

# Coal and COVID-19: How the pandemic is accelerating the end of fossil power generation

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COVID-19 has not only caused a temporary drop in global CO<sub>2</sub> emissions, it has also reduced the share of power generated by burning

coal—a trend that could, in fact, outlast the pandemic. This is the key result of a new study by a team of economists based in Potsdam and Berlin that looked at COVID-19's impact on the energy system and demand for electricity. Their findings show that the pandemic, while putting a terrible toll on people's lives and the economy, has also opened a window of opportunity to make this current trend of decreasing coal use irreversible: Supported by the right climate policy measures, power sector emissions could decline more rapidly than previously thought.

"Coal has been hit harder by the pandemic than other power sources—and the reason is simple," explains lead author Christoph Bertram from the Potsdam Institute for Climate Impact Research (PIK). "If demand for electricity drops, [coal plants](#) are usually switched off first. This is because the process of burning fuels constantly runs up costs. The plant operators have to pay for each single ton of coal. In contrast, renewable power sources such as wind and solar plants, once built, have significantly lower running costs—and keep on operating even if the demand is reduced."

This way, [fossil fuels](#) were partly squeezed out of the electricity generation mix in 2020 and global CO<sub>2</sub> emissions from the power sector decreased around 7%. By looking at India, the U.S. and European countries alone, a more dramatic picture emerges: In these key markets, where monthly electricity demand declined by up to 20% compared to 2019, the monthly CO<sub>2</sub> emissions decreased by up to 50%.

The researchers estimate that it's likely that emissions will not reach the all-time high of 2018 again. "Due to the ongoing crisis, we expect that 2021 electricity demand will be at about 2019's levels, which, given ongoing investments into low-carbon generation, means lower fossil generation than in that year," says co-author Gunnar Luderer from PIK. "As long as this clean electricity generation growth exceeds increases in electricity demand, CO<sub>2</sub> emissions from the power sector will decline.

Only if we saw unusually high demand for electricity along with surprisingly few additions of renewable power plants from 2022-2024 and beyond, fossil fuel generation would rebound to pre-pandemic levels."

While the power sector has seen a dynamic transformation process even before the advent of COVID-19, the pandemic has weakened the market position of coal-fired power generation and illustrated its vulnerability.

"Our research shows that investing in fossil-fueled power is not only environmentally irresponsible—it is economically very risky," says co-author Ottmar Edenhofer, director of both PIK and the Mercator Research Institute on Global Commons and Climate Change. "In the end, it will certainly take carbon pricing to cut emissions at the required pace and stabilize our Climate. Yet the impacts of the Corona crisis on the power generation sector have put political leaders in a unique position: Along with additional policies such as eliminating subsidies for fossil fuels and increasing investments in wind and solar [power](#), it is now easier than ever before to put an end to high-carbon [electricity](#)."

**More information:** Christoph Bertram, Gunnar Luderer, Felix Creutzig, Nico Bauer, Falko Ueckerdt, Aman Malik, Ottmar Edenhofer (2021): COVID-induced low power demand and market forces starkly reduce CO2 emissions. *Nature Climate Change*, [DOI: 10.1038/s41558-021-00987-x](https://doi.org/10.1038/s41558-021-00987-x)

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