

Decarbonization of the steel industry

Challenges and necessary political framework conditions

German Energy Day
Düsseldorf | 3 April 2025

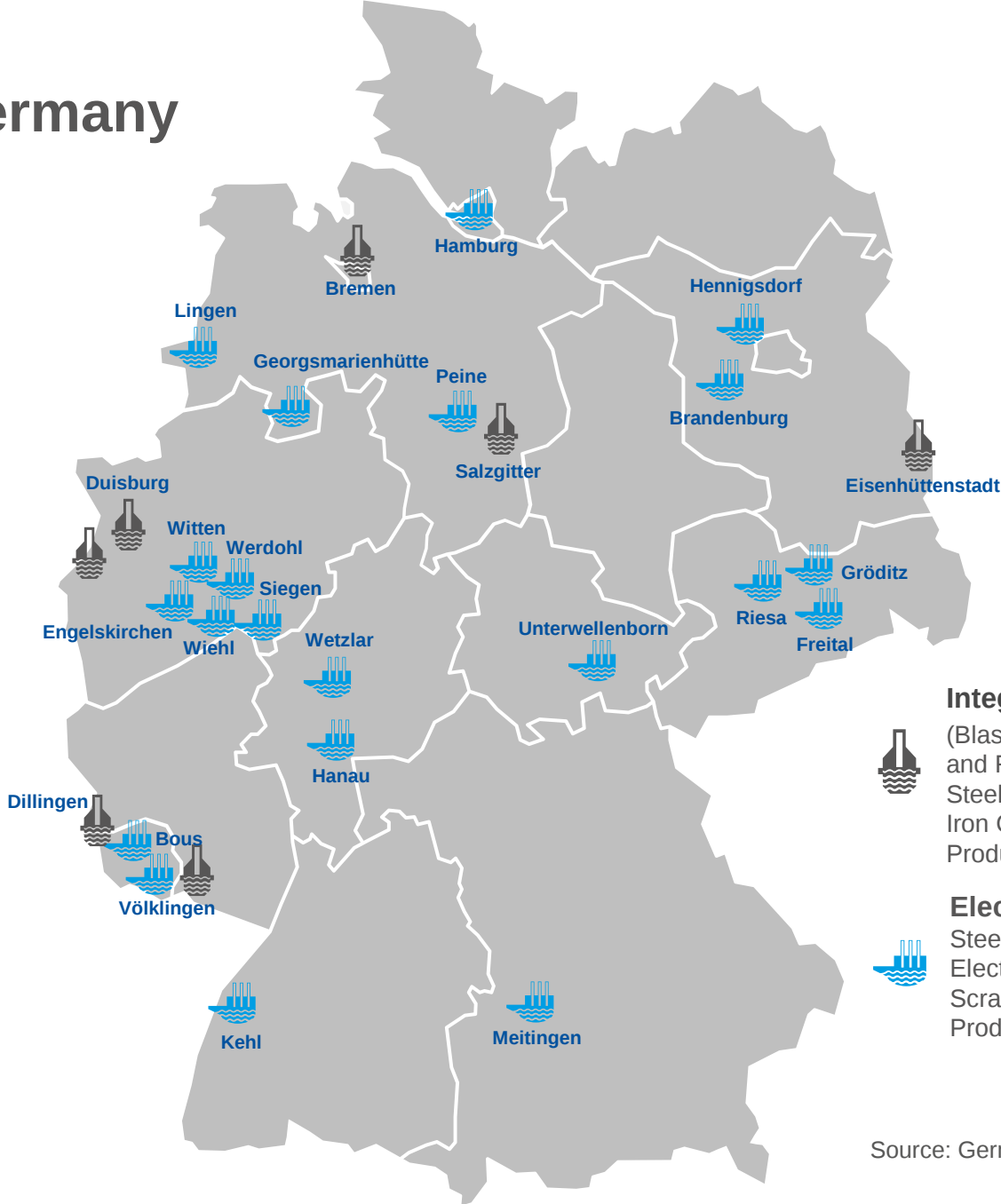
Crude Steel Production in Germany



Industry characterized by medium-sized enterprises and large corporations

37,2 Mio. t.

