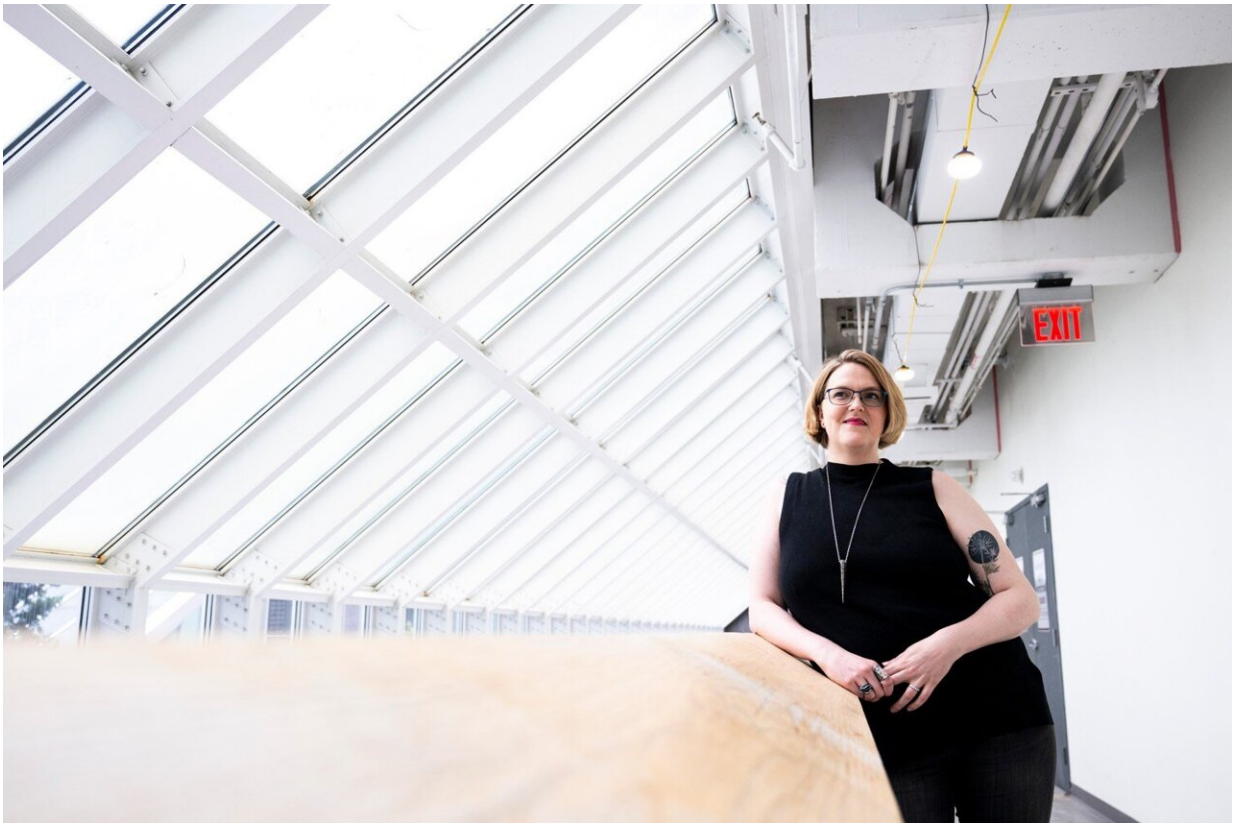


Did lawmakers know role of fossil fuels in climate change during Clean Air Act era?

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"Today, we think of climate science as different from air pollution, but in the '60s, they were very much intertwined," says co-author Colleen Lanier-Christensen. Credit: Jon Ratner

How much was known at the mid-20th century about the dangers of

human-caused climate change? A lot more than most Americans think.

In a new paper [published](#) in the *Ecology Law Quarterly*, Naomi Oreskes and a team of science historians detail more than a century of research connecting carbon dioxide emissions with global temperature rise.

The findings illuminate what Congress knew, and what it intended, when targeting "[air pollution](#)" with the 1970 Clean Air Act, questions that arose during a landmark 2022 Supreme Court ruling limiting the power of federal agencies to enforce the law.

"We found a universe of scientific work that got lost, forgotten, or buried," said Oreskes, the Henry Charles Lea Professor of the History of Science.

Oreskes hopes it will serve as a definitive account of what was understood by the 1950s and '60s about the dangers of burning fossil fuels. At 124 pages, the paper surfaces everything from government reports on "inadvertent weather modification" to long-dead lawmakers pondering the future of electric vehicles. It establishes that the era's experts saw CO₂ as one of many environmental threats to regulate.

"Today, we think of climate science as different from air pollution," offered co-author Colleen Lanier-Christensen, Ph.D. '23, a postdoctoral fellow in the History of Science. "But in the '60s, they were very much intertwined."

Oreskes started investigating the topic about 10 years ago, originally at the behest of environmental law expert Jody Freeman, the Archibald Cox Professor of Law at Harvard Law School. But the project became all the more urgent with the Supreme Court's *West Virginia v. EPA* decision, which restricted the agency's ability to regulate carbon emissions from power plants, a significant contributor to global

warming.

