NOTE

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

Case study: New industrial policy in Sweden

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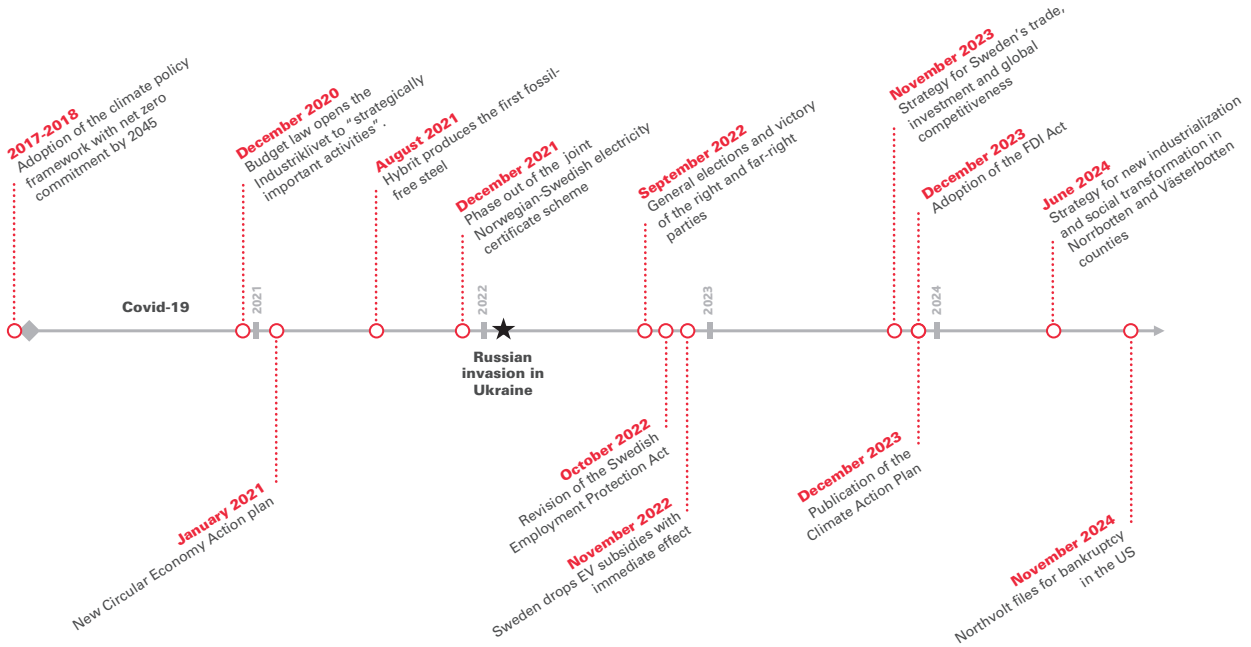
Sweden offers an example of a country with a well-established environmental policy, with clear objectives endorsed by a broad-base political coalition and organized with credible institutions (such as the Climate Policy Council). This political and institutional framework has a direct influence on industrial policy definition and provides a direction to private stakeholders, who are involved in the green transition with the definition of sectoral decarbonization roadmaps coordinated by the State through the Fossil Free Sweden initiative or public private partnerships. Mutual trust between private and public stakeholders enabled investments which allowed green industries to grow rapidly, especially in northern Sweden. Public funds, such as the Climate Leap (introduced in 2015) or Green Industrial Leap programs (introduced in 2018), are available to support the emergence of these activities, the decarbonization of production and the internationalization of Swedish companies. Moreover, state-ownership has been used as an asset for incorporating environmental objectives in large industrial public companies' agenda, notably by relaxing some financial targets for these companies and setting non-financial objectives, guiding long-term investments in decarbonization. Nonetheless, the new government elected in 2022 has put less emphasis on environmental policy. For instance, it has reduced public subsidies supporting private demand for electric vehicles, or the deployment of renewable energy, arguing that green products are now sufficiently competitive.

