Climate investments

Climate change investments in Sweden

Viveka Palm, Frida Hellman, Nils Brown, Statistics Sweden

Abstract:

The countries in the EU are preparing to meet the environmental goal to decrease the climate change emissions. The environmental accounts contain relevant statistics that could answer questions about what has been done within the economy to change the energy system and decrease the emissions, and how much money that has been used. Some of this information has been part of the environmental protection expenditure accounts, where companies have been asked about their costs and investments for adapting to environmental legislation. However, when it was set up in the 1990ies, the classifications did not make a difference between the costs for investments for climate emissions and other types of emissions, nor did it focus on energy savings or heat recovery. However, the industry was invited to report such investments, on energy savings and heat recovery, on a voluntary basis.

In order to be able to report to Eurostat on the climate change investments in 2025, we have looked into the detailed dataset on environmental protection expenditure accounts. In particular, we investigated whether the distinction between investments in treating emissions and preventing emissions, which was part of the data collection, can be used to single out the activities that can be labelled climate change investments. The paper will give examples of what types of actions that were reported as investments. It will also show the size of these investments for the industry, NACE B, C, D and E. Other industries are not part of the survey. In order to cover other parts of the economy we have used data on environmental subsidies and looked into the environmental goods and services sector.

The paper aims to show the relevance of the already collected statistics for the assessment of the investment size and needs.

Climate investments in the EU

In the autumn of 2025, the EU countries are required to report climate investments statistics to Eurostat for the first time as part of the Environmental Accounts. This paper outlines how Statistics Sweden has been mining its data sources to be able to report climate investments and what we have learned along the way.

The Environmental accounts contain three different modules that cover monetary variables of climate related activities. In particular, the Environmental protection expenditure accounts (EPEA), the Environmental goods and services accounts (EGSS) and the Environmentally motivated subsidies and similar transfers (ESST) inform about environmental protection investments, about green industries such as those producing renewable energy, and about the state funding for environmental purposes such as research and pilot projects for new technologies.

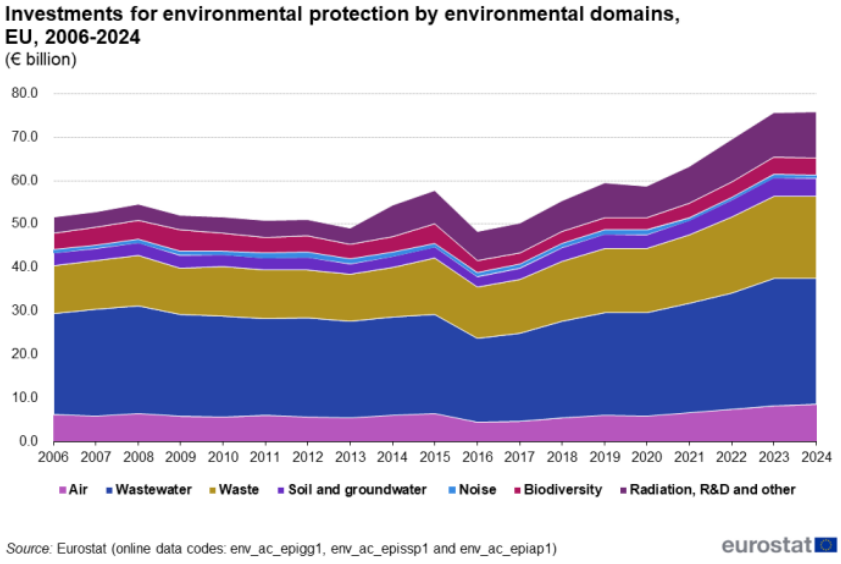
Environmental protection investments, emissions to air

Environmental Protection for industries has been collected since the 1990ies, with a focus on the industry. The data has been used by researchers mainly, but also to inform the EU policies of the cost of environmental protection. The Swedish statistics are presented here www.scb.se/MI1302

In the EU regulation 691/2011 for Environmental Accounts, the statistics were expanded into a module called the Environmental Protection Expenditure Accounts (EPEA), by adding assessments of environmental protection expenditure for the public sector and households to cover the whole economy. (Environmental protection expenditure handbook, 2017 ed).

