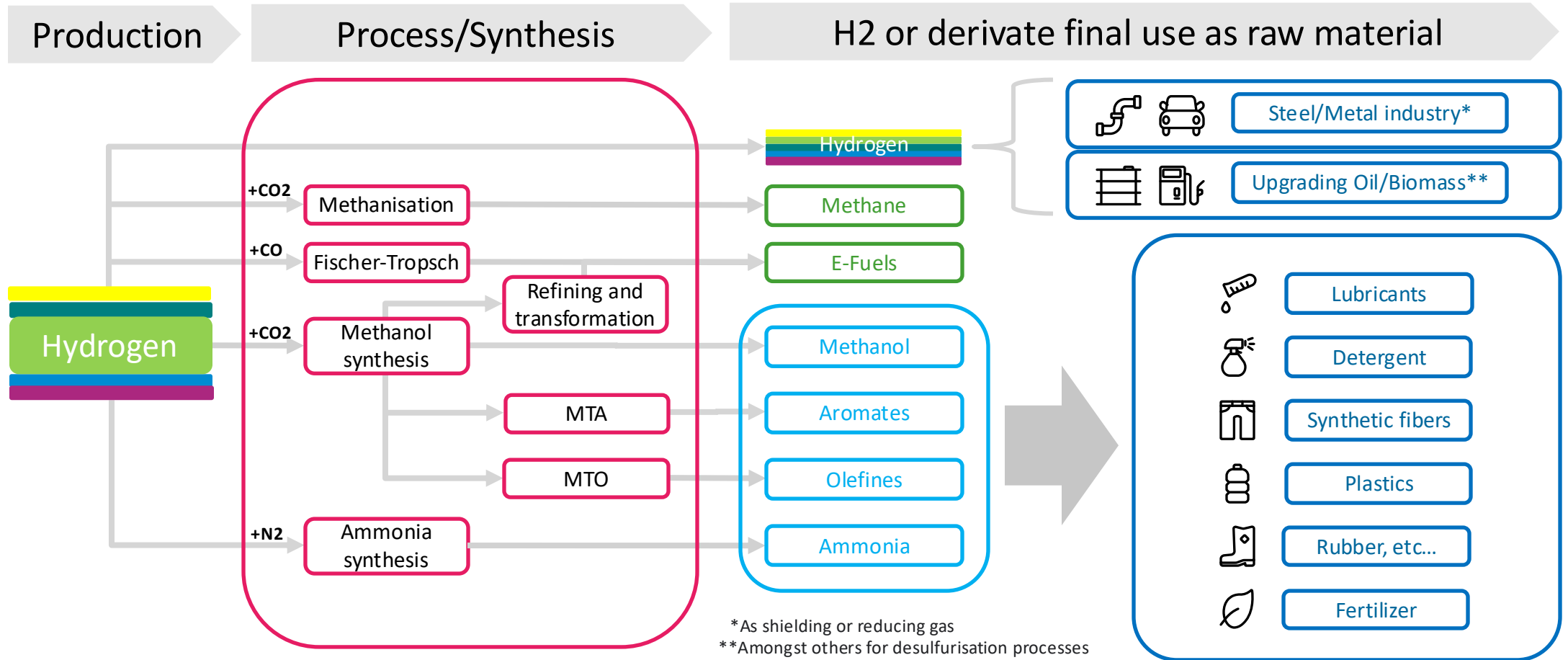
Hard-to-abate sectors remain the biggest decarbonization challenge in Germany



Source: GIZ based on Umweltbundesamt 2024

Note: LULUCF sector includes: Forest Land, Deforestation, Drainage of Organic Soils, Other Land use and their conversion

Hydrogen and new processes decarbonize value chains from start to finish



Germany National Hydrogen Strategy

Demand

- Expected demand of 95-130 TWh H2 by 2030

Production

- 2030 Target up to 10 GW of H2 capacity

Industry

- Expected primary area of application for hydrogen and its derivatives by 2030
- Replacement of fossil raw materials, e. g. in the chemical and steel industries

