

ORAL ARGUMENT NOT YET SCHEDULED
IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

AMERICAN PUBLIC HEALTH
ASSOCIATION, *et al.*,

Petitioners,

v.

U.S. ENVIRONMENTAL
PROTECTION AGENCY and LEE
ZELDIN, Administrator, U.S.
Environmental Protection Agency,

Respondents.

Case No. 26-1037

**MOTION OF CO₂ COALITION TO
INTERVENE AS RESPONDENT**

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In this proceeding for review, Petitioners challenge the Environmental Protection Agency's (EPA) decision to rescind the 2009 Greenhouse Gas Endangerment Finding, which served as the EPA's basis for regulating new motor vehicle and new motor vehicle engine emissions. *See* 91 Fed. Reg. 7686 (Feb. 18, 2026) ("Final Rule"). Under Federal Rule of Appellate Procedure 15(d), the CO₂ Coalition moves to intervene as Respondent.¹

BACKGROUND

A. EPA Issues and Now Rescinds the Endangerment Finding

The Clean Air Act (CAA) "regulates pollution-generating emissions from both stationary sources, such as factories and powerplants, and moving sources, such as cars, trucks, and aircraft." *Util. Air Regul. Grp. v. EPA*, 573 U.S. 302, 308 (2014).

In 2008, EPA "embarked on a course of regulation resulting in 'the single largest expansion in the scope of the [Act] in its history.'" *Id.* at 310

¹ Counsel for Movant contacted all parties joined in this litigation. Petitioners in Case Nos. 26-1037, 1039, 1043, and 1051 take no position on this motion. Petitioner in Case No. 26-1038 did not respond to Movant's inquiry. State and Local Government Petitioners in Case No. 26-1061 could not provide a position before filing. Respondents informed counsel they reserve their position until they have reviewed the motion.

(quoting Clean Air Act Handbook, at xxi). That course culminated in EPA's 2009 Endangerment Finding, in which EPA "found that greenhouse-gas emissions from new motor vehicles contribute to elevated atmosphere concentrations of greenhouse gases, which endanger public health and welfare by fostering global 'climate change.'" *Id.* at 311 (citing 74 Fed. Reg. 66523, 66537). Providing an "extreme degree of deference to the agency," this Court upheld the Endangerment Finding. *Coalition for Responsible Reg., Inc. v. EPA*, 684 F.3d 102, 120 (D.C. Cir. 2012). However, the Supreme Court has sustained two challenges to EPA rules issued pursuant to the Endangerment Finding because the rules imposed major regulatory burdens without a sufficient basis in the CAA's text. *See West Virginia v. EPA*, 597 U.S. 679 (2022); *Util. Air Regul. Grp.*, 573 U.S. at 333.

Last month, EPA moved to rescind the Endangerment Finding. EPA has concluded that it does not possess the statutory authority under the CAA to maintain its Endangerment Finding. *See* 91 Fed. Reg. at 7688. Consistent with the Supreme Court's approach to "major questions," the agency concluded that "Congress did not decide the

Nation's policy response to global climate change" in the CAA and did not authorize EPA to "prescribe[e] emission standards." *Id.*

Petitioners filed the initial petition for review on February 18, 2026. Subsequent petitions were filed, and consolidated with Petitioners' case, on February 20, February 23, February 27, and March 13, 2026. On March 6, 25 States moved to intervene as Respondents. On March 19, 2026, Protect the Public's Trust and the Western States Trucking Association filed motions to intervene as Respondents.

B. Movant Has Long Advocated for the Benefits of CO₂

The CO₂ Coalition is a 501(c)(3) tax-exempt corporation with a mission to advance the public understanding of the essential role carbon dioxide plays in sustaining plant life, agriculture, and the global ecosystem. Declaration of Professor William Happer ¶ 8 (Happer Decl.). Professor William Happer, Roger Cohen, and Rodney W. Nichols founded the organization in 2015 because they believed there needed to be an organization that advocated for environmental and energy policies grounded in honest, complete cost-benefit analysis that accounts for the many benefits of CO₂. *Id.* ¶¶ 7, 8.

Since then, the Coalition has participated in the public conversation around carbon dioxide through public events, interviews, articles, expert opinions, amicus briefs, testimonies, white papers, and comments submitted to federal agencies, including EPA. *Id.* ¶ 11; *see infra*, p. 8 (discussing some of the Coalition’s comments to federal agencies regarding environmental rulemaking). The Coalition has many members, some of whom have submitted declarations attached to this motion, who have been or will be harmed by the EPA’s 2009 Endangerment Finding and would benefit from its rescission in the Final Rule at issue in this case. *Id.* ¶ 12. Among them are members whose agricultural activities benefit from the global and localized effects of vehicle emissions subject to regulation resulting from the Endangerment Finding. *Id.*

ARGUMENT

Under Federal Rule of Appellate Procedure 15(d), any person may move to intervene in a proceeding for review of an administrative order within 30 days after the petition for review is filed. The motion need only contain “a concise statement of the interest of the moving party and the

grounds for intervention.” Fed. R. App. P. 15(d); *see also Ala. Mun. Distribs. Grp. v. FERC*, 300 F.3d 877, 879 (D.C. Cir. 2002).

Since Rule 15(d) does not provide standards for intervention, “appellate courts have turned to the rules governing intervention in the district courts under Fed. R. Civ. P. 24.” *Sierra Club, Inc. v. EPA*, 358 F.3d 516, 517 (7th Cir. 2004); *see also Amalgamated Transit Union Int’l v. Donovan*, 771 F.2d 1551, 1553 n.3 (D.C. Cir. 1985) (per curiam) (recognizing Rule 24 informs the “grounds for intervention” under Rule 15(d)). This Court has adopted a liberal approach to intervention, especially in administrative cases. *See Nat. Res. Def. Council v. Costle*, 561 F.2d 904, 910 (D.C. Cir. 1977). Rule 24 provides for both intervention-as-of-right and permissive intervention. The CO₂ Coalition should be permitted to intervene under either standard.

I. Movant Satisfies the Standard for Intervention as of Right

Under Federal Rule of Civil Procedure 24(a)(2), a movant is entitled to intervene as-of-right whenever (1) its motion is “timely;” (2) the movant claims an “interest relating to the . . . subject of the action;” (3) disposition of the action “may as a practical matter impair or impede the movant’s ability to protect its interest;” and (4) the existing parties

may not “adequately represent” the movant’s interest. Fed. R. Civ. P. 24(a)(2); *see also Fund for Animals, Inc. v. Norton*, 322 F.3d 728, 731 (D.C. Cir. 2003). Movant satisfies all four criteria because its motion is timely, its interest in the litigation is clear and direct, an adverse ruling will harm its and its members’ interests, and Respondent may not adequately represent its interests.²

² This Court has liberally allowed intervention from environmental advocacy groups and similarly situated parties in similar cases. *See* Order of Jan. 24, 2024, *United States Sugar Corp. v. EPA*, No. 22-1271 (D.C. Cir.) (granting Sierra Club intervention); Order of Apr. 20, 2022, *Texas v. EPA*, No. 22-1031 (D.C. Cir.) (granting Sierra Club, Environmental Defense Fund, Public Citizen, and other environmental advocacy groups intervention); Order of June 16, 2017, *Clean Air Council v. Pruitt*, No. 17-1145 (D.C. Cir.) (granting American Petroleum Institute, Interstate Natural Gas Association of America, Texas Oil & Gas Association, and GPA Midstream Association intervention); Order of Apr. 3, 2013, *Am. Petroleum Inst. v. EPA*, No. 12-1405 (D.C. Cir.) (granting Sierra Club, Group Against Smog and Pollution, Clean Air Council, and similar environmental advocacy groups intervention); Order of Apr. 8, 2011, *Am. Gas Ass’n v. EPA*, No. 11-1020 (D.C. Cir.) (granting Environmental Defense Fund, Natural Resources Defense Council, and Sierra Club intervention); *NRDC v. EPA*, 571 F.3d 1245 (D.C. Cir. 2009) (granting National Petrochemical and Refiners Association and other industry groups intervention); *Am. Farm Bureau Fed’n v. EPA*, 559 F.3d 512 (D.C. Cir. 2009) (granting industry groups intervention); *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008) (granting chemical industry groups intervention). The CO2 Coalition is similarly situated to these groups that this Court has permitted to intervene in similar cases.

A. Movant Timely Filed This Motion

Under Rule 15(d), motions to intervene are generally due within thirty days of the filing of a petition for review. The first petition for review in these consolidated cases was filed on February 18, 2026. Because Movant files this motion on March 20, 2026, its motion is timely both from the date of the first petition review and all subsequent petitions.

B. Movant Has Significant Interest in the Final Rule that Will be Impaired if the Rule is Vacated

The CO₂ Coalition has a clear and direct interest in this litigation that will be impaired should Petitioners prevail. The Coalition's mission is to advance public understanding of the essential role carbon dioxide plays in sustaining plant life, agriculture, and the global ecosystem. Happer Decl. ¶ 8. To that end, the Coalition participates in the public debate about carbon dioxide, advocating for environmental and energy policies rooted in science and truth. *Id.* This participation includes interacting with relevant stakeholders and policymakers, including through the submission of comments to federal agencies, white papers, expert opinions, amicus briefs, and testimony before legislatures. *Id.* ¶ 11.

The Coalition's mission and purpose has attracted hundreds of members whose livelihoods directly benefit from the global and localized effects of carbon dioxide, including from vehicle emissions. *Id.* ¶ 12. Those benefits are reflected in the attached member declarations. Some members, including Debbie Bacigalupi and David Galligan, own dairy and beef cows, and they have experienced the harms to farms, particularly small farms, caused by regulations issued pursuant to the Endangerment Finding. Declaration of Debbie Bacigalupi ¶¶ 6–10; Declaration of David Galligan ¶¶ 6–13. Additionally, these farms directly benefit from increased CO₂, including from localized concentrations of regulated emissions, because these emissions enhance the vegetation growth on which their animals graze. Bacigalupi Decl. ¶ 7; Galligan Decl. ¶ 7.

Similarly, Perry Long, another Coalition member, owns a farm. Declaration of Perry Long ¶ 4. The Endangerment Finding has negatively affected him because it has driven up his farming costs due to environmental and pollution controls. *Id.* ¶ 6. Further, his livestock consume vegetation enhanced by localized concentrations of regulated emissions. *Id.* ¶ 7.

Professor Rolf Reitz, also a Coalition member, is a mechanical engineer and academic whose research and work focuses on using advanced computer models to design fuel-injected engines, including both diesel and spark-ignition engines. Declaration of Rolf Reitz ¶ 6. The Endangerment Finding has harmed him in numerous ways, including by degrading his ability to research and develop gas-powered internal combustion engines. *Id.* ¶ 7–8. The Endangerment Finding led to a substantial decrease in funding for his research into the internal combustion engine and other CO₂ producing technology. *Id.* ¶¶ 9–10; *see also* Declaration of Jim Petersen ¶¶ 7–10.

Movant also has a strong organizational interest in upholding the Final Rule. For over a decade, the CO₂ Coalition has educated the public about the benefits of carbon dioxide and advocated for environmental and energy policies grounded in science and fact. Happer Decl. ¶ 8. To that end, Professor Happer and the CO₂ Coalition have submitted comments to agencies concerning environmental and energy policy, including a comment supporting the Final Rule at issue in this case. *See* Comment of Richard Lidzen and William Happer, Docket ID No. EPA-HQ-OAR-2025-

0194 (Sept. 22, 2025); *see also* Comment of Dr. D. Weston Allen, Dr. Jan Breslow, and Dr. Daniel Nebert, Docket ID No. EPA-HQ-OAR-2025-1094 (Sept. 30, 2025).³

These interests are sufficient to support intervention. This Court's precedents have found a protectable interest supporting intervention "where a party benefits from agency action, the action is then challenged in court, and an unfavorable decision would remove the party's benefits." *Crossroads Grassroots Policy Strategies v. FEC*, 788 F.3d 312, 317 (D.C. Cir. 2015). For example, in *Military Toxics Project v. EPA*, this Court permitted the Chemical Manufacturers Association to intervene on the side of the EPA. 146 F.3d 948 (D.C. Cir. 1998). The Court reasoned that CMA's members directly benefited from the rule at issue, and an adverse ruling would therefore harm them. *Id.* at 954. This constituted an

³ The Coalition has filed comments in similar cases, including: Reconsideration of the Greenhouse Gas Reporting Program, Docket ID No. EPA-HQ-OAR-2025-0186 (Nov. 3, 2025); A Critical Review of Impacts of Greenhouse Gas Emissions on the U.S. Climate, Docket ID No. DOE-HQ-2025-0207-0001 (Feb. 12, 2026); Proposed Fossil Fuel Power Plant Rule, Docket ID No. EPA-HQ-OAR-2023-0072 (July 19, 2023); Energy Conservation Standards For Consumer Conventional Cooking Products, Docket ID No. EERE-2014-BT-STD-0005 (Apr. 17, 2023); National Performance Management Measures, Docket ID No. FHWA-2021-0004 (Oct. 13, 2022).

interest in the litigation sufficient to intervene. So too here, where the CO₂ Coalition's members directly benefit from the Final Rule, and a ruling adverse to EPA will directly harm the Coalition's members.

C. Existing Parties May Not Adequately Represent Movant's Interests

Movant's interests may not be adequately represented by the existing parties. This is a "minimal" requirement to the intervention showing, *Trbovich v. United Mine Workers of America*, 404 U.S. 528, 538 n.10 (1972), where the "applicant need only show that the representation of his interest 'may be' inadequate, not that representation will in fact be inadequate," *Dimond v. District of Columbia*, 792 F.2d 179, 192 (D.C. Cir. 1986).