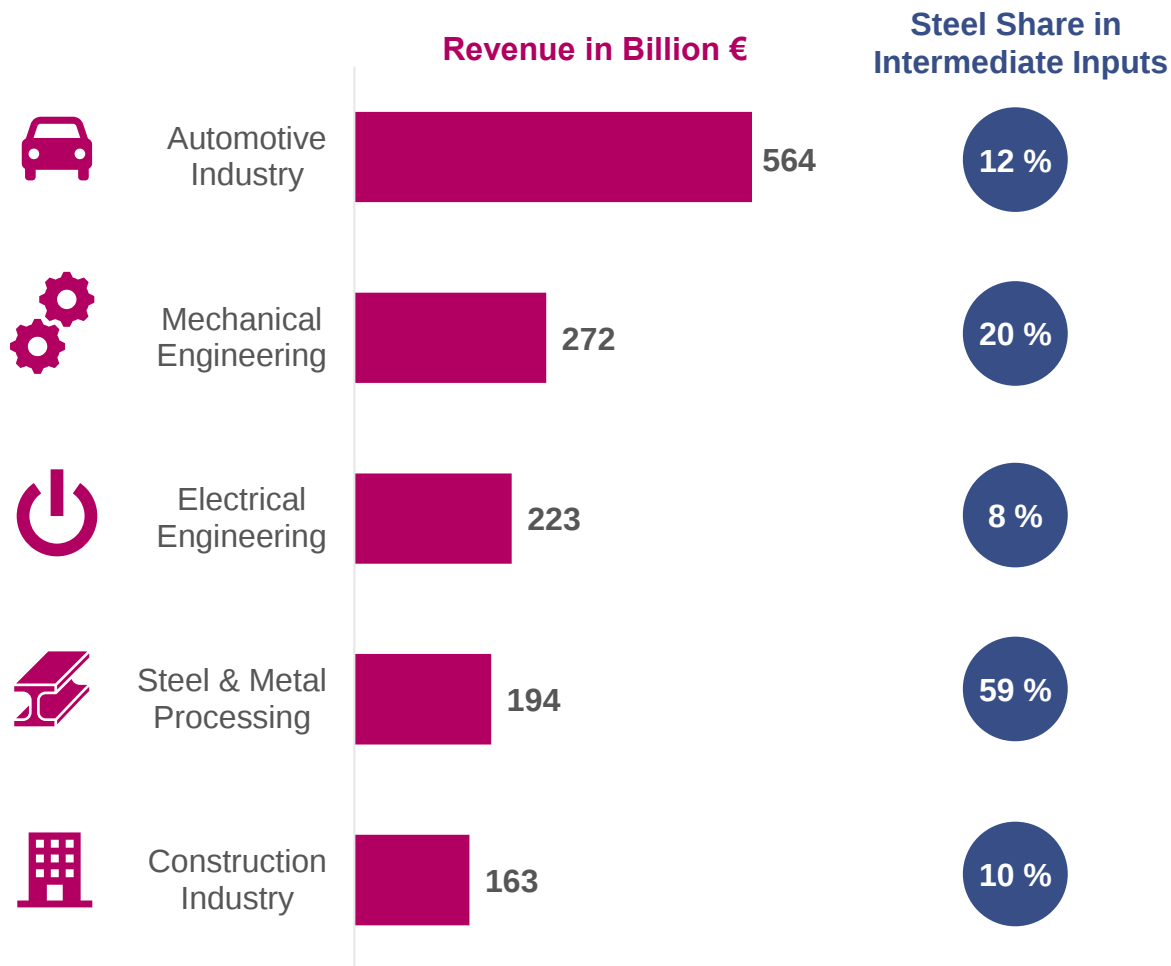
Crude Steel Production in Germany 2024



-  **Integrated Steel Mill**
(Blast Furnace, Steelmaking, and Rolling Mill)
Steel Production Based on Iron Ore (Primary Steel Production)
-  **Electric Steel Plant**
Steel Production Using Electricity Based on Steel Scrap (Secondary Steel Production)

Source: German Steel Association

Steel is the Foundation of Our Value Chains



Source: RWI, Statistisches Bundesamt, Bauhauptverband, WV Stahl

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Energy Transition:
Wind turbines are made of approximately 70% steel. Solar power and energy infrastructure also rely on this material.



Export Success:
Two-thirds of German exports are steel-intensive.

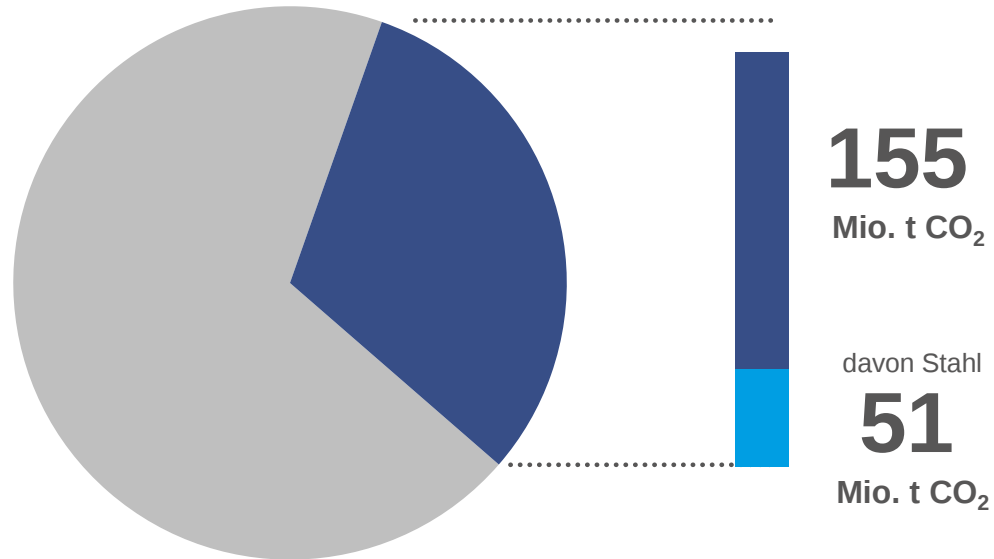


Preserving Strategic Autonomy:
74% of global crude steel production takes place in Asia.

Climate Targets

with Low-Emission Steel from Germany

Greenhouse Gas Emissions in Germany 2023 Total: 674 Million Tons of CO₂



■ Industry in total 2023

■ Steel Industry 2023

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A climate-neutral steel industry means **50 to 55 million tons less** CO₂ per year.



This corresponds to approximately **30% of all industrial emissions in Germany**



About **7% of total emissions in Germany**



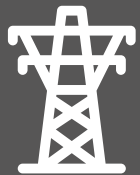
Extremely Challenging Framework Conditions for our steel industry in Germany



War in Europe and Geopolitical Insecurity:
Measures to increase Defense Capability inevitable!