Transport

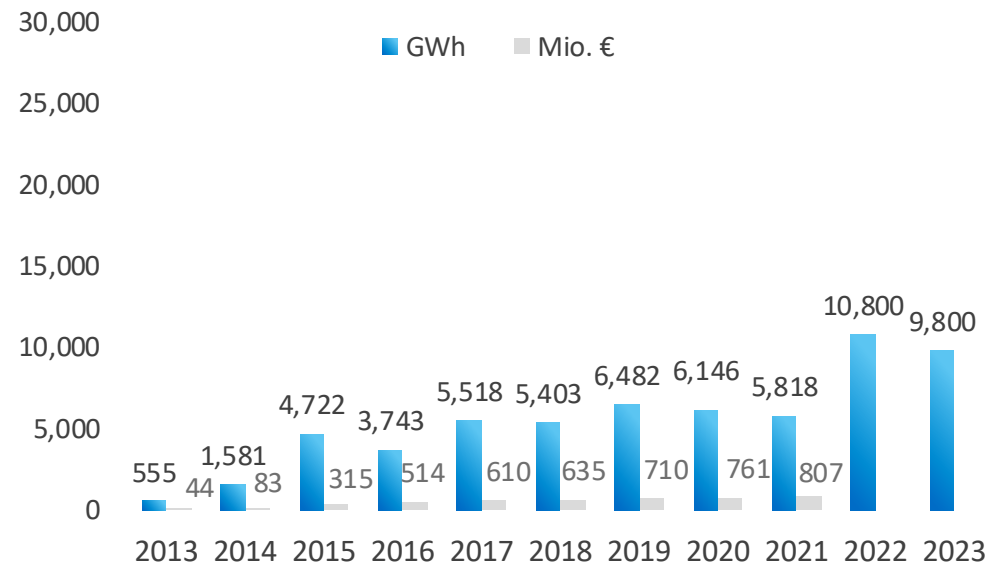
- By 2030, usage expected for parts of the heavy-duty commercial vehicle segment and increasingly in aviation and shipping

Energy/Building

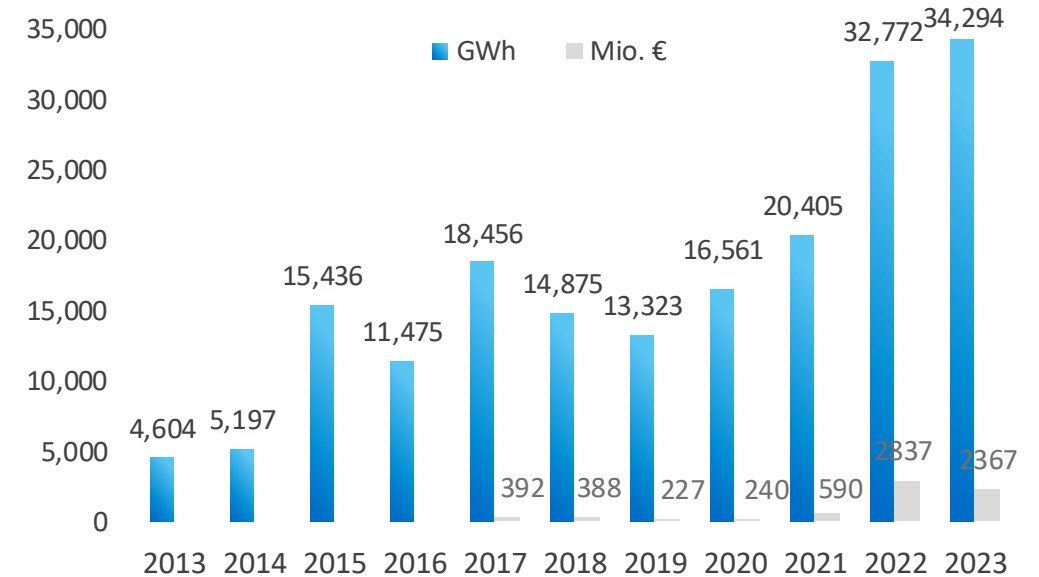
- No broad application in the building heat sector
- H2 will contribute to security of energy supply (H2-ready gas power plants and H2 storage)