Although Movant supports EPA's (and, if permitted to intervene, the Intervenor-States') position here, mere agreement between a private party and a government agency does not preclude the possibility of inadequate representation, particularly when the Respondent is the government. *See Fund for Animals*, 322 F.3d at 736. Further, Movant need not "predict now the specific instances," *Costle*, 561 F.2d at 912, in which conflicts may arise, as a "potential conflict," *Dimond*, 792 F.2d at 193, or a "possibility of disparate interests," *Costle*, 561 F.2d at 912, is

sufficient. This Court “look[s] skeptically on government entities serving as adequate advocates for private parties.” *Id.* And it has “often concluded that government entities do not adequately represent the interests of aspiring intervenors.” *Fund for Animals*, 322 F.3d at 736.

Movant easily clears this low standard. As a government agency, EPA must inherently balance and weigh various interests and perspectives, including primarily the interest of the general public. Movant’s interests are narrower and clearer: to defend the lawfulness and reasonableness of the action under review in a manner consistent with the essential role carbon dioxide plays in sustaining plant life, agriculture, and the global ecosystem. Since EPA is focused on a broad “representation of the public interest,” and not the “narrower interest” of the Coalition as a regulated entity, *Dimond*, 792 F.2d at 192–93, this Court has liberally granted intervention for private parties seeking to defend EPA rules, *see supra*, n.1. Indeed, this Court has found that because a movant’s interests are “more narrowed and focused than EPA’s,” its participation is “likely to serve as a vigorous and helpful supplement to EPA’s defense” of the Rule. *Costle*, 561 F.2d at 912–13.

Accordingly, the CO₂ Coalition should be permitted to intervene to fully represent its interests in this litigation.⁴

II. If Necessary, Movant Has Standing to Intervene

The Supreme Court has held that an intervenor need not demonstrate standing if it is not seeking relief broader than the party invoking the Court's jurisdiction, see *Little Sisters of the Poor Saints Peter & Paul Home v. Pennsylvania*, 591 U.S. 657 (2020), or it is not invoking the Court's jurisdiction, see *Va. House of Delegates v. Bethune-Hill*, 587 U.S. 658 (2019). This Court has recently recognized those holdings, stating that “intervenors that seek the same relief sought by at least one existing party need not” establish standing. *Institutional S'holder Servs., Inc. v. SEC*, 142 F.4th 757, 764 n.3 (D.C. Cir. 2025) (citing *Little Sisters*,

⁴ The CO₂ Coalition also qualifies for permissive intervention. Federal Rule of Civil Procedure 24(b)(1) allows permissive intervention where an intervenor timely demonstrates that its claim or defense has a question of law or a question of fact in common with the main action. See *EEOC v. Nat'l Children's Ctr., Inc.*, 146 F.3d 1042, 1046 (D.C. Cir. 1998). It does not require a showing of inadequate representation nor a direct interest in the subject matter. To establish a common defense, it is sufficient that “movant[] seek[s] to defend” the agency's decision. *Sault Ste. Marie Tribe of Chippewa Indians v. Bernhardt*, 331 F.R.D. 5, 14 (D.D.C. 2019). If permitted to intervene, the Coalition will address the issues of law and fact that Petitioners press to invalidate the Final Rule and defend the agency's decision. It therefore satisfies the standard for permissive intervention.

591 U.S. at 674 n.6). Because the CO₂ Coalition seeks the same relief as Respondent here, it need not establish standing.

If necessary, the CO₂ Coalition has Article III standing to intervene in support of EPA because, as discussed above, its members include those who are harmed by the Endangerment Finding and benefit from the Final Rule. Under this Circuit's precedent, an intervenor has standing to defend agency action when it "benefits from [the] agency action, the action is then challenged in court, and an unfavorable decision would remove the [movant's] benefit." *Crossroads*, 788 F.3d at 317; *see also Military Toxics Project*, 146 F.3d at 954. Further, an organization may defend agency action on behalf of its members when "(1) at least one of its members would have standing to [defend] in his or her own right; (2) the interests it seeks to protect are germane to the organization's purpose; and (3) neither the [defense] asserted nor the relief requested requires the participation of individual members in the lawsuit." *Hearth, Patio & Barbecue Ass'n v. EPA*, 11 F.4th 791, 802 (D.C. Cir. 2021) (cleaned up).

First, Movant's members have standing to defend the Final Rule. As explained above, and as demonstrated in the attached declarations,

these members directly benefit from the Final Rule and have been directly harmed by the Endangerment Finding. Therefore, they will continue to be harmed if the Court vacates the Final Rule.

Second, Movant satisfies the remaining associational standing requirements. The interests Movant seeks to protect by defending the Final Rule is plainly germane to the Coalition's purpose of advocating for a science-backed approach to regulation of carbon dioxide emissions. *See, e.g., Chesapeake Climate Action Network v. EPA*, 952 F.3d 310, 318 (D.C. Cir. 2020). Further, Movant's participation does not require individual member participation because Petitioners raise questions of law or fact that will be resolved on the administrative record without consideration of Movant's members' particular circumstances. *See Ctr. for Sustainable Econ. v. Jewell*, 779 F.3d 588, 597 (D.C. Cir. 2015).

CONCLUSION

The CO2 Coalition respectfully requests that the Court grant its motion to intervene as Respondent.

Respectfully submitted,

/s/Andrew M. Grossman

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CERTIFICATE OF COMPLIANCE

I hereby certify on this 20th day of March 2026, that the foregoing Motion complies with the word limits of Federal Rule of Appellate Procedure 27(d)(2)(A) because it contains 3,016 words, excluding parts of the document exempted by Federal Rule of Appellate Procedure 32(f). I further certify that this document complies with the typeface and typestyle requirements of Federal Rule of Appellate Procedure 32(a)(5) & (6) because this document has been prepared in 14-point Century Schoolbook font, a proportionally spaced typeface, using Microsoft Word.

/s/ Andrew M. Grossman
Andrew M. Grossman

CERTIFICATE OF SERVICE

I hereby certify on this 20th day of March 2026, that the foregoing Motion has been filed with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit, using the CM/ECF System. The participants in the case are registered CM/ECF users and service will be accomplished by the appellate CM/ECF system, save for Mr. Worthington, who will be served by email per his request in ECF No. 2162370.

/s/ Andrew M. Grossman
Andrew M. Grossman

ADDENDUM

ORAL ARGUMENT NOT YET SCHEDULED
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CORPORATE DISCLOSURE STATEMENT OF CO₂ COALITION

Pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure and Circuit Rule 26.1, the CO₂ Coalition respectfully submits this Corporate Disclosure Statement and states as follows:

The CO₂ Coalition is a tax exempt 501(c)(3) nonprofit established in 2015 for the purpose of educating thought leaders, policy makers, and the public about the important contributions made by carbon dioxide to our lives and the economy. The CO₂ Coalition has no parent corporation, and no publicly held company has 10% or greater ownership in the CO₂ Coalition.

Dated: March 20, 2026

Respectfully submitted,

/s/ Andrew M. Grossman

Andrew M. Grossman

Counsel for CO₂ Coalition

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DECLARATION OF PROFESSOR WILLIAM HAPPER

I, William Happer, declare as follows:

1. My name is William Happer, and I am of legal age and competent to give this declaration. All information herein is based on my own personal knowledge unless otherwise indicated.
2. I am Professor Emeritus in the Department of Physics at Princeton University.
3. I received a B.S. degree in Physics from the University of North Carolina in 1960 and a Ph.D. in Physics from Princeton University in 1964.

4. I taught physics from 1964 until my retirement in 2014. From 1991-1993 I served as the Director of Energy Research in the Department of Energy. From 2018-2019 I served as Deputy Assistant to the President and Senior Director of Emerging Technologies on the National Security Council.
5. I have published over 200 peer-reviewed scientific papers and have been awarded the Alfred P. Sloan Fellowship (1966), the Alexander von Humboldt Award (1976), the Broida Prize (1997), the Davisson-Germer Prize of the American Physical Society (1999), and the Thomas Alva Edison Patent Award (2000).
6. I have spent my professional life studying the interactions of visible and infrared radiation with gases – one of the main physical phenomena behind the greenhouse effect.
7. In 2015, I, together with Roger Cohen and Rodney W. Nichols, established the CO2 Coalition, a tax-exempt corporation recognized under Section 501(c)(3) of the Tax Code.
8. The CO2 Coalition's mission is to advance public understanding of the essential role carbon dioxide plays in sustaining plant life, agriculture, and the global ecosystem; promote policies that expand the productive

capacity of the earth; support and disseminate rigorous scientific research on the effects of carbon dioxide emissions; and advocate for environmental and energy policies grounded in honest, complete cost-benefit analysis that accounts for the demonstrated benefits of carbon dioxide.

9. Roger Cohen received his B.S. in Physics from MIT and obtained an MS and Ph.D. in Physicals from Rutgers. Mr. Cohen spent 16 years at GE Laboratories (formerly RCA) in Princeton, where he successfully demonstrated the first germanium-silicon thermoelectric power generator, a technology used to power a series of outer solar system exploration spacecraft. Mr. Cohen began working at Exxon Corporate Research Laboratories in 1978, where he built the first research laboratory in theory and modeling at Exxon. While at Exxon, he initiated and led the only industrial research activity in basic research on climate change, and his team were lead authors of key chapters of major IPCC reports. Mr. Cohen passed away on September 10, 2026.
10. Rodney W. Nichols received his degree in Physics from Harvard. He was President and CEO of the New York Academy of Sciences from 1992-2001, Scholar-In-Residence at the Carnegie Corporation of New

York from 1990-1992, and Vice President and Executive Vice President of The Rockefeller University from 1970-1990. In addition to writing two books and many papers, Mr. Nichols advised the White House Office of Science and Technology Policy, the Departments of State, Defense, and Energy, the NIH, NSF, and Peace Corps. Mr. Nichols passed away on August 30, 2018.

11. Since we founded the CO2 Coalition in 2015, the Coalition has amassed hundreds of members and has participated in the public conversation about CO2's role in the world through public events and presentations, interviews, articles, podcasts, expert opinions, amicus briefs, testimonies and statements, state and regional reports, white papers, and comments submitted to federal agencies, including EPA.
12. Many CO2 Coalition members have been or will be harmed by the EPA's 2009 Endangerment Finding and would benefit from its rescission in the Final Rule at issue in this case. Among them are members whose agricultural activities benefit from the global and localized effects of vehicle emissions.
13. I, together with former CO2 Coalition member Prof. Richard Lindzen, with whom I have worked closely, submitted a comment on

September 22, 2025, in response to the EPA's request for comments regarding its Proposed Rule, the Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards, 90 Fed. Reg. 36288 (Aug. 1, 2025). Attached as Exhibit A is a true and correct copy of the comment.

14. Richard Lindzen is an Alfred P. Sloan Professor of Atmospheric Science Emeritus at MIT. A 1964 Harvard graduate, Mr. Lindzen joined the National Center for Atmospheric Research as a staff scientist in 1967. Mr. Lindzen developed our current understanding of numerous scientific phenomena, including the quasi-biennial oscillation of the tropical stratosphere. He also developed the basic description of how surface temperature in the tropics controls the distribution of cumulus convection. At Harvard, Mr. Lindzen has served as the director of the Center for Earth and Planetary Sciences. He was a lead author on the Third Assessment of the UN's IPCC, the report for which the IPCC shared the Nobel Peace Prize with Al Gore.
15. CO2 Coalition members Dr. D. Weston Allen, Dr. Jan Breslow, and Dr. Daniel Nebert also submitted a separate comment in response to

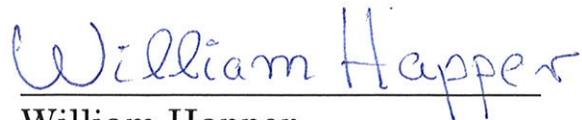
the Proposed Rule. Attached as Exhibit B is a true and correct copy of their comment.

16. In addition to comments submitted regarding the rule at issue in this case, the CO2 Coalition has submitted comments regarding other proposed agency action, including Reconsideration of the Greenhouse Gas Reporting Program,¹ A Critical Review of Impacts of Greenhouse Gas Emissions on the U.S. Climate,² and Proposed Fossil Fuel Power Plant Rule.³

I certify, under penalty of perjury under the laws of the United States of America, that the foregoing is true and correct.

Executed on:

March 18, 2026


William Happer

¹ Docket ID No. EPA-HQ-OAR-2025-0186 (Nov. 3, 2025).

² Docket ID No. DOE-HQ-2025-0207-0001 (Feb. 12, 2026).

³ Docket ID No. EPA-HQ-OAR-2023-0072 (July 19, 2023).

EXHIBIT A

Richard Lindzen

Professor of Earth, Atmospheric, and Planetary Sciences, Emeritus
Massachusetts Institute of Technology

William Happer

Professor of Physics, Emeritus, Princeton University

September 22, 2025

U.S. Environmental Protection Agency
Docket ID No. EPA-HQ-OAR-2025-0194
1200 Pennsylvania Avenue NE
Washington, D.C.

Re: Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards; Extension of Comment Period (“Proposed Rule”)

Dear Administrator Zeldin,

Thank you for the opportunity to comment on the Environmental Protection Agency’s (“EPA”) Proposed Rule.¹

We are career physicists with a special expertise in radiation physics, which describes how carbon dioxide and other GHGs affect heat flow in Earth's atmosphere. We are both members of the National Academy of Sciences. Our CVs are attached.

