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NEW INDUSTRIAL POLICIES: LESSONS FOR THE EU AND THE CLEAN INDUSTRIAL DEAL

Case study: New industrial policy in Germany

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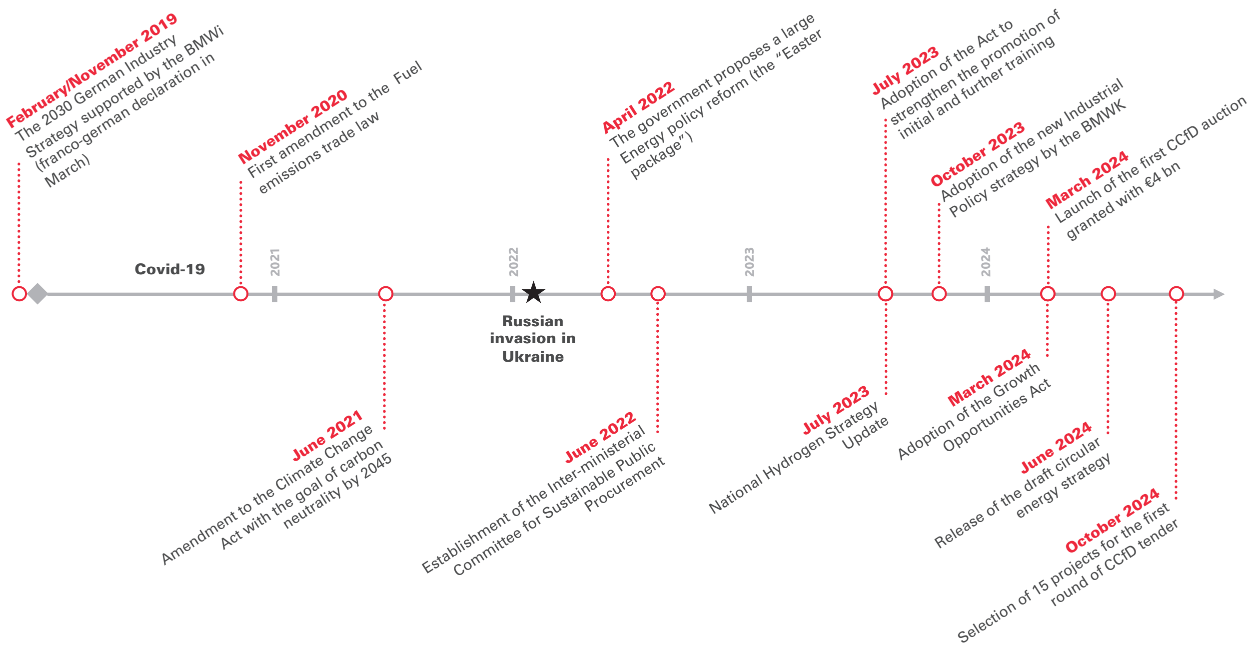
The industrial sector represents about a quarter of German GDP (24.6% in 2023). The Russian invasion of Ukraine particularly affected Germany and severely hampered the competitiveness of the export-oriented German industry. Simultaneously, the adoption of the 2019 Climate Law, and of the 2045 Climate Neutrality objective, as well as the change of government in 2021, put a clear emphasis on environmental targets, decarbonization of German industry, and on the definition of an active green industrial policy. A new National Industrial Strategy was formulated in 2023. The emphasis put on the development of green industries and industrial decarbonization enabled the development of new instruments such as the carbon contracts for difference for the decarbonization of industrial sites or the H2Global auctions for developing new international green hydrogen value chains. However, the failure to find an agreement within the governing coalition on a budget plus the December 2023 ruling of the constitutional court, blocking the transfer of part of the COVID-19 recovery package to a newly established Climate fund, has halted the deployment of this industrial policy. Still, important reforms favoring the development of clean technologies have been adopted in parallel, including the simplification of administrative proceedings to speed up the deployment of renewable energy facilities, targets of land allocation for wind turbines, the Building Energy Law banning oil and gas-fired heating technologies. Nonetheless, as illustrated by the drop in battery electric vehicles (BEV) new cars sales after the abrupt removal of the purchase subsidy in December 2023, clean technology markets still need an improved enabling policy framework. In parallel, heavy industries such as steel and chemicals and the German car industry are challenged by an adverse economic context and by the need to adapt to a decarbonized economy, a topic high in the political agenda. In this context, it is likely that the next government will continue to develop industrial policies.