Below is an illustration of the EU investments for environmental protection for the environmental domains of air, wastewater, waste, soil and groundwater, noise, biodiversity, R&D and other. Between 2006-2024, environmental protection investments in the European Union (EU) increased from €52 billion to €76 billion, accounting for 2% of total investments in 2024.

Figure 1. The category air is part of investments for environmental protection.



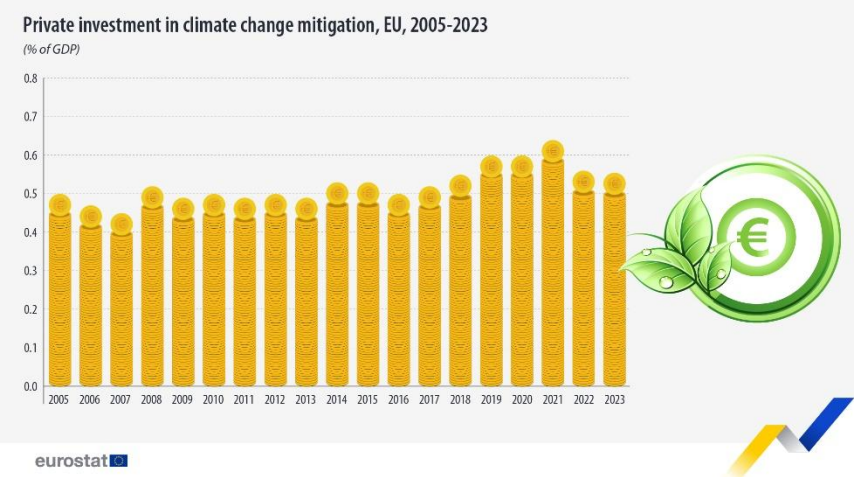
Investments in environmental protection - Statistics Explained - Eurostat

Of the different environmental domains in the obligatory reporting shown in figure 1 for the EU, the climate investments have not been separated out as a specific area. However, the core investments that we are looking for are part of the environmental domain 'air'. In Sweden, when the survey was set up, several industries wanted to report on energy related investments and so that type of investments have been recorded on a voluntary basis for the categories "energy savings" and "heat recovery".

According to Eurostat estimates, private investment in climate change mitigation in the EU has seen an overall increasing trend since 2005 (Figure 2). In 2023, it reached €95.3 billion (in current prices), which corresponds to 0.55% of the EU's gross domestic product (GDP). This is more than the entire environmental protection investments in Figure 1, around €75 billion, indicating that this estimate has used a different method and data source to define the type of activities that are included in the climate change mitigation.

Since the Environmental Protection expenditure accounts has focused on the extra cost for the industries to fulfil environmental legislation, with a start in end-of-pipe measures like waste management and scrubbers, these types of investments will need to be complemented with other types of activities like establishments of wind power parks, electric grids for electric vehicles, trains and better insulated buildings, in order to cover a broader range of climate mitigation investments.

