

ESG Economist

Group Economics | 1 October 2024

Sharp rise in fossil energy consumption in Dutch industry

Sustainability Monitor Dutch Manufacturing – Q3 2024

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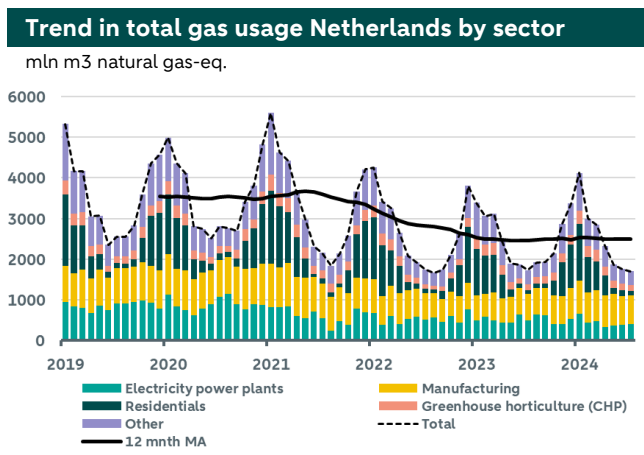
- In Dutch industry, total gas consumption increased by 18% year-on-year in the first seven months of 2024; coal consumption also climbed sharply in the same period
- Especially in the petroleum industry, chemical industry and paper industry, gas consumption rose significantly in the first seven months by 56%, 21% and 13% year-on-year, respectively
- With the sharp expansion in industrial (fossil) energy consumption, industrial GHG emissions also increased
- Our GHG tracker shows an uplift in industrial GHG emissions in the first seven months of 2024 of 5% year-on-year

The climate and energy crises have increased the importance of measuring sustainability in industry. Thereby, it has become more paramount to closely monitor the impact of all kinds of climate policies, but also measures taken by industrial companies. In particular, their impact on final energy consumption and ultimately greenhouse gas emissions in the sector. With this monitor, we track the sustainable development in the Dutch industry. We do this by monitoring each quarter various available sustainability indicators and chart the most relevant sustainable industry trends and developments.

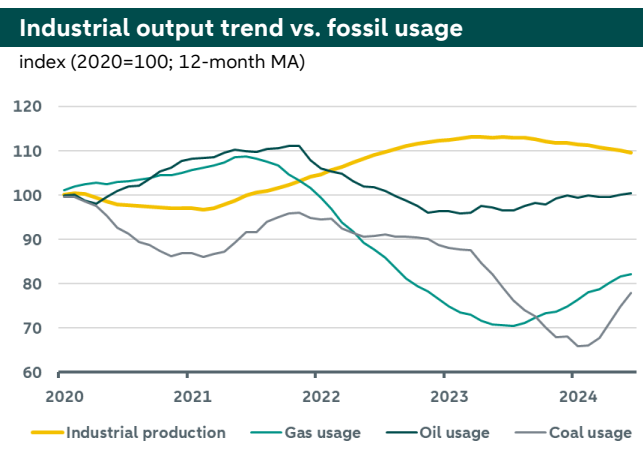
In this edition of our *Dutch Industry Sustainability Monitor (Q3)*, we look at trends in fossil energy consumption in the sector. In particular, we look at the trends in gas consumption of the industrial sectors that consume the most. Finally, we show where industrial GHG emissions take place in the value chain and what our expectations are for GHG emissions for the coming quarter.

Gas usage Netherlands and manufacturing

The Netherlands has four sectors that are dominant in total gas consumption. Of these four, industry is the largest consumer. This sector has a 28% share in total gas consumption in the Netherlands.