This case study is related to the *Study* New industrial policies: Lessons for the EU and the Clean industrial Deal

Figure A.1 Germany timeline



1. INDUSTRIAL STRATEGY – DIRECTION, PLANNING & GOVERNANCE

1.1. Political directionality of the national industrial strategy

Although Germany has traditionally been attached to ordoliberalism with limited public interventionism on the markets, this position has been changing, and the German government has recently adopted a more active role on industrial policy. This conceptual turn was initiated in 2019 with the publication of a first industrial strategy paper, released by the Federal Ministry of Economic Affairs and Energy (BMWi), "Industrial Strategy 2030 – Strategic Guidelines for German and European Industrial Policy",[1] following the failure of the Siemens-Alstom merger. This strategy, calling to increase the share of industrial value added up to 25% by 2030 and to develop large European champions, was fiercely criticized, notably highlighting the risk of leaving behind thousands of *Mittelstand* companies.[2]

Nonetheless, the recent economic downturn and the geopolitical "*Zeitenwende*" ("changed times") has challenged the export-oriented, German industrial model, which relied on cheap Russian energy. In November 2019, the Federal Ministry for Economic Affairs and Climate Action (BMWK) released a new industrial strategy "Industrial policy in changed times: safeguarding our industrial base, renewing our prosperity, boosting our economic security".[3] After identifying the challenges of the German industry, the strategy set 3 main objectives:[4] first of all, economic security was defined as "a new priority of [the] industrial and economic policy"; then, with the ETS carbon-price, Germany aimed to protect its industry from "unfair competition" and shift to climate friendly production technologies; finally, it aimed at "smoothing [a] transition phase" of high energy prices & expansion of renewables to achieve green and cheaper energy for industry. These elements justify the relevance of vertical policies to maintain German industrial competitiveness and promote German (and European) economic security. The strategy includes a mix between vertical and transversal policies, although the emphasis was more on the later:

— Transversal components: administrative simplification tools, non-discriminatory innovation funds especially towards SMEs, reduction of energy prices releasing the financing of the Renewable Energy Source levy;

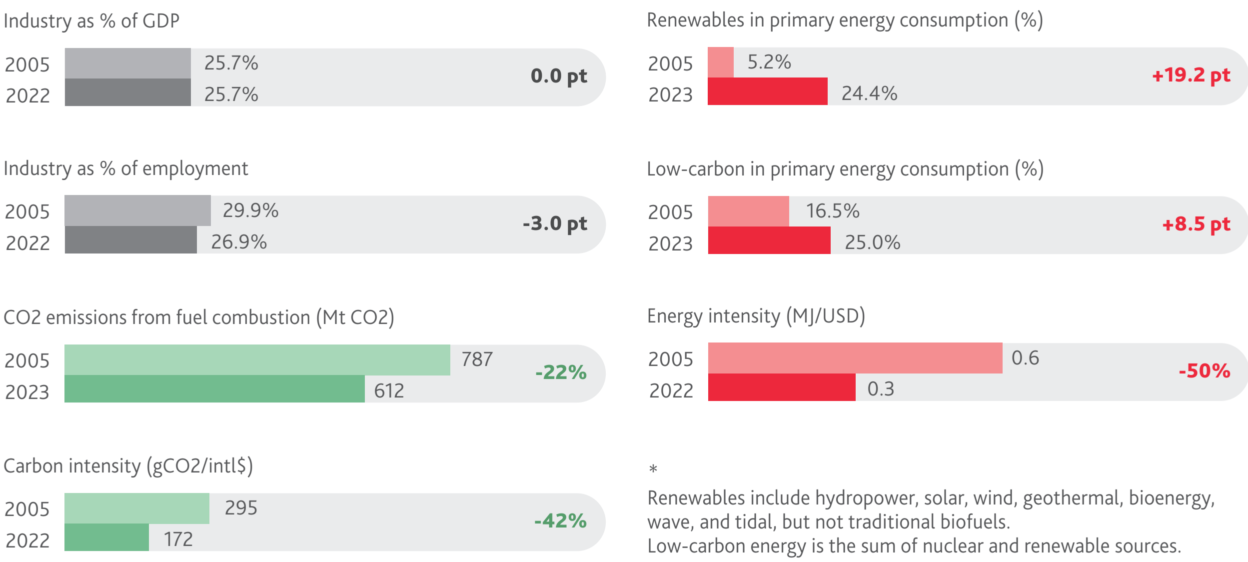
1 Federal Ministry for Economic Affairs and Energy (Nov. 2019): Industrial Strategy 2030 Guidelines for a German and European industrial policy

