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U.S. Environmental Protection Agency
Docket ID No. EPA-HQ-OAR-2025-0186
1200 Pennsylvania Avenue NE
Washington, D.C.

**Re: Reconsideration of the Greenhouse Gas Reporting Program (GHGRP)
("Proposed Rule")**

Dear Administrator Zeldin,

Thank you for the opportunity to comment on the Environmental Protection Agency's ("EPA") Proposed Rule.¹

The Greenhouse Gas Reporting Program ("GHGRP") mandates approximately 8,200 industrial facilities, at great expense, to submit data on their carbon dioxide and other greenhouse gas (GHG) emissions annually, which is then made available to the public each year. Id. 44596.

The GHGRP is premised on the theory manifested in the EPA 2009 Endangerment Finding that carbon dioxide and other GHG emissions and the use of fossil fuels cause dangerous climate warming, more extreme weather and significant harm, and both must be reduced to net zero by 2050 ("Net Zero Theory").

In the EPA's words in the Endangerment Finding, "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations," citing the Intergovernmental Panel on Climate Change (IPCC).²

The EPA elaborated, "Since the Industrial Revolution, human activities have released large amounts of carbon dioxide and other GHGs into the atmosphere Increasing concentrations of greenhouse gases in the atmosphere have increased the greenhouse effect and caused the earth's surface temperature to rise. Burning fossil fuels like coal, oil, and natural gas changes the climate more than any other human activity. *** The warmer it gets, the greater the risk for more severe changes to the climate."³

¹ 90 FR 44591 (Sept. 16, 2025).

² EPA Technical Support Document (Dec. 7, 2009), p. 48
https://www.epa.gov/sites/default/files/2016-08/documents/endangerment_tsd.pdf

³ [Future of Climate Change | US EPA](#)

The highly influential IPCC asserts the "evidence is clear that carbon dioxide (CO₂) is the main driver of climate change," where "main driver means responsible for more than 50% of the change."⁴

Similarly, the National Academy of Sciences recently opined: "Consistent with the attribution of increasing GHG concentrations to human activities, ... the best estimate of the anthropogenic contribution to the observed surface warming of 2.23°F ... for 2015-2024, relative to 1850-1900, is 100%."⁵

All of these assertions are incorrect, badly flawed science. The main reasons are:

1. GHGs from the Beginning of the Industrial Age in 1750 to Now Have Not, Cannot and Will Not Cause Catastrophic Warming, Extreme Weather and Harm. Much of the public is unaware that GHGs lose their ability to warm the climate as the level of GHGs in the atmosphere increases, what is called SATURATION in radiation transfer physics. At today's concentrations, CO₂ and other GHGs can only cause slight, beneficial warming, not extreme weather and any harm.
2. Most of the observed warming since the year 1750 has been a natural recovery from the Little Ice Age. GHG's have contributed only a small fraction of the warming.
3. More Carbon Dioxide and Using Fossil Fuels are Hugely Beneficial to People Worldwide. Increasing CO₂ emissions and increasing the use of fossil fuels benefit people worldwide with more food and cheap energy. Doubling CO₂ from today's 420 ppm would increase the world's food supply 40%, with a trivial increase in temperature.

In summary, very basic science demonstrates that GHG emissions from the beginning of the Industrial Age in the year 1750 until today have not caused any harm and have been a net benefit to life on Earth. Because of SATURATION the warming from CO₂ and other GHG emissions in the future will have an even smaller impact.

Accordingly, the EPA should:

(1) issue its proposed rule ASAP to stop requiring industrial entities to report misleading GHG information about climate change and

(2) take corrective action to inform the public of the real science that increasing carbon dioxide and other GHG emissions, and increasing the use of fossil fuels will benefit people worldwide with more food and cheap energy, with only a trivial effect on temperature and extreme weather.

⁴ IPCC, *Climate Change 2021: The Physical Science Basis*, p. 424, IPCC, [Press release wgi ar6 website-final \(Aug. 9, 2021\)](#), p. 3.

⁵ NAS, *Effects of Human-Caused Greenhouse Gas Emissions on U.S. Climate, Health, and Welfare* (2025), p.19 (citations omitted).