Our comment focuses on your request for comments as to, “The scientific underpinnings of the Endangerment Finding are weaker than previously believed and contradicted by empirical data, peer-reviewed studies, and scientific developments since 2009 (C-2).”

In our scientific opinion, the scientific underpinnings of the Endangerment Finding (“EF”)² are fatally flawed science, for two key reasons.

- It fails to consider contradictory science.
- It is not based on science, it is based on unscientific evidence.

Thus there is no scientific basis for the Endangerment Finding that greenhouse gases (“GHGs”) will endanger the public health and welfare. Furthermore, it endangers the public health and welfare itself.

Accordingly, it should be repealed ASAP.

Scientific details follow.

¹ 90 FR 36288 (Aug. 1, 2025).

² EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases, 74 Fed. Reg. 66,496 (Dec. 15, 2009), Technical Support Document (Dec. 7, 2009) (“TSD”), https://www.epa.gov/sites/default/files/2016-08/documents/endangerment_tsd.pdf

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I. INTRODUCTION

The EPA Endangerment Finding is:

“[T]he Administrator finds that greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare. Specifically, the Administrator is defining the “air pollution” referred to in CAA section 202(a) to be the mix of six long-lived and directly-emitted greenhouse gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).” * * * “The Administrator has considered how elevated concentrations of the well-mixed greenhouse gases and associated climate change affect public health by evaluating the risks associated with changes in air quality, increases in temperatures, changes in extreme weather events, increases in food- and water-borne pathogens, and changes in aeroallergens.” 74 FR 66,497.

At the outset it is important to understand that carbon dioxide has two relevant properties, as a creator of food and oxygen, and as a greenhouse gas (GHG).

As to food and oxygen, carbon dioxide is essential to nearly all life on earth by creating food and oxygen by photosynthesis. Further, it creates more food as its level in the atmosphere increases. For example, 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%, and doing so would have a negligible effect on temperature.

As to carbon dioxide as a GHG, the Endangerment Finding is premised on the Net Zero Theory that carbon dioxide and other GHG emissions must be reduced to Net Zero and the use of fossil fuels must be eliminated by 2050 to avoid catastrophic global warming and more extreme weather.

A key premise the EPA has asserted is, “The increased concentrations of GHGs in the atmosphere and the resulting warming have led to more frequent and more intense heat waves and extreme weather events, rising sea levels, and retreating snow and ice.”³

Further, a foundational premise of everything the Intergovernmental Panel on Climate Change (IPCC) does is that 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

We demonstrate that the scientific underpinnings of the Endangerment Finding and of both the EPA and IPCC premises are fatally flawed science, for two key separate and combined reasons:

First, both fail to consider contradictory science, including

³ EPA, New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, 89 FR 39798, 39800 (May 9, 2024).

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

- the physics that demonstrates increasing carbon dioxide and other GHGs can only cause negligible warming and cannot, have not and will not cause catastrophic warming
- as a result, increasing GHGs cannot cause increased extreme weather
- that doubling carbon dioxide from today's level will have a trivial effect on temperature but increase the world's food supply by 40%
- that eliminating carbon dioxide and fossil fuels will have disastrous effects for Americans, America, the poor and people worldwide.

Second, both are not based on science, and are based on unscientific evidence.

Thus there is no scientific basis for the Endangerment Finding that GHGs will endanger the public health and, furthermore, it endangers the public health and welfare itself. Accordingly, it should be repealed ASAP.

Frankly, we also demonstrate the Endangerment Finding is a classic example of what Peter Drucker described as government subordinating science to “value-judgments that are the reverse of, and largely incompatible with, any criteria one could possibly call scientific.”⁵

Further, our opinion is that science requires urgent action to repeal the Endangerment Finding and other government actions based on it because they are policies that will destroy western economies, impoverish the working middle class, condemn billions of the world's poorest to continued poverty and increased starvation, leave our children despairing over the alleged absence of a future, and will enrich the enemies of the West who are enjoying the spectacle of our suicide march.⁶

Scientific details follow.

II. WHAT IS, AND IS NOT, SCIENCE

Our analysis starts with fundamentals: what is, and is not, science.

A. What Is Science?

The Supreme Court explained, and we agree: “‘scientific knowledge’ ... must be derived by the scientific method.”⁷

The scientific method is simply and profoundly: validating theoretical predictions with observations and rejecting theories when they do not work.

Nobel physicist Richard Feynman elaborated:

"[W]e compare the result of [a theory's] computation to nature, ... compare it directly with observations, to see if it works. If it disagrees with experiment, it is

⁵ In 1979, Peter Drucker warned: "In government, there is now a strong tendency to judge science by what is politically expedient or politically fashionable; that is, to attempt to subordinate science, whether pure or applied, to value-judgments that are the reverse of, and largely incompatible with, any criteria one could possibly call scientific." Drucker, "Science and Industry" *Science* 806 (May 25, 1979)(emphasis added).

⁶ Richard Lindzen, Manufacturing Consensus on Climate Change, *The American Mind* (Nov. 21, 2024).

⁷ *Daubert v. Merrell Pharmaceuticals, Inc.*, 509 U.S. 579, 593 (1993).

wrong. In that simple statement is the key to science." *The Character of Physical Law* (1965), p. 150.

Agreement with observations is the measure of scientific truth. Scientific progress proceeds by the interplay of theory and observation. Theory explains observations and makes predictions of what will be observed in the future. Observations anchor understanding and weed out the theories that do not work. This has been the scientific method for more than four hundred years. "Progress often involves the killing of an exquisite theory by an ugly fact." Leon Lederman, a Nobel Laureate in Physics, *The God Particle* (1993), p. 256.

It is astounding that one of the most complex questions in physics (namely, the behavior of a multi-phase, radiatively active, turbulent fluid) should be labeled by the government — and funding agencies it controls — to be so settled that skeptics are silenced. The models supporting the climate-crisis narrative make predictions that utterly fail to match the observations of what they purport to predict. This failure means in science they should never be used. Unfortunately, this peculiar situation is particularly dangerous because many world leaders have abandoned the science and intellectual rigor bequeathed to us by the Enlightenment and its forebears.

Thus, the scientific method is very simple and very profound: Does the theory work with observations? If not, it is rejected and not used.

B. What is Not Science?

Scientific knowledge is not determined by unscientific sources.

1. Models That Do Not Work

Models are a type of theory; they predict physical observations. The scientific method requires models to be tested by observations to see if they work. If a model's prediction disagrees with observations of what it purports to predict, it is wrong and never used as science. The models supporting the climate-crisis narrative simply do not align with observations of the phenomena they are supposedly designed to predict. Instead, they consistently overestimate the warming effect of CO₂ emissions, often predicting two or three times more warming than has been observed, detailed below.

2. Government Opinion

Nobel physicist Richard Feynman put it unambiguously:

"No government has the right to decide on the truth of scientific principles."⁸

The importance of the scientific principle that government does not determine science was chillingly underscored in Russia under Stalin and recently in Sri Lanka.

In Russia, Stalin made Trofim Lysenko the czar of Russian biology and agriculture. His false biology, which rejected well-established genetic science, prevailed for 40 years in the Soviet Union because Lysenko gained dictatorial control, providing one of the most thoroughly documented and horrifying examples of the politicization of science. Lysenko was strongly supported by "scientists" who benefitted from his patronage. Millions died because of his ruthless campaign against genetic science in agriculture.⁹

⁸ Richard Feynman, *The Meaning of It All* p. 57 (1998).

⁹ William Happer, Chapter 1, Michael Gould. *Politicizing Science* pp. 29–35 (2003).

Recently in Sri Lanka, one of us (Happer) explained:

"Ideologically driven government mandates on agriculture have usually led to disaster...The world has just witnessed the collapse of the once bountiful agricultural sector of Sri Lanka as a result of government restrictions on mineral [nitrogen] fertilizer."¹⁰

3. Consensus and 97% of Scientists' Opinions

What is correct in science is not determined by consensus, and 97% of scientist's opinions,¹¹ but by experiment and observations. Historically, the consensus of scientists has often turned out to be wrong. Many of the greatest scientists in history are great precisely because they broke with consensus. To quote the profoundly true observation of Michael Crichton:

"Historically, the claim of consensus has been the first refuge of scoundrels...If it is consensus, it isn't science. If it's science, it isn't consensus."¹²

In science, however, consensus and 97% of scientists' opinions are not the test. The test is the scientific method, testing theory with observations, and rejecting theories not validated by observations.

4. One-Sided Peer Review

Peer review can be helpful in many areas of science, but peer review does not determine scientific knowledge, the scientific method does.

In our decades of personal experience in the field, we have been dismayed that many distinguished scientific journals now have editorial boards that further the agenda of climate-change alarmism rather than objective science. Research papers with scientific findings contrary to the dogma of climate calamity are commonly rejected by peer reviewers, many of whom fear that their research funding will be cut if any doubt is cast on the climate catastrophe.

It is one-sided peer review, usually not including any contradictory science that goes against the party line of the climate-alarm establishment.

One of our personal experiences (Lindzen's) is typical. He had two papers peer reviewed and published in the *Bulletin of the American Meteorological Society*. In both cases, the editor was immediately fired. In the second case the new editor specifically asked for papers attacking his paper and prevented him from responding.

In conclusion, in climate science, peer reviewed publications usually only contain one-sided articles supporting the climate dogma narrative, and exclude contradictory science.

¹⁰ William Happer, et al., *Nitrous Oxide and Climate*, CO₂ Coalition (Nov. 10, 2022), p. 39 (emphasis added).

¹¹ Importantly, note the 97% number is false. "The figure of 97% is entirely discredited." Andrew Montford, *Fraud, Bias and Public Relations: The 97% 'Consensus' and its Critics*, Global Warming Policy Foundation (2014), p. 12.

¹² Michael Crichton, *Aliens Cause Global Warming*, Caltech Michelin Lecture (Jan. 17, 2003).

5. Cherry-Picked, Fabricated, Falsified or Omitted Contradictory Data

Since theories are tested with observations, fabricating data, falsifying data, and omitting contradictory facts to make a theory work is an egregious violation of the scientific method.¹³

Richard Feynman stated this fundamental principle of the scientific method:

"If you're doing an experiment, you should report everything that you think might make it invalid – not only what you think is right about it.... Details that could throw doubt on your interpretation must be given, if you know them."¹⁴

In Albert Einstein's words: "The right to search for truth implies also a duty; one must not conceal any part of what one has recognized to be true."¹⁵

One of us (Lindzen) observes: "Misrepresentation, exaggeration, cherry-picking, or outright lying pretty much covers all the right source touched evidence" marshalled in support of the Net Zero Theory.¹⁶

C. The Climate Dogma Protocol

In our decades of experience in the field, those advocating the Net Zero Theory dogma that GHGs and fossil fuels cause catastrophic global warming and extreme weather usually follow or implement what we call the Climate Dogma Protocol:

1. Government and Organizational Control. Have government organizations like the EPA and IPCC, publishers, and nonprofits be the gatekeeper to make sure that only climate dogma is published and used, and to make sure that no contradictory science is used or published.
2. Insist on One-Sided Peer Review. Insist peer-reviewed publications be used, because most peer reviewed publications only publish climate dogma, and do not publish any contradictory science.
3. Claim Consensus and 97% of Scientists' Opinions is Science. Have consensus and 97% of scientists' opinions be cited as good science, which it is not.
4. One-Sided Funding. Make sure all funding goes to climate dogma researchers and actors and that no funding goes to those doing and publishing contradictory science.

When one of us (Happer), was the Director of Energy Research of the Department of Energy in the early 1990s, "I was amazed that the great bulk of federal funds for environmental studies from the DOE, NASA, EPA and other federal agencies flowed into research programs that reinforced the message of imminent doom:

¹³ David Goodstein, *On Fact and Fraud* p. 135 (2010). "Fabrication is making up data or results," "falsification is ... changing or omitting data or results."

¹⁴ Richard Feynman, *Surely You're Joking, Mr. Feynman!* pp. 311–312 (1985).

¹⁵ Albert Einstein, *The Ultimate Quotable Einstein* p. 480 (2010).

¹⁶ Richard Lindzen, *Global Warming for the Two Cultures, Global Warming Policy Foundation* 10 (2018).

humanity and planet Earth devastated by global warming, pestilence, famine, and flood.”¹⁷

Literally trillions of dollars have been spent on one-sided research predicting catastrophic climate change. Dr. Harold Lewis, a distinguished physics professor, bluntly described this reality:

"The global warming scam, with the (literally) trillions of dollars driving it ... has corrupted so many scientists ... It is the greatest and most successful pseudoscientific fraud I have seen in my long life as a physicist."¹⁸

5. Exclude Contradictory Science. Ensure that contradictory science is not used or published.

In summary, scientific knowledge is determined by the scientific method, testing theory with observations, not by government opinion, consensus, 17% of scientists' opinions, one-sided peer review or cherry-picked, fabricated, falsified or omitting contradictory data.

Next, we demonstrate that the Endangerment Finding is based on fatally flawed science because, first, it entirely failed to consider contradictory science, and second, it is not based on science, but is based instead on unscientific evidence.

III. THE ENDANGERMENT FINDING FAILED TO CONSIDER CONTRADICTIONARY SCIENCE

A. The Physics of Carbon Dioxide and GHGs Demonstrates They Cannot and Will Not Cause Catastrophic Warming and Extreme Weather

The Endangerment Finding states:

“The scientific evidence is compelling that elevated concentrations of heat-trapping greenhouse gases are the root cause of recently observed climate change. The IPCC conclusion from 2007 has been re-confirmed by the June 2009 USGCRP assessment that most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.” 74 FR 66,518 (footnote deleted).