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

Figure A.1 Sweeden timeline



1. INDUSTRIAL STRATEGY – DIRECTION, PLANNING & GOVERNANCE

1.1. Political directionality of the national industrial strategy

There is not an overarching Swedish industrial policy guiding the development of the industry towards green technologies. However, the overall direction of policies towards a net zero objective, consistent strategies of private businesses integrating environmental objectives, supported by a higher environmental consciousness of citizens, and successful public-private partnerships facilitated by the State, favored the development of innovative companies in the sector of green technologies. This can be explained by a "semantic" distinction: what we currently refer to as a "green industrial policy" was implemented earlier (at least since the climate policy framework in 2017) and was rather defined as environmental policy. Within this policy framework, Sweden has developed institutions to enable industrial coordination for decarbonization especially through "Fossil Free Sweden", an initiative that aims to define sectoral decarbonization roadmaps (see below in institutional setup).

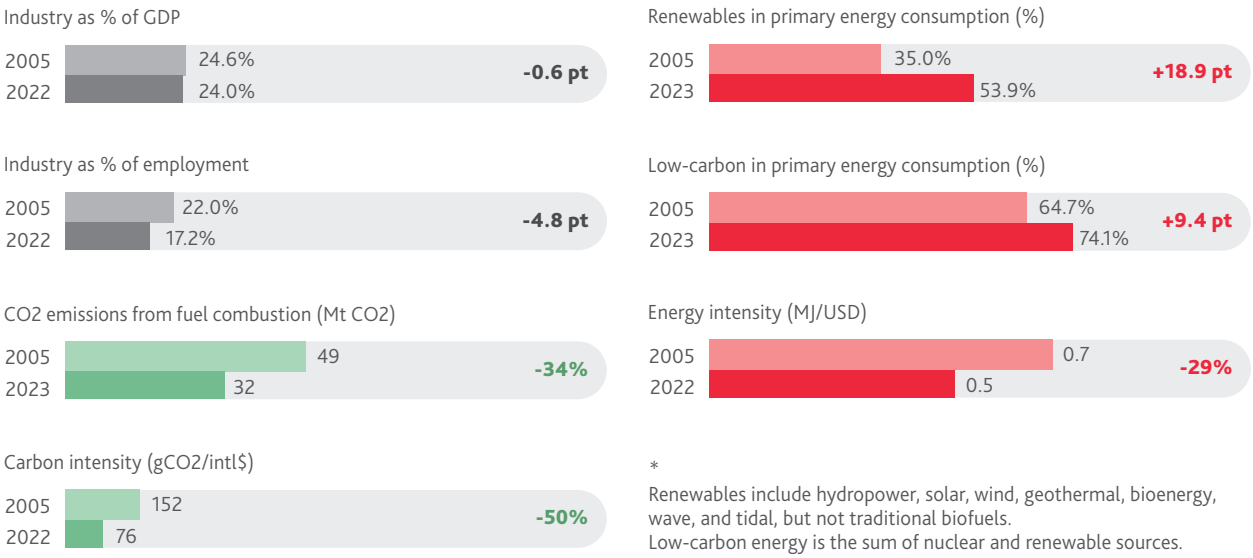
Nonetheless, the Swedish government has adopted a Strategy for Sweden's trade, investment and global competitiveness[1] in November 2023. Although it is not clearly formulated as an industrial policy (compared, for example, to the German industrial policy), it sets 3 overarching objectives relevant for the industrial sector: strengthening Sweden's competitiveness, increasing exports, and strengthening Sweden's position as a prioritized partner for green and digital transition. This document does not target specific priority sectors or define policy instruments favoring specific industries.

The State acts much more as a facilitator of private initiative, providing the conditions for enabling industrial development. The Strategy for new industrialization and social transformation in Norrbotten and Västerbotten counties,[2] released in June 2024, explores the structural bottlenecks limiting the industrial development in these northern regions. It defines 7 target areas (such as improving ways of working between private stakeholders, securing energy supply, strengthening the transport industry, speeding up the authorization processes, etc.) and defines policy

[1] Ministry of Education and Research, Ministry of Climate and Enterprise, Ministry for Foreign Affairs (eng. Feb. 2024): Strategy for Sweden's trade, investment and global competitiveness

[2] Ministry of Economic Affairs and Employment (Jun 2024): Strategy for new industrialization and urban transformation in Norrbotten and Västerbotten counties (in Swedish only)

Figure A.2 Sweden 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.

responses aiming at creating the right conditions for private investment.