Development of renewable energy curtailment

Disconnected energy for grid stabilization and compensation 2013-2023



Redispatch development and compensation 2013-2023



Scaling production and demand is essential for future success

Production



- IPCEI hydrogen production capacity
- H2 pilot (auctions as a service)
- §13k Abs. 3 EnGW – „Utilize Instead of Curtailing“
- Funding guideline grid-serving electrolyzers
- Funding guideline offshore electrolyzers

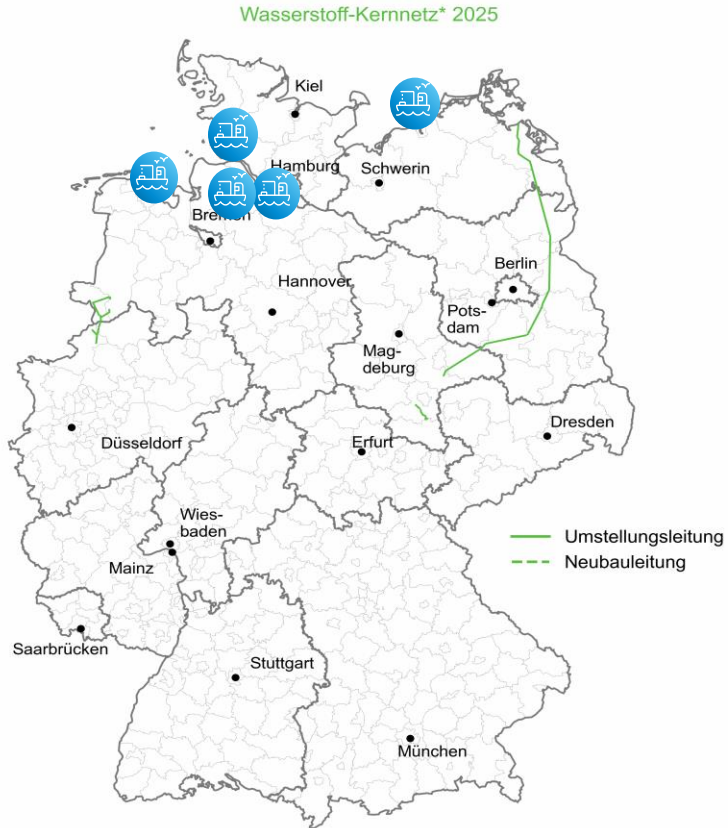
Demand



- Federal funding for energy and resource efficiency in the economy
- Carbon Contracts for Difference (CCfD)/BIK
- H2Global
- Implementation of RED II and RED III
- Markets for Climate Neutral Products

An import strategy and funding programs are crucial, as Germany will stay an energy importer; the EU Delegated Act on low-carbon fuels widens supply options

Building a hydrogen pipeline network to supply German industry



*gem. Genehmigung vom 22.10.2024

Hydrogen Core Network

- Total length: ~9,040 km
- ≈ 60% converted from existing gas pipelines
- Completion: by 2032-2037
- Investment: ~€18.9 billion

Supporting Measures

- IPCEI Funding for storage, hydrogen pipelines, terminals for hydrogen imports
- Amortization Account Model
- Hydrogen Acceleration Act – faster approval processes
- Implementation of a Hydrogen Storage Strategy