Figure 2. Private investments in climate change mitigation. Eurostat

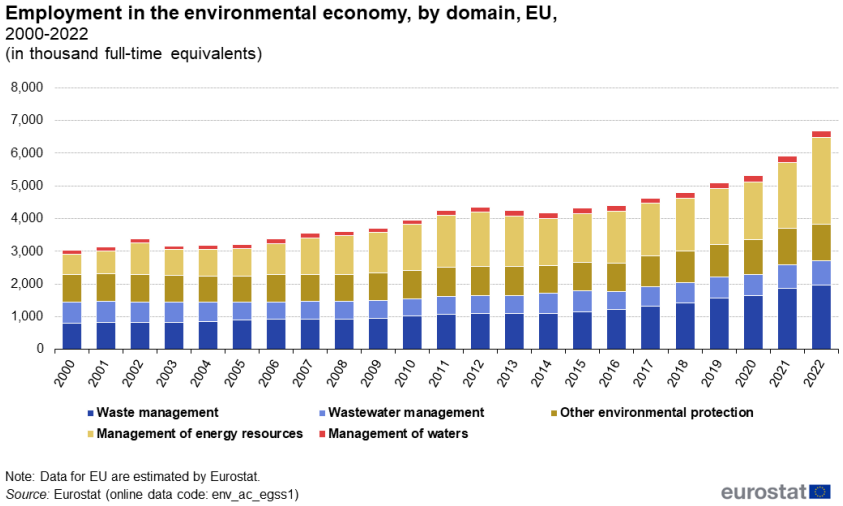


Environmental goods and services show increase of activity.

The activities recorded in the Environmental Goods and Services Sector are value added, exports and employment in the green industry, including the producers of renewable energy from wind and solar power, producers of electric cars and other green products. These data can give a measure of such activities, even though the investments themselves are not a part of that account.

Job creation related to renewable energy and energy efficiency stems from the production of renewable energy itself as well as from the manufacturing of renewable energy and energy-efficient equipment, and the provision of pertinent installation, engineering and research services. Employment in this domain increased from 0.6 million full-time equivalents in 2000 to 2.7 million full-time equivalents in 2022. In other words: more than 2 million full-time equivalent jobs have been created in the EU in this sector between 2000 and 2022 – partly as a result of renewable and energy-efficiency measures.

Figure 3. Employment in the environmental economy. Eurostat



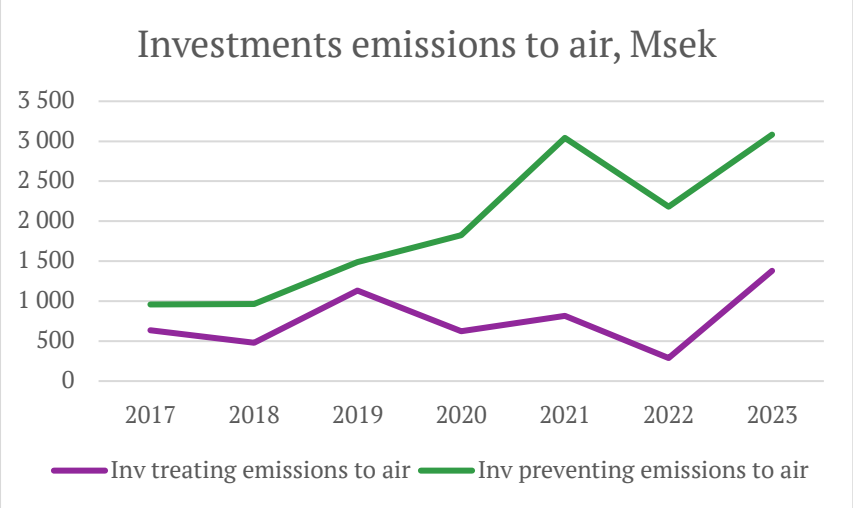
Source: [Employment_in_the_environmental_economy,_by_domain,_EU,_2000-2022_(in_thousand_full-time_equivalents).png (1054×631)]

Climate investments in Sweden

In the environmental protection survey, data is collected on investments concerning air and climate. There is a difference made between end-of-pipe investments that treat emissions on one hand and integrated investments that prevent emissions on the other. The survey allows for companies to submit text information that provides more details regarding their investments.

