



THE IMPACT OF COVID-19 ON CO2 EMISSIONS: CRASH AND RECOVERY

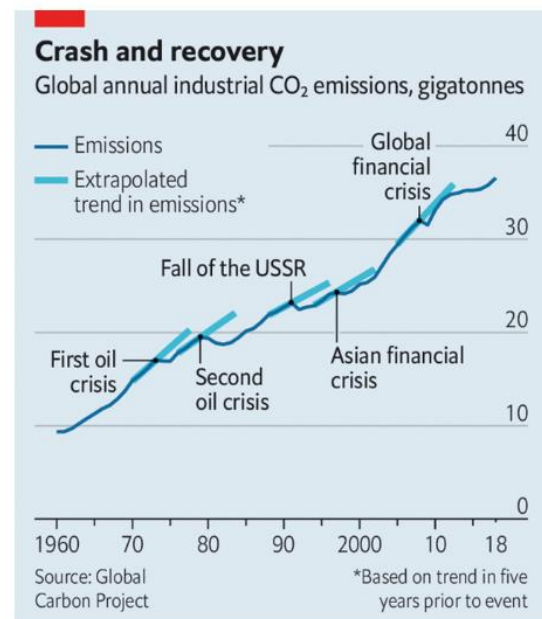
Where we left...

The predictions on the impact of COVID-19 on greenhouse gas emissions in [our article](#) published at the end of April were made after the country was in a partial lockdown for a month. In this article, we review our earlier predictions with recent published official CO₂ emissions numbers by the Central bureau of Statistics Netherlands (CBS). We provide new predictions for CO₂ emissions while COVID-19 measures are being lifted, and we compare it to the carbon agenda in the Netherlands.

At the end of June, [CBS published](#) that in Q1 of 2020, CO₂ emissions were 7.5% lower compared to Q1 of 2019, even when corrected for weather effects. If we assume that the majority of these emission reductions are a result of the COVID-19 measures, we could appoint this reduction to the second part of March, when COVID-19 measures took effect. Accordingly, CO₂ emissions in this period, based on CBS data, were reduced with 45%. Our research only took into account the three sectors (Industry, Transport and Energy) that contribute 75% to CO₂ emissions in the Netherlands. Calculating back from the data, this comes down to a decrease of 33%-34% of CO₂ emissions due to the reduced activity in these sectors, which is well in line with our prediction of reduced CO₂ emissions between 25%-39%.

'Crash and recovery'

Now that COVID-19 restrictions are loosened and the economy is restarting, it is unclear whether the CO₂ reductions we saw during the period of stringent measures will last. As discussed in our previous article, many of the emission dips in history were temporary, as the Economist has illustrated.

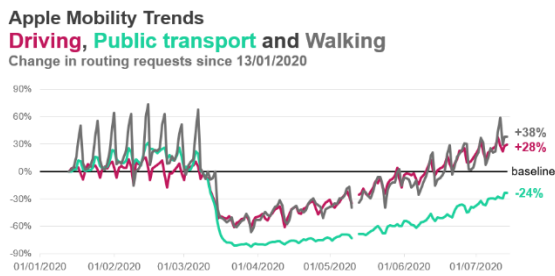


The Economist

In this article, we focus again on transport, electricity and industry as pillars to establish what the recovery effect so far has been. These sectors combined are responsible for 75% of the Dutch CO₂ emissions. We will elaborate on the impact of lifting COVID-19 measures in the transport, industry and electricity sectors first, after which we will discuss the impacts on the climate agenda in the Netherlands.

Transport

Despite the normalized working from home policy, the amount of travel has gone up significantly; car travel has already surpassed the level from before the crisis. This may partially be explained by people that are shunning public transport and instead use their cars. As a result, public transport movements are still significantly lower than before the crisis. This inevitably leads to higher CO₂ emissions from cars in the transport sector, as public transport generally is more carbon efficient than automobiles. Data for May 11-12 is not available and will appear as blank columns in the data set.