1.2. Technological and environmental objectives of industrial policy

Sweden has a very clear decarbonization agenda, as a country with a long-lasting environmental policy (the Swedish carbon tax was adopted in 1991). This agenda was institutionalized in 2017 through the Climate Policy Framework which rests on three pillars: a Climate Act, Emission Reduction Targets, and the Climate Policy Council, a climate policy watchdog institution.[3] This framework was supported by a broad-base political support from left- and right-wing parties. Sweden's has committed to reach net zero by 2045 at the latest with at least 85% of emission reductions compared to 1990. By 2030, Sweden pledged to reduce emissions by 63% compared to 1990.

Sectoral decarbonization roadmaps were defined in the context of the Fossil Free Sweden institution (see below), although these objectives are not legally binding. 22 roadmaps and 6 transversal strategies define sector-specific targets. For example, the steel industry roadmap aims to achieve the first fossil-free steel production plant running by 2026 with the overall objective of a fossil-free production of steel by 2045, which should cut Sweden's total emissions by 10%.[4] The cement industry has an intermediate target of reducing emissions by 30% in 2030 and aims to achieve carbon-neutral cement production in 2045.[5] Transport sector aims to cut emissions from domestic transport by 70% by 2030 compared to 2010.[6]

1.3. Institutional setup supporting the implementation of the industrial policy

Environmental policy and industrial development rely on a vivid bottom-up approach, where the State encourages private stakeholders to engage and lead the environmental transition. The success of this institutional setup is built on the credibility of public support and mutual trust between private and public sectors. Fossil Free Sweden for instance was based on this culture of collaboration where all industrial sectors were invited to create their own decarbonization roadmaps. Fossil Free Sweden is an independent office, with a non-partisan leadership (the same secretary has been in office since 2016) and a hands-off approach towards industry. In total, 22 sectors have produced their own decarbonization roadmaps (with a follow-up report in 2021) and 6 transversal strategies encompassing all industries were defined (relating to biogenic carbon capture, sustainable battery value chain, hydrogen strategy, biostrategy, finance and energy efficiency). These roadmaps and strategies aim to define the required investments to reach the net-zero objective, and to scope the public actions required to support private initiative

[3] Pareliussen, J. and A. Purwin (2023). "Climate policies and Sweden's green industrial revolution", OECD Economics Department Working Papers, No. 1778, OECD Publishing, Paris.

[4] Fossilfritt Sverige, Roadmap: Steel industry, https://fossilfrittsverige.se/en/roadmap/the-steel-industry/

[5] Fossilfritt Sverige, Roadmap: Cement industry, https://fossilfrittsverige.se/en/roadmap/the-cement-industry/

[6] Fossilfritt Sverige, Roadmap: Automotive industry - passenger cars, https://fossilfrittsverige.se/en/roadmap/the-automotive-industry-passenger-cars/

(including infrastructure development). Our interviews also highlighted the importance of leadership from private companies, who also adopted environmental objectives in their strategies.[7] Another important institutional setup is the importance of state ownership in key industries. Developing green steel manufacturing plants in Northern Sweden through the Hybrit project was possible in part because the State created the right collaboration conditions for a vertically integrated value chain approach, as illustrated by several equity ownership. Upstream, public ownership in the mining company LKAB and the utility Vattenfall allowed to provision sufficient raw materials and energy for the production of green steel through technical industrial planning. Downstream, LKAB increased its participation within SSAB, the main producer of steel in Sweden, to secure long-term demand for green steel. Finally, the State relaxed some of its financial targets for LKAB in order to enable the necessary investments required for the production of green iron-ore.[8] This enabled the company to adopt long-term objectives consistent with Swedish environmental policy and plan investments accordingly.