2 See for example that article by Andreas Freytag of the American German Institute in May 2019.

3 Federal Ministry for Economic Affairs and Energy (Oct. 2023): Industry policy in changed times Safeguarding our industrial base, renewing our prosperity, boosting our economic security

4 See page 26 and following.

Figure A.2 Germany indicators



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Renewables include hydropower, solar, wind, geothermal, bioenergy, wave, and tidal, but not traditional biofuels.
Low-carbon energy is the sum of nuclear and renewable sources.

— Vertical components: many sectoral plans such as Hydrogen strategy, EU projects of common interest (IPCEI's), development of energy infrastructures and the implementation of carbon contract for difference for energy intensive industries.

1.2. Technological and environmental objectives of industrial policy

The Climate Action Program 2030[5] of September 2019 set the main environmental transition objectives. However, no additional specific industrial objectives in the latest version of the industrial strategy stress clear targets for political direction. Still, the strategy refers to multiple other documents defining sectoral objectives: the federal Climate Change Act which targets a -65% from 1990 reduction of industrial emissions by 2030,[6] the Hydrogen Strategy[7] that aims to implement at least 10 GW of domestic electrolysis capacity by 2030, the Gigabit Strategy[8] which intends to connect 100% of all households and companies to the fiber network by 2030 (and 50% by 2025), and the European objective to reach 20% of worldwide semi-conductor-production capacities by 2030.

[5] See the overview of the Federal Government of the Climate Action Programme 2030 (Sep. 2019).

[6] Section 3, "National climate targets" of the Federal Climate Action Act (Bundes-Klimaschutzgesetz – KSG) amended on 18 August, 2021.

[7] Adopted in June 2020, see the National Hydrogen Strategy page on the BMWK website.

[8] Federal Ministry of Transport and Digital Infrastructure (March 2017): Gigabit Initiative for Germany Initiative of the Network Alliance to roll out converged gigabit-ready networks by 2025

1.3. Institutional setup supporting the implementation of the industrial policy

The Federal Ministry for Economic Affairs and Energy (BMWK) plays a key role in defining and implementing the green industrial strategy, although it has been regularly criticized for not sufficiently taking into account industries'—especially SMEs'—interests into account. The KfW (German development bank) plays a key role in operating the different funds and subsidies available. Moreover, Germany has a deeply rooted industry governance mechanism, with large industry unions (such as BDI for larger companies, BVMW for SMEs of the Mittelstand)), closely related to German industrial policy definition. Since 2015, the Alliance for the Future of Industry (Bündnis Zukunft der Industrie) brings together trade unions, industrial and employers' association, the Association of German Chambers of Industry and Commerce (DIHK) and the BMWK. It acts as a central dialogue body for industrial policy issues.

2. DEVELOPMENT OF A CARBON PRICING MECHANISM

German industry participates in the EU ETS scheme, whose average carbon price in 2024 was about 70 €/tCO_2. In addition, Germany has adopted a Fuel Emissions Trade Law in 2019 that was finalized in 2020. It creates a national emissions trading system for transport and heating fuels: the federal government sets an annual total emissions limit for transport and heating fuels (consistent with non-ETS targets prescribed by the EU).

There is a fixed price per allowance: 25 € in 2021, 45 € in 2024, 55 € in 2025, in auctions in 2026 with price corridors of 55-65 €. The national system will be replaced by ETS 2 when it comes into effect.

3. SUPPLY-SIDE SUPPORT TO INDUSTRIES

3.1. Support mechanisms for R&D&I focused on new green technologies

Innovation and R&D support remain a central component of German industrial strategy; it is one of the 8 measures stressed by the BMWK in its 2023 strategy for "strengthening [German] competitiveness". There are different instruments available for R&D financial support not specific to green technologies: the industrial co-operative research programme (IGF), the central innovation programme for SME's (ZIM), and the Federal Agency for Disruptive Innovation (SPRIND). R&D is also subject since 2020 to a tax credit of 25% of eligible expenses of up to €4 million, so that the maximum funding amount per company/group is 500,000 € per year.