As a matter of physics, the scientific evidence cited by the Endangerment Finding from two government organizations, the IPCC and USGCRP, is false science. (Elaborated in section III.B and D).

The five most abundant GHGs are water vapor (H₂O), nitrous oxide (N₂O), carbon dioxide (CO₂), ozone (O₃), and methane (CH₄).¹⁹ Water vapor and clouds account “for more than 90% of

¹⁷ William Happer, *Politicizing Science*, *supra*, p. 45.

¹⁸ Harold Lewis, October 6, 2010 resignation letter to the American Physical Society.

¹⁹ Williaam van Wijngaarden & William Happer, *Dependence of Earth's Thermal Radiation on Five Most Abundant Greenhouse Gases* (2020), p.1, <https://ar5iv.labs.arxiv.org/html/2006.03098>.

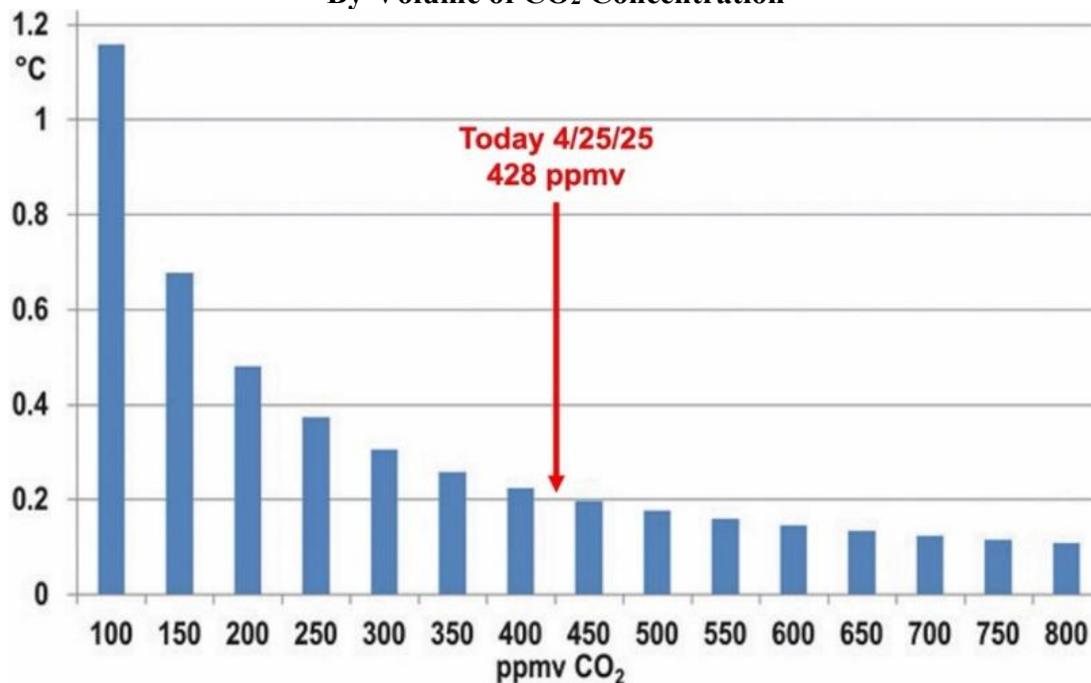
the atmosphere’s ability to intercept heat.”²⁰ Thus CO₂ and all the other GHGs account for less than 10% of the atmosphere’s ability to intercept heat and warm the planet.

The Endangerment Finding cites six GHGs: carbon dioxide, methane, and nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. 74 FR 66,516. The warming effects of methane and nitrous oxide are also so small that they are irrelevant to climate,²¹ as are the latter three.²²

The physics of carbon dioxide and other GHGs is that they lose their capacity to warm the planet as their concentration in the atmosphere increases because of what is called "saturation," and according to logarithmic equations. Every doubling of CO₂ causes a warming of less than 1° C, to first approximation, 0.75° C (1.4° F). The other GHGs cause only a small fraction of the warming from CO₂.

Focusing on the physics of CO₂, it becomes a less effective greenhouse gas at higher concentrations. The saturation effect is shown in the chart below.²³

**Warming For Each Additional 50 Parts-Per-Million-
By-Volume of CO₂ Concentration**



Most importantly, at today's CO₂ concentration in the atmosphere of approximately 425 parts per million and higher, saturation means that CO₂ has little ability to absorb heat and warm the planet. Because of saturation, doubling carbon dioxide from today's approximately 420 ppm

²⁰ Steven Koonin, *Unsettled* (2d. 2024) p. 51.

²¹ “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.

²² William van Wijngaarden & William Happer, *Instantaneous Clear Sky Radiative Forcings of Halogenated Gases* (June 23. 2023), : <https://arxiv.org/pdf/2306.13642>

²³ Gregory Wrightstone, *Inconvenient Facts* (2017) p. 7 (updated).

to 840 ppm would increase the amount of food available to people worldwide by roughly 40%, and doing so would have a negligible effect on temperature, 0.75° C (1.4° F).

Saturation means that from now on, CO₂ emissions from burning fossil fuels and other sources will have little impact on global warming. Since CO₂ at today's level is "saturated," for this reason alone there is no risk that the continued use of fossil fuels will cause catastrophic global warming and more extreme weather.

Moreover, the mathematics of logarithms can also be applied to temperature increases since the beginning of the Industrial Age in 1750 when carbon dioxide levels were about 280 ppm. Doubling it to 560 ppm would also only cause a trivial increase in temperature, 0.75° C (1.4° F). The increase in temperature would be even less, and trivial, if carbon dioxide increased from the beginning of the Industrial Age at 280 ppm to today's 425 ppm, a much smaller increase of 145 ppm than doubling it to 560 ppm.

Saturation also 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, shown in the chart in Part III.C covering 600 million years.

More specifically, the physics of how changes in atmospheric GHGs affect radiation transfer are described by precise physical equations that have never failed to describe observations. We and Prof. van Wijngaarden applied these formulas to the enormous efforts by the U. S. and worldwide to reduce CO₂ emissions to Net Zero by 2050 in a paper that we recommend to those with a technical background.²⁴

We show that all these efforts to achieve Net Zero emissions of carbon dioxide, if fully implemented, will have a trivial effect on temperature:

- 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.

These numbers are trivial, but the cost of achieving them would be disastrous to people worldwide detailed below in Part II.A.

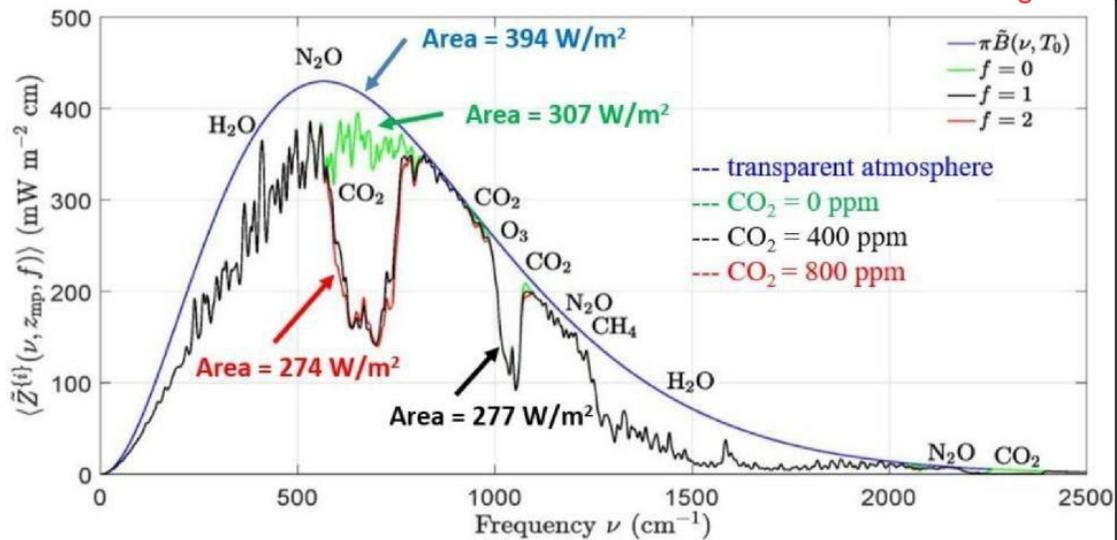
More details on the saturation physics are explained with the graph below.²⁵

The blue curve shows the heat energy the Earth would radiate to space if our atmosphere had no greenhouse gases or clouds. The magnitude is measured in Watts per square meter (W/m²).

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.

²⁴ 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>)

²⁵ William Happer & Williaam van Wijngaarden, *Dependence of Earth's Thermal Radiation on Five Most Abundant Greenhouse Gases*, p.1, <https://ar5iv.labs.arxiv.org/html/2006.03098>.



The jagged black curve below the blue curve shows how much less the Earth radiates infrared radiation to space with the current concentration of the most abundant greenhouse gases. 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.

What would happen if CO₂ concentrations were doubled from 400 ppm to 800 ppm? “Doubling the standard concentration of CO₂ (from 400 to 800 ppm) would cause a forcing [warming] increase (the area between the black and red lines) of ...3.0 W/m².” Id. p. 13. That means a temperature increase of a trivial amount, less than 1° C (2° F). It should be noted doubling methane concentrations would have an even more trivial warming increase, 0.7 W/m², and thus an even more trivial temperature increase. Id. p. 14.

Finally, note that CO₂ is not nearly as potent a greenhouse gas as water vapor and clouds (especially cirrus clouds). A radiation-blocking effect of only about 3 W/m² could easily also be produced by changes in the size or height of cloud cover on any given day. This is a complex system, and the idea that one variable, globally average temperature, is changed primarily by one thing, manmade CO₂, is baseless. As one of us (Lindzen) has explained:

“The climate system consists of two turbulent fluids interacting with each other, [ocean and atmosphere]. They are on a rotating planet that is differentially heated by the sun. A vital constituent of the atmospheric component is water in the liquid, solid, and vapor phases, and the changes in phase have vast energetic ramifications. The energy budget of this system involves the absorption and remission of about 200 watts per square meter. Doubling CO₂ involves a two percent perturbation to this budget. So do minor changes in clouds, ocean circulations, and other features, and such changes are common. In this complex multifactor system, what is the likelihood that the climate (which itself consists of many variables and not just globally averaged temperature anomalies) is controlled by a two percent perturbation in the energy budget due to just one of the numerous variables,

namely CO₂? Believing this is pretty close to believing in magic."²⁶

In conclusion, since CO₂ at today's level is "saturated," and the warming effects of the other GHGs are so small they irrelevant to climate, physics demonstrates:

- increasing carbon dioxide and other GHGs can only cause negligible warming
- there is no risk that the continued use of fossil fuels and even a doubling of atmospheric CO₂ will cause catastrophic global warming
- with no major warming, increasing GHGs cannot and will not cause increased extreme weather.

Physics demonstrates there is no scientific basis for the Endangerment Finding. For this reason alone, the Endangerment Finding should be repealed.

B. The EPA's Own MAGCC Model Confirms Carbon Dioxide and Other GHGs Have Only a Negligible Impact on Temperature

The Environmental Protection Agency uses the Model for Assessment of Greenhouse Gas-Induced Climate Change (MAGICC), as do many government agencies, the IPCC and climate policy analysts to predict temperatures and sea level rise from the level of CO₂ and other GHGs in the atmosphere.

The EPA explained, "MAGICC is widely used in science research, policy analysis, IPCC reports,"²⁷ and that it has "estimated changes in projected atmospheric CO₂ concentrations, global mean surface temperature and sea-level rise to 2100 using ...the MAGICC (Model for the Assessment of Greenhouse-Gas Induced Climate Change) simple climate model."²⁸

If the U.S. reduced CO₂ and other GHG emissions to net zero effective immediately, rather than waiting until 2050, what does the MAGICC model predict the effect on global temperatures would be in 2100?

Virtually nothing, 0.17° C (0.31° F).²⁹

Thus the EPA's own MAGICC formula confirms the physics that, since CO₂ is now and at higher levels a weak GHG, there is no risk that the continued use of fossil fuels and even a doubling of atmospheric CO₂ will cause catastrophic global warming and extreme weather.

It thus also confirms there is no science underpinning the Endangerment Finding and that it should be repealed ASAP.

C. 600 Million Years of Data Confirm GHGs Do Not Cause Catastrophic Global Warming

The Endangerment Finding asserts:

²⁶ Richard Lindzen, *Straight Talk About Climate Change*, "Acad. Quest. (2017), p. 432.

²⁷ EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances (Nov. 2023), p. 36.