Scientific details follow.⁶

Table of Contents

SATURATION PHYSICS DEMONSTRATES GHG EMISSIONS FROM THE BEGINNING OF THE INDUSTRIAL AGE IN 1750 HAVE NOT, CANNOT AND WILL NOT CAUSE CATASTROPHIC WARMING, EXTREME WEATHER AND HARM.....	4
A. Saturation Physics	4
B. Saturation Physics and 600 Million Years of the Geological History of Carbon Dioxide and Temperature.....	6
C. Saturation Physics and Net Zero’s Trivial Effect on Temperature	7
D. Saturation Physics and Attributing Harm to Fossil Fuels Violates Basic Physics	7
E. Increasing CO ₂ Emissions and Use of Fossil Fuels Benefits People Worldwide	8
CONCLUSION.....	8
CURRICULUM VITAE.....	10

⁶ This comment focuses on saturation physics, but there are many other scientific reasons that demonstrate the same conclusion that the Net Zero Theory is scientifically invalid. See, e.g., Richard Lindzen and William Happer, “Physics Demonstrates that Increasing Greenhouse Gases Cannot Cause Dangerous Warming, Extreme Weather or Any Harm” (June 7, 2025), <https://co2coalition.org/wp-content/uploads/2025/06/Lindzen-Happer-GHGs-and-Fossil-Fuels-Climate-Physics-2025-06-07.pdf> & Steven Koonin, *Unsettled* (2d.ed. 2024).

SATURATION PHYSICS DEMONSTRATES GHG EMISSIONS FROM THE BEGINNING OF THE INDUSTRIAL AGE IN 1750 HAVE NOT, CANNOT AND WILL NOT CAUSE CATASTROPHIC WARMING, EXTREME WEATHER AND HARM

A. Saturation Physics

Carbon dioxide and other GHGs rapidly lose their capacity to warm the planet as their concentration in the atmosphere increases. In radiation transfer physics, this widely observed effect is called "saturation."

The saturation effect of CO₂ is shown in Fig.1 below.⁷ Increasing concentrations of other GHGs like methane, CH₄ or nitrous oxide, N₂O cause only a small fraction of the warming from CO₂.⁸ For CO₂ concentrations greater than about one part per million (ppm) each doubling of atmospheric concentrations causes the same warming (the warming is proportional to the logarithm of the CO₂ concentration). Fig. 1 below show that there is a strong "law of diminishing returns."

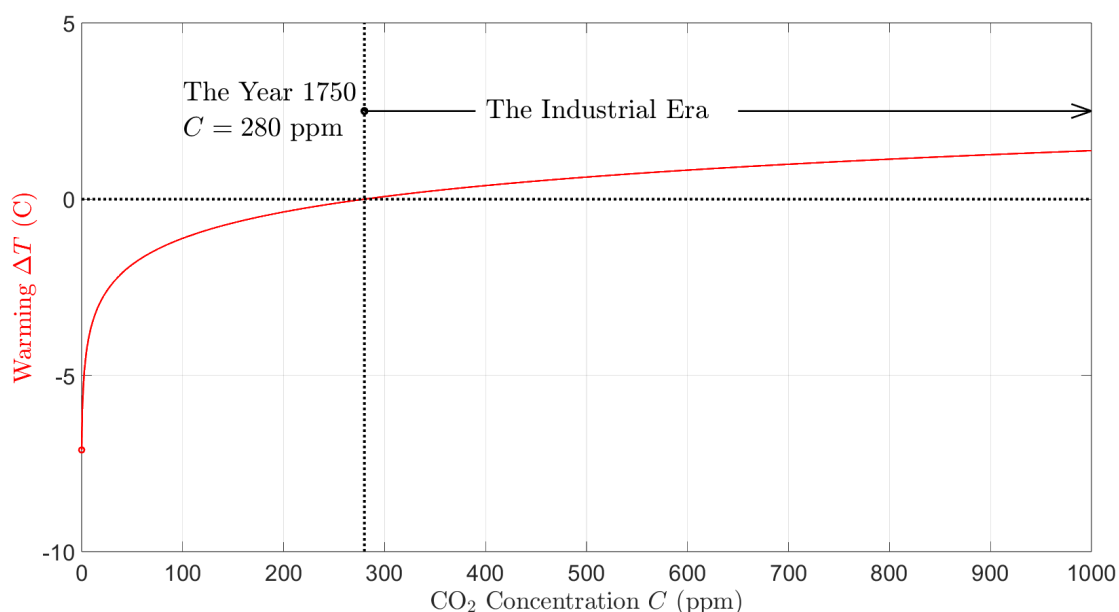


Fig. 1. The warming from increasing concentrations C of CO₂ follows a law of diminishing returns.

