

How will COVID-19 ultimately impact climate change?

1 February 2021, by Mark Dwortzan



Assuming a return to pre-pandemic levels of employment by 2035, the study finds that Covid-19 produces a steep, 8.2 percent reduction in global GDP in 2020, but only a 2 percent reduction in 2035. Seen here: a Covid-19 center near Washington. Credits:Image: dmbosstone/Flickr

Business closures. Travel restrictions. Working and learning from home. These and other dramatic responses to COVID-19 have caused sharp reductions in economic activity—and associated fossil fuel consumption—around the world. As a result, many nations are reporting significant reductions in greenhouse gas emissions for the year 2020, edging them a bit closer to meeting the initial emissions targets to which they committed under the Paris Agreement on climate change. While the pandemic may have accelerated progress toward these targets over the past year, will that trend continue through this decade and beyond?

According to a new study in the journal *Humanities and Social Sciences Communications*, the answer to that question will depend, in part, on the pandemic's long-term effect on [economic activity](#) and energy use around the world. To assess that

impact, the study's co-authors, all researchers at the MIT Joint Program on the Science and Policy of Global Change, compared two estimates of global economic activity through 2035: one projecting [economic recession](#) and recovery from COVID-19, the other forecasting economic growth had COVID-19 not occurred.

Assuming a return to pre-pandemic levels of employment by 2035, the study finds that COVID-19 produces a steep, 8.2 percent reduction in global gross domestic product (GDP) in 2020, but only a 2 percent reduction in 2035. Assuming that Paris Agreement national climate targets through 2030 are fulfilled despite economic disruption, the lower GDP numbers result in a 3.4 percent reduction in annual [greenhouse gas emissions](#) in 2020, but only a 1 percent reduction in 2030.

The researchers also note that while various structural changes in the economy that may result from the pandemic (e.g., less air travel, commuting, and commercial activity at brick-and-mortar shops and restaurants, as well as lingering effects of larger government deficits) could reduce emissions further, these post-pandemic reductions would pale in comparison to those observed in 2020. In any case, they are unlikely to contribute substantially to global efforts to meet the long-term climate goals of the Paris Agreement.

"Our projections of global economic activity with and without the pandemic show only a small impact of COVID-19 on emissions in 2030 and beyond," says MIT Joint Program Co-Director Emeritus John Reilly, the study's lead author. "While pandemic-induced economic shocks will likely have little direct effect on long-term emissions, they may well have a significant indirect effect on the level of investment that nations are willing to commit to meet or beat their Paris emissions targets."

The study shows that reduced economic activity

resulting from COVID-19 lowers the cost of meeting these targets, making such commitments more politically palatable. Moreover, fiscal stimulus measures to accelerate economic recovery present an opportunity for major investments in emissions reduction efforts. Keeping global warming well below 2 degrees Celsius—the central goal of the Paris Agreement—will require further commitment and action by countries worldwide to reduce emissions.

More information: John M. Reilly et al. The COVID-19 effect on the Paris agreement, *Humanities and Social Sciences Communications* (2021). DOI: [10.1057/s41599-020-00698-2](https://doi.org/10.1057/s41599-020-00698-2)

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