

ESG Economist

Group Economics | 15 January 2025

High decarbonisation pressure EU energy-intensive industry

Sustainability Monitor Manufacturing – Q1 2025

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- **The pace of emission reductions in the EU-27 is far below of what is minimally needed to reach the 2030 target**
- **In the industrial sectors where it is relatively difficult to reduce emissions, collectively account for about 23% of total EU-27 GHG emissions**
- **There are potential significant emission reductions to be had by decarbonising these sectors**
- **With various initiatives and policies, coal and oil combustion have decreased substantially since 1990, but the level of gas consumption by industry is still relatively high**
- **At the current emission reduction rate of EU-27 industry, the 55% climate target in 2030 will not be met with a 9% gap, while a target consistent with a 1.5 degree carbon budget – with a gap at 36% – is far out of reach**

The climate and energy crises have highlighted the growing importance of monitoring sustainability in industry. It is therefore essential to follow the impact of all climate measures taken by industrial companies, in particular their impact on energy consumption and greenhouse gas emissions in the sector. This quarterly monitor provides a comprehensive overview of the sustainability performance of the industry, based on a detailed analysis of various sustainability indicators. It enables us to map sustainable industry trends and developments on a quarterly basis.

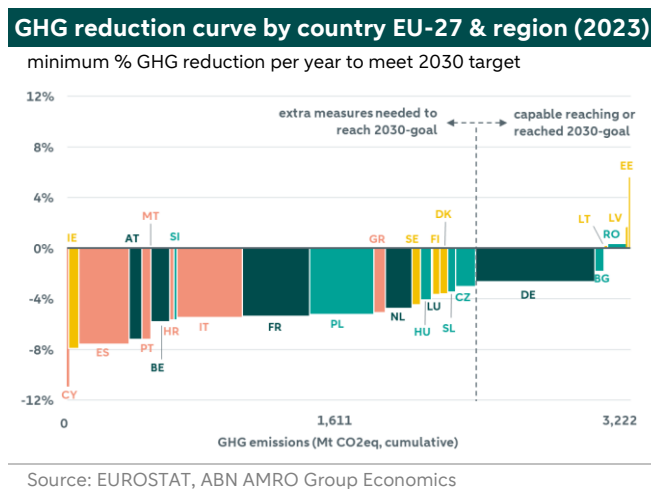
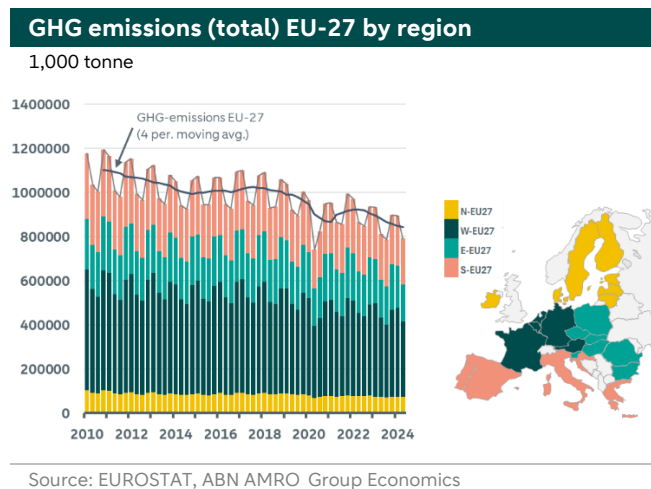
In this *Sustainability Monitor Manufacturing* (1st quarter 2025), we look at greenhouse gas emissions in EU countries. In particular, we look at trends in both total greenhouse gases and those of industrial sectors in the EU-27. We also look at the industrial sectors where GHG emissions are difficult to reduce and where the decarbonisation process is a lot more complex. These sectors together are also referred to as the 'hard-to-abate' sectors (abbreviated as 'H-2-A' in the remainder of this analysis). Many companies in these sectors are covered by the *EU Emissions Trading System* (ETS). Here, we make a comparison between EU countries by region. We also look at the trend in fossil fuel consumption in H-2-A industries and the climate goals going forward.