In Fig. 1, the warming from doubling CO₂, for example, from adding 280 ppm to the preindustrial value to get 560 ppm, is assumed to be 0.75 C. This is often called the climate sensitivity. To warm by another 0.75 C would require another doubling of CO₂ concentration to

⁷ See also the effect on thermal radiation flux to space. William van Wijngaarden and William Happer, "Saturation Graphics" (Oct. 8, 2025) [Saturation-1.pdf](#).

⁸ "Radiative effects of CH₄ [methane] and N₂O [nitrous oxide] are so small that they are irrelevant to climate." William van Wijngaarden and William Happer, "Methane and Climate" (2019), <https://co2coalition.org/wp-content/uploads/2021/08/Methane-and-Climate.pdf>, p. 4; William van Wijngaarden & William Happer, *Instantaneous Clear Sky Radiative Forcings of Halogenated Gases* (June 23, 2023), : <https://arxiv.org/pdf/2306.13642>

1120 ppm or the addition of 560 ppm. Starting from no CO₂ at all in the atmosphere, C=0, only 0.42 ppm of CO₂ would be needed to cause an initial warming of 0.75 C.

Most knowledgeable scientists agree on the logarithmic shape of the curve in Fig. 1, and the only real dispute over the value of the climate sensitivity, taken to be 0.75 C in Fig. 1. This is a “feedback” free estimate. Larger values required positive feedbacks from other change in the atmosphere and oceans. However, most feedbacks in nature are negative, not positive, so the real warming that will eventually be determined from observations is likely to be less than the already small amount shown in Fig. 1. Most of the observed temperature increase since the year 1800 has been from causes other than increasing CO₂. Because of saturation, increasing CO₂ will make an even smaller contribution to any future warming.

Fig. 2 below shows more information on saturation.⁹ The upper blue curve is the Planck spectrum of a black body. It shows the heat energy the Earth would radiate to space at various frequencies if our atmosphere had no greenhouse gases or clouds and a surface temperature of about 15 C. The total radiation flux, the area under the curve, is measured in Watts per square meter (W/m²) and is 394 W/m² for the blue Planck curve. The jagged black curve below the blue curve shows how the current concentrations of greenhouse gases reduce Earth’s radiation to space. The frequencies absorbed and emitted by the different greenhouse gases are marked in Fig. 2. Because of greenhouse gases, the Earth radiates 277 W/m² rather than 394 W/m² to space, 70% (277/394) of what it would radiate with no greenhouse gases. Without greenhouse gases, the total heat loss of 394 W/m² would soon cool the Earth’s surface to 16° F, well below freezing. Most life would end at these low temperatures. Thus, we should be grateful for greenhouse warming of the Earth.