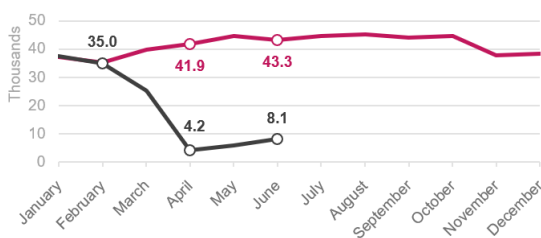


Source: Apple mobility trends report (2020)

Recovery of aviation is also noticeable, albeit considerably slower. The curve in mobility is almost V-shaped as shown above, compared to an L-shape for aviation. The number of flights is increasing steadily, but at a much lower rate than other forms of transport. Late spring and summer traditionally are the highest points of air traffic, but the current activity is still well below 20% of the ordinary figure. This can be well explained by the reduced tendency to travel via air, due to risks related to travelling via planes in times of COVID-19. As aviation is highly polluting, this has far-reaching consequences for CO₂ emissions. While it is expected air traffic will gradually increase again, many predict it will never recover to pre-COVID-19 levels, both in the number of flights as well as its experience.

Schiphol Air Transport movements 2019 and 2020

All landings and take-offs of aircrafts, in thousands



Source: Schiphol transport and traffic figures (2020)

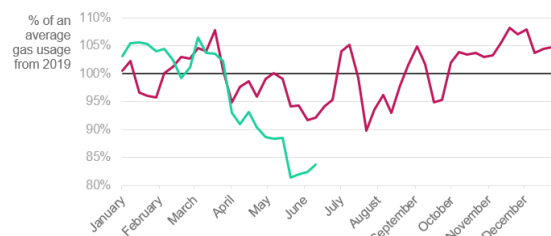
Industry

The trend in the below figure shows the gas usage of bulk consumers connected to the gas network of Gasunie Transport Services (GTS). From April onwards, gas usage has been significantly lower compared to last year. It is noticeable that a large share of the industrial gas use reduction can be attributed to reduced activity in the chemical industry (based on CBS data): in the analysed period of COVID-19, the gas usage was 14% lower than the year before.

While it seemed that industrial activity had only decreased slightly and remained largely unaffected by COVID-19, a noticeable drop in gas consumption can still be observed. This reduction seems to roughly correspond to the reduced economic output due to lower domestic demand and export.

Since June, however, gas consumption is on its way up again, as the last weeks show less difference in gas usage between 2019 and 2020 than the weeks in mid-May. However, as there was an increase in June 2019 as well, it is too soon to say whether this is a sign of an uptake.

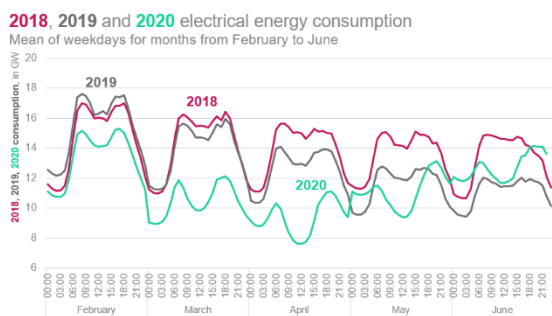
Gas usage by industry for weeks in 2019 and 2020
 Netherlands, comparison to an average use from 2019



Source: CBS gas usage by industry (2020)

Electricity

The chart below shows clearly how the average electricity load at different times of day has changed over recent months. During the first month of the (partial) quarantine, there was a significant drop. The last two months, however, the load has surpassed the levels seen in 2019, even when the data were corrected for temperature differences. From an economic perspective, this shows a hopeful message. This increase may be explained by fewer holidays abroad, more hours spent at home and/or increasing activity in the hospitality sector.



Source: ENTSO-E electrical energy consumption, normalized for temperature by Sia Partners Data Science practice (2020)

Overall, there are many indicators that CO₂ levels in the Netherlands are on its way up again, albeit in varying degrees depending on the sector.