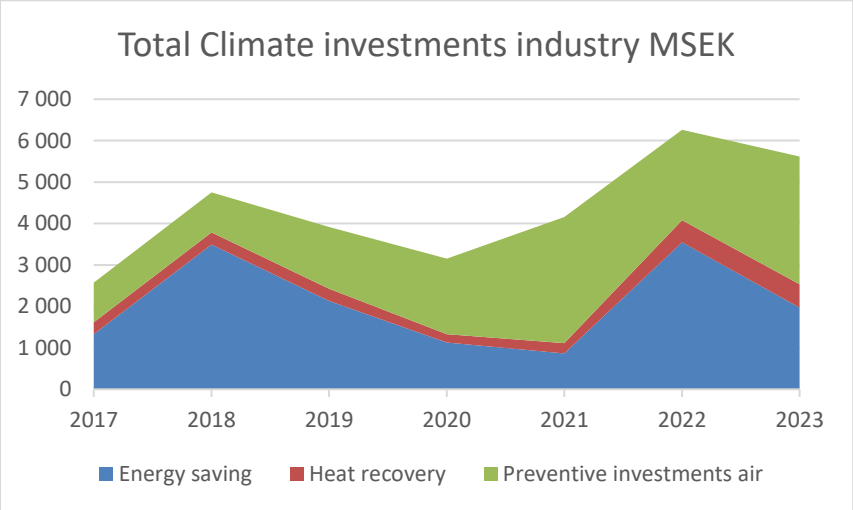
We took a deeper look into the text information to see what types of investments that were included in the prevention of emissions to air category. As we had hoped, the types listed concern such investments that could be seen as climate investments, such as systems to change to biofuels or to changes to electric vehicles. For the treatment category it could be better measuring systems, filters, higher chimneys which should be excludes from climate investments. Below in Figure 4, it can be seen how the investments for preventing emissions to air have increased three times since 2017, in 2023 being at 3 billion SEK, around 0, 3 billion Euro.

Figure 4. The investments for emissions to air industry in Sweden 2017-2023.



In a further step we add the preliminary data from the two voluntary categories of energy savings and heat recovery from the environmental protection survey. The result show that the amount of environmental protection investments from the industry has increased to almost the double (Figure 5). Around 38% of the companies that answered the obligatory part of the environmental protection survey has answered the voluntary categories, and we have not compensated for those not reporting. This should be taken into consideration when evaluating the quality of these data.

Figure 5. Environmental investments, category ‘air’, adding the voluntary parts concerned with energy savings and heat recovery.



In figure 5 we see the result of industries investing in for example renewable energy, in electric chargers for the car fleet and in processes that will decrease the energy use.

Other statistics that can be used to estimate climate investments is the Environmentally motivated subsidies and similar transfers. Looking at the climate issue from the state budget angle, covering subsidies to industry, households and public sector, we can identify which subsidies that are relevant for climate mitigation.

Environmentally motivated subsidies decreased in 2024 compared to 2023. For 2024 these subsidies amounted to 20.9 billion SEK; an 18 percent decrease from 2023. Environmental subsidies as share of GDP decreased as well, to a share of 0.3 percent of GDP.

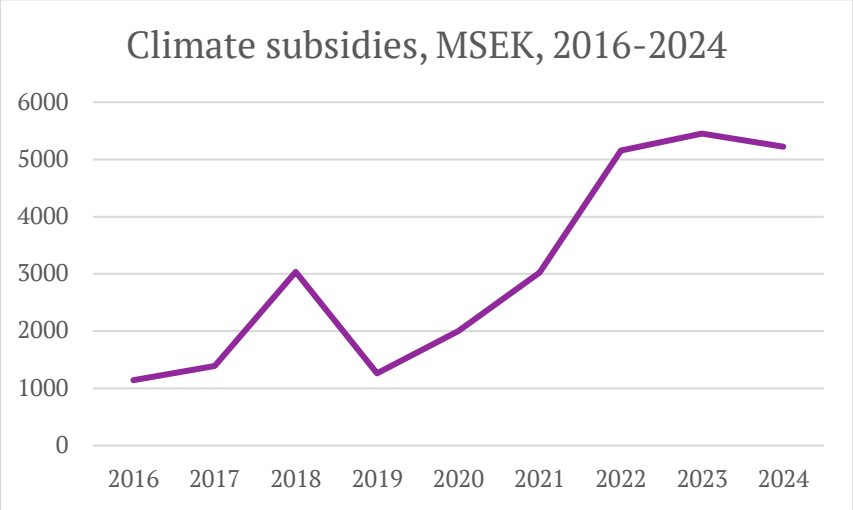
Environmentally motivated subsidies, covering transactions contributing to reduced climate and other environmental impacts as well as more efficient natural resource use, was 20.9 billion SEK in 2024. This is a decrease by 4.7 billion SEK compared to 2023. The subsidies cover four areas: emission-reducing subsidies, energy-related subsidies, environmentally related aid and international cooperation, and resource-related subsidies.