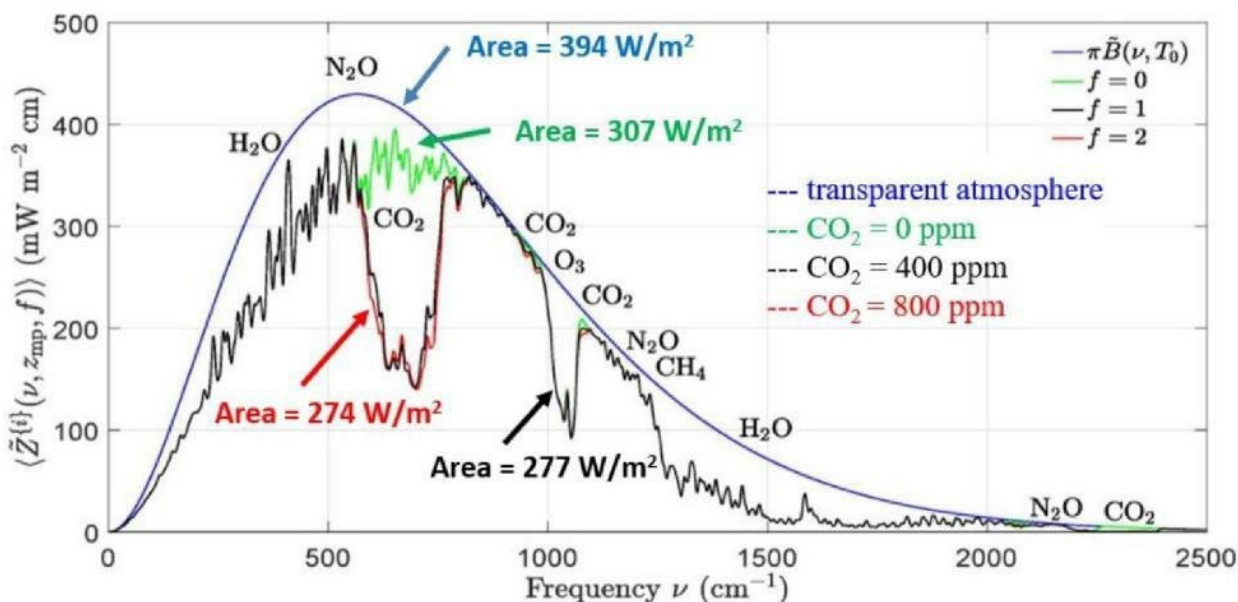


Fig. 2. The spectral intensity of thermal radiation to space with no greenhouse gases or clouds (blue); with current concentrations of greenhouse gases (black); for current greenhouse gas concentrations, but a doubled concentration of CO₂; and for current greenhouse gas concentrations and no CO₂ at all (green).

⁹ William Happer & William van Wijngaarden, *Dependence of Earth’s Thermal Radiation on Five Most Abundant Greenhouse Gases*, p.1, <https://arxiv.org/abs/2006.03098>.

The message of Fig. 2 is that doubling the concentration of CO₂ from its current value hardly makes any difference in Earth's thermal radiation to space and warming. Doubling the concentrations of methane or nitrous oxide would have an even smaller effect.

B. Saturation Physics and 600 Million Years of the Geological History of Carbon Dioxide and Temperature

Fig. 3 shows an estimate, from various geological proxy data, of how the concentration of CO₂ in Earth's atmosphere and Earth's average surface temperature have varied over the last 600 million years when there was a good fossil record of past life.¹⁰

Saturation physics explains why temperatures were not catastrophically high over the hundreds of millions of years when CO₂ levels were 10 to nearly 20 times higher than they are today. The physics of carbon dioxide demonstrated above is that it very rapidly (logarithmically) loses its capacity to warm the planet as CO₂ concentration in the atmosphere increases.

The blue line of Fig. 3 shows CO₂ levels and the red line shows temperature.