Post-COVID emissions

As China was hit earlier by Corona and was the first country where a lockdown was introduced, its data on CO₂ emissions can be used as a test sample. In the first six weeks of the lockdown, emissions dropped by 25%. However, in May, when life restarted, monthly emissions were quickly rising again by 4-5% year-on-year. This shows a dire forecast for the world's climate ambitions, but most of the CO₂ increase in China can be attributed to construction and fossil fuel power generation. The Netherlands has been running on a higher share of renewables during Corona times than ever before, but it is unlikely that it will continue to do so in the short term, particularly as energy investments have been slowed down and the weather has normalised. The Dutch construction industry has already been hit by the crisis regarding nitrogen emissions and therefore was already halted even before Corona shut down much of the economy. Eventually, demand for housing is still high and inevitably these sectors will also have an additional impact on Dutch emissions. As it stands, no sectors have seen radical changes in their supply chains that could alter the amount of produced emissions. Therefore, a gradual increase of emissions, on par with levels of economic growth but potentially exacerbated by construction projects, can be expected.

Postponed CO₂ tax

The CO₂ tax was high on the climate agenda pre-COVID 19 and was scheduled to be operational from 2021. However, due to the economic hardship caused by the virus, large industrial players have successfully warned the government about the devastating effects of implementing the CO₂ tax during this time. The actual economic impact on industry is contested, as Tata Steel indeed is reporting lower income, but other large parties' like Dow and Yara Sluiskil are unaffected. This has sparked objections from environmental NGOs that the government has used COVID-19 to avoid climate obligations. Despite objections of environmental NGOs, the government has *de facto* suspended the CO₂ tax until at least 2024. Formally the tax entered into force, but virtually no extra emission rights have to be purchased. Surprisingly, BP and Shell are large industrial players that were not against implementing the CO₂ tax right now. The objective of reducing industrial emissions by 60% by 2030, interestingly, is maintained. According to the interests group of the industrial sector, this would guarantee that sustainable investments will not be shunned because of this measure.

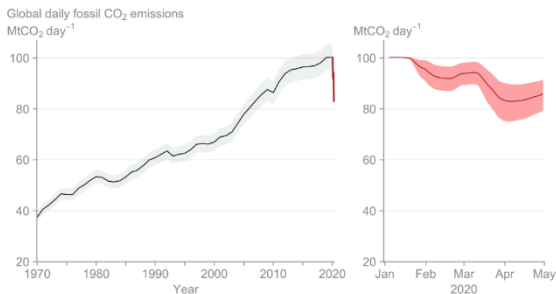
'One COVID-19 per year' to reach climate targets

While it is generally expected that CO₂ emissions from the energy sector will go up when demand catches up, some remarkable changes can be observed that may alter the carbon footprint of the recovery trajectory. The International Energy Agency (IEA) observes a 20% drop in global energy investments (compared to the 2% growth that was projected), mainly caused by investment cuts in the oil & gas industry. The green energy industry has seen a comparatively smaller decrease in investments because of political commitments to decarbonisation. Secondary green energy, like hydrogen, is one of the heavier affected niches.

There are increasing calls by the public, NGOs and the Dutch population to prioritize sustainability in the recovery from COVID-19. It is expected that global emissions are 7% lower in 2020 than in a business-as-usual scenario.

However, to keep global warming below 1.5°C as agreed in Paris in 2015, global emissions will have [to decrease at least by that percentage annually](#) through 2030. As emissions are increasing again by major emitters like China, and with European governments postponing some of their climate ambitions to prioritize the economy, it is unlikely that a “green recovery” from COVID-19 is on its way.

Historically, all dips in carbon emissions were temporary. This implies that if no systemic changes are made to create a more sustainable economy, emissions are likely to go up again in 2021.



Source: Le Quéré et al. Nature Climate Change (2020); Global carbon project

transition cannot yet be determined, but it may become clearer that global investments in greener forms of energy are more stable as it enjoys an increasing amount of political support. The question that remains is: will COVID-19 accelerate the transition to renewable energy and therefore dramatically reduce the sector’s CO₂ footprint?

History indicates that, without quick responses from governments, a business-as-usual scenario is quickly returning. Governments are now understandably focusing on dealing with the COVID-19 crisis, but should also benefit from the unique opportunity to incorporate sustainability in their procurement and economic recovery projects. However, time will tell whether this opportunity will be grasped.

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What will happen to the climate targets? The extent of the effects of COVID-19 on the energy

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