The decrease in 2024 was mainly due to decreased transactions for emission reduction, from 12.1 to 7 billion SEK. This decrease derives from the bonus for low-emission vehicles subsidies and amounted to 4.5 billion SEK. The bonus for low-emission vehicles has been given for

new cars with low impact on the environment since 2019, administered by the Swedish Transport Agency, but is now phased out.

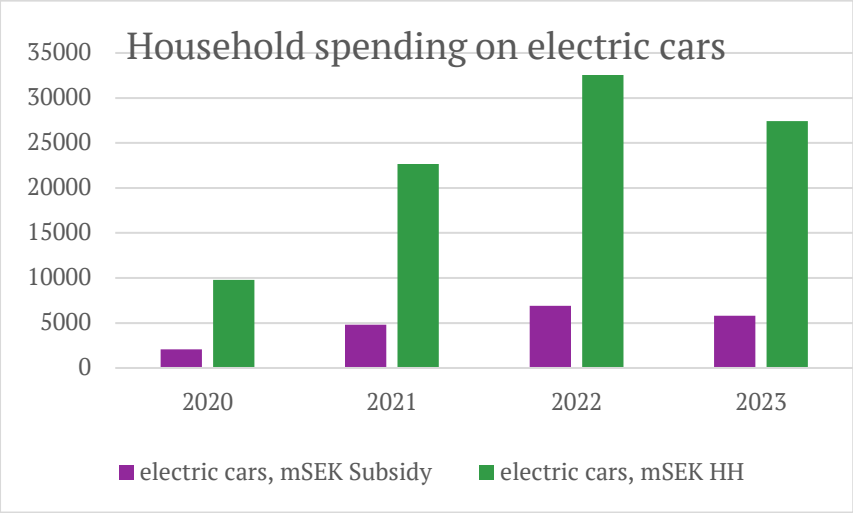
We have gone through the list of subsidies and found 22 that clearly had a climate related goal among the energy and emissions-related subsidies: biofuels, energy efficiency measures in industry, in multi-residential housing, energy planning, solar cells and energy batteries and storage. These subsidies are for industry (Figure 6) and amount to 5225 million SEK in 2024.

Figure 6. Total Climate motivated subsidies to industries, million SEK, 2016-2024



To arrive at an estimate for the investments in electric vehicles and solar panels for households, we use the supporting subsidies to households as a measure of the numbers sold. The subsidy part is then allocated as public spending whilst the extra costs for the households are allocated as household spending.

Figure 7. Total investments in household electric cars, million SEK, 2000 – 2024



Summary

The environmental accounts provide preliminary evidence for climate investments that are of the size of 6 billion SEK (0,6 billion Euros), for the industry.

The Swedish Environmental Subsidies for industry, households and public sector amounted to 20 billion SEK, of which 5,2 billion to climate.

For households' own investments, the investments in electric cars are estimated on the basis of the subsidies paid as 33 billion SEK.

There are risks of double counting as we are trying to cover the approximate size by comparing various sources. There is also a risk of not covering all the types of climate relevant investments, as there are initiatives such as wind farms and other measures that are not in need of subsidies. A prognosis from Swedish wind energy suggests that 140 billion SEK will be invested between 2020-2026, by listing projects for 35 TWh that are ongoing[1]. If that is correct and assuming for the sake of calculation it would be ok to level it over the years, that would mean 70 billion SEK per year that would not be seen in the current environmental accounts data. Total climate investments add up to preliminary 114 billion SEK, Swedish GDP in 2024 was 6380 billion SEK giving climate investments estimates around 1,7 percent of GDP.

[1] 140 miljarder i vindkraftsinvesteringar 2020–2026 ger 35 TWh ny elproduktion - Svensk Vindenergi