Weak Economy: Collapse in Demand Across Almost All Key Industries – and No Recovery in Sight!

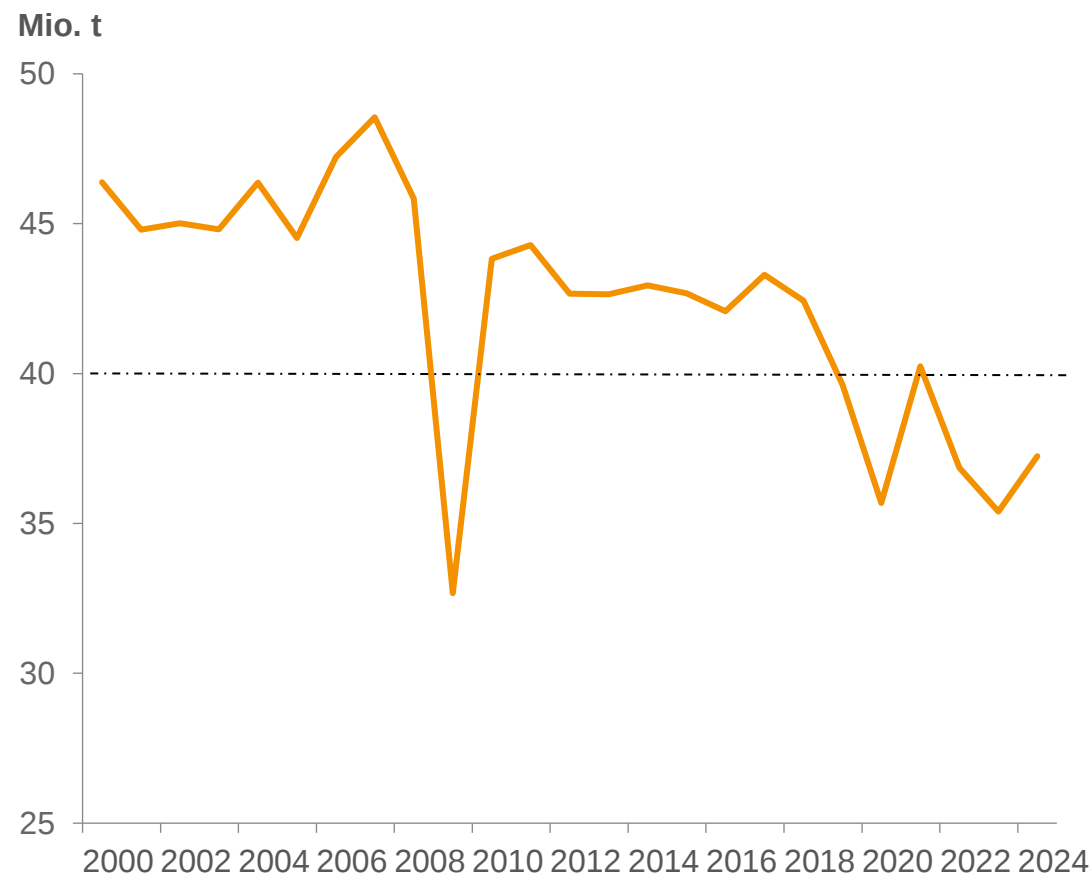


High Energy Costs:
Relief for energy-intensive industrial production must be implemented!



Geostrategic Reassessment: A New Geo-Economic and Geostrategic Evaluation of Basic Industries Is Essential to Maintain German and European Resilience!

Crude Steel Production 2024



Source: WV Stahl

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Steel Production:
At 37,2 Million Tons – For the Third Consecutive Year at Recession Levels.



Steel Demand:
Market Supply at 27 Million Tons – A Historic Low.

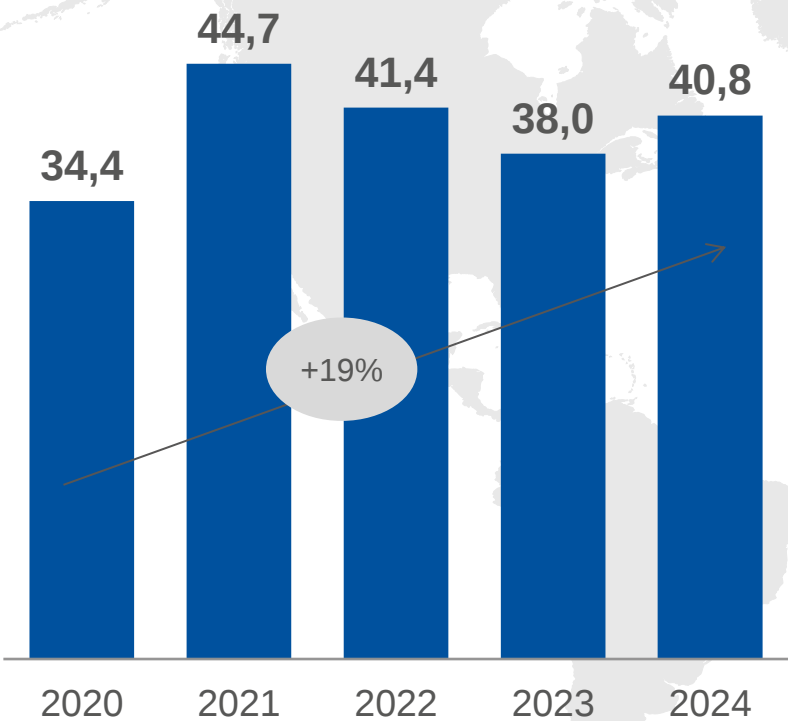


Economic Situation:
Weak Investment Demand and Significant External Economic Risks.