Nonetheless, some specific funds are available for the "transformation technologies": the Environmental Innovations Program (UIP) is granted with €1.2 billion in order to support initiatives promoting innovative large-scale technical pilot projects that are not yet implemented on the market and sustainably relieve the environment. The support can take the form of grants of up to 30% of eligible costs, or loans with reduced interest rates. Projects must be in areas of water treatment, waste prevention, circular economy, soil protection, air pollution control, reduction of noise and vibrations, energy saving, resource or material conservation and efficiency. Payment is made by the KfW.

3.2. Support mechanisms for the development of new green technologies production units

The Special Climate and Transformation Fund (KTF), put in place in 2022, is the main financial instrument for climate action. It unlocked €177.5 billion for the 2023-2026 period. It was notably used to fund the EEG levy, a component of the energy tariffs aiming to subsidize the deployment of renewable energy facilities through feed-in tariffs, instead of German companies. It was also meant to fund infrastructures (such as a €12 billion investment in the railway network) and the decarbonization of German industry.

Part of the resources were generated by the reallocation of €60 billion from the COVID-19 recovery package to the KTF. This enabled to significantly increase the resources of the fund and associated actions. However, a constitutional ruling in November 2023 considered that the budget reallocation of COVID-19 funds towards the KTF was unconstitutional, leading to a strong reduction in financial means of the KTF—about a third of total budget. This ruling eventually led to a budget crisis and the collapse of the tricolor coalition in 2024.

Other means were also allocated to the development of manufacturing capacities. In July 2023, the European Commission approved €3 billion in state aid for a German scheme to support private investments in strategic goods to foster the transition to a net-zero economy under the Temporary Crisis and Transition Framework.[9] This led to the creation of a Federal Aid Framework for Green Transformation Technologies (Bundesregelung Transformationstechnologien). The eligible technologies include solar panels, battery cells, wind turbines, heat pumps, electrolysers and equipment for the capture, use and storage of CO_2, the production of key components or production and recovery of critical raw materials required for these technologies. The amount of aid must not exceed 15% of the eligible costs and the total amount must not exceed more than €150 million in principle.

We could not identify which projects were supported by the Federal Aid Framework in practice (what was the amount spent and through which channel) but Germany also used the TCTF facility for funding a one-off subsidy of €900 million provided to Northvolt for the creation of a 60 GWh gigafactory in Heide.

Finally, in the context of the initial proposal of the Growth Opportunities Act (adopted in July 2024 but the initial draft was released in August 2023), creating a tax incentive for investments in climate protection (KlimaInvPG) was discussed, in order to subsidize up to 15% of investments—the acquisition, production or measure—which could improve the company's energy efficiency with a maximum premium of €30 million per eligible person.[10] This tax incentive was finally not retained in the final draft of the law.[11]

3.3. Support mechanisms for the decarbonization of existing industrial production units

Germany has developed multiple support mechanisms for the decarbonization of industrial production. First of all, the KTF had scheduled €19.9 billion for the decarbonization of industry and for the implementation of the German Hydrogen Strategy. The KTF had allocated around €3.3 billion to the Federal Fund for Industry and Climate Action (BIK) with 2 modules: one for the decarbonization of industry to achieve reduction of GHG emissions in manufacturing and a module for CCU/CCS applications. The first funding call opened in August 2024 with an allocation of just over €1 billion.

The other important scheme is the Carbon Contracts for Difference (CCfD). These are climate protection agreements for energy-intensive industries made to compensate additional costs compared to conventional processes when climate-friendly production processes cannot be operated competitively. They

9 See the press release of the European Commission (19/07/2023).

10 See this article for a description of the initial measure planned.

11 See that article for the final provision adopted in March 2024.

are modelled as risk hedging instruments: providing companies with financial planning security with regard to certain price developments (e.g. specific energy carriers like hydrogen) and hedging this risk. This framework is limited for now to the sectors covered by the ETS market, but our interviews suggest that it is not excluded to have different calls for other technologies. CCfD relies on 2 key features:

- An auction-based system: companies compete against each other to get the subsidy. They must set the carbon price for their contract proposal. This allows to select the cheapest decarbonization projects;
- Reversed payment: the CCfD hedges a company against a CO_2 carbon price risk. In other words, it sets the CO_2 price at some level and as long as the CO_2 market price is greater than this fixed level, provides a subsidy to the company. When the CO_2 price becomes greater than this limit, the company must pay the difference to the State, enabling to partially recover the cost of the subsidy.