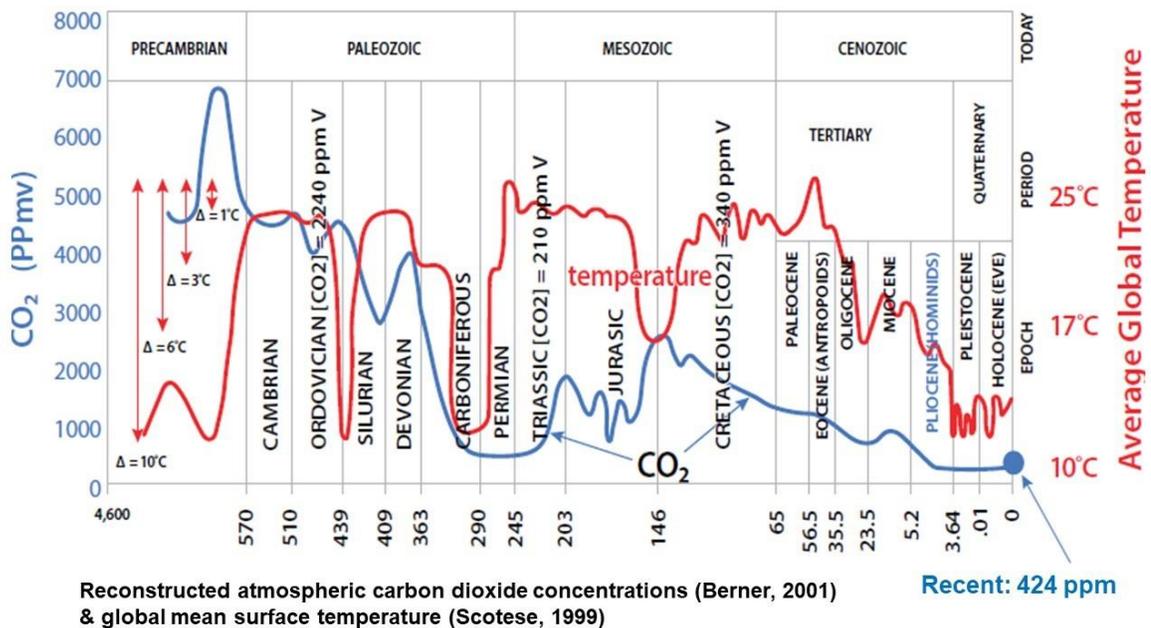
²⁸ EPA, Final Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards: Regulatory Impact Analysis (April 2010), pp. 7-122 to 7-123, [EPA-HQ-OAR-2010-0799-1190_content \(2\).pdf](#)

²⁹ Benjamin Zycher, *The Case for Climate-Change Realism* (2021), p. 108.

“The scientific evidence is compelling that elevated concentrations of heat-trapping greenhouse gases are the root cause of recently observed climate change. The IPCC conclusion from 2007 has been re-confirmed by the June 2009 USGCRP assessment that most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.” 74 FR 66,518 (footnote deleted).

Contrary to the Endangerment Finding assertion, the chart below shows 600 million years of the dominant GHG CO₂ levels and temperature data³⁰ confirms the dominant GHG carbon dioxide does not cause catastrophic warming. The data is based on various proxies and uncertainties, they demolish the argument that atmospheric CO₂ concentrations control Earth's climate and the theory that CO₂ will cause catastrophic global warming and extreme weather. They will not.

The blue line shows CO₂ levels. The red line shows temperature.



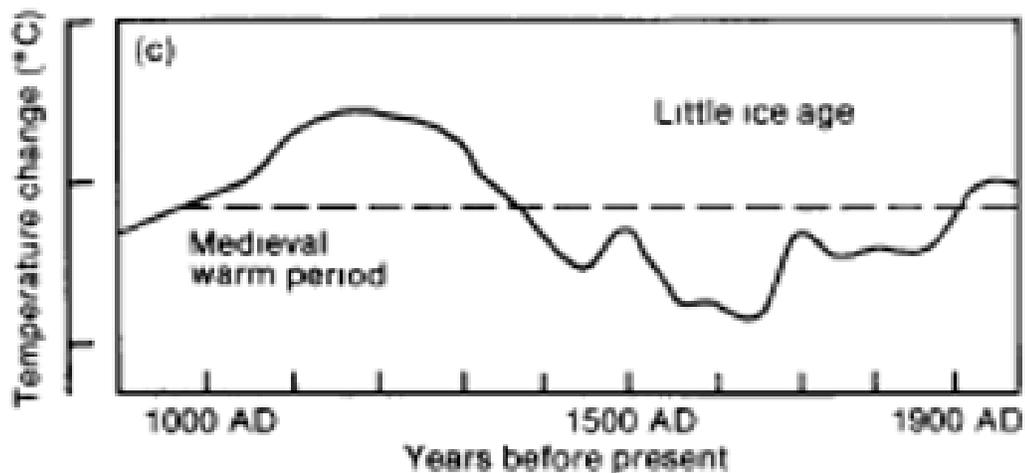
The chart shows:

- Contrary to the theory higher levels of CO₂ drive higher temperatures, when CO₂ was at a record high at about 7,000 ppm, temperatures were at a near-record low.
- When CO₂ levels were low, temperatures were at the highest they have ever been about 60 million years ago.

That is, contrary to the theory, the opposite is usually the case. Over hundreds of millions of years, temperatures were low when CO₂ levels were high, and temperatures were high when CO₂ levels were low.

³⁰ Nasif Nahle, *Geologic Global Climate Changes, Biology Cabinet J.* (Mar. 2007). Updated by Gregory Wrightstone May 2024

Also contradicting the Endangerment Finding theory is an IPCC temperature chart covering 1,000 AD to 1900 AD. The IPCC reported, “The late tenth to early thirteenth centuries (about AD 950–1250) appear to have been exceptionally warm,”³¹ higher than today:



The IPCC also reported, “there is no evidence that it was accompanied by an increase of greenhouse gases.”³²

This chart also fundamentally contradicts the Endangerment Finding and others’ theory that human carbon dioxide emissions from fossil fuels will cause catastrophic warming. Obviously, there were no human carbon dioxide emissions from fossil fuels in 1250, yet the temperatures and were higher than they are now with major increases in carbon dioxide from fossil fuel burning.

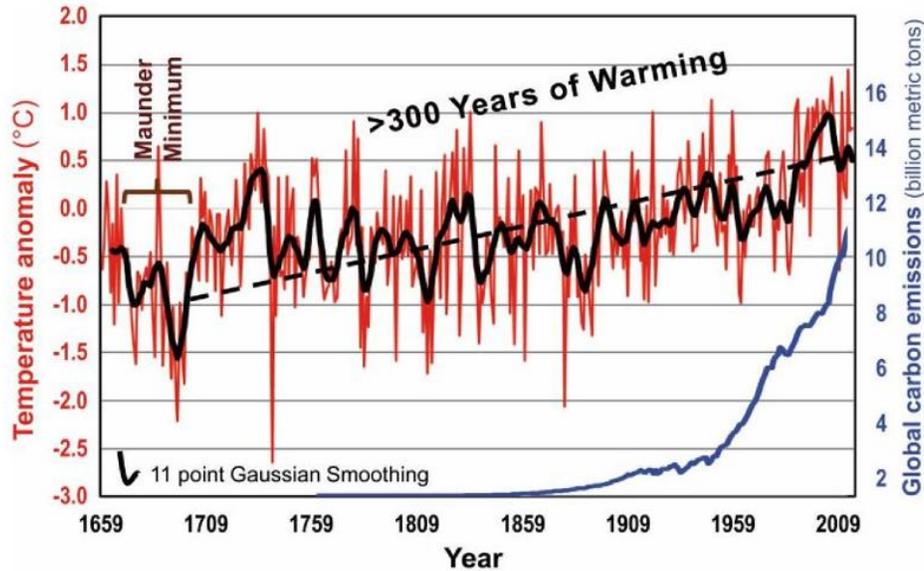
The little warming we observe now is a continuation of the 300-year warming that is a recovery from the depths of the Little Ice Age around 1650, shown in the following chart:³³

³¹ IPCC, *Climate Change: The IPCC Scientific Assessment* (1990), p. 203. We have confirmed this IPCC data from many sources.

³² *Id.* p. 202 (emphasis added)..

³³ Wrightstone, *supra*, p. 34; Boden et al. U.S. Dept. Energy, *Global CO₂ Emissions from Fossil Fuel Burning Cement Manufacture and Gas Flaring 1751–2013* (2016).

Figure I-24: Greater than 300 years of warming in central England
from 1695 – 2017



Thus, applying the scientific method to the 600 million years of data the Endangerment Finding failed to consider contradicts the Endangerment Finding theory that CO₂ and other GHGs cause and will cause catastrophic global warming and extreme weather and endanger the public health and welfare.. The EPA Theory does not agree with the facts, and there is another reason there is no science underpinning the Endangerment Finding and it must be repeated.

D. The Endangerment Finding is Factually False About Human GHG Causing 75% of Warming Since the Industrial Revolution Around 1750

The Endangerment Finding asserts two factually false statement that human GHG emissions are responsible for about 75% of the rise in temperature since pre-Industrial levels.

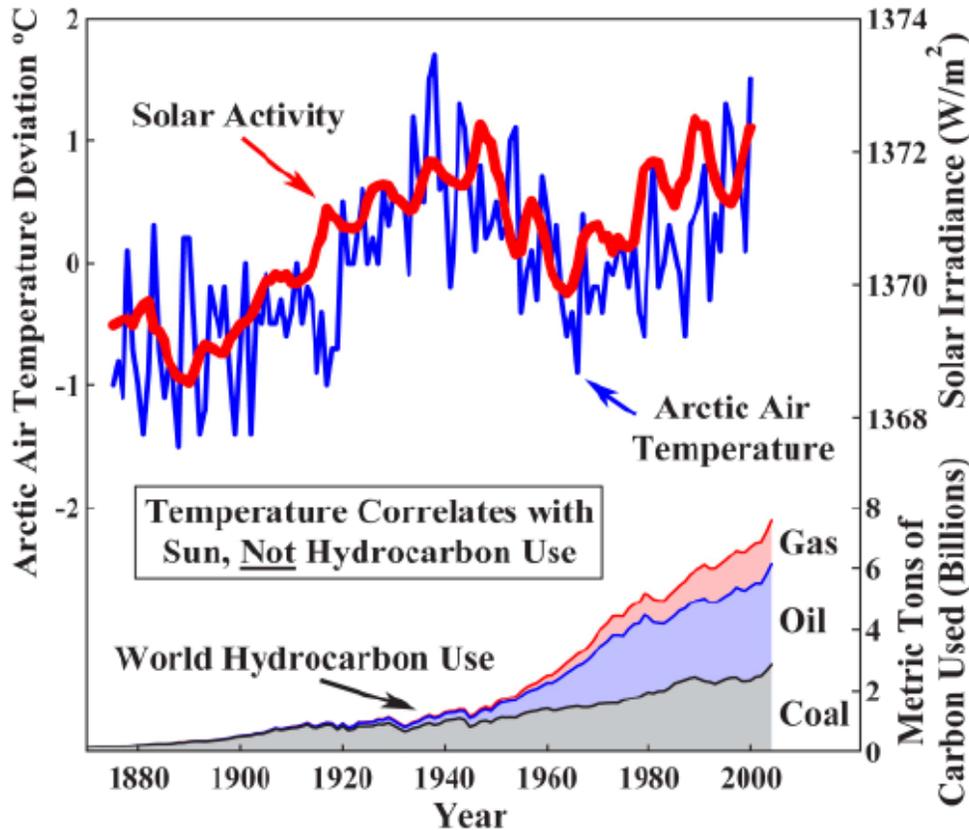
“Of the total anthropogenic heating effect caused by the accumulation of the six well-mixed greenhouse gases plus other warming agents ..., the combined heating effect of the six well-mixed greenhouses is responsible for roughly 75 percent.”
Id.

Frankly, the EPA Endangerment has done what in science is called “falsified” the facts.³⁴

The physics we demonstrated above is that carbon dioxide and other GHGs logarithmically lose their capacity to warm the planet as their concentration in the atmosphere increases. In 1750 carbon dioxide levels were about 280 ppm. At that level, the mathematics of logarithms demonstrates that increasing it to 400 ppm or doubling it to 560 ppm would only cause a trivial increase in temperature, 0.75° C (1.4° F).

³⁴ David Goodstein, *On Fact and Fraud* (2010), , p. 136 (“falsification is... changing or omitting data or results such that the research is not accurately represented in the research record.”).

Further, the following graph by Prof. Soon and others confirm the trivial role CO₂ plays in temperature change, and that the sun is dominant:³⁵



They explain:

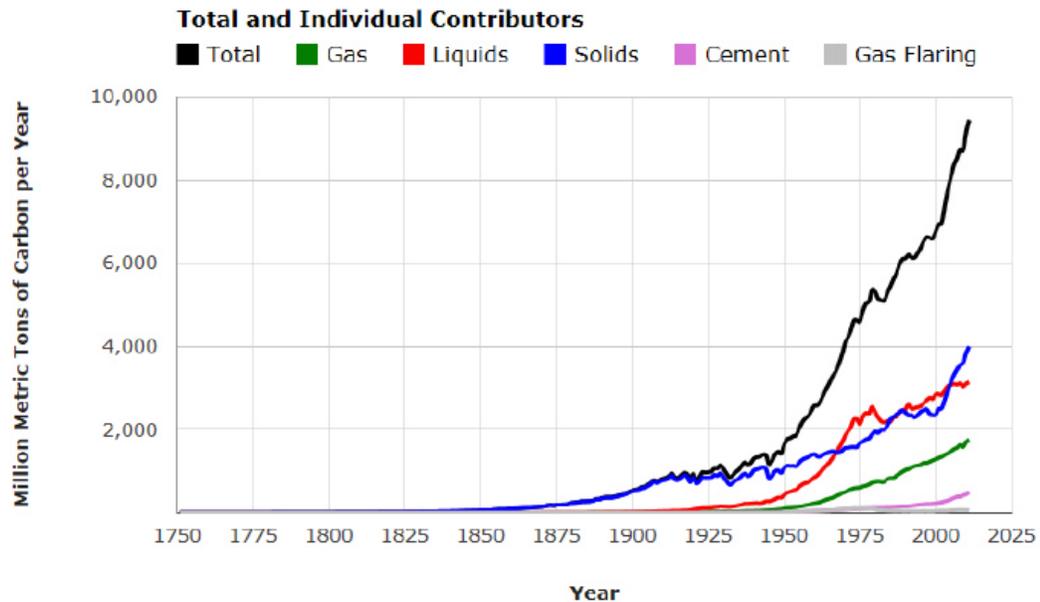
“Atmospheric temperature is regulated by the sun, which fluctuates in activity...; by the greenhouse effect, largely caused by atmospheric water vapor (H₂O); and by other phenomena that are more poorly understood. While major greenhouse gas H₂O substantially warms the Earth, minor greenhouse gases such as CO₂ have little effect.... The 6-fold increase in hydrocarbon use since 1940 has had no noticeable effect on atmospheric temperature or on the trend in glacier length.” Id.