EU27: Import Pressure Rises Sharply

The EU steel market is being flooded with imports from third countries.

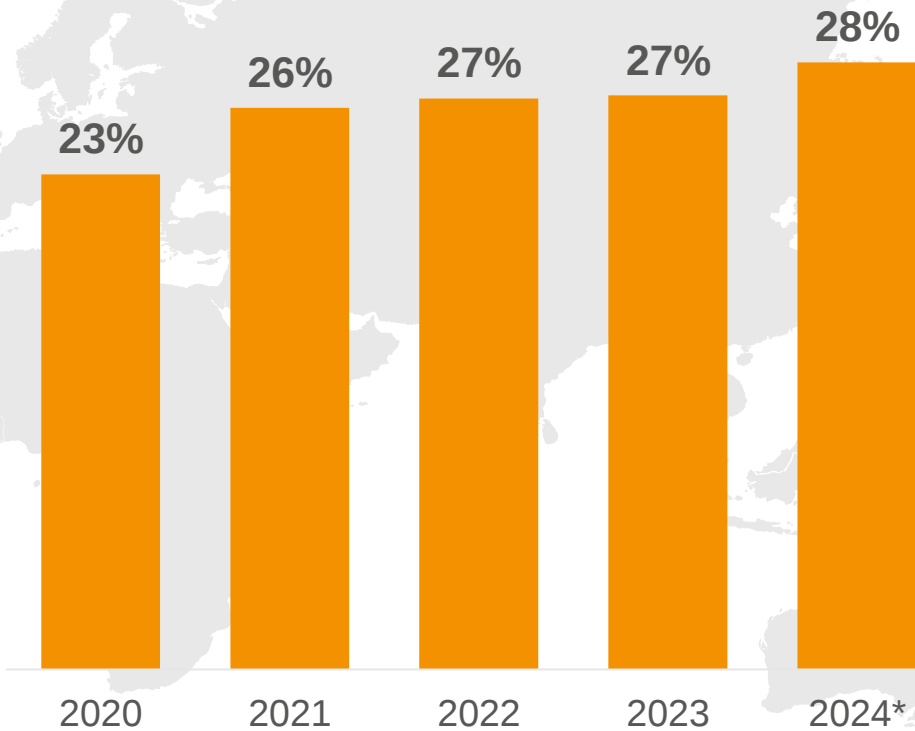
EU27 Steel Imports from Third Countries



Quelle: Eurostat

Extrapolated Based on 2024 (Jan–Nov)

EU27-Importquotas



Quelle: Eurofer (Marktversorgung), Eurostat (Importe) Extrapolated Based on 2024 (Jan–Nov)

Trade Policy Safeguards Needed: The Transformation of the Steel Industry Requires Support

Challenges

Possible Solutions



Global Excess Capacities:

Massive impact on the world markets, increasing import pressure.

Establishing **effective and WTO-Compliant Protection** against massively increasing imports



With the gradual phase-out of free emission certificates an effective **carbon leakage protection** is essential.

Ensuring an **effective border adjustment**



The industrial base must be **preserved** and new dependencies must be avoided.

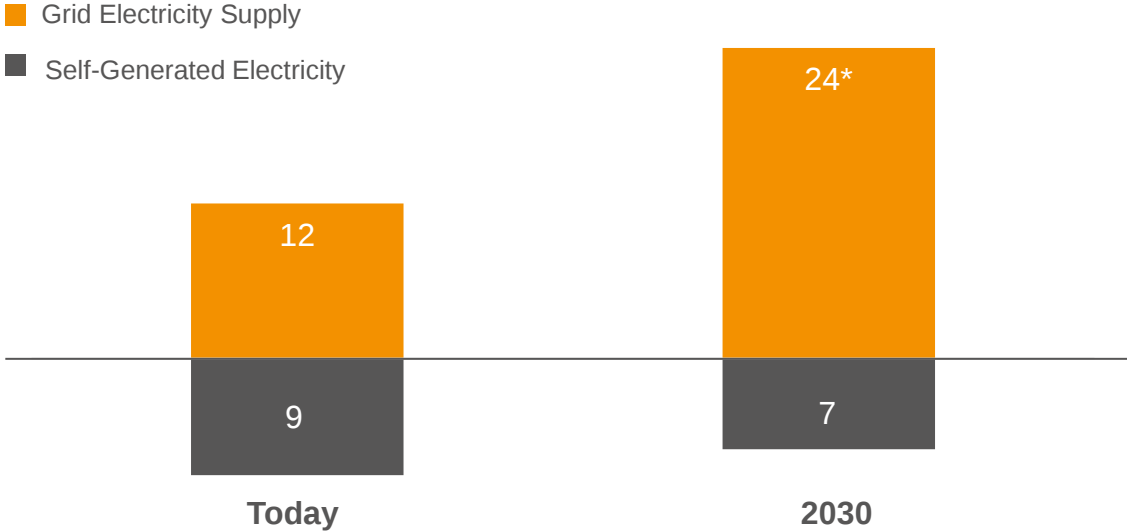
Increased use of **European Content** in

- Public procurement,
- tenders,
- Funding programs.

Climate-Neutral Steel Industry

Demand for Renewable Electricity Is Rising Significantly

Electricity Demand of the Steel Industry in Germany (in TWh)



*in case of a conversion of 14 million tons of primary steel production to the direct reduction process

Source: German Steel Association

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Replacement of the global raw material coal with the local **factor electricity**.