Emissions EU-27

Greenhouse gas emissions in the European Union (EU) decreased by 22% between 2010 and 2023, or 1.7% per year. In the period 2017 to 2023 (the post-Paris period), the average annual reduction increased slightly to 2.3% per year. To get to the 55% below 1990 GHG levels targeted for 2030, the 27 EU countries need to reduce their respective greenhouse gases by about 5% per year on average. So on balance, the pace for the EU-27 as a whole is well below the minimum necessary to reach the 2030 target. The bulk in greenhouse gas emissions are located in Western Europe (44% share), followed by the South (26%) and East (21%).

A relevant period to look at is the emission reduction trend between 2017 to 2023. This is the period after the Paris Agreement comes into force. A comparison with the period 2010 to 2017 provides insight into the impact of additional climate action. The good news is that in all regions, emissions reductions have picked up pace sharply: from an average of 1.1% per year in the 2010-2017 period to an average of 2.3% per year in the 2017-2023 period. In the Northern and Western Europe regions, the annual average emission reduction rate is almost one percentage point higher than the trend in Southern and Eastern Europe.

The greenhouse gas reduction curve - see right figure below - plots all 27 EU countries according to their total amount of greenhouse gases (this can be seen by the width of each column on the horizontal axis) and their respective minimum percentage of emission reduction needed to meet the 2030 target (vertical axis).



In the EU, six countries out of 27 are on track and capable of eventually reaching the 2030 target (see right side of the curve). This is based on the trend in emission reductions in the post-Paris period (2017-2023). In total, these six countries account for 28% of total EU-27 GHG emissions. Among the remaining 21 countries, a large decarbonisation challenge remains, with countries in southern Europe in particular lagging behind. Among these countries, the pace of emission reductions in the post-Paris period is too slow to meet the 2030 target.

The curve shows two extreme outliers: one very positive and one very negative. Cyprus is on the far left of the curve and needs to reduce greenhouse gases by about 11% a year on average. This is an impossible task since in the post-Paris period this country saw its emissions increase by an average of 2% a year. At the other end of the spectrum is Estonia. This country has already met the 2030 target and therefore does not need to take any additional climate action to do so (as have Latvia, Romania and Lithuania).

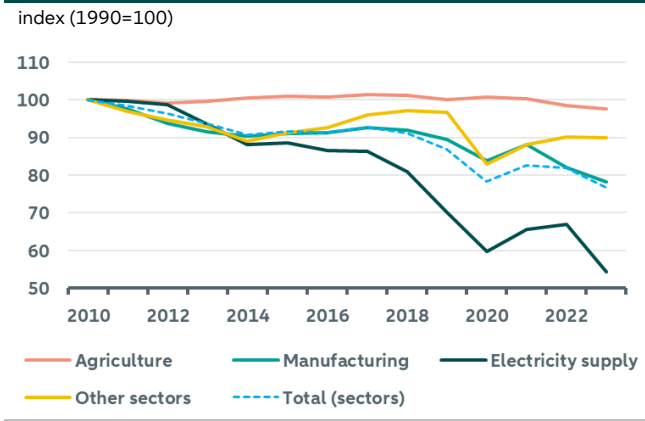
The EU has shown global leadership in tackling climate change in recent years. To this end, it has launched several initiatives. However, the impact of climate action on greenhouse gas emissions, needs to be constantly monitored to ensure that the EU is on the right track with its climate course. Decarbonising energy supply has been at the heart of the EU approach for several years. Broadly speaking, EU energy policy aims to achieve energy security, a fully integrated European energy market, increases in energy efficiency and decarbonisation.