The following chart and data from the Department of Energy’s Carbon Dioxide Information Analysis Center (CDIAC) confirms the above chart showing fossil fuel emissions from 1750 to about 1930 were very small and increased substantially after the 1980s.³⁶

"Since 1751 just over 400 billion metric tonnes of carbon have been released to the atmosphere from the consumption of fossil fuels and cement production....Half of these fossil-fuel CO₂ emissions have occurred since the late 1980s."

³⁵ Arthur Robinson, Noah Robinson & Willie Soon, “Environmental Effects of Increased Atmospheric Carbon Dioxide,” *J. Am. Physicians & Surgeons* 79 (2007), pp. 79-80.

³⁶ Hignett, "Here's How Much Carbon Dioxide Emissions Have Increased Since the Industrial Age, *Newsweek* (May 1, 2018).



Thus even if fossil fuel carbon dioxide could drive significant warming, which as a matter of physics it cannot and does not, there was too little emitted from 1750 on to matter.

Accordingly, contrary to the Endangerment Finding assertion, CO₂ and fossil fuels play a trivial role in climate warming. The last sentence of Prof. Soons chart crisply captures the scientific fallacy underlying Endangerment Finding detailed in this comment and the reason why it should be repealed ASAP.

“The 6-fold increase in hydrocarbon use since 1940 has had no noticeable effect on atmospheric temperature.”

It also confirms there is no science underpinning the Endangerment Finding and that it should be repealed ASAP.

E. 600 Million Years of Data Show Today’s Carbon Dioxide 425 ppm Level Is Very Low, Not Historically Very High

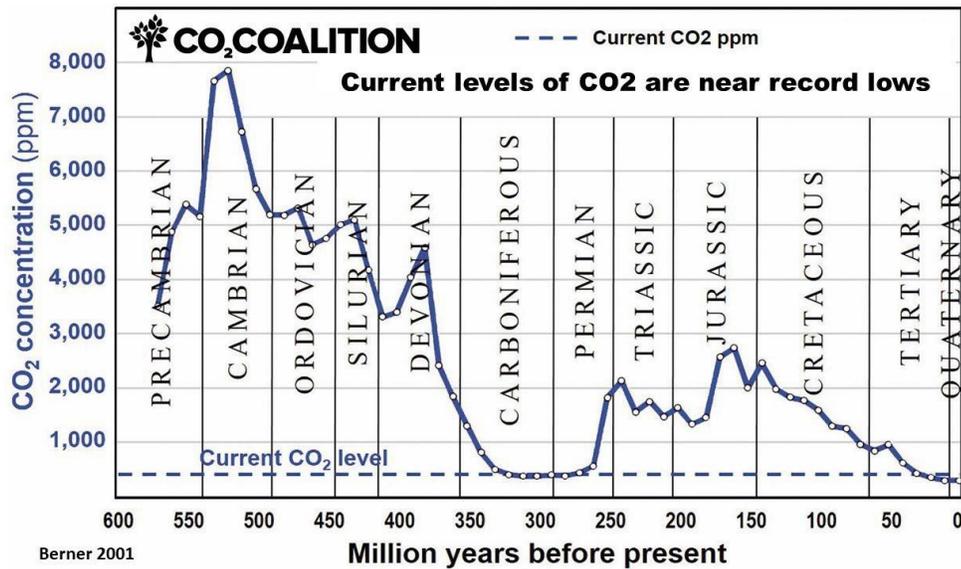
The Endangerment Finding asserts that the carbon dioxide levels today are historically very high:

“Historic data show that current atmospheric concentrations of the two most important directly emitted, long-lived greenhouse gases (carbon dioxide and methane) are well above the natural range of atmospheric concentrations compared to at least the last 650,000 years... It also remains clear that these high atmospheric concentrations of greenhouse gases are the unambiguous result of human activities.” 74 FR 66,517.

Frankly, the EPA did what science deems falsifying data by cherry-picking a short period of geological time to prove their point. They did it again in proposing its Fossil Fuel Power Plant Rule by asserting "CO₂ concentration of 415 ppm is already higher than at any time in the last 2 million years," and "elevated concentrations endanger our health by affecting our food and water sources, the air we breathe, the weather we experience, and our interactions with the natural and built environments."³⁷

³⁷ 88 Fed. Reg. 33,249–50 (footnotes omitted).

Hundreds of million years of data raises the obvious scientific question: what does the available data show? The EPA cherry-picked data over a very short period of time and did not report the contradictory data over 600 hundred million years that prove CO₂ levels today are near a record low.³⁸



The omitted hundreds of millions of years of data prove that:

- CO₂ levels were more than 2,000 ppm for over half of the last 600 million years.
- CO₂ levels ranged from a high of over 7,000 ppm -- almost 20 times higher than today's 420 ppm, to a low of 200 ppm, close to today's low of 420 ppm.
- The often highly emphasized 140 ppm increase in CO₂ since the beginning of the Industrial Age is trivial compared to CO₂ changes over the geological history of life on Earth.'
- Today's 420 ppm is not far above the minimal level when plants die of CO₂ starvation, around 150 ppm, when all human and other life would die from lack of food.

Thus, applying the scientific method to cherry-picked data and omitted 600 million years of data, CO₂ levels are very low and not dangerously high. It further contradicts the Endangerment Finding theory that CO₂, other GHGs and fossil fuels will cause catastrophic global warming and extreme weather, confirming there is no science underpinning the Endangerment Finding and that it should be repealed ASAP.

F. There Will Be Disastrous Consequences For Americans, America, The Poor and People Worldwide If Carbon Dioxide, Other GHGs and Fossil Fuels Are Reduced to Net Zero

The Endangerment Finding, unless repealed, will reduce carbon dioxide emissions and the use of fossil fuels significantly that will have disastrous effects on Americans and America endangering public health and welfare. It failed to consider the following.

Effects on Employment, Diverting Funds From Investment and Consumer Choice.

The foreseeable effects of the Endangerment Finding that were not considered were a tsunami of

³⁸ Wrightstone, *supra*, p. 16.

regulations intended to substantially reduce GHG emissions and the use of fossil fuels that will have disastrous effects on Americans and America, endangering public health and welfare, for example, substantially reduce gasoline car and truck production and associated 10 million jobs,³⁹ related GDP and tax revenue; ban gas stoves, gas furnaces, gas heaters and other personal and commercial gas appliances; require the purchase of electric appliances where electricity costs 3 ½ times more than natural gas; significantly reduce 10.8 million oil and gas industry jobs.⁴⁰

Further, the foreseeable effects are helping divert enormous amounts of capital to Green New Deal spending and subsidies from investments in businesses that create jobs, GDP and tax revenue, for example:

- McKinsey and Company estimated the Net Zero transition would cost about \$9.2 trillion per year and \$275 trillion between 2021 and 2050.⁴¹
- Former Treasury Secretary Janet Yellen estimated the global energy transition from fossil fuels to renewable energy will cost \$78 trillion through 2050, \$3 trillion a year,⁴² and
- 450 financial firms recently pledged \$130 trillion in capital to finance the transition to Net Zero emissions.⁴³

As demonstrated in Parts III.A-E, these astounding costs will achieve no benefits to the public.

Reducing CO₂ Will Reduce the Amount of Food Available Worldwide. The ”7Endangerment Finding acknowledges, reluctantly, that increased carbon dioxide has the “potential for a net benefit in the near term for certain crops, but there is significant uncertainty about whether this benefit will be achieved given the various potential adverse impacts of climate change on crop yield, such as the increasing risk of extreme weather events.” 4 FR. P. 663535.

It both fails to consider the numerous benefits of increasing carbon dioxide and the physics that demonstrates that even doubling CO₂ from 400 ppm to 800 ppm will result in negligible increase in temperature.

Increasing CO₂ in the atmosphere increases the amount of food that plants produce, a phenomenon called "fertilization." Thousands of experimental results demonstrate that more CO₂ usually increases the amount of food that plants produce.⁴⁴ A graphic illustration of the response

³⁹ [National Economic Insights | Alliance For Automotive Innovation.](#)

⁴⁰ PWC, *Impacts of the Oil and Natural Gas Industry on the US Economy in 2021* (April 2023).

⁴¹ McKinsey and Company, *The Net Zero Transition* (January 2022).

⁴² Institute for Energy Research, *Global Energy Transition Will Cost \$3 Trillion a Year* (Aug. 1, 2024).

⁴³ Joshua Rauh and Mels de Zeeuw, *Net Zero Will Make Wall Street Richer at Main Street's Expense*, *Wall Street J.* (Nov. 12, 2021).

⁴⁴ See, e.g., NIPCC, *Climate Change Reconsidered II: Biological Impacts* (2014); Craig Idso, “What Rising CO₂ Means For Global Food Security” CO₂ Coalition (2019); Plant Growth Database, Center for the Study of Carbon Dioxide and Global Change, http://www.CO2science.org/data/plant_growth/dry/dry_subject.php.

of plants to increases in CO₂ is shown below. Dr. Sherwood Idso grew Eldarica (Afghan) pine trees with increasing amounts of CO₂ in experiments, starting with an ambient CO₂ concentration of 385 ppm. He showed what happens when CO₂ is increased from 385 ppm to 535 ppm, 685 ppm and 835 ppm over 10 years:⁴⁵



The "fertilization" effect varies significantly by type of plant. Dr. Craig Idso reported, "[s]ince the start of the Industrial Revolution, it can be calculated ... that the 120-ppm increase in atmospheric CO₂ concentration increased agricultural production per unit land area" for various crops ranging from 28% to 70%, and averaging 46%.⁴⁶

What would happen if CO₂ doubled from the current approximately 400 ppm in the atmosphere to 800 ppm? Crop yields worldwide would increase by about 40%, based on empirical findings of how CO₂ concentrations affect crop yields.⁴⁷

Thus, more CO₂ means more food for people worldwide. On the other hand, the Endangerment Finding intention to reduce CO₂ emissions significantly would reduce the amount of food for people worldwide. Sylvan Wittwer, the father of agricultural research on

⁴⁵ Craig Idso, *Increased Plant Productivity: The First Key Benefit of Atmospheric CO₂ Enrichment*, Master Resource (Apr. 21, 2022).

⁴⁶ Nongovernmental International Panel on Climate Change (NIPCC), *Climate Change Reconsidered II: Biological Impacts* (2014) p. 322.

⁴⁷ 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).

this topic, eloquently emphasized the enormous benefits of providing more food to people worldwide by rising CO₂:

"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."⁴⁸

Reducing CO₂ Will Decrease Food in Drought-Stricken Areas. Reducing carbon dioxide emissions will reduce the amount of food in drought stricken areas. Increasing CO₂ results in drought-stricken areas having more food. In regions of the world suffering from drought, more CO₂ means there will be more food, because increasing CO₂ lessens water lost by plant transpiration:

At higher CO₂ levels, plants need less water because they grow leaves with fewer stomatal pores, and generally do not open their leaf stomatal pores as wide. The result is less water loss by transpiration. Plants need *less* water to produce the *same* — or an even *greater* — amount of biomass.⁴⁹

On the other hand, Dr. Idso bluntly summarized the disastrous consequences of reducing if Net Zero fossil fuels and carbon dioxide policies are implemented on the food available to people worldwide:

“[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.”⁵⁰

The Enormous Social Benefits of Fossil Fuels. The Endangerment Finding fails to consider the enormous social benefits of fossil fuels. They provide ordinary people the freedom, prosperity and health that were reserved for kings in ages past.

There are many, including:

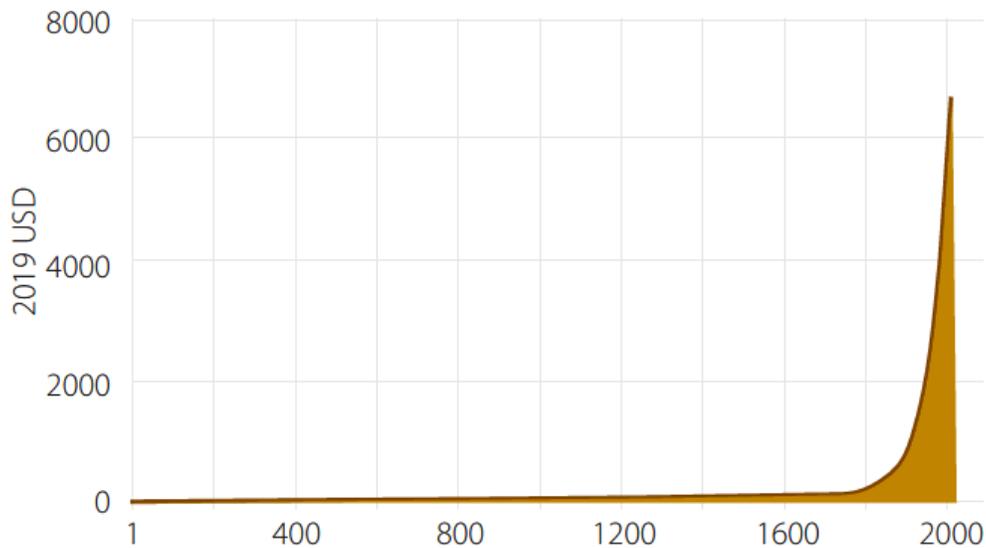
- providing the most reliable, efficient and low-cost source of energy
- providing 60% of the nation's electricity
- increasing the amount of food available worldwide, especially in drought-stricken areas elaborated above
- nitrogen fertilizer that is essential to feeding nearly half the world elaborated below.

