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COVID-19 weakens both sides in the battle between coal and renewables

By disrupting investment, supply chains and technology diffusion, COVID-19 may harm renewables more than coal, but still weaken coal lock-in in developing countries. To enable new low-carbon energy choices, international flows of low-carbon technology and policy expertise must quickly re-emerge.



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Assessments of potential impacts of the COVID-19 pandemic on climate change range from hopes that it will trigger re-orientation of societies towards sustainability [1] to fears that it will decrease public and political support for sweeping climate action [2]. Here we focus on the concrete question of how COVID-19 might affect the prospects of coal phase-out in different parts of the world and which post-pandemic policies could keep us on a more climate-friendly path.

Phasing out unabated coal power requires both breaking the lock-in of the established coal regimes and rapidly expanding low-carbon alternatives. In many industrialised countries with stagnating electricity demand, it is primarily coal lock-in that is slowing the needed transition. Such countries already have economically viable renewable power sectors that can expand faster than electricity demand and replace coal power. Several rich and well-governed countries which produce and use less coal and have older power plants [have pledged to phase-out coal before 2030](#), but it's proven more difficult for countries with larger coal sectors [3].

For example, despite fast expansion of wind and solar power and slow demand growth, Germany has delayed coal phase-out until 2035 at the earliest and only under the promise of tens of billions of euros in compensation to affected companies, workers and communities [3]. Other major coal users such as the US, Australia, and Japan have not pledged coal phase-out because of high political and economic costs of closing coal mines and power plants. It is unlikely that amidst the COVID-induced downturn, additional coal phase-out policies will be enacted due to concerns over employment and regional economies.

The story in developing countries is quite different because of their rapidly growing electricity demand which requires adding a lot of new power capacity. Very few of such countries have committed to phasing out coal power [3] and many keep expanding coal power [4]. This concerns not only the two coal giants China and India, but also countries like Bangladesh that until recently have not used coal. New coal power plants would rapidly solidify lock-in and increase 'committed emissions' [5].

Fortunately, COVID-19 may ease this boom in coal power plant construction because the economic downturn would dampen electricity demand and make capital investment harder to come by. Furthermore, construction in countries like Vietnam relies on international finance and suppliers and may be hit especially hard because cross-border trade and investment will be severely disrupted by COVID-19. The slow-down in new constructions may destabilise the global coal complex, including equipment manufacturing in China and Japan, and thus weaken future lock-in. This would be similar to what happened to nuclear power in Germany, when a decade of stagnation in the 1990s led to such a large decrease in sectoral employment and political clout that it could not fight the nuclear phase-out law in 2002 [6,7].

The other side of the challenge, expanding low-carbon alternatives to coal, is also different for developing countries. In principle, they could reduce the need for new coal power plants by massively expanding wind and solar electricity. In practice, their renewables still do not grow fast enough to compensate even for electricity demand growth, to say nothing about replacing coal. Unfortunately, COVID-19 will slow the growth of renewables due to the same factors that will slow the construction of coal power plants: lower demand growth, shortage of investment, and disruption of supply chains, international technology

diffusion and policy exchange. The last factors will be especially painful, because renewables depend on international technology and policy diffusion much more than coal power.

On balance, the COVID-19 pandemic will have more profound impacts on electricity transitions in developing and emerging economies, where the bulk of electricity use in the 21st century is expected. The pandemic is likely to disrupt both construction of new coal power plants and the uptake of renewables, but renewables may be hit harder because they depend even more on international cooperation. The weakened demand growth may give developing countries a respite and a chance to reconsider their carbon-intensive electricity choices and minimise future coal lock-in. To support developing countries in choosing low-carbon electricity it will be essential to quickly re-establish international flows of low-carbon investment, technology, and policy expertise. Fossil energy exporters should be supported in using the opportunity provided by low oil prices to reform their energy subsidies, which are currently largest in the world [8], and which make low-carbon electricity in these countries non-competitive.

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