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A PANDEMIC OF POLLUTION

How EPA Air Pollution Actions Taken Since March 1, 2020
Will Harm Public Health and Potentially Add To COVID-19 Risks

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and Public Works Committee

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Staff Report

A Pandemic of Pollution:

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Executive Summary

Extensive evidence has emerged indicating that adverse outcomes from COVID-19 are disproportionately experienced by residents of low income and minority communities. These same communities typically experience higher exposures to air and water pollution than others and bear a higher burden of disease due to many other contributing factors.

Research also shows a nexus between climate change and increases in air pollution, a link between exposure to air pollution and enhanced risk of respiratory and other disease, an added risk of adverse outcomes from coronaviruses such as SARS that is caused by exposure to air pollution, and an increased likelihood of additional animal- and other vector-borne pandemics, not to mention other diseases that climate change is expected to cause.

While research continues to emerge on whether there is also a connection between exposure to air pollution and adverse outcomes or more difficult recoveries from COVID-19, early indications seem to suggest that such a connection exists.

Yet, despite this and the devastating toll COVID-19 has taken in communities all across America and the rest of the world, the Trump Environmental Protection Agency (EPA) has continued its relentless march to weaken or repeal rules that were designed to remove greenhouse gas, soot, mercury and other pollution from our air. Indeed, since March 1, 2020, EPA has proposed or finalized several rules that will result in increased air pollution and could cause tens of thousands of premature deaths. EPA has, in short, unleashed a pandemic of pollution in the middle of an actual pandemic, the respiratory effects of which may be amplified by pollution exposure.

This report is not intended to exhaustively document these effects, but rather to summarize them. It also provides several basic recommendations that EPA should act on immediately in furtherance of its mission to protect human health and the environment.

The Connection between Coronavirus Outcomes and Air Pollution

Early evidence is emerging that reports a correlation between air pollution and COVID-19 mortality. A preliminary [April 2020](#) study conducted by the Harvard School of Public Health found that even a small increase of just one microgram per cubic meter of long-term exposure to particulate matter leads to an 8% increase in the likelihood of death in those infected by COVID-19. Another April 2020 [study](#) conducted by researchers from the University of Siena and Aarhus University examined COVID-19 fatalities in Germany, Spain, Italy and France and found the greatest number of deaths in areas of Northern Italy and Madrid that had the highest concentrations of nitrogen dioxide (NO₂) – a key contributor to [ground level ozone pollution, commonly known as smog](#). Three-quarters (78%) of COVID-19 deaths in countries under study were found within these areas with high NO₂ concentrations. Similar [findings](#) on COVID-19 fatalities in England were released in late April by researchers at the University of Cambridge. This preliminary research results “show that

nitrogen dioxide, nitrogen oxide and ozone are significant predictors of COVID-19 related death, after accounting for population density. This provides the first evidence that SARS-CoV-2 cases and deaths are associated with the levels of pollutants in England.”

Possible mechanisms suggested to explain this finding include individuals’ greater vulnerability to infection due to irritation of the upper respiratory airways as a result of pollution, and the potential of residents of these regions to have preexisting chronic respiratory conditions due to prolonged exposure to high levels of pollution. Air pollution has also been shown to contribute to the development of cardiovascular disease and diabetes, which in turn are pre-existing conditions that appear to [enhance susceptibility](#) to COVID-19. In the United States, these contributing factors are disproportionately prevalent in low income and minority communities, which have been severely impacted by the COVID-19 pandemic. The [CDC has found](#) that African Americans and Hispanic Americans have incurred higher rates of COVID-19 hospitalizations than the general public. Across the country, [multiple press outlets](#) and [others](#) have documented how these communities are suffering at higher rates and with greater severity. Many of these communities are also living in areas most inundated by air pollution. ([See Scientific American, April 20, 2020](#)) Public health experts have pointed to the need for further research to understand these contributing factors.

These findings are consistent with infectious disease research on the effects of air pollution on people infected with other coronaviruses, such as SARS. In 2003, a [study](#) conducted in China found a significant link between air pollution and SARS fatalities. In this study, researchers found that those infected with SARS that also had been exposed to higher levels of air pollution had significantly higher case fatality rates than SARS patients with lower exposure to air pollution. Researchers found that SARS patients who experienced short term exposure to air pollution had an 84% increased risk of death relative to those who had not experienced a short term exposure to air pollution. For long term exposure to air pollution, the effect was even greater, with a SARS case fatality rate that was twice as high for those who experienced long term exposure than those who had not.

The Connection between Climate Change, Air Pollution and Pandemics

The Fourth National Climate Assessment, released by the Trump Administration in 2018, [reports](#) that climate change is a significant contributor to deteriorating air quality. Changes in temperature, humidity, winds patterns, cloud cover and precipitation can lead to higher concentrations of both ground-level ozone and particulate matter. Increased wildfire activity caused by climate change also results in increases in particulate matter emissions and the formation of ozone. These increases have an overall negative effect on air quality, which results in adverse respiratory and cardiovascular effects, including increases in aggravated asthma, emergency rooms visits, and premature deaths. As [recent studies](#) have reported, poor air quality is also believed to be a contributing factor in patient mortality of COVID-19, which like all coronaviruses is a respiratory illness.

Climate change also contributes to the spread of vector-borne diseases. According to the [Fourth National Climate Assessment](#), the transmission of Lyme disease, West Nile, chikungunya, dengue and Zika and all impacted by changes in weather patterns and ecosystems. [Studies show](#) that new and emerging vector-borne pathogens, such as the Ebola virus and novel influenza strains, are also affected by climate change and can instigate outbreaks with pandemic potential. Higher temperatures and more frequent and intense extreme precipitation events alter the geographic ranges and behaviors of disease vectors (e.g., insects, migratory birds, and bats)

that carry the pathogens and increases the opportunity for diseases to cross over into human populations. Altogether, these conditions increase the risk of additional pandemic events in the future.