⁴⁸ Quoted in NIPCC, *Climate Change Reconsidered II: Fossil Fuels* (2019), pp. 322–23.

⁴⁹ Craig Idso, *What Rising CO₂ Means for Global Food Security*, CO₂ Coalition (2019), p. 13. See also Craig Idso & Sherwood Idso, *The Many Benefits of Atmospheric and CO₂ Enrichment* (2011).

⁵⁰ Craig Idso, *Estimates of Global Food Production in The Year 2050: Will We Produce Enough to Adequately Feed the World?* p. 31 (2011).

The following chart of the GDP per person for the last 2,000 years powerfully summarize them:⁵¹



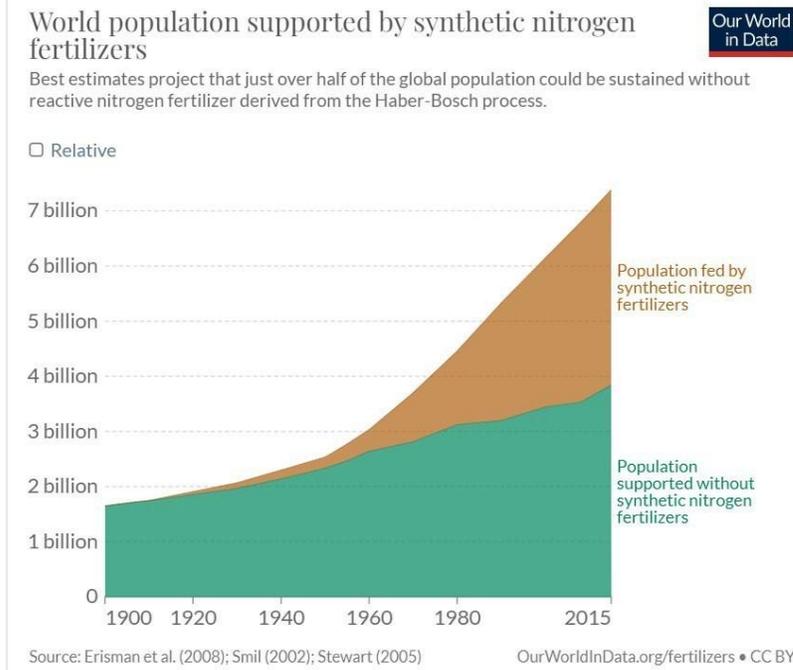
Increased Starvation From Loss of Fossil Fuels and Nitrogen Fertilizer. Food scarcity is an enormous global problem, as the UN has realized by including "zero hunger" among the top two sustainable development goals. Unfortunately, 2.3 billion people are moderately or severely food insecure today,⁵² and 900 million are severely food insecure. Id.

Nitrogen fertilizer, which is made from fossil fuels (natural gas), has greatly alleviated the problem of food scarcity. Nitrogen fertilizer now supports approximately half of the global population."⁵³

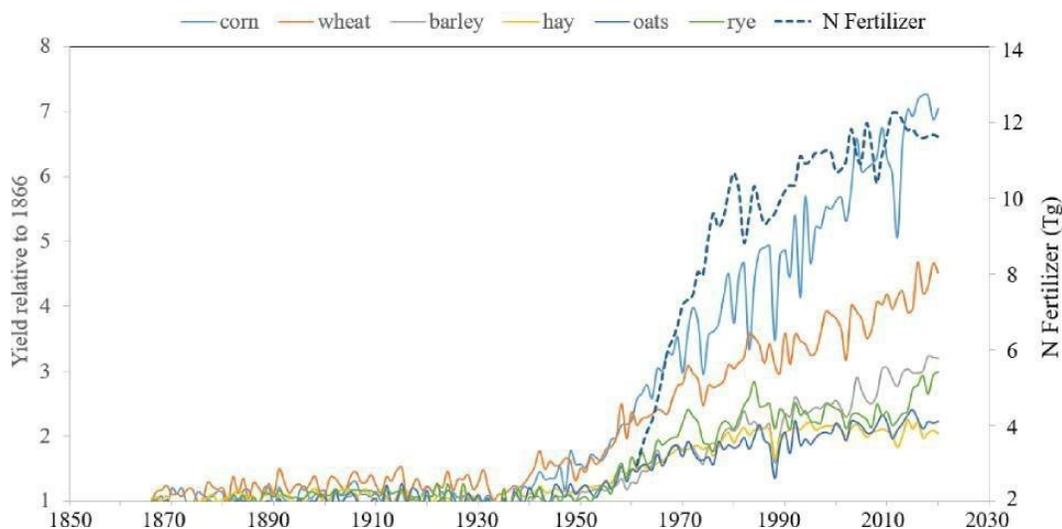
⁵¹Rupert Darwall, *Climate Noose: Business, Net Zero and the IPCC's Anticapitalism* Global Warming Policy Foundation p. 21.

⁵² United Nations, *The State of Food Security and Nutrition In The World (2022)* at xvii (2022).

⁵³ Hannah Ritchie, Max Roser and Pablo Rosado, "[How Many People Does Synthetic Fertilizer Feed?](#)", *Our World In Data* (Nov. 7, 2017).



Cereal food production increased threefold after the widespread use of nitrogen fertilizer began around 1950 (see the black dotted line at the top in the chart below):⁵⁴



If fossil fuels and thus nitrogen fertilizer are reduced or eliminated, the left side of the chart shows what would happen -- food production would drop drastically. It would not be as low as before the widespread use of nitrogen fertilizer because of CO₂ fertilization since then, improved crop varieties and better agricultural practices. But without nitrogen fertilizer, there would be mass starvation.

The recent experience in Sri Lanka, which eliminated the use of nitrogen fertilizer, is a concrete example of what would happen. Sri Lankan President Rajapaksa in April 2021 banned "the importation and use of synthetic fertilizers and pesticides and ordered the country's 2 million

⁵⁴ William Happer, et al., *Nitrous Oxide and Climate*, CO₂ Coalition (Nov. 10, 2022), p. 39.

farmers to go organic."⁵⁵ The result was disastrous. "It's rice production has dropped more than 50%, while domestic rice prices have increased more than 80%."⁵⁶ This is a real-life warning of the worldwide disaster that would result from eliminating fossil fuels.

Accordingly, without the "use of inorganic [nitrogen] fertilizers" derived from fossil fuels, the world simply "will not achieve the food supply needed to support 8.5 to 10 billion people,"⁵⁷ resulting in widespread starvation.

Increased Energy Poverty Worldwide. Energy poverty worldwide is another urgent and acute problem. The World Health Organization reports that around 2.1 billion people worldwide use stoves fueled by wood, animal dung, crop waste, kerosene and coal, or open fires, which generate harmful household air pollution. Household air pollution was responsible for an estimated 3.2 million deaths per year in 2020, including over 237,000 deaths of children under the age of 5.⁵⁸ They also estimate 675 million people have no electricity at all,⁵⁹ so no electricity to power a refrigerator, a washing machine and other items that would greatly improve their lives.

"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."⁶⁰

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.

In summary, the Endangerment Finding did not consider any of this scientific evidence. Thus the Endangerment Finding will endanger, not promote, public health and welfare, and must be repealed ASAP.

IV. THE ENDANGERMENT FINDING IS NOT BASED ON SCIENCE BUT ON UNSCIENTIFIC SOURCES

The Endangerment Finding and its Technical Support Document ("TSD") are not based on scientific knowledge derived from the scientific method but on unscientific sources that provide no scientific knowledge that supports the Endangerment Finding.

⁵⁵ Helen Raleigh, *Sri Lanka Crisis Shows The Damning Consequences of Western Elites Green Revolution*, *Federalist* (July 15, 2022).

⁵⁶ *Id.*

⁵⁷ William Happer, et al., *Nitrous Oxide and Climate*, CO₂ COALITION (Nov. 10, 2022), p. 39 (emphasis added).

⁵⁸ World Health Organization, *Household Air Pollution* (Oct. 16, 2024), https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health?utm_source=chatgpt.com.

⁵⁹ WHO, *Basic energy access lags amid renewable opportunities, new report shows*, https://www.who.int/news/item/06-06-2023-basic-energy-access-lags-amid-renewable-opportunities--new-report-shows?utm_source=chatgpt.com.

⁶⁰ Chris Wright, *Bettering Human Lives*, pp. 18-19.

A. Models Used in the Endangerment Finding and Later Versions Do Not Reliably Predict Temperatures and Thus Have No Scientific Value

The TSD explains models are essential to the Endangerment Finding and everywhere in climate science.

“The attribution of observed climate change to anthropogenic activities is based on multiple lines of evidence,” including “the use of computer-based climate models to simulate the likely patterns of response of the climate system to different forcing mechanisms (both natural and anthropogenic). Confidence in these models comes from their foundation in accepted physical principles and from their ability to reproduce observed features of current climate and past climate changes (IPCC, 2007a) [IPCC, *Climate Change 2007: The Physical Science Basis*]. TSD p. 47. See TSD section 6, “Projected Future Greenhouse Gas Concentrations and Climate Change” for more detail.

Steven Koonin analyzes the models used to predict the effects of GHG emissions at the time of the Endangerment Finding and ever since in the "Many Muddled Models" chapter of his book *Unsettled* (2d. ed. 2024). The key source is the IPCC’s “Coupled Model Intercomparison Project” (“CMIP”) model. As to all the models, he concludes, and we agree, none of them meet scientific standards and would never be used in science:

“Projections of future climate and weather events rely on models demonstrably unfit for the purpose. ***

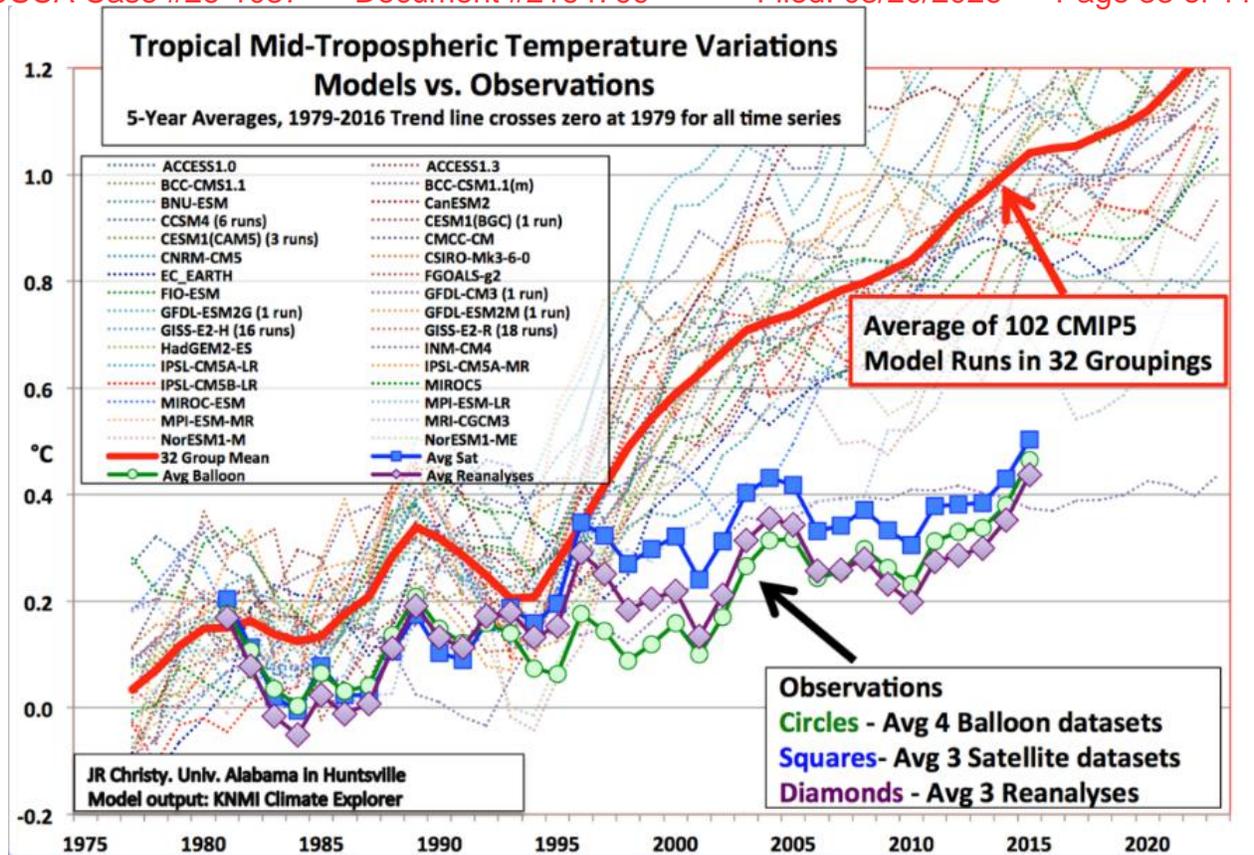
“The uncertainties in modeling of both climate change and the consequences of future greenhouse gas emissions make it impossible today to provide reliable, quantitative statements about relative risks and consequences and benefits of rising greenhouse gases to the Earth system as a whole, let alone to specific regions of the planet.” Id. pp. 24, 96.