A first round of CCfD was launched in March 2024 with a total envelope of up to €4 billion and selected 15 projects amounting to approximately €2.8 billion.[12] The CCfD is managed by the BMWK but does not seem to be part of the KTF.

4. DEMAND-SIDE SUPPORT TO INDUSTRIES

4.1. Support mechanisms incentivizing private demand in green markets

Germany has implemented programs to support the adoption of green technologies, although they were sharply watered down after the decision of the constitutional court to limit the budget of the KTF.

Germany had a long-lasting support for the purchase of electric vehicles since 2016 of €4,000 for non-hybrid electric cars, and €3,000 for plug-in hybrids. The grant was paid towards purchases of cars with a list price of up to €60,000. This subsidy was abruptly discontinued in December 2023, following the constitutional ruling on the KTF. This sudden change had probably a strong negative impact on EV sales in Germany, with a 27% drop in sales of new battery electric cars in Germany in 2024.

Since 2024 a new federal funding scheme for energy-efficient buildings has been implemented and provides investment grants of up to 70% to replace old, fossil-fuel powered heating systems in existing buildings with systems based on renewables. A uniform basic funding rate of 30% applies to heating systems based on renewables. The rate for the subsidy depends on households' income: for taxable household income below 40,000€, another 30% subsidy is added. There is an additional 20% if the replacement takes place before 2028. Additional bonuses can apply for replacing highly inefficient old heating systems (coal or petroleum based, self-contained gas heating, night storage heating) or a gas-fired or biomass heating facility over 20 years old; total subsidies are capped at 70%.

4.2. Public procurement strategy favoring green products and local content requirements

There are some provisions still regarding the development of green public procurement: the German Sustainable Development Strategy[13] sets the basis for the creation of the Inter-ministerial Committee for Sustainable Public Procurement, established in June 2022. The German Sustainable Development Programmes of Measures sets out special provisions for the procurement of certain product categories (textiles, cleaning products, ICT, working shoes, furniture, copy paper, toilet tissue, catering services and food) to integrate sustainability considerations, but these only apply to procurement at the federal level. As Germany has invested relatively less than European counterparts over the past decade,[14] it has naturally led to limited provisions for using public procurement as an industrial policy tool.

4.3. Regulation and norms favoring green industries

Germany depends on European regulation for most green products and hence has limited initiatives developed at national level to support manufacturing in clean technologies.

In September 2023, Germany adopted a Building Energy Law. This law de facto banned installation of new gas or oil heating systems by requiring that new heating systems use more than 65% of renewable energy. This rule only applies to new buildings in areas of new residential developments from January 2024. In existing buildings and new buildings outside of new development areas, new oil and gas heating systems can continue to be installed until the respective municipality has presented a plan for the transition to climate-neutral heating in its jurisdiction, which can include an expansion of district heating, for example. Large cities have until 2026 to provide these plans, while small towns have a later deadline of 2028.

Germany has also adopted new regulations aiming at accelerating the deployment of green technologies with the so-called "Easter package" (adopted in July 2022) and "Summer package" (multiple reforms of the energy regulation). These regulations notably set a 2030 of 80% share of renewables in power consumption. It accelerated the deployment of onshore wind power with the law on land for wind energy that prescribed targets for each federal state to ensure 2% of Germany's surface

[12] Reuters. (2024) Germany Signs First Climate-Protection Contracts. October 16, 2024

[13] Federal Government (Jul. 2021): German Sustainable Development Strategy Update 2021 – Summary version

[14] A March 2020 report by the Institut Der Deutschen Wirtschaft estimates that Germany has an investment gap of €450 billion over the next 10 years (until 2030).

area will be reserved for onshore wind power by 2032. The minimum distance rules between wind turbines and residential areas in several German states can remain in force, but only if the state fulfils its contribution to national wind power buildout targets. Other simplification and acceleration measures were adopted to speed up planning and permit procedures. This measure has already had some impact on planned wind projects: all 3 wind support auctions so far in 2025 were oversubscribed.[15]

5. LABOR AND SOCIAL POLICIES FOR A JUST INDUSTRIAL TRANSITION

Due to the shortage of skilled workers in the industrial sector, the National Industrial Strategy stresses two key actions to increase the labor force: first, through increasing the total size of working population by incentivizing older people to work longer and women to participate in the labor force (by expanding child-care services for example), and second, through immigration, by training and enabling refugees to work and attracting skilled workers with an amendment of the Skilled Labour Immigration Law.