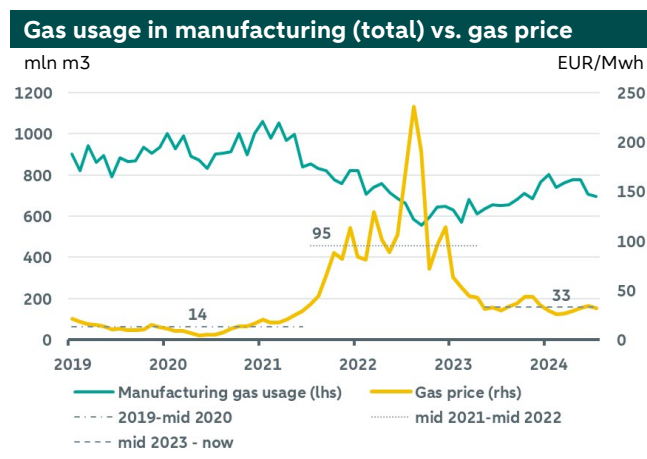
Source: CBS, ABN AMRO Group Economics



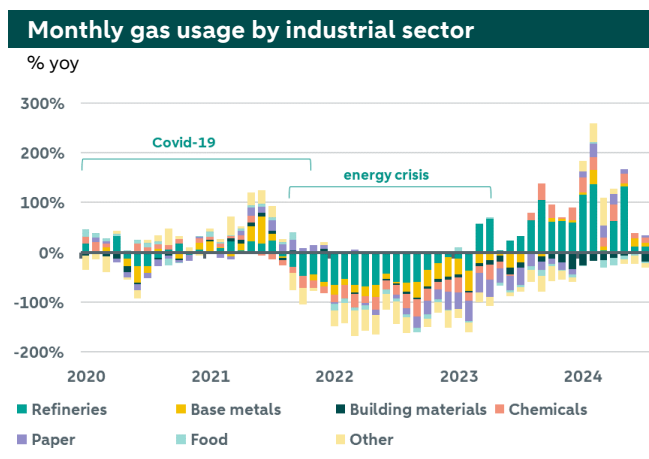
Source: CBS, ABN AMRO Group Economics

The consumption of gas in dwellings in the Netherlands has the largest share after industry at 22%, followed by power plants and greenhouse horticulture with both having a 21% share. Since 2000, total gas consumption has been on a downward trend. Last year, total gas consumption dropped by 5%. Consumption decreased in both industry, power plants and the built environment, while in greenhouse horticulture, however, gas consumption rose by 12%. In 2024, the trend tilts. Over the first seven months of 2024, total gas consumption increased by 1% year-on-year. While gas consumption at power plants decreased by 14% over the same period and in built environment by around 2%, gas consumption in industry and greenhouse horticulture expanded by 18% and 6% respectively. In particular, gas consumption rose strongly in the oil, chemical and paper industries. The lower gas price in this period prompted many companies in industry to increase gas consumption.

The gas price surged to historical highs to a peak in the third quarter of 2022. Many industries rationalised their gas consumption accordingly, because continuing to consume gas was no longer economically viable. All kinds of measures were taken by companies, to avoid using gas as much as possible. Efficiency measures, electrification (such as heat pumps and electric boilers) and fuel substitution (in particular, more use of petroleum products) made it possible to reduce gas consumption in the short term. In some instances, however, production lines had to be temporarily or even completely shut down. After the initial shock in energy markets from the war in Ukraine and the recovery of gas stocks, gas prices moved back down to more acceptable levels in early 2023. But despite the market recovery, the gas price today is still on average more than 100% above the average gas price before the energy crisis. On balance, the energy crisis triggered a sharp decline in fossil energy consumption.



Source: CBS, ABN AMRO Group Economics



Source: CBS, ABN AMRO Group Economics

In Dutch industry, six subsectors are dominant in terms of gas consumption volumes. These are the food industry, paper industry, chemical industry, petroleum industry (oil refineries), building materials industry and base metals industry. Together, these six sectors account for 85-90% of total industrial gas consumption. The chemical industry accounts for more than half of gas consumption, followed by the food industry at 15% and then the petroleum industry (13%).

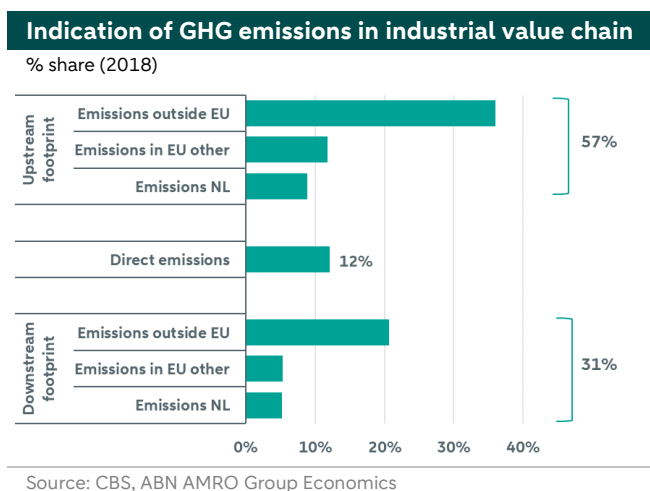
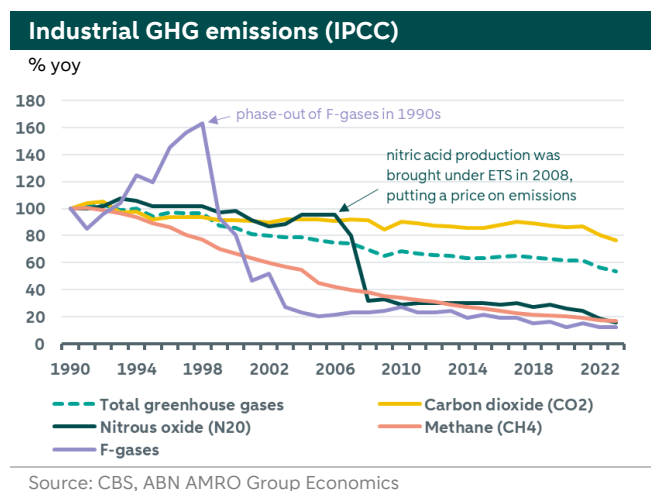
In the oil industry, much gas is consumed in refining and petrochemical processes. Gas consumption increased significantly in the first seven months year-on-year, by 56%. For the oil industry, it is preferable to maximise the use of natural gas because it usually provides a higher margin and relatively lower carbon emissions. In the chemical industry, consumption also increased sharply by 21% over the same period, while the paper industry realised a 13% increase in gas consumption. In the other sectors, gas consumption decreased. The sharp increase in gas consumption while industrial production shows a slight downward trend may indicate that carbon efficiency has again declined slightly. For now, however, fossil energy consumption is still much lower than before the energy crisis, while production levels have declined only slightly.