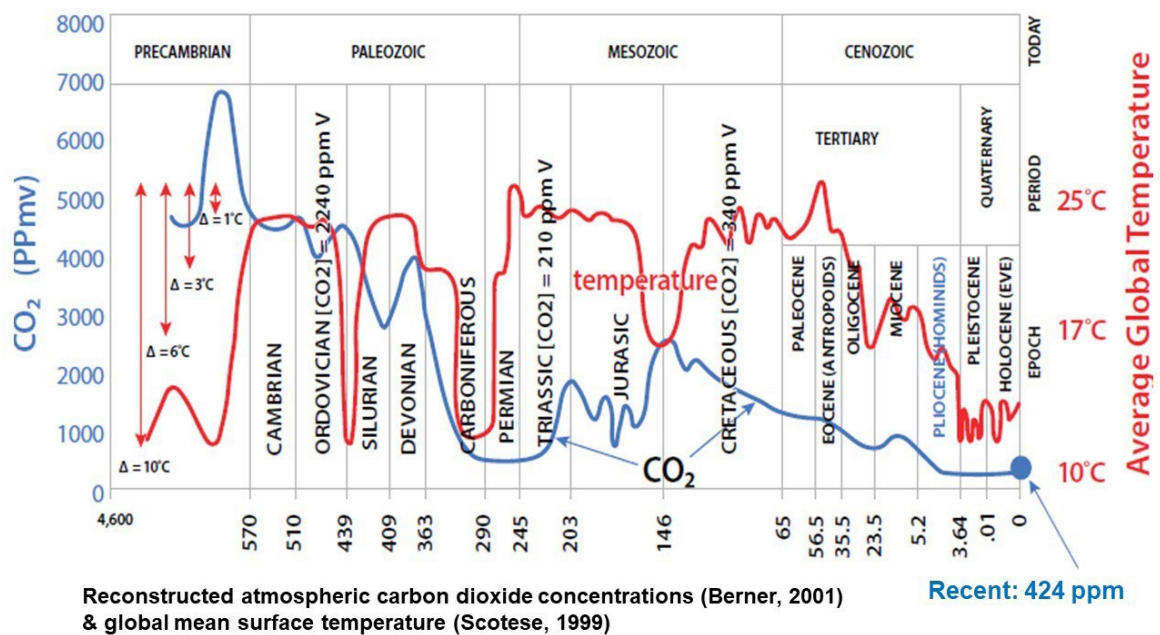


Fig. 3. Atmospheric CO₂ concentrations and average surface temperatures of the Earth over the past 600 million years.

Fig. 3 shows and saturation physics also explains:

- When CO₂ was at a record high at about 7,000 ppm, temperatures were at a near-record low.
- When CO₂ levels were low, some 245 million years ago temperatures were at near record highs.
- Clearly CO₂ is not the “control knob” of Earth’s climate.

¹⁰ Nasif Nahle, *Geologic Global Climate Changes, Biology Cabinet J.* (Mar. 2007).
Updated by Gregory Wrightstone May 2024

Most revealingly, saturation physics explains why temperatures were not catastrophically high over the hundreds of millions of years when CO₂ levels were 10 to nearly 20 times higher than they are today.

C. Saturation Physics and Net Zero's Trivial Effect on Temperature

There are enormous efforts by the U. S. and worldwide to reduce CO₂ and other GHG emissions to Net Zero by 2050. We show that all these efforts to achieve Net Zero emissions of carbon dioxide, if fully implemented, will have a trivial effect on temperature because of the saturation of the CO₂ “forcing.” Doubling CO₂ concentrations, a 100% increase, will only decrease radiation to space by about 1%, and this can be compensated for by a warming of the absolute temperature of about ¼ % or less than 1 C.

- United States Net Zero by 2050 — only avoids a temperature increase of 2/100° F (0.02° F) with no positive feedback, and only 6/100° F (0.06° F) with positive feedback of 4 that is typically built into the models of the United Nations International Panel on Climate Change (IPCC).
- Worldwide Net Zero by 2050 — only avoids a temperature increase of 13/100 (0.13 °F), or 50/100° F (0.50° F) with a factor of 4 positive feedback.

Further, as noted, the IPCC and others have never been forthcoming with a scientific justification of their “positive feedbacks.” And there is none.

Details of how these numbers are calculated can be found at Richard Lindzen, William Happer and William van Wijngaarden, *Net Zero Avoided Temperature Increase*, ([Net Zero Averted Temperature Increase – CO₂ Coalition](http://arxiv.org/abs/2406.07392); <http://arxiv.org/abs/2406.07392>).

These temperature changes are trivial, but the cost of achieving them would be disastrous to people worldwide.

D. Saturation Physics and Attributing Harm to Fossil Fuels Violates Basic Physics

New York and Vermont have Climate Superfund laws and many lawsuits in state courts seek tens of trillions of dollars in damages they assert can be attributed to fossil fuel carbon dioxide and other GHG emissions.¹¹ The New York Climate Superfund law alone seeks \$75 billion in damages.¹²

All are premised on the theory fossil fuel carbon dioxide and other GHG emissions cause harm. The theory is scientifically invalid. It totally ignores saturation physics, which demonstrates as shown above that, at least from the beginning of the Industrial Age in 1750, to present times and the future, GHG emissions from fossil fuels have not, cannot and will not cause catastrophic warming, extreme weather and harm. Even doubling CO₂ and other GHG emissions only results in negligible increase in temperature. GHG emissions since 1750 have

¹¹ Jessica Wentz, [Conference Report: Attribution Science and Climate Law](#) | Sabin Center for Climate Change Law (March 2025); National Academy of Sciences, *supra*, “Attribution of Earth’s Warming and Energy Imbalance to Human Activities” pp. 19 et. seq.; DOJ Press Release, “Justice Department Files Complaints Against Hawaii, Michigan, New York and Vermont Over Unconstitutional State Climate Actions” (May 1, 2025).

¹² Claire Brown, “New York Legislators Pass Climate Superfund Bill,” *Wall St. J.* (June 12, 2024).

caused negligible increases in temperature, probably less than 1 C, and they have been a huge benefit to agriculture and forestry. CO₂ emissions have benefited humanity and life on Earth. They have caused no harm.