To further reduce greenhouse gas emissions, the EU has developed several policy instruments. The best-known example is the *Emissions Trading System* (ETS) launched in 2005 by the EU. Under this system, energy and carbon-intensive sectors (such as in industry and energy supply) are required to buy carbon emission allowances when they exceed a specific carbon emissions limit. Large companies and emitters in industry and energy supply are covered by this system. The system has a positive impact on emission reductions in these sectors. As can be seen in the left figure below, emissions in industry and energy supply have fallen much more sharply in recent years than in agriculture and other sectors, where the ETS is not (yet) active. Besides ETS, the strong growth in the share of renewable energy in the energy mix and the increase in the deployment of low-carbon technologies have also contributed to the decline in greenhouse gas emissions in Europe. In EU-27 energy supply and industry, total GHG emissions have decreased by 46% and 22% respectively since 2010. In the remaining sectors (including agriculture), this is only 6%.

When a link is visible between an increase in industrial output and a decrease in industrial GHG emissions on the longer term, this can indicate a decoupling trend. This is positive, since an increase in activity does not lead to additional emissions, but rather a emissions reduction. Breaking the coupling between the two altogether is important to ultimately meet climate targets. The decoupling between output and GHG emissions is visible in the EU-27, as shown in the right-hand figure below.

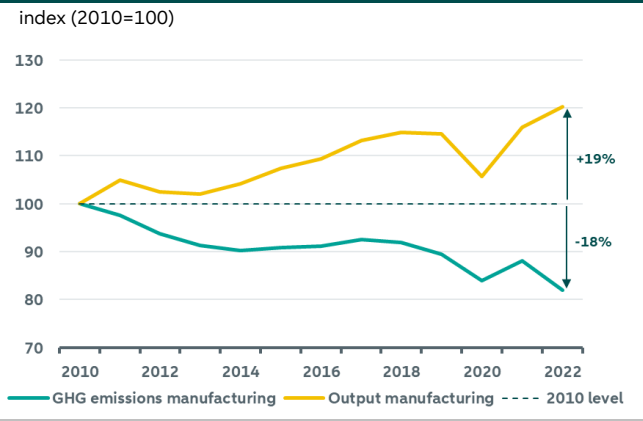
While industrial output has increased by 19% in the EU-27 since 2010, this has been accompanied by lower industrial greenhouse gas emissions. These emissions have decreased by 18% in the EU-27 since 2010. This decoupling trend can be observed in all regions, but the pace varies considerably. In the regions of eastern and western Europe, the

GHG emissions (total) EU-27 by sector



Source: EUROSTAT, ABN AMRO Group Economics

GHG emissions vs output manufacturing EU-27



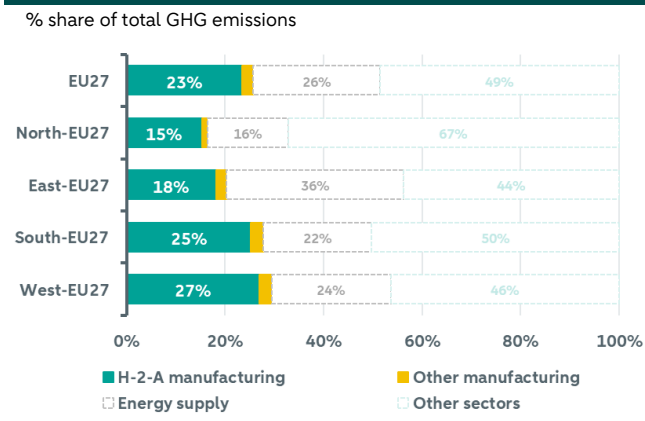
Source: EUROSTAT, ABN AMRO Group Economics

decline in greenhouse gases is below the EU-27 average, while in northern and southern Europe the pace is higher. On the other hand, northern and eastern Europe show a much stronger increase in industrial output since 2010 of 3.8% per year, compared to only 0.9% per year in southern and western Europe.