2. DEVELOPMENT OF A CARBON PRICING MECHANISM

Sweden is part of the European carbon ETS market which had an average allowance price of about 70 €/tCO_2 in 2024.

Sweden has had a carbon tax since 1991 and about 95% of Swedish fossil carbon emissions were covered by the carbon tax or EU ETS in 2024. Industry covered by the EU ETS is entirely exempt from the carbon tax while a lower tax rate was initially applied to industry outside of the EU ETS. By 2018, that reduced rate was phased out. It consists of basically two taxes: the energy tax (Energiskatt), which applies to most fossil fuel use (including low blends of biofuels) and electricity consumption, and the CO_2 Tax (Koldioxidskatt) which also applies to most fossil fuel use and low blends of biofuels in gasoline and diesel at a nominal rate of SEK1,330 (€122)/tCO_2 in 2023.

3. SUPPLY-SIDE SUPPORT TO INDUSTRIES

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

Sweden has a generous R&D tax reduction of 20% of the monthly gross salary for employees who work more than 50% and more than 15 hours per month in R&D (up to a limit of SEK3 m per group per calendar month). This R&D tax reduction has been recently evaluated, and changes were announced for 2026.

R&D grants are also managed by multiple agencies: Vinnova, the Swedish Innovation Agency, Formas, a research council for sustainable development, and the Swedish Research Council. These different agencies are now coordinated within the "Impact Innovation" program since March 2024, the next generation of the so-called 17 "Strategic Innovation Programs". This program aims to gather different actors (organizations, industries, etc.) around a mission-oriented way of collaborating for 5 programs: zero emissions from industry (to cut industrial emissions by 75%), sustainable metals and minerals, water management, reforming the public sector and sustainable built environments and mobility. The program should reach SEK1 billion per year with half of the funding from the state and half from program actors.

Other programs such as the Swedish Manufacturing R&D Clusters aim at gathering industrials to develop new economically and environmentally sustainable manufacturing systems. The Kunskapsförmedlingen (Result Center) is responsible for disseminating the results of research projects in product development to industry and strengthening the cooperation between university, institute and business.

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

Swedish support for the development of new production units is relatively less developed than in other industrial countries, although much more targeted towards export. The OECD in the Quantifying Industrial Strategy report[9] shows that grant & tax expenditures in Sweden are smaller (about 1% of GDP) than the benchmark (1.5% of GDP), but financial instruments expenditures are above the benchmark (2% of GDP against 1.5% of GDP for the benchmark) mostly related to export finance. Indeed, Sweden is a relatively small market, and industrial development has historically been export driven. These financial instruments notably rely on credit guarantees provided by the Swedish National Debt Office, and loan and import guarantee offered by the Swedish Export Credit Agency.

Other regional support mechanisms also exist, aiming at compensating natural disadvantages for specific areas, provided by the Swedish Agency for Economic and Regional Growth:

- Regional investment grants: companies wishing to set up new establishments in "regional development areas" can apply for grants to partly finance investments and labor costs. Companies can receive a maximum of 40% of approved investment in support.
- Regional transportation grant: this grant aims to compensate for the logistics cost disadvantage in northern regions (Norrbotten, Västerbotten, Jämtland and Västernorrland). For manufacturing industry and goods for which distance

[7] For anecdotal evidence, see for example Ikea's sustainability strategy adopted in 2018. See also Strand, R. (2024). Global Sustainability Frontrunners: Lessons from the Nordics. California Management Review, 66(3), 5-26.

[8] Jonas Algers (Feb. 2024). "Leading With Industrial Policy: Lessons for Decarbonization from Swedish Green Steel" in Industrial Policy 2025: Bringing the State Back In (Again) Roosevelt Institute.

[9] Criscuolo, C. *et al.* (2023). "Quantifying industrial strategies across nine OECD countries", OECD Science, Technology and Industry Policy Papers, No. 150, OECD Publishing, Paris.

travelled exceed 401 km by rail or road, a grant is available for inbound and outbound traffic with a share of 5-45% of transportation costs at a maximum yearly grant of SEK15 m.