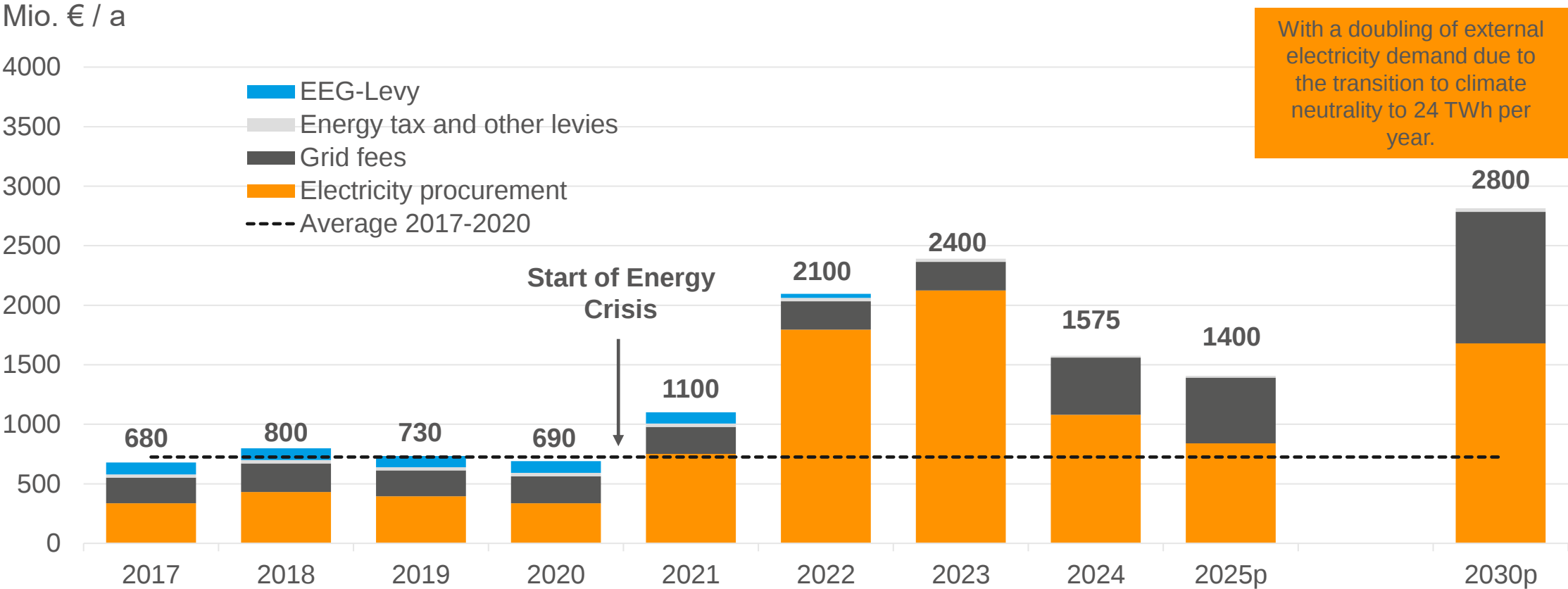


Increasing external electricity demand due to further **electrification** of steel production.



Loss of self-generated electricity from **blast furnace converter** route process gases.

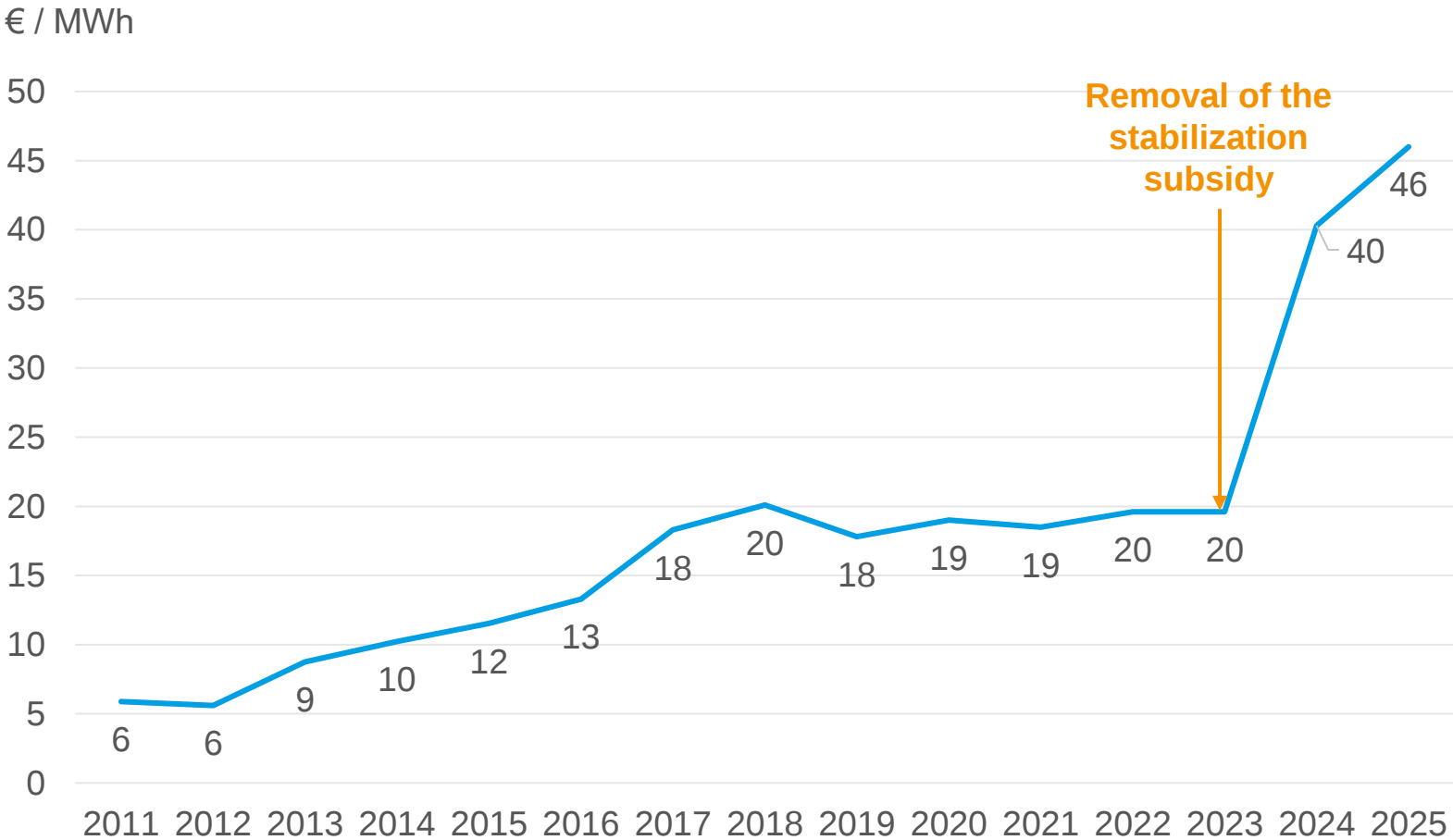
Electricity costs for the steel industry are still twice as high as before the energy crisis!



