

Advancing Public Health Through Coal Plant Replacements

Recommendations for JETPs and Coal Retirement Mechanisms

Coal retirement mechanisms (CRMs) and Just Energy Transition Partnerships (JETPs) should consider public health impacts when selecting plants for closure. In addition to significantly reducing premature death and illness and saving health care costs, this would increase overall ambition; enhance equity; and could provide access to new sources of funding.

Summary

Coal-fired power plants are the world's largest source of man-made carbon pollution.¹ Their emissions must be quickly and dramatically reduced to avoid catastrophic climate disruption.² Recognizing this, U.N. Secretary-General António Guterres has said that phasing out coal is “the single most important step” to meeting global climate change goals.

International donors have begun to rise to this challenge. The [Asian Development Bank](#) (ADB), [Inter-American Development Bank](#) (IDB), [Climate Investment Funds](#) (CIFs) and a consortium of developed countries have each proposed “coal retirement mechanisms” or “Just Energy Transition Partnerships” (JETPs) to help developing countries retire some of their coal fleet. IDB already has a pilot under way in Chile, and other plans are being negotiated in South Africa and Indonesia. Programs in Vietnam, India, and the Philippines are also in earlier stages of development.

Choosing which coal plants to close first will be a key challenge. While eliminating climate pollution and minimizing costs will be important considerations, reducing local air and water pollution should also be a priority. Coal plants—particularly those that lack basic pollution controls—kill and sicken millions of people each year. Too often, those who suffer the most are low income and marginalized, and are disproportionately burdened by pollution from other sources.

By prioritizing the reduction of toxic pollution, CRMs and JETPs could save hundreds of thousands of lives and billions of dollars in health care costs each year. They could also increase the political support and overall ambition of their plans, enhance equity, and open access to new sources of funding.

To capture these benefits, CRMs and JETPs should not treat public health as a mere co-benefit of a carbon-driven approach to replacement. Instead, they should prioritize closing the dirtiest plants with the greatest health impacts by:

- Using public health metrics as a core plant selection criteria;
- Requiring policy changes to strengthen pollution and public health standards; and
- Requiring the dirtiest plants to be closed as a precondition for participation.

Discussion

Improving public health and saving health care costs.

Pollution from the burning of fossil fuels is one of the world's greatest public health scourges. It kills as many as [8 million people each year](#) and sickens many more, causing untold suffering and trillions in economic and social damages.

Coal plants are a [major cause](#) of this quiet carnage. In [Indonesia](#) alone, coal plant pollution has been estimated to cause over 330,000 premature deaths and almost

9.9 million life-years lost each year. A recent University of Maryland [study](#) estimated that an accelerated coal phase out could avoid about half of those deaths, while saving over \$60 billion in health costs through 2050. These savings alone would be more than double the costs associated with early closure.

Selecting the right plants for closure is critical to effectively capturing these benefits. The pollution harms caused by particular plants varies widely based on control technology, proximity to population centers, and other local factors. The dirtiest urban plants can cause [over 50 times](#) as much local air pollution damage as cleaner and more isolated plants for every unit of energy they produce.

A mechanism that does not select plants for retirement using public health criteria might perversely incentivize the closure of relatively cleaner plants. Because pollution controls can be expensive to operate, dirtier plants may appear cheaper to run, creating financial incentives to close relatively cleaner plants first.

The ADB's Energy Transition Mechanism will address the public health costs of burning coal by considering the health impacts of the release of oxides of sulfide and nitrogen, particulate matter, and other pollutants in its "multi-criteria analysis" for selecting plants for replacement.

Increasing overall ambition by expanding political coalitions for retirement.

Even as the climate crisis becomes increasingly dire, it remains easier to generate support for actions that address more tangible local concerns. ["Socially beneficial" mitigation opportunities](#)—those that advance local interests, even before climate benefits are considered—tend to be the easiest climate initiatives to agree on. As the [Inflation Reduction Act](#) in the United States illustrates, much of the progress that has been made in reducing emissions has come advancing other interests and economic priorities beyond climate concerns.

This insight should inform the selection of plants for replacement. Political support for replacement—and thus overall ambition—can be expanded by leveraging the popularity of clean air and clean water, and engaging constituencies in favor of improving health in particular communities.

For example, in both the US and China, pollution and health impacts have been a far more potent driver of the transition to clean energy than climate change. In China, a burgeoning urban middle class enduring nearly unbreathable air has created pressure to close the dirtiest plants.