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

Support to the decarbonization of production capacities relies on two main instruments: the Green Industry Leap (Industriklivet) programme and the Climate Leap (Klimatklivet) programme.

- The Industriklivet had an annual budget of SEK1.5 billion in 2024. It was started in 2018 and has funded so far over 155 projects of around SEK5.9 billion. Projects are funded through grants by tenders published by the Swedish Energy Agency from R&D to industrial projects and feasibility study. There is no clear definition of a sector, these can be projects for reducing process emissions, developing carbon capture, or "strategically important efforts in industry" that are innovative solutions in industry that significantly contribute to reducing GHG emissions.
- The Klimatklivet had an annual budget of SEK5 billion in 2024. It provides grants for companies aiming to reduce their GHG emissions in any sector (transport, agriculture, real estate, infrastructure, etc.). Companies can obtain grants for up to 70% of investment cost. Grants are not given for projects deemed as profitable or required by the law. The fund was established in 2015 and is administered by the Environmental Protection Agency.

Although the Klimatklivet is clearly directed towards the improvement of energy efficiency, the scope of the Industriklivet is slightly less defined. It may fund GHG reduction in existing plants (such as furnace retrofit) but also the development of new industrial capacities (the fund was mobilized for the Hybrit project and partly fund the other Swedish green steel venture Stegra). A recent report by the Swedish National Audit Office (Dec. 2024) highlights this relative confusion around the funds' objectives, which may partly overlap with Klimatklivet's funding opportunities.[10]

4. DEMAND-SIDE SUPPORT TO INDUSTRIES

4.1. Support mechanisms incentivizing private demand in green markets

Overall, there was a shift in recent years, accelerated by the change in government in September 2022, towards less support for private demand in Sweden, as some green markets are now considered sufficiently mature to provide an economically competitive product against higher emitting alternative options.

The joint Norwegian-Swedish electricity certificate scheme, aiming at accelerating the deployment of renewable energy in the 2 countries, was phased out in December 2021. Similarly, the bonus subsidizing the purchase of an electric vehicle has been removed in 2022, although a malus for the purchase of internal combustion vehicle was implemented.

Some subsidies for the deployment of green technologies remain. For example, for thermal renovation of houses, a contribution to energy efficiency (Klimatfastigheter) for single-family houses offers a subsidy for energy efficiency work (including heating system renovation), but the total support is limited (up to SEK60,000 in total with a maximum of SEK30,000 for a new heating system–about 6,000 € and 3,000 € respectively).[11] There are also significant subsidies for the deployment of EV charging stations through the Klimatklivet and the "Ladda bilen" grants.

Public support is now directed towards less mature technologies, such as the electrification of heavy duties road vehicles. For zero-emission heavy-duty trucks the maximum aid granted is 25% of the purchase cost of the vehicle and depends on the size of the company. Clean trucks are subsidized up to 20% of the purchase cost and also depend on the company size. Light-duty electric trucks are eligible for aid of up to 30%, but no more than SEK50,000. Sweden is also home of the Green Corridor Initiative to develop innovative and sustainable transport corridors such as the REEL (Regional Electrified Logistics) project for the development of electrified heavy transport.

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

Sweden has no specific local content requirement nor binding rules for the adoption of green products for public procurements. It rather relies on soft recommendations and tools that incentivizes green public procurement. The Swedish Public Procurement Act (2016) encourages environmental considerations, which are not mandatory (except for those covered by the EU law). A law proposal of October 2021 required that local authorities consider climate, environmental, and other social and labor laws in public procurement; but the proposal was rejected by the government in June 2024.

Support to green public procurement rather takes the form of practical support by the Swedish Procurement Agency, which provides tools enabling the public procurement's strategy implementation. This includes the maintaining of a sustainability criteria database with three different levels (basic, advanced and spearhead level), a risk analysis service detailing where supply chains of different products pose higher social and environmental risks, and a life cycle costing tool to calculate the cost of a product or a service over its whole life cycle. The central purchasing agency for local public bodies (Adda) also has sustainability and environmental requirements in its procurement process and publishes yearly sustainability reports.