The Hydrogen Acceleration Act¹ targets entire value chain

The act refers to “**climate-neutral produced**” hydrogen

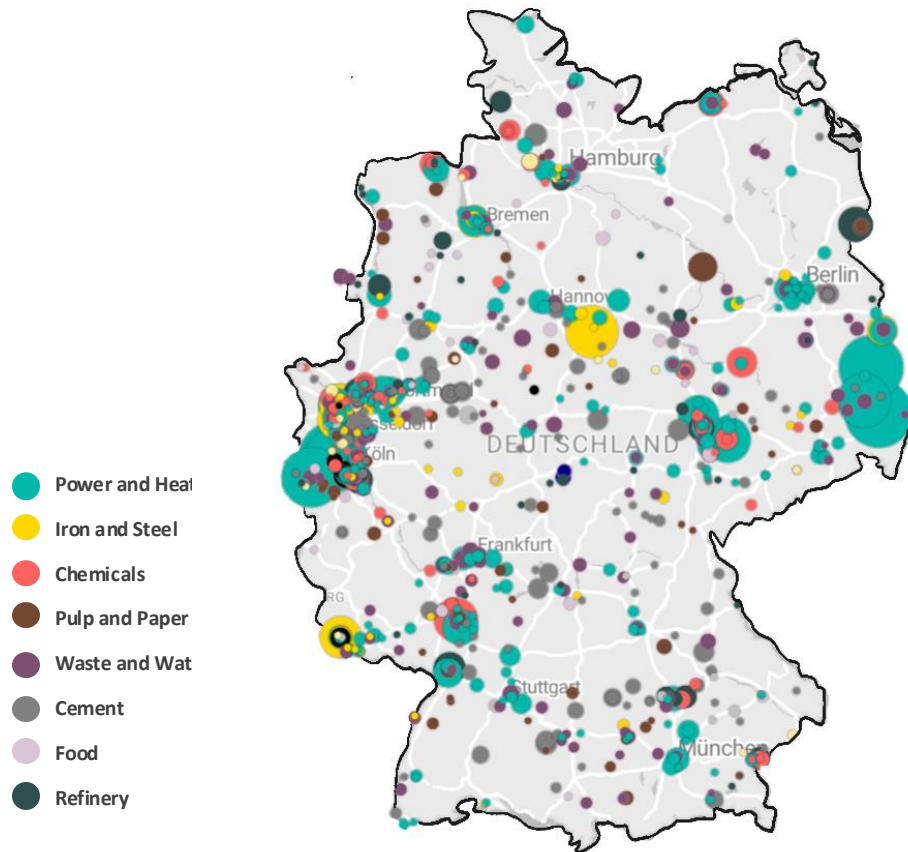
Essential messages:

- Planning and approval procedures will be simplified and digitized
- Designation as overriding public interest for H₂ infrastructure projects until 2045

1) [Draft bill](#) published by the Federal Ministry for Economic Affairs and Energy on July 8, 2025 2) Unless water extraction significantly threatens public water supply or the water balance,



Germany's industrial emitters are concentrated and diverse across key sectors



Dense industrial clusters drive emissions across Germany

- Energy, cement, steel, and chemicals drive the bulk of Germany's ~ 600 Mt CO₂ emissions each year



Over 500 emitters identified across key industrial sectors

- Clusters around NRW, Hesse, Saxony-Anhalt, Bavaria and Brandenburg align with energy and infrastructure hubs



High emission clusters support carbon management solutions

- Major emission hubs will shape where capture, transport, and storage infrastructure is needed



Germany plans offshore CO₂ storage under new CCS bill¹

Offshore CO₂ Storage:

Potential sites for offshore CO₂ include the Exclusive Economic Zones of the North Sea and Baltic Sea.

Onshore CO₂ Storage:

Each federal state can decide, if CCS should be allowed on its territory (opt-in possibility).