Manufacturing EU-27

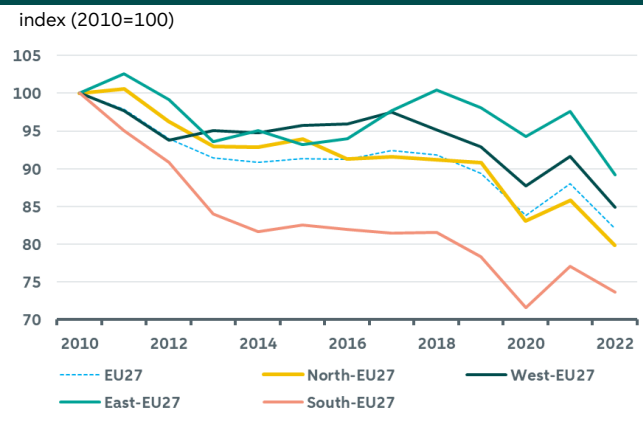
Industrial sectors, such as the building materials industry (including the cement industry), the base metal industry (including the steel industry), the paper industry, the food industry and the chemicals industry, play an important role in meeting EU climate targets. Because decarbonisation is particularly complex in these five industrial sectors, they are collectively referred to as the hard-to-abate sectors (or H-2-A sectors for short). The difficulty is mainly reflected by a combination of the technological complexity of business processes, high capital intensity and long investment cycles in these subsectors. Together, the H-2-A sectors account for some 23% of total greenhouse gas emissions in the EU-27.

Share of H-2-A manufacturing by region EU-27



Source: EUROSTAT, ABN AMRO Group Economics

GHG trend H-2-A manufacturing by EU-27 region



Source: EUROSTAT, ABN AMRO Group Economics

In decarbonising these H-2-A sectors, significant emission reductions can materialise. This means for example that decarbonisation technologies must be deployed on a larger scale. However, this requires hefty investments. This is an additional challenge for many companies in the H-2-A sectors because margins are already relatively low. This means that the chance is high that profitability is often not sufficient to make the transition to low-carbon processes. It also requires a stronger expansion of network capacity for further electrification, but this trajectory too has its challenges. Furthermore, the changing geopolitical context is also an issue (with e.g. shocks on the supply side of raw materials). This has the potential to put a brake on the energy transition.

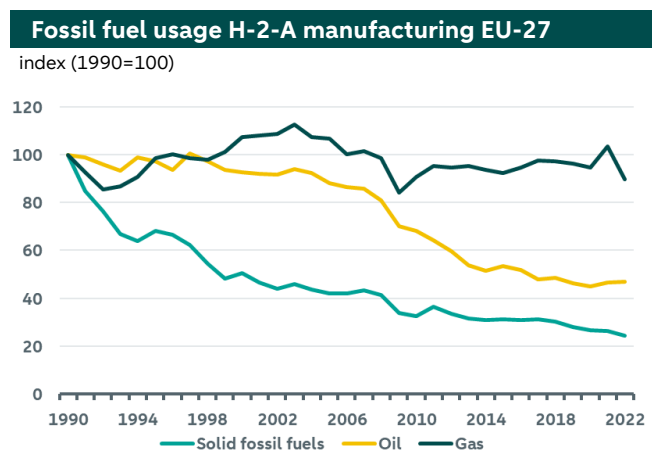
But despite all the challenges, greenhouse gas emissions from the H-2-A sectors have continued to decline in recent years. All regions in the EU-27 show a decreasing trend in emissions, with the decrease in GHG emissions in the southern EU-27 standing out most positively. In particular, in the major economies of Italy and Spain, GHG emissions from H-2-A industrial sectors have declined sharply (by 35% and 20% respectively since 2010). In Italy, this decrease is due to a combination of a series of climate policies and because many large companies in the H-2-A sectors are covered by the ETS system. But the decrease in emissions is also due to moderate GDP growth since 2010, which

reduced economic activity sharply. In the Spanish industrial sector, emissions come mainly from burning fossil fuels to produce heat for industrial processes such as making paper, cement or steel. The much stronger increase of renewable energy in the energy mix places Spain among the renewable leaders. But stringent climate policies have also reduced Spain's greenhouse gas emissions. The other regions (north, west and east) hover around or above the EU27 average, with eastern EU27 being the negative outlier. Especially in Poland, coal burning still has a relatively high share in the energy mix.