Source: Calculations by the German Steel Association for an assumed external electricity consumption of 12 TWh from the public grid, based on publications by BDEW (Electricity Price Analysis February 2024), EEX, and TSOs.
2030: Projection for an increased electricity consumption of 24 TWh.

Explosion of transmission grid fees

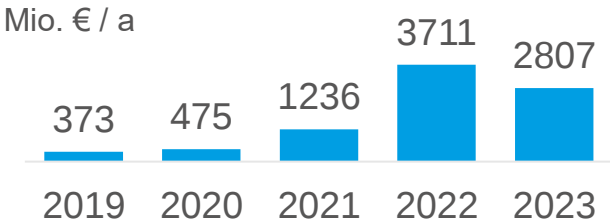
The level remains high in the future. A solution is urgently needed!



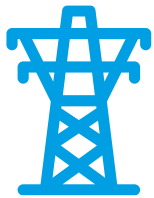
Source: Calculations by German Steel Association based on publications from transmission system operators for 5000 usage hours.

Currently

Exploding costs due to congestion management.



In the future



300 Bill. € until 2045

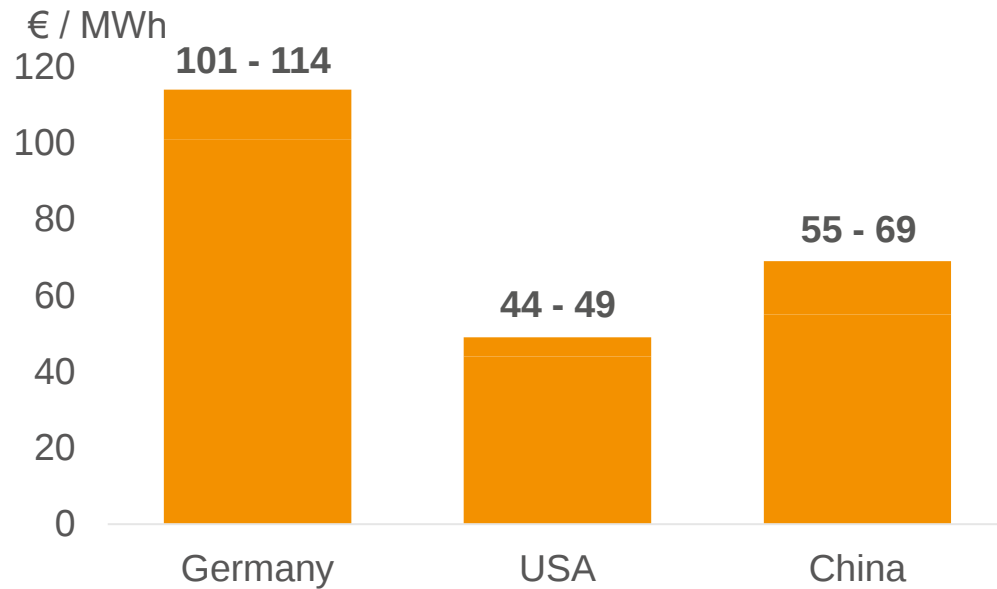
Continuously high costs due to investments in grid expansion

Worldwide and Intra-European Comparisons show: Exchange electricity prices in Germany are not competitive.