And in the U.S., overburdened environmental justice communities have led the fight to close some of the worst polluters. At the same time, air and water quality regulations designed to reduce public health harms have raised the costs of running coal plants, making clean energy alternatives even more economically attractive.

Enhancing equity.

Prioritizing the closure of the dirtiest plants advances equity by helping communities that need it most. Often, the worst plants are concentrated—along with other industrial polluters—in the lowest income, most vulnerable and racially or ethnically marginalized communities. This tends to compound the health burdens and pile them upon those who are already worst off.

It also promotes fairness in another way: by directing reinvestment and transition resources into communities that have historically borne the greatest health costs. Those communities are often the most in need of new opportunities for economic vitality and community development that the clean energy investment and redevelopment funding can provide. From an equity perspective, who gets to transition first matters a lot.

Closing dirtier plants first can also prevent the inadvertent leakage of health impacts. Where plant closure causes the utilization of remaining plants to rise, emissions of toxic pollutants will leak along with carbon emissions. Closing the dirtiest plants first will alleviate the risk that leakage will cause further harm to communities that already bear the worst toxic health burdens.

Expanding access to new sources of funding.

So far, the development and early implementation of CRMs and JETPs has been limited by donors' inability to marshal resources at the required scale. Some donors may find it more politically salable to fund a program that is organized around reducing urban pollution than one that is framed as a pure climate change initiative.

At the same time, coal pollution imposes such severe and widespread health impacts that early closure may make sense purely as a public health initiative. In addition, some health care systems are already bearing substantial costs treating people with cardio-pulmonary and other diseases caused by coal pollution. It may be possible for public (or even private) health care providers to lower their costs through up-front investments in coal retirements, thereby freeing up resources for other urgent health care needs.³

Obviously, using scarce public health funds to accelerate closures is politically fraught, and should be carefully considered and negotiated with all affected stakeholders.

Recommendations

By prioritizing public health impacts when selecting plants for closure, CRMs and JETPs can substantially reduce premature death and illness from coal pollution, save health care costs, increase overall ambition, enhance equity and provide access to new sources of funding.

In order to capture these benefits, JETPs and CRMs should:

Incorporate local pollution and public health considerations into the plant selection process. Criteria for selecting plants for closure should identify the dirtiest plants, the plants that impose the greatest public health burdens, and the plants that deposit pollution in communities with the greatest overall toxic pollution burdens.

Require participating countries to adopt and enforce minimum air and water pollution standards. One important goal of CRMs and JETPs should be to spur policy reforms that will generate greater climate action. In addition to eliminating coal subsidies or implementing policies to promote investments in replacement renewables, strengthening pollution standards would also be a productive area for policy reform. New pollution standards could induce the retirement of the worst plants, advancing climate goals while eliminating the worst health nuisances.

Require plant owners to close the dirtiest plants without compensation. Plant owners should be expected to close plants that pose a particular menace to public health as a pre-condition for receiving funding to retire their other plants. Requiring owners to close their dirtiest plants without compensation would:

- Ensure the dirtiest plants are closed first;
- Eliminate the risks that leakage will increase pollution from the worst plants;
- Avoid paying to close plants that profit by not properly controlling pollution;
- Reduce the incentive for owners to re-invest in their dirtiest plants, in the hopes of eventually being paid to close them; and
- Mitigate the risk of being seen to “bail out” the worst polluters by ensuring that they close some plants on their own accounts.

1 IEA, “Global energy-related CO 2 emissions by sector,” IEA.org, <https://www.iea.org/data-and-statistics/charts/global-energy-related-co2-emissions-bysector>, last modified March 25, 2021.

2 According to the International Energy Agency, power from unabated coal plants must decline 80 percent below 2010 levels within this decade, and be eliminated entirely by 2040, to keep the Paris Agreement’s 1.5 (2.7 degrees Fahrenheit) temperature goal within reach. IEA, “Net Zero by 2050: A Roadmap for the Global Energy Sector,” p. 20, revised October 2021, https://iea.blob.core.windows.net/assets/deebef5d-0c34-4539-9d0c-0b13d840027/NetZeroBy2050-ARoadmapfortheGlobalEnergySector_CORR.pdf

3 Advanced air deposition modeling can pinpoint which populations are most affected, and thus which health care systems or facilities are bearing these costs.