[10] Swedish National Audit Office. (2024). The Industrial Leap programme – planning, implementation and follow-up. December 2024

[11] For details on this measures, see (in Swedish) the communication from the Ministry of Climate (July 2023).

4.3. Regulation and norms favoring green industries

Sweden abides by European regulation and therefore acts in the definition of EU-wide regulation of products such as batteries or other green technologies. However, according to our interviews, Sweden did not deploy a particular regulation strategy (nor at the EU level) to foster the adoption of green products which will be manufactured in Sweden (green steel, green iron ore). The demand for these products was rather secured by an integrated upstream-downstream sectoral coordination for Hybrit, enabled by the state ownership, and flexible contracts securing future demand in the case of Stegra.

Regulation rather seems to be one of the bottlenecks for the development of new renewable energy supply facilities, as the Swedish Environmental Code allows municipalities to veto wind farm projects. The Swedish army also vetoes many offshore wind projects. The strategy for Northern regions mentions the potential of an inquiry into shortened and simplified permit processes under the Environmental code, but no measures seem to have been adopted so far.

5. LABOR AND SOCIAL POLICIES FOR A JUST INDUSTRIAL TRANSITION

In 2022, the Swedish Employment Protection Act underwent very significant changes aiming to increase job flexibility, adaptability and security. As part of these reforms, a collective agreement was reached in 2023 on a new "Transitional Study Grant" of up to 3,822€/month for job-to-job transitions and lifelong learning for employees. In September 2024 a new National Vocational Training (VET reform) was implemented in a pilot phase (until 2026) consisting of workplace-based learning based on labour market needs at national level to complement municipal vocational training. Individuals must have worked for at least 8 out of the last 14 years and be aged between 27 and 62.

The Just Transition Mechanism also includes a €176 m plan in the steel industry in Norrbotten County, in the metal industry in Västerbotten County, and in the mineral industry in Gotland County. Part of these funds were directed towards hydrogen pilot projects.

6. TRADE AND INTERNATIONAL POLICIES SUPPORTING INDUSTRIAL POLICIES

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

Sweden is strongly committed to free trade (the value of Swedish exports is equivalent to 50% of its GDP) as highlighted in its 2023 Strategy for Sweden's trade, investments and global competitiveness. It has therefore been following European development for de-risking trade, rather than being a front-runner.

Nonetheless, Sweden has recently adopted two laws in the scope of the European Regulation 2019/452 establishing a framework for the screening of FDI. The first is the Swedish Protective Security Act adopted in January 2021 establishing a screening system for the transfer of security sensitive activities. The second is the FDI Act adopted in December 2023 which introduces a new comprehensive screening regime for foreign direct investment in Sweden for investment, resulting in the control of more than 10% of votes in a company in activities such as essential services, security-sensitive activities, critical raw materials or sensitive personal data. Due to this wide definition of activities, and to the coverage of both Swedish and European investors, the first year of implementation led to a significant flow of 1,177 notifications by November 2024, even though only 24 cases were subject to in-depth review.

6.2. Policies supporting internationalization of national industries

Sweden, as an export-oriented economy, has a well-developed ecosystem of institutions and support mechanisms for helping Swedish industries abroad. The Swedish Export Credit Corporation (SEK), a state-owned company, issues green loans to exporters, subcontractors and projects that contribute to reduced climate and environmental impact. The loan does not need a direct connection to an export transaction but needs a clear connection to Sweden's transition; this means that suppliers to exporting companies are also eligible. SEK also offers a "sustainability bond framework" through which SEK issues bonds on the international market, earmarked for projects and businesses that promote climate transition.

Other forms of support provided by Business Sweden aim at expanding the "Team Sweden" approach centered on sustainability such as the Green Transition Initiative which supports the promotion of Swedish green industries in the US. The Swedish Export Credit Agency (EKN) also provides guarantees since 2022 to secure the supply of strategic raw materials to Swedish importers.

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 Sweden. IDDRI, *Note*.

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