Industrial electricity prices in 2023 in a global comparison

Range of electricity prices for large energy-intensive companies

- including grid fees, levies, and taxes (excluding VAT)
- including applicable relief mechanisms

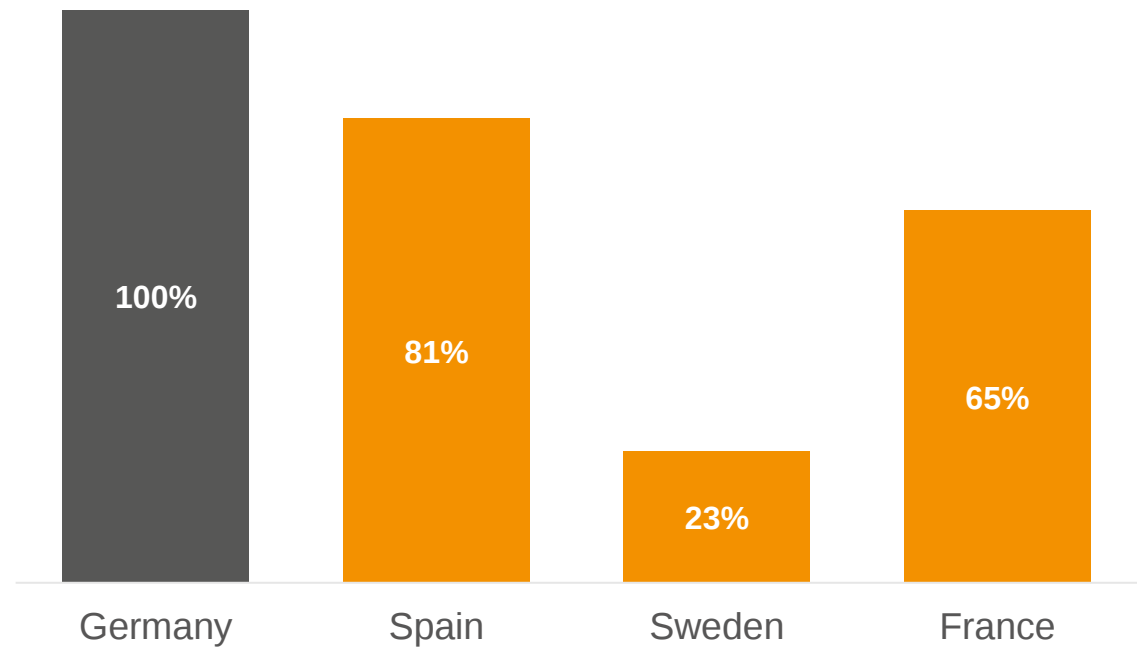


Source: Industry Strategy des BMWK, 2023

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Day-Ahead Prices in Intra-European Comparison

Index of Average Price Levels from April 1 to November 31, 2024, with Germany = 100%



Source: EU Energy, Calculations by
German Steel Association

Competitive Electricity Prices are urgently necessary

Challenges



Electricity prices in Germany are **twice as high** as in other countries – both outside and within the EU!



Explosion of grid fees: Doubling since 2024 – continuing to rise due to grid expansion!



Accelerated expansion of renewable energies (RE) is necessary – but so is reliable supply and affordability.

Solution Approaches

An **industrial electricity price** is the best solution! Relief measures such electricity tax reduction and **electricity price compensation must be continued** full beyond 2030

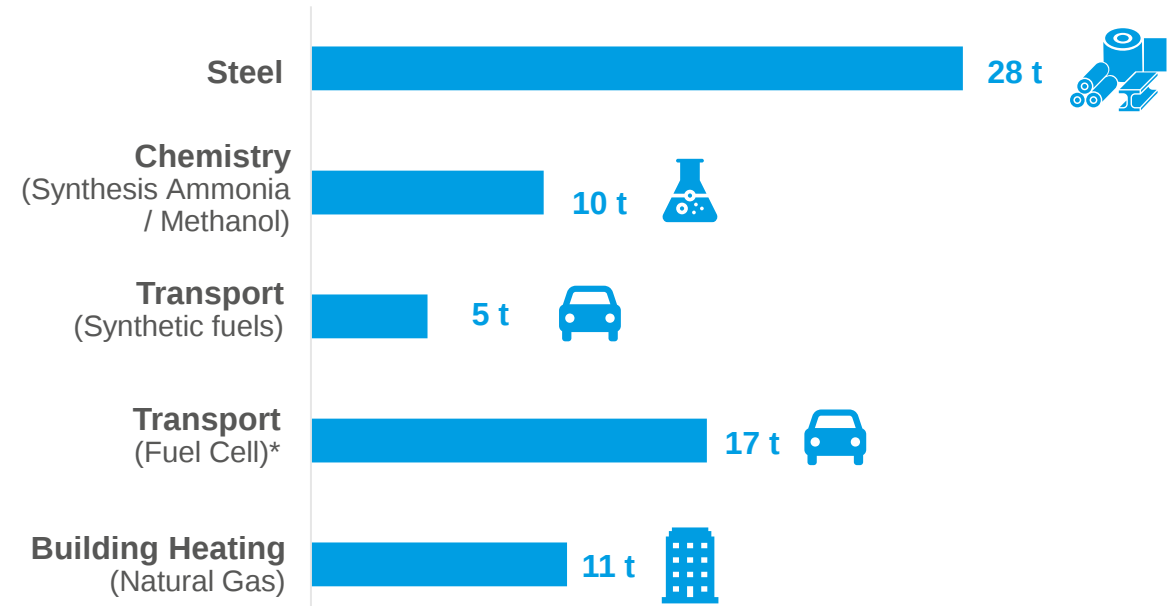
Public financing of the grids as a public service responsibility is the best solution. Relief through the removal of transformation-related costs.

Support PPAs* for the industry, establish a baseload-capable renewable energy pool. A **capacity market** is needed to secure supply, but it must not increase electricity prices through additional levies!

