

MCC Press Release

Energy crisis could become a win-win situation for climate and the economy

A study retrospectively calculates for 2022, with regard to CO₂ emissions and gross domestic product, the loss of Russian gas and oil and ambitious EU-wide demand savings.

Berlin, 06/02/2023. Since the Russian attack on Ukraine almost a year ago, there is no shortage of pessimistic forecasts for the climate and for the economy: geopolitical tensions might eclipse the fight against global heating, and oil and gas price shocks might ruin our prosperity. But a new study based on a respected economic equilibrium model concludes that the opposite is conceivable; a win-win situation for climate and the economy. The study, with contributions from the Berlin-based climate research institute MCC (Mercator Research Institute on Global Commons and Climate Change), has now been published in the renowned journal *Nature Climate Change*.

Retrospectively for the year 2022, the research team calculates how the decline in Russian energy supplies to the EU affects emissions of the most important greenhouse gas CO₂, and economic output measured in gross domestic product. The analysis is based on the global equilibrium model C³IAM, which is widely used in international climate research and was developed in China. The starting point is a scenario of a “moderate disruption”: according to this, energy supplies from Russia would have plummeted by 61 to 70 percent in 2022, depending on the type of fossil fuel, and as a result of subsequent easing, this collapse would be reduced by half by 2025.

The model first simulates the reactions of the market: the shortage of fossil energy fuels leads to price increases, lower demand and, to a certain extent, additional supply from other regions of the world. As a result, EU economic output in the year 2022 ends up 1.5 percent lower in this scenario than in a scenario without Ukraine war and energy crisis, and CO₂ emissions end up 12.3 percent lower. Even in 2025, economic output is still 0.6 percent lower. So the result is that the climate wins, but the economy loses out.

But this loss of prosperity, that is the study’s core message, can in principle be avoided. In fact, the research team also modelled a scenario in which the EU and national governments would have initiated a particularly large energy-saving action in 2022. This assumes that fuel consumption of passenger cars in the transport sector, as well as energy consumption of private households and service companies in the building sector, would have fallen by 10 percent.

“Policymakers can reinforce the trend towards energy saving, which would occur anyway due to higher prices, by setting targets or recommendations,” explains [Felix Creutzig](#), head of the MCC working group

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Land Use, Infrastructure and Transport, and co-author of the study. “In doing so, it may, for example, target the social norm for the default indoor temperature, or push for savings on the roads through speed limits and car-free Sundays. Such a demand-side response could quickly reverse the negative economic tide caused by an energy crisis.”

According to the model study, EU-wide CO₂ emissions in 2022 would have ended up as much as 14.8 percent lower than it would have been the case without Ukraine war and energy crisis, instead of 13.3 percent in the scenario without energy-saving action. The loss of economic output would have been reduced from 1.5 to 0.8 percent, and in 2025 there would even be a plus of 0.3 per cent. In other words, the result would be that both the climate and economy win.

Even in a similarly calculated “strong disruption” scenario, with Russia’s energy supplies to the EU in 2022 falling by 90 percent and an equivalent energy-saving action, there is only a mini-loss of 0.1 percent of economic output in 2025. The study also quantifies how the EU can divert money from Russia’s budget to its own through an import levy on remaining supplies.

“If properly designed, the disengagement provoked by Moscow certainly offers the opportunity to accelerate the European Green Deal and the path towards climate neutrality,” concludes [Ottmar Edenhofer](#), MCC Director and also a co-author of the study. “The EU should actively promote this.”

Reference of the cited article:

Liu, I., Jiang, H., Liang, Q., Creutzig, F., Liao, H., Yao, Y., Qian, X., Ren, Z., Qing, J., Cai, Q., Edenhofer, O., Wei, Y., 2023, Carbon emissions and economic impact of EU’s embargoing Russian fossil fuels, *Nature Climate Change*
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About MCC

MCC explores and provides solution-oriented policy portfolios for climate mitigation, for governing the global commons in general, and for enhancing the many aspects of human well-being. Our seven working groups are active in fields like economic growth and development, resources and international trade, cities and infrastructure, governance, and scientific policy advice. Co-founded by the Mercator Foundation and the Potsdam Institute for Climate Impact Research. | www.mcc-berlin.net/en | https://twitter.com/MCC_Berlin

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