EPA Rules that Will Increase Air Pollution Proposed or Finalized Since March 1, 2020:

March 3: Strengthening Transparency in Regulatory Science [Supplemental Proposed Rule](#)

Although the so-called ‘censoring science’ proposed rule does not directly seek to regulate air pollution, it excludes key studies from informing “influential scientific information” and regulations. The proposal also places time-consuming barriers to and possibly even prevents EPA’s use of scientific information that could be directly needed to respond to COVID-19 (i.e. research on the effectiveness of disinfectants or papers that describe a link between air pollution and COVID-19 outcomes).

March 25: New Source Review Redefinition [Guidance](#)

This draft guidance substantially narrows the definition of the term “begin actual construction” within the New Source Review (NSR) regulations for the Clean Air Act’s pre-construction permitting program. Under this proposal, businesses would no longer need to first obtain NSR permits to begin construction on significant portions of the pollution-emitting facilities that are not the actual ‘emitting unit.’ As a consequence, many polluters will be able to complete major work on large scale construction projects before any kind of regulatory review takes place, greatly increasing the risk that projects will be locked into more polluting designs and eventually lead to substantial increases in emissions. This will make it more difficult to mitigate harms to air quality and public health that would be prevented under the more protective approach followed by EPA and states for more than four decades.

March 31: Safer Affordable Fuel-Efficient ([SAFE](#)) Vehicles Rule

This final rule rolls back vehicle fuel economy and greenhouse gas emissions standards to require a stringency increase of merely 1.5% each year for each of model years 2021-26. This retreats from the 5% annual improvement under the Obama-era standards. According to the Trump Administration’s own flawed analysis, this rule will result in up to 1,000 premature deaths attributable to increased air pollution. According to independent [analysis](#) reported by the Environmental Defense Fund, the rule will actually result in 18,500 premature deaths due to air pollution between now and 2050.

April 4: Mercury and Air Toxics Standards ([MATS](#)) Rule

This final rule undermines the legal basis for the MATS safeguards, potentially exposing them to new legal challenges. When these standards were finalized, they were [projected](#) to save up to 11,000 lives each year. The standards have been in effect since 2015.

April 10: Ozone Depleting Refrigerants [Final Rule](#)

This final rule revises the requirements of a 2016 rule on repair and disposal of refrigeration appliances and industrial refrigeration units under the Clean Air Act. Under this rollback, only ozone-depleting substances will be subject to the rule’s requirements, therefore exempting other harmful substances that pose risks to climate change and air quality.

April 14: NAAQS Particulate Matter Standards [Proposal](#)

On April 14, EPA announced a proposal to retain the current national ambient air quality standards (NAAQS) for particulate matter (PM), without change, ignoring EPA’s own scientists. After the

[examination](#) of just 30 metro areas in the U.S., agency scientists had concluded that strengthening the annual fine particle health standard from 12 to 9 $\mu\text{g}/\text{m}^3$ would prevent up to 12,500 premature deaths each year. In October 2018, the EPA's Clean Air Scientific Advisory Committee's Particulate Matter Review Panel, which was tasked with reviewing potential changes to these standards, was summarily dismissed without notice. Members of this committee subsequently formed the Independent Particulate Matter Review Panel to finalize the work of reviewing evaluations of these standards prepared by EPA career scientists. In [their](#) report, this panel found that current fine particle health standards are not adequate to protect public health and that retaining the current standards was not scientifically justifiable. They recommended that the national health standards be strengthened to save thousands of lives and prevent tens of thousands of heart attacks.

May 15: Wood Heaters

On May 15, 2020, EPA issued a [proposal](#) in which EPA would use the COVID-19 emergency as a pretext to allow retailers to continue to sell residential wood heating systems that fail to meet the latest clean air standards until November 30, 2020, even though just weeks ago EPA concluded that doing so was not warranted. Nationwide, residential wood heaters emit five times more particulate matter pollution than the U.S. petroleum refineries, cement manufacturers and pulp and paper plants combined, while causing some areas of our country to be in, or close to, nonattainment for EPA's national ambient air quality standards (NAAQS) for particulate matter. [Based on EPA's Regulatory Impact Analysis of the 2015 residential wood heater New Source Performance Standards Rule](#), allowing the current standards to remain in place indefinitely would result in up to 810 additional premature deaths between 2015-2020 due to exposure to particulate matter.

Recommendations

In addition to reversing its deregulatory efforts, quickly and dramatically strengthening this country's protections from air pollution, and taking all possible action to address the climate crisis, EPA should also take a number of specific near-term steps to further confront COVID-specific risks enhanced by this pollution. These include:

- EPA should focus the Agency's Office of Research and Development as well as the Air, Climate and Energy Centers on determining whether exposure to air pollution - or having an underlying condition with a known link to air pollution- is linked to more adverse outcomes from COVID-19, a higher risk of contracting the disease, more difficult recovery from the disease, or a higher susceptibility to other diseases following COVID-19.
- Given the likelihood that COVID-19 will not be eradicated, if a link between air pollution (or underlying conditions with known links to air pollution) and COVID-19 is established, EPA should factor that link into all of its applicable rulemakings and policies going forward.
- EPA should re-focus its enforcement, compliance and monitoring activities in a manner that prioritizes the early detection of high exposure to air pollutants in communities that have both historically experienced such exposures and those at greatest risk of adverse outcomes from COVID-19.
- EPA should enhance its environmental justice grants, tools, and other policies and forms of assistance to address the disproportionate threats air pollution and COVID-19 pose to residents of lower-income and minority communities.