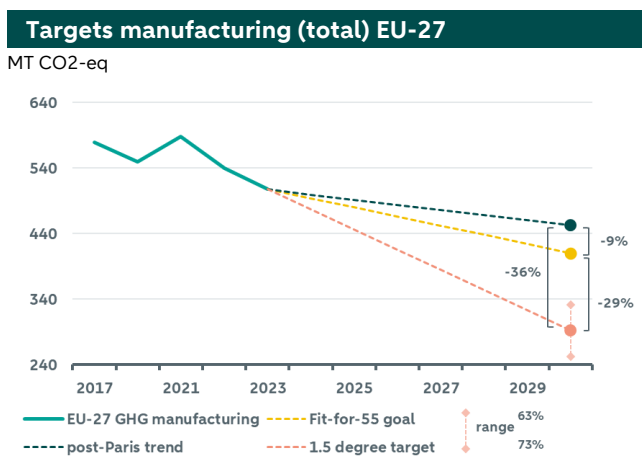
Fossil usage and targets manufacturing EU-27

Combustion of coal and oil has decreased significantly in the EU's H-2-A industry since 1990. Industrial consumption of solid fossil fuels (such as coal) has decreased by 75% since 1990 and oil consumption by 53%. Gas consumption has shown a more erratic pattern over the past 30 years, averaging a similar level to 1990 in the last few years. In 2023, industrial gas consumption is only 10% below 1990 levels.

To achieve the EU's climate goals, the EU has several instruments available to reduce fossil consumption. The main instrument of these is a strengthening and expansion of the EU Emissions Trading Scheme. For energy supply and energy-intensive industry, ETS-I has been in place since 2005. ETS-I covers more than 11,000 installations in Europe and collectively accounts for about 45% of European greenhouse gas emissions. With the introduction of ETS-II, emissions from the remaining sectors (small industry, built environment and transport) will also be regulated. ETS-II will have a gradual implementation with emissions reporting and emissions monitoring from 2025. The first compliance year will be 2027. The ETS-II target is to reduce emissions from the remaining (non-ETS-I) sectors by 42% from 2005 levels by 2030.



Source: EUROSTAT, ABN AMRO Group Economics



Source: EDGAR, Climate Analytics, ABN AMRO Group Economics

All the low-carbon technological advances and the EU's more stringent climate policies in recent years have brought progress in Europe, but on balance it is still not enough. Indeed, the pace in emission reductions is still too slow to meet climate targets, which keeps the decarbonisation pressure on elevated levels. Based on the trend in emission reductions in the post-Paris period (2017-2023) from industry (EU-27), the 55% climate target in 2030 will not be met with a 9% gap. Moreover, it has been globally agreed to stay within a certain carbon budget aligned with a pathway to stay below 2°C degree above pre-industrial levels and to make efforts to limit temperature rise to 1.5°C above pre-industrial levels. How to distribute this budget to countries is part of a complex political debate that is still ongoing. According to an analysis by *Climate Analytics*, the 1.5-degree Celsius path corresponds with an EU emission reduction of 63%-73% compared to 1990 levels. This puts the gap between this 1.5-degree target and the range based on the trend in emission reductions in the post-Paris period even further out of reach at 36%. Moreover, the concept of a carbon budget clearly shows that GHG emissions need to be reduced much faster. Continuing to wait for better low-carbon technologies in the future will deplete the carbon budget faster.

Our next Dutch Industry Sustainability Monitor will be published in April 2025

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