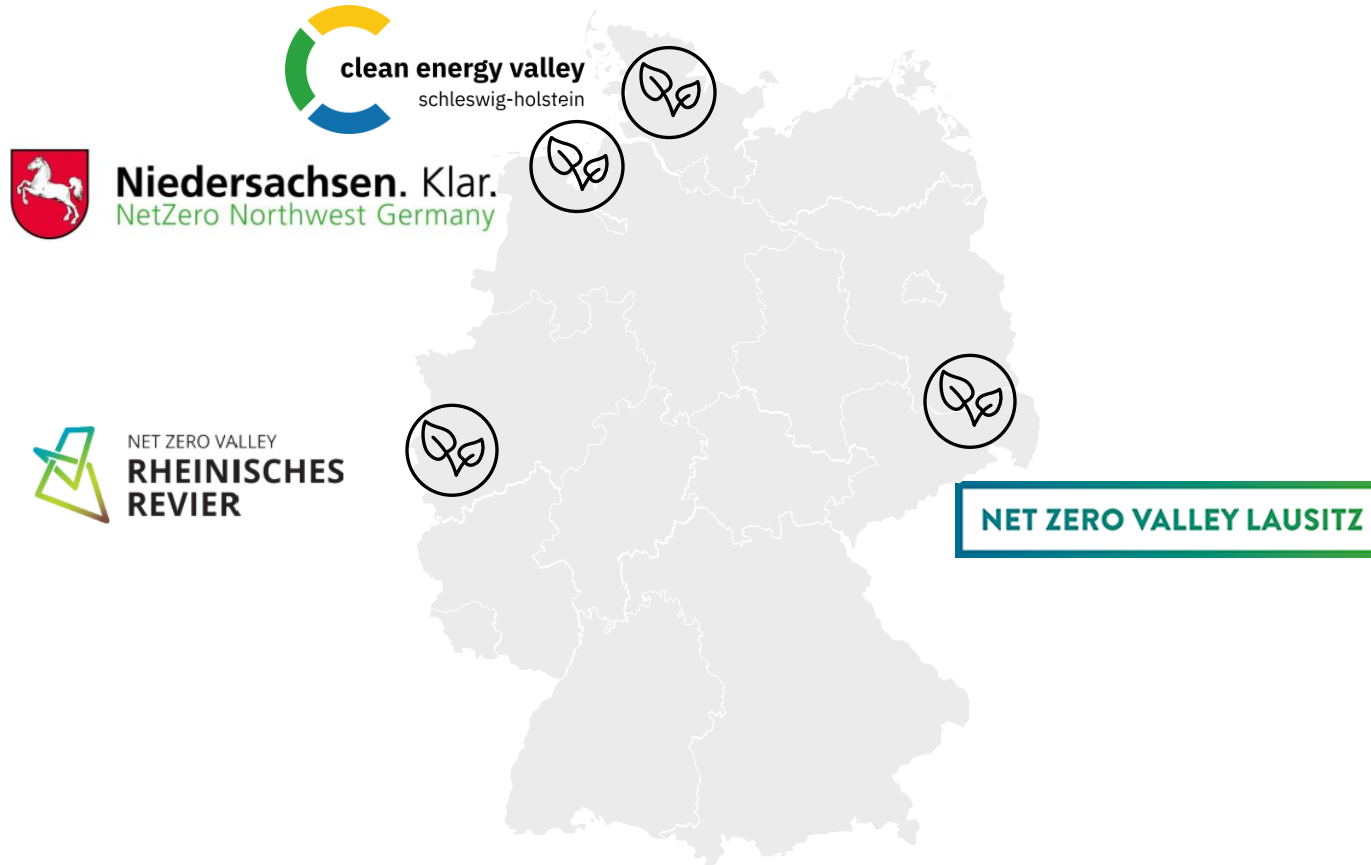
Infrastructure:

The CCS bill also supports and eases CO₂ transport and infrastructure development.

Transport of CO₂ to offshore CCS sites in Germany and the EU: Germany aims to ratify the amended London Protocol and pursue bilateral agreements with neighbor states.²

1) [KpSTG Bill](#) 2) [Coalition Agreement of the German Government 2025](#)

Net-Zero Valleys are emerging across Germany's industrial transition regions.



German Net Zero Valley initiatives drive the rise of net-zero technology ecosystems:

- Net Zero Valley Lausitz
- NetZero Nordwest Deutschland
- Net Zero Valley Rheinisches Revier
- Net Zero Valley Schleswig-Holstein

For more information please visit

www.gtai.com

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