* Power Purchase Agreements

First urgent step: Reintroduction of the state grant amounting to 5.5 billion, retroactive to January 1th 2025, to reduce transmission grid fees to the 2023 level.

Steel: highest CO₂ avoidance per ton of hydrogen used



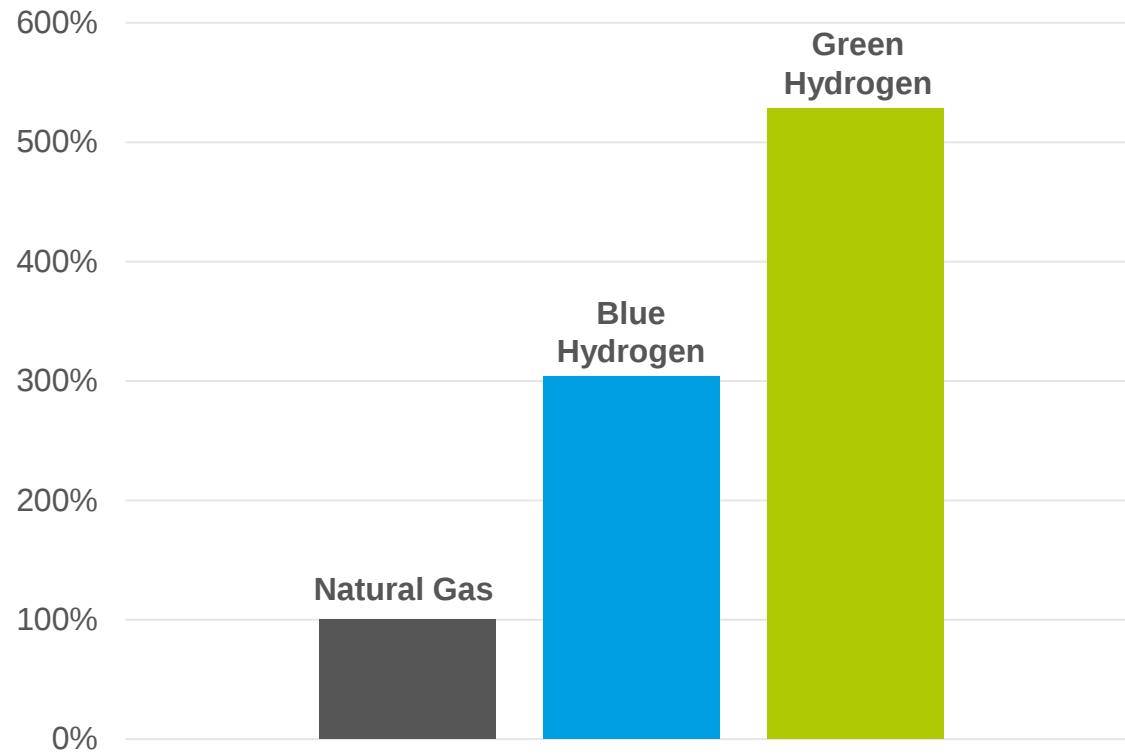
*Average potential today and in 2050

Source: Calculations by German Steel Association, with input from the Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT

Low emission steel can play a central role for the hydrogen ramp-up in German...

... but climate-neutral hydrogen is currently unavailable and too expensive!

Hydrogen prices in Germany in 2030 compared to natural gas (= 100%)



Source: Calculations by the German Steel Association based on BCG/IW/BDI „Transformation Pathways for Industrial Germany“

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The production of CO₂-low H₂ is significantly more expensive than expected –especially in Germany.



Way too **strict regulatory criteria** in the **EU** have further increased the costs of hydrogen production in the EU.



The completion of infrastructure for pipeline imports is being **delayed**.

Hydrogen Ramp-Up

What needs to be done?

1. Accelerate the expansion of hydrogen infrastructure and import pipelines.
2. Pragmatism with a view to hydrogen colours and regulation to promote market development and ramp-up
3. Make funding programs for steel more flexible and close cost gaps
4. No mandatory off-take obligations or quotas for hydrogen-based applications
5. Ensure natural gas use as long as hydrogen is not competitively usable.

**Target to reach climate neutrality is clear;
along the way pragmatism and flexibility is required.**



Lead Markets for Clean Steel

Central Role in the Transformation of Industry Towards Climate Neutrality



Creating a reliable demand for CO₂-reduced steel.



Bridging the transition until low-emission materials become the standard.



Market-based approach to gradually eliminating public-seed funding.



The basis: A neutrally certified label to distinguish between low-emission and conventionally produced steel.



The Low Emission Steel Standard (LESS) provides such a certification, supported by the industry and backed by policymakers.

Concrete Measures:

- establish binding sustainability criteria and prioritize low emission steel in **procurement procedures** – combined with European Content.
- Define **minimum requirements and incentives** for CO₂-reduced raw materials in simple legislative regulations (product policy).
- Support "**lead market pilots**" in selected sectors (power generation, grid infrastructure, transport infrastructure).

What is needed now from Policymakers in Berlin and Brussels

Implement now!

- International competitive electricity and gas prices
- Effective foreign trade protection instruments
- Effective carbon border adjustment mechanism

Set the course for the future now.

- Lead markets for low emission steel made in Germany & Europe.
- Secure supply of high-quality and affordable steel scrap within Europe
- Ramp-Up of Hydrogen production to ensure sufficient quantities at affordable prices

Thank you for your attention!

German Steel Association

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Interest Representation Based on the Legal Code of Conduct

Lobby Register German Bundestag: R002425 | EU Transparency Register: 75755621888-61

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