E. Increasing CO₂ Emissions and Use of Fossil Fuels Benefits People Worldwide

Doubling carbon dioxide from today's approximately 420 ppm to 840 ppm would increase the amount of food available to people worldwide by roughly 40%,¹³ while having a negligible effect on temperature, 0.75° C (1.4 F) because of saturation.

Sylvan Wittwer eloquently elaborated:

"The rising level of atmospheric CO₂ could be the one global natural resource that is progressively increasing food production and total biological output ... The effects know no boundaries, and both developing and developed countries are, and will be, sharing equally."¹⁴

Dr. Craig Idso bluntly summarized the disastrous consequences of Net Zero carbon dioxide policies if implemented:

"[R]estricting anthropogenic CO₂ emissions... are enacted, they will greatly exacerbate future food problems by reducing the CO₂-induced yield enhancements.... And because of such CO₂ emissions rules, hundreds of millions of the world's population will be subjected to hunger and malnutrition. Even more troubling is the fact that thousands would die daily because of health problems they likely would have survived had they received adequate food and nutrition."¹⁵

Fossil fuels are the most affordable and reliable source of energy to significantly improve the lives of the billions of people who do not have adequate energy and will also prevent millions of unnecessary deaths.

"If the world's least fortunate are to improve their lives and join the developed world, there must be a dramatic increase in their personal energy consumption, and that of the societies in which they live. There is simply no other way to escape poverty Zero Energy Poverty by 2050 is a humane and achievable goal."¹⁶

CONCLUSION

Physics demonstrates there is no scientific basis for the GHGRP because CO₂ has been saturated from at least the beginning of the Industrial Age in 1750, and the warming effects of CO₂ and the other GHGs are therefore negligible.

Therefore, the EPA should:

¹³ One of the authors (Happer) explained that experiments with CO₂ fertilization show that many crop yields increase by a factor x with adequate water and other nutrients, where x is the ratio of the current CO₂ ppm level to the former level. Doubling from 400 to 800 ppm means $x = 800/400 = 2$, and $\sqrt{2} = 1.41$, implying approximately a 40% increase. (Note it would take more than a century for CO₂ to reach 800 ppm).

¹⁴ Quoted in NIPCC, *Climate Change Reconsidered II: Fossil Fuels* (2019), pp. 322–23.

¹⁵ Craig Idso, *Estimates of Global Food Production in The Year 2050: Will We Produce Enough to Adequately Feed the World?* p. 31 (2011).

¹⁶ Chris Wright, *Bettering Human Lives*, pp. 18-19.

(1) issue its proposed GHGPR rule ASAP to stop requiring industrial entities to report misleading GHG information about climate change and

(2) take corrective action to inform the public of the real science that increasing carbon dioxide and other GHG emissions, and increasing the use of fossil fuels will benefit people worldwide with more food and cheap energy with only a trivial effect on temperature and extreme weather.

CURRICULUM VITAE

William Happer, Ph.D.

I am a Professor Emeritus in the Department of Physics at Princeton University.

I began my professional career in the Physics Department of Columbia University in 1964, where I served as Director of the Columbia Radiation Laboratory from 1976 to 1979. I joined the Physics Department of Princeton University in 1980.

I invented the sodium guidestar that is used in astronomical adaptive optics systems to correct the degrading effects of atmospheric turbulence on imaging resolution. I have published over 200 peer-reviewed scientific papers, am a Fellow of the American Physical Society, the American Association for the Advancement of Science, and a member of the American Academy of Arts and Sciences, the National Academy of Sciences and the American Philosophical Society.

I served as Director of Energy Research in the U.S. Department of Energy from 1991 to 1993. I was a co-founder in 1994 of Magnetic Imaging Technologies Incorporated (MITI), a small company specializing in the use of laser-polarized noble gases for magnetic resonance imaging. I served as Chairman of the Steering Committee of JASON from 1987 to 1990.

I served as Deputy Assistant to the President and Senior Director for Emerging Technologies at The National Security Council in the White House from 2018 to 2019.

I am the Chair of the Board of Directors of the CO₂ Coalition, a nonprofit 501(c)(3) organization established in 2015 to educate thought leaders, policy makers and the public about the vital contribution made by carbon dioxide to our lives and our economy.