The Act to Strengthen the Promotion of Initial and Further Training (July 2023) has introduced a new "Skills Development Benefit" for companies, paid as a compensation benefit for employees whose jobs are threatened by structural change, but for whom continuing education can enable future-proof employment in the same company.

The Coal phase-out and structural development act in Germany also developed a series of measures to support the relocation of workers in coal-mining regions. A Coal Commission was established by the federal government in 2018, to build a consensus on a just transition for coal phase-out and reach socially acceptable collective agreements ("Sozialverträglichkeit") for unions and businesses. The Coal phase-out act (April 2021) provides early retirement opportunities or continuing education options for coal-plant workers (with an age of 58+ years) while the Structural Development Act plans to invest 41€ billion until 2038 for the economic diversification and infrastructure development in coal mining regions.

[15] See: BWE, VDMA (2025): Status of Onshore Wind Energy Development in Germany: First half of 2025; and Federal Network Agency (2025): Public announcement of onshore wind auction awards

6. TRADE AND INTERNATIONAL POLICIES SUPPORTING INDUSTRIAL POLICIES

6.1. Policies aiming at improving resilience and de-risk global supply chains

The German Industrial Strategy welcomes the strengthening of EU instruments against economic coercion. National laws were also expanded in order to foster economic security for example by adding new technologies[16] (such as quantum computers and AI) to the national dual-use list subject to export control.

6.2. Policies supporting internationalization of national industries

Securing the provision of raw materials and the circularity of minerals is one of the dedicated measures (amongst 4) for "safeguarding [German] economic security". Germany has developed strong international cooperation on raw materials in its own right, as well as *via* the EU to secure access to raw materials. It has developed its strategy in partnership with France and Italy: in a 2023 joint communique,[17] the 3 countries convened to collaborate on the sustainable supply of critical raw materials, deepening co-ordination on extraction and processing and advancing the circular economy through recycling. Consequently, Germany has engaged in bilateral raw materials partnerships with Mongolia, Kazakhstan and Peru with bilateral working groups and economic committees and expert forums. Joint Declarations have also been signed with Chile and Australia, as well as a partnership with Canada by exchange of notes.

The Federal Government also issues guarantees *via* Euler Hermes for untied financial loans (hedging economic and political risk incurred by those investing in raw materials projects abroad) to support German companies in their efforts to conclude long-term supply contracts for the raw materials they need.

The KfW has recently launched (on 4 October 2024) a new raw materials fund valued at €1 billion, valid until 2028. Co-funding will be provided to domestic and international projects focused on mining, processing, or recycling of raw materials that the EU has classified as strategic in the CRMA. Support, in the form of various financial instruments, will range between €50 mn and €150 mn and will also include KfW's direct capital involvement through the purchase of minority stakes in specific companies.

Similarly, Germany has funded the establishment of the H2Global Foundation in June 2021. Federal Government has provided a total of €900 million for this project. Based on the

[16] 21st ordinance amending the German Foreign Trade and Payments Ordinance (Außenwirtschaftsverordnung, "AWV"), 26 July, 2024.

[17] IEA. (2025). France-Germany-Italy Joint Communique on Critical Raw Materials, updated October 15, 2025

concept of the 'double-auctions model', an international auction for the purchase of green hydrogen or its derivatives was opened in December 2022; with the best offer to win getting a long-term contract. In a second auction, the hydrogen that has been delivered to EU countries in this way was to be auctioned on to the highest bidder. For the first auction, only 1 project (Fertiglobe, a joint venture between fertilizer group OCI and Abu Dhabi's state-owned oil company ADNOC) out of 22 consortia/companies from 5 continents was retained, with a maximum contract value of €397 million. The company should start producing renewable ammonia for export to European ports in 2027. A new auction worth €3 billion was launched in February 2025, jointly funded by Germany and the Netherlands.

Monteiro de Macedo, P., Berghmans, N., Kauffmann, C., Lévy, P. (2025). New industrial policies: lessons for the EU and the Clean Industrial Deal - Case study: New industrial policy in Germany. IDDRI, *Note*.

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