Industrial GHG emissions

Lower gas consumption in industrial sectors has partly contributed to greenhouse gas reductions. In the post-Paris period (2017-2023), greenhouse gas emissions in total industry decreased by 13%, while industrial gas consumption fell by around 23% over the same period. With the reduction of gas in the production process, the use of other fuels often increased to maintain production levels. The fact that when reducing gas consumption, the non-fossil option (such as electrification) could often not be chosen directly has contributed to the rate of emission reduction being

slower than the rate of reduction in gas consumption. Other and additional measures are needed to accelerate GHG reductions.

Greenhouse gas emissions from the IPCC climate sector industry - which includes more sectors than solely manufacturing - decreased by 46% from 1990 to 2023. While carbon dioxide (CO₂) emissions fell by only 24% over the same period, emissions of nitrous oxide (N₂O), methane (CH₄) and F-gases dropped by an average of 85% since 1990. Underlying the sharp decline in these last three greenhouse gases were driven by stricter government policies. For instance, the use of F-gases - as coolants in plants and aerosols - were phased out more rapidly since the 1990s. The sharp decline in nitrous oxide emissions was mainly due to nitric acid production - for making fertilisers - being brought under the European Emissions Trading Scheme (ETS) in 2008. Both policy measures caused a relatively swift drop in emissions after implementation of the measure.



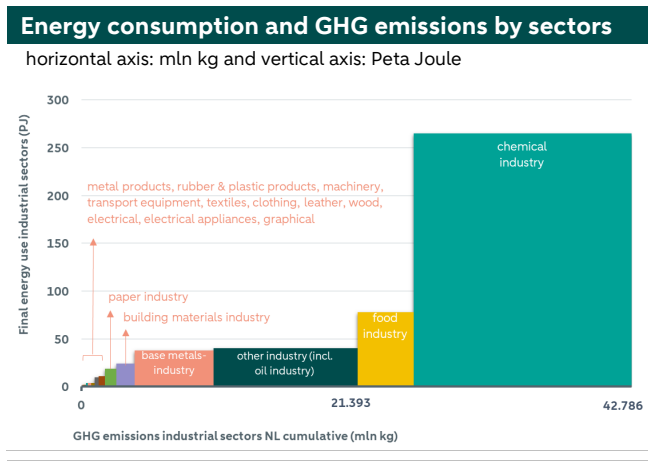
The issue about reducing greenhouse gases in industry is of a very different nature from the same issue for the built environment, mobility or the agricultural sector. This is because industry operates much more than other sectors in an international environment. With this international orientation, many parts of the industrial value chain are integrated with global stakeholders, conglomerates and markets.

The Dutch Statistics Bureau (CBS) released a publication recently (April 2024) on the upstream and downstream production footprint of Dutch industries for greenhouse gases in. The report outlines the international context in which Dutch sectors act with their business activities. The figure on the right above provides insight into the international GHG footprint of Dutch industry. It shows that value chain emissions account for about 90% of the total carbon footprint of industrial companies. This is mainly because in recent decades, the trend towards greater specialisation and outsourcing of non-core activities has led to a greater increase in upstream and downstream activities with suppliers and customers (the scope 3 emissions). The food industry has by far the largest upstream manufacturing footprint at 69% and the rubber and plastic products industry the largest downstream manufacturing footprint at 46%, closely followed by the machinery industry at 45%. The base metals industry has the largest production footprint with direct emissions (39%), followed by the building materials industry at 27%.

