Too Close to Breathe: The Environmental and Health Implications of Shutting-Down Coal

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Fossil fuel combustion for energy generation is the leading contributor to air pollution mortality, causing more than 5 million deaths per year. During the past thirty years, European nations have undergone a significant transformation in their energy landscape, shifting from coal to natural gas as primary feedstock for energy production. This paper exploits detailed geolocalised information on coal power stations in Europe, combined with fine gridded data on $PM_{2.5}$ and regional health statistics, to investigate the air pollution and mortality outcomes of the retirement of coal plants in 12 European countries during the past two decades. I find that that coal combustion for energy generation severely affects the population living within 50 km of a coal plant, increasing yearly mortality rates by 0.87% on average. The results are amplified in regions with older populations, higher baseline pollution levels, and greater population densities. Notably, the larger benefits of coal plant shutdowns emerge 5 years after the closure date. This evidence underscores the importance of evaluating longer time horizons to fully understand the co-benefits associated with the decarbonization of the energy sector, suggesting that the benefits from shutting down coal-fueled power plants might be larger than previously estimated. This issue is particularly urgent, as the recent European energy crisis has led different countries to respond to energy price shocks by reactivating previously closed coal power plants, posing risks for both climate change mitigation and public health outcomes.

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