The [majority opinion](#), written by Chief Justice John Roberts, relied on "a practical understanding of legislative intent" to find that the authors of the 1970 law would have been more direct had they meant to regulate CO₂.

"The Supreme Court was basically posing a historical question," Lanier-Christensen said. "But then none of the justices actually looked historically at what Congress intended in passing the Clean Air Act."

Irish physicist John Tyndall was the first to describe the [heat-trapping effects](#) of greenhouse gases circa 1859. By the late 19th century, Swedish Nobel laureate chemist Svante Arrhenius had connected atmospheric concentrations of carbon dioxide to the burning of fossil fuels. In 1896, he estimated that a doubling of atmospheric CO₂ concentrations would [warm the planet by 1.5 to 4.5°C](#).

In the 1930s, British engineer Guy Stewart Callendar started compiling data on atmospheric CO₂ concentrations and global temperatures. A paper [published in 1940](#) linked rising CO₂ levels to amounts of coal and oil known to have been burned already. From there, the impact of CO₂ on climate was called "The Callendar effect" for several years.

American scientists picked up the problem in the 1950s, with physicist Gilbert Plass '41 affirming that rising temperatures were connected to human activity. The New York Times covered his research in a 1953 article headlined "How Industry May Change Climate."

By the early 1960s, Callendar was complaining that "everyone likes to 'have a go'" at the issue. That included a growing community of scientists working in the U.S. government. Central among them was Alvin Weinberg, director of Tennessee's Oak Ridge National Laboratory. In

1961, Weinberg spoke to "the deterioration of our atmosphere by the accumulation of CO₂" at a University of Tennessee science fair.

"This wasn't some super technical conference," emphasized Oreskes, whose books include "The Big Myth" (2023) and the best-selling "Merchants of Doubt" (2010). "He saw it was an issue ordinary Americans needed to know about."

And as the decade progressed, an increasing number of ordinary Americans did know. A 1958 documentary by "It's A Wonderful Life" filmmaker Frank Capra, viewed by millions of U.S. schoolchildren by the mid-'60s, warned that "man may be unwittingly changing the world's climate through the waste products of his civilization."

Also influential was a February 1969 appearance on "The Merv Griffin Show" by poet Allen Ginsberg. He rattled viewers by claiming that "the current rate of air pollution brought about by the proliferation of automobiles and 'their excrement'" could cause "the rapid buildup of heat on earth."

In response, one troubled constituent wrote to Sen. Henry "Scoop" Jackson from Washington. The powerful lawmaker (who twice vied to become the Democratic nominee for president) forwarded the letter to physicist Lee DuBridge, science adviser to President Richard M. Nixon.

DuBridge's reply to Jackson featured a detailed explanation of increasing CO₂ levels and "the greenhouse effect." By year's end, DuBridge would revisit these points on the NBC television show "Meet the Press."

Excavating this history sent the paper's co-authors to a dozen archives. "What makes this challenging is that we're looking pre-1970, which was before the Environmental Protection Agency existed," Lanier-Christensen explained. "All functions related to the environment were

spread across the federal government."

An obvious stop was Bates College, home to [the archives of Maine Sen. Edmund S. Muskie](#), a key architect of the 1970 Clean Air Act.

"You could really see how closely Senator Muskie and his office were following these issues—from a [1967] report from the secretary of commerce called 'The Automobile and Air Pollution' to direct correspondence with scientists," Lanier-Christensen observed.

Fast forward to the 21st century, and much of this history has been forgotten, the researchers say. They argue that the U.S. Supreme Court got it wrong with *West Virginia v. EPA* and note the error also appeared in its 2007 *Massachusetts v. EPA* decision, which initially granted the EPA authority to regulate CO₂ as a pollutant covered under the 1970 Clean Air Act.

This was regarded by the court as the unanticipated consequence of an intentionally broad law, with the late Justice John Paul Stevens writing: "When Congress enacted these provisions, the study of climate change was in its infancy."

"When I read that line, I nearly had a heart attack," Oreskes recalled. "It was just so incredibly wrong."

As she tells it, the researchers' near book-length paper proves without question that CO₂ was understood before 1970 as a pollutant as well as a threat to global climate. After all, Muskie introduced the Clean Air Act on the floor of the Senate by warning that unchecked air pollution would continue to "threaten irreversible atmospheric and climatic changes."

But the paper still tells "only the first half of the story," Oreskes said. A second publication, still in the works, will focus entirely on testimonies

to Congress before the legislation was passed, further bolstering the co-authors' argument that lawmakers had every intention of regulating CO₂.

"I don't expect the justices to read these papers and change their minds," Oreskes said. "But what they can do is to empower lawyers arguing these cases as they push back against faulty claims."

More information: Climate Change and the Clean Air Act of 1970
Part I: the Scientific Basis. *Ecology Law Quarterly*.
www.ecologylawquarterly.org/pr...he-scientific-basis/

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