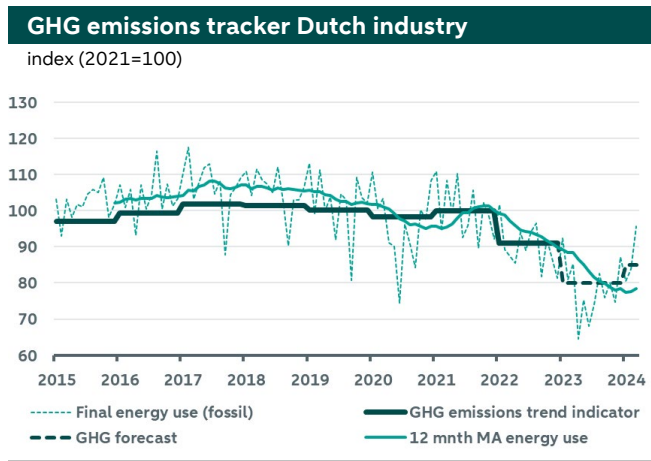
The above right-hand figure is only an indication as the figures refer to 2018. With the corona pandemic, the energy crisis and the economic sanctions imposed on Russia, the proportions in the total production footprint will surely be different today, but the general proportions remain partly intact. The *Corporate Sustainability Reporting Directive* (CSRD) will eventually make the value chain GHG emissions more transparent. Indeed, the CSRD directive requires large companies to report (from 2024 onwards) on the impact of business activities on the environment (such as CO₂ emissions and water use). In addition, the directive also requires companies to map social and governance aspects of business operations. These include the conditions of their own employees, gender distribution, anti-corruption policy, but also, for example, animal welfare. This sustainability reporting will eventually provide more insight into the environmental impact throughout the entire value chain of companies. The report will map not only the sustainability impact and direct emissions of large companies, but also scope 3 emissions. This is because the CSRD directive requires large companies to also request information from their suppliers and clients on their carbon footprint. The directive is going to help accelerate the emission reduction path across the value chain.

Dutch Industrial GHG tracker

There is a strong correlation between industrial (fossil) energy consumption and greenhouse gas emissions in industry. Both figures below show this. The left figure shows the heavyweights in industry in terms of final energy consumption (vertical axis) and greenhouse gas emissions (horizontal axis). The largest block is accounted for by the chemical industry. This sector towers over any other industrial sector in terms of final energy consumption. The amount of energy consumption in this sector goes hand-in-hand with a substantial share of total greenhouse gas emissions (see width of column). Other sectors are more or less dwarfed compared to the chemical sector. In terms of greenhouse gas emissions, three sectors also have a relatively large share: other industries (in which the petroleum industry in particular has a large share), the basic metal industry (in particular the steel industry is mainly responsible here) and the food industry. All other sectors have a much smaller share on these aggregates.



Source: CBS, ABN AMRO Group Economics



Source: CBS, ABN AMRO Group Economics

Note: Industry GHG emissions figures via National Accounts run through 2022; the tracker above provides an expectation of the trend in GHG emissions over 2023 and 2024

The Dutch Statistics Bureau (CBS) recently published the new emissions figures for the second quarter of 2024. These showed that industry emitted 4% more greenhouse gases compared to the same quarter a year ago. This was because, on balance, industry consumed more coal and more natural gas, while oil consumption fell. Here, however, the figures are, compiled in line with IPCC guidelines. The IPCC has defined industry slightly more broadly. In the IPCC, 'industry' is a sum of greenhouse gas emissions from construction, manufacturing and energy-related industries (refineries, coking plants, oil and gas extraction, water companies and waste management). In the National Accounts, a more specific analysis can be made on industry, as they present isolated figures. Therefore, we use these figures for our industry GHG tracker. This tracker shows the strong link between final energy consumption and GHG emissions.

Our GHG tracker identifies an increase in industry emissions in the first seven months of 2024 of around 5% year-on-year. This is mainly due to a stronger rise in fossil fuels in final energy consumption. Consumption of coal, coke oven coke and especially gas increased. In particular, coal consumption increased more sharply in the second quarter, while gas consumption increased the most in the first quarter. This increase puts the 2030 target (GHG emissions 55% below 1990 levels) for industry further out of reach. But despite this increase in GHG emissions, the level is still well below the 2021 level, so there is no immediate need to sound alarm bells. The pace of transition in the industry will remain slow going forward, because the industry is home to many hard-to-abate sectors. The main cause of the slow progress in the transition can be found in the limited grid capacity and its slow expansion, the lack of qualified personnel, transparent sustainable government policies and financing challenges. However, the emission reduction potential of low-carbon technologies can be high, once existing barriers are removed or lowered.

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

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