The models provide no scientific basis for concluding that CO₂, other GHGs and fossil fuels will cause catastrophic climate change and extreme weather. Here are the scientific details:

CMIP5. John Christy, Ph.D., Professor of Atmospheric Science at the University of Alabama, applied the scientific method to CMIP5's 102 predictions of temperatures from 1979 to 2016 by models from 32 institutions.

He explained he used "the traditional scientific method in which a claim (hypothesis) is made and is tested against independent information to see if the claim can be sustained," and produced the following chart:⁶¹

⁶¹ John Christy, House Comm. Science, Space and Technology (Mar. 29, 2017), pp. 3, 5.



At the bottom, the blue, purple and green lines show the actual reality -- temperature observations against which the models' predictions were tested.

The dotted lines are 102 temperature "simulations" (predictions) made by the models from 32 institutions for the period 1979–2016.

The red line is the consensus of the models, their average.

The graph clearly shows 101 of the 102 predictions by the models (dotted lines) and their consensus average (red line) fail miserably to predict reality. Focusing on the red consensus line, Dr. Christy concluded, and we agree:

"When the 'scientific method' is applied to the output from climate models of the IPCC AR5, specifically the bulk atmospheric temperature trends since 1979 (a key variable with a strong and obvious theoretical response to increasing GHGs in this period), . . . the consensus of the models [red line] fails the test to match the real-world observations by a significant margin. As such, the average of the models is untruthful in representing the recent decades of climate variation and change, and thus would be inappropriate for use in predicting future changes in the climate or related policy decisions."⁶²

Thus, the models that produced the 101 predictions failed the test under the scientific method. They do not work, and bear no rational relationship to the reality they purport to represent.

⁶² Id. p.13 (emphasis added).

Thus, CMIP5 provides no reliable scientific evidence for Net Zero Theory rules, subsidies or policies.

Nor does the later version, CMIP6, pass this basic test of science. In Steven Koonin's book *Unsettled*, CMIP6 assertions were carefully analyzed in the chapter, "Many Muddled Models."⁶³ We agree with the conclusions of that chapter:

"One stunning problem is that ... the later generation of [CMIP] models are actually more uncertain than the earlier one[s].

"The CMIP6 models that inform the IPCC's upcoming AR6 [Climate Change reports] don't perform any better than those of CMIP5."⁶⁴

Representative examples of CMIP6's failure to use the scientific method are:

- "An analysis of 267 simulations run by 29 different CMIP6 models created by 19 modeling groups around the world shows that they do a very poor job [1] describing warming since 1950 and ... [2] underestimate the rate of warming in the early twentieth century."⁶⁵
- "Comparisons among the [29] models [show] ... model results differed dramatically both from each other and from observations ... [and] disagreed wildly with each other."⁶⁶
- "One particularly jarring failure is that the simulated global average surface temperature ... varies among models ... three times greater than the observed value of the twentieth century warming they're purporting to describe and explain."⁶⁷
- As to the early twentieth century warming when CO₂ levels only increased from 300 to 310 ppm, "strong warming [was] observed from 1910 to 1940. On average, the models give a warming rate over that period of about half what was actually observed."⁶⁸
- "That the models can't reproduce the past is a big red flag -- it erodes confidence in their projections of future climate."⁶⁹

Thus, the CMIP6 models also fail the fundamental test of the scientific method: they do not work.

In a recent talk at the Hungarian Institute of Earth Physics and Space Science, one of us (Lindzen) pointed out that current computer models also fail to show the "polar amplification" of global warming. The Earth has undergone major warmings and coolings many times in its long geological history, and all of these have involved profound changes in the tropics to poles

⁶³ Id. pp. 77-99.

⁶⁴ Id. p. 87, 90 (emphasis added).

⁶⁵ Id. p.90.

⁶⁶ Id. p. 86.

⁶⁷ Id. p. 87.

⁶⁸ Id. p. 88.

⁶⁹ Id. p. 91.

temperature differences. The poles warm and cool much more than the tropics. Observations show that the warming since the 19th century has been almost uniform with no polar amplification. The fact that IPCC models show significant changes in tropics to poles temperature differences, contrary to data, is another confirmation that the models have no predictive power.

Thus, these models would never be used in science.

Accordingly, the models the Endangerment Finding used, updated to the present, provide no scientific basis for concluding that CO₂, other GHGs and fossil fuels will cause catastrophic climate change and extreme weather and endanger the public health and welfare.

They are a key example of the unscientific evidence underpinning the Endangerment Finding. They also are a reason alone for repealing the Endangerment Finding ASAP.

B. The IPCC is Government Controlled and Thus Only Issues Unscientific Government Opinions With No Scientific Value (Except Independently Verified Data)

It is little known that the IPCC is government controlled. It is not an independent scientific organization.

In science, as the Lysenko experience chillingly underscores, and as Richard Feynman emphasized:

"No government has the right to decide on the truth of scientific principles."

As a result, contrary to common understanding and vigorous IPCC assertions, the IPCC provides only government opinions, not scientific knowledge (unless independently verified).

Specifically, the IPCC has two relevant governing rules.

First, its Summaries for Policymakers ("SPMs") are one of the most important documents in climate discussions. One of the IPCC governing rules ensure the SPMs are merely government opinions, not scientific knowledge. IPCC governments, not scientists, meet behind closed doors and control what is published. SPMs also control what is published in the full IPCC reports.

This is not how scientific knowledge is determined. Governments do not determine scientific knowledge, the scientific method does. The picture below tells all.⁷⁰

⁷⁰ Donna Laframboise. *US Scientific Integrity Rules Repudiate the UN Climate Process* (January 29, 2017) link [US Scientific Integrity Rules Repudiate the UN Climate Process | Big Picture News, Informed Analysis.](#)



IPCC Summary for Policymakers writing meeting.

Thus the Summaries for Policymakers have no scientific value. They are merely governments' opinion.

There are two governing IPCC rules:

IPCC SPM Rule No.1: All Summaries for Policymakers (SPMs) Are Approved Line by Line by Member Governments

"IPCC Fact Sheet: How does the IPCC approve reports? 'Approval' is the process used for **IPCC Summaries for Policymakers (SPMs)**. **Approval signifies that the material has been subject to detailed, line-by-line discussion, leading to agreement among the participating IPCC member countries**, in consultation with the scientists responsible for drafting the report."⁷¹ (Emphasis added).

Since governments control the SPMs, the SPMs are merely government opinions. Therefore, they have no value as science.

What about the thousands of pages in the IPCC reports? A second IPCC rule requires that everything in an IPCC published report must be consistent with what the governments agree to in the SPMs about CO₂, other GHGs and fossil fuels. Any drafts the independent scientists write are rewritten as necessary to be consistent with the SPM.

IPCC Reports Rule No. 2: Government SPMs Override Any Inconsistent Conclusions Scientists Write for IPCC Reports

IPCC Fact Sheet: "'Acceptance' is the process used for the full underlying report in a Working Group Assessment Report or a Special Report after its SPM has been

⁷¹ Intergovernmental Panel on Climate Change, Principles Governing IPCC Work, the Procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of IPCC Reports, Appendix A Sections 4.4-4.6, https://www.ipcc.ch/site/assets/uploads/2018/02/FS_ipcc_approve.pdf (emphasis added).

approved.... **Changes ...are limited to those necessary to ensure consistency with the Summary for Policymakers.**" IPCC Fact Sheet, *supra*. (Emphasis added).

This rule was used to make the most important change and falsification of climate science by the IPCC in history that is dominant to this day. IPCC governments' control of full reports using Rule No. 2 is poignantly demonstrated by the IPCC's rewrite of the scientific conclusions reached by independent scientists in their draft of Chapter 8 of the IPCC report *Climate Change 1995, The Science of Climate Change ("1995 Science Report")*.

The draft by the independent scientists concluded:

"No study to date has positively attributed all or part [of the climate warming observed to date] to anthropogenic [manmade] causes."

"None of the studies cited above has shown clear evidence that we can attribute the observed [climate] changes to the specific cause of increases in greenhouse gases." Frederick Seitz, "A Major Deception on Climate Warming," *Wall Street Journal* (June 12, 1996). (Emphasis added).

However, the government written SPM proclaimed the exact opposite as to human influence:

"The balance of evidence suggests a discernible human influence on global climate." *1995 Science Report SPM*, p. 4. (Emphasis added).

What happened to the independent scientists' draft? IPCC Rule No. 2 was applied, and their draft was rewritten to be consistent with the SPM in numerous ways:

- Their draft language was deleted.
- The SPM's opposite language was inserted in the published version of Chapter 8 in the *1995 Science Report*, on page 439: "The body of statistical evidence in chapter 8 ... now points towards a discernible human influence on global climate."
- The IPCC also changed "more than 15 sections in Chapter 8 of the report ... after the scientists charged with examining this question had accepted the supposedly final text." Seitz, *supra*. (Emphasis added).

Did the IPCC ever correct the falsified science in their 1995 Report to report what the scientists, as opposed to governments, concluded, as cited above, that:

"No study to date has positively attributed all or part (of the climate warming observed) to (manmade) causes" (emphasis added).

Never.

Instead, the IPCC has repeatedly reported the same false science ever since. In 2021, the most recent IPCC Report, AR 6, cited the same false science six times, e.g.:⁷²

"The evidence for human influence on recent climate change strengthened from the IPCC Second Assessment Report to the IPCC Fifth Assessment Report, and is now even stronger in this assessment. The IPCC Second Assessment Report (SAR, 1995)

⁷² IPCC. *Climate Change 2021: The Physical Science Basis*, p. 405 (emphasis added). Accord id. pp.182, 284, 312, 425, 428.

concluded 'the balance of evidence suggests that there is a discernible human influence on global climate.'"

Thus, all of the scientific findings in IPCC reports are contaminated as science because they are rewritten, Lysenko-like, to comply with the IPCC governments' decreed science. No matter what the independent scientists conclude, the IPCC governments' views prevail and what the scientists wrote is rewritten.

What to do with the full IPCC reports, where hundreds of world-class scientists draft some very good science? Should the IPCC reports be viewed as science? No. Use a presumption that anything in IPCC reports should be presumed to be government opinion with no value as reliable science, unless independently verified by the scientific method.

In conclusion, the IPCC is a government-controlled organization and therefore all of the IPCC SPMs, models, scenarios and other findings are merely the opinions of IPCC governments. As the Lysenko experience chillingly underscores, none provide any scientific knowledge that supports the Endangerment Finding, unless independently confirmed by the scientific method.

Accordingly, all the unscientific evidence provided by the IPCC should be deleted. Since IPCC findings are the fundamental scientific underpinning of the Endangerment Finding, it then will not have an adequate scientific basis and it should be repealed.

C. The EPA Inadvertently Admitted Government Opinions, Consensus and One-sided Peer Review and Excluding Contrary Science is the Unscientific Evidence Underpinning the Endangerment Finding

The Endangerment Finding rigorously applied the Climate Dogma Protocol.

Government Control.

- The EPA Administrator specifically stated three government organizations were the "primary scientific basis" for the Endangerment Finding:

“[I]t is EPA's view that the scientific assessments of the IPCC, USGCRP, and the NRC represent the best reference materials for determining the general state of knowledge on the scientific and technical issues before the agency in making an endangerment decision.” 74 FR 66,510.

IPCC assessments and findings were the most important of the three, cited more than 400 times in the EF and TSD.

- The EPA knew the IPCC findings were determined by governments, not scientists and thus knew they were unscientific evidence. The TSD stated that the IPCC Summary for Policymakers (“SPMs”) must be approved by all its governments in “line by line” review, not by scientists:

"Each Summary for Policymakers is approved line by line, and the underlying chapters then accepted by government delegations in formal plenary sessions." TSD, p. 4. (Emphasis added).

- “The Administrator is relying on the major assessments of the USGCRP, IPCC, and NRC as the primary scientific and technical basis of her endangerment decision for a number of reasons.” 74 FR 66,510.
- “The USGCRP, IPCC, and NRC assessments have been reviewed and formally accepted by, commissioned by, or in some cases authored by, U.S. government agencies and individual government scientists. These

reports already reflect significant input from EPA's scientists and the scientists of many other government agencies.” Id. 66,511.

- “When governments accept the IPCC reports and approve their Summary for Policymakers, they acknowledge the legitimacy of their scientific content.”⁷³
- The key role of the governmental IPCC to the Endangerment Finding is also demonstrated by how the EPA agreed with the USGCRP, another government organization, to rely on and to incorporate IPCC assessments: “[T]he June 2009 assessment of the USGCRP incorporates a number of key findings from the 2007 IPCC Fourth Assessment Report; such findings include the attribution of observed climate change to human emissions of greenhouse gases, and the future projected scenarios of climate change for the global and regional scales.” 74 FR 66.5111.

Consensus. “The USGCRP, IPCC, and NRC assessments synthesize literally thousands of individual studies and convey the consensus conclusions on what the body of scientific literature tells us.” Id. (Emphasis added).

Peer Review and Government. “These assessment reports undergo a rigorous and exacting standard of peer review by the expert community, as well as rigorous levels of U.S. government review and acceptance.” Id (Emphasis added).

Peer Review and Consensus. “No other source of information [than IPCC, USGRCP, and the NRC] provides such a comprehensive and in-depth analysis across such a large body of scientific studies, adheres to such a high and exacting standard of peer review, and synthesizes the resulting consensus view of a large body of scientific experts across the world.” Id.

Exclude Contradictory Science. The Endangerment Finding never adequately analyzed any contradictory science.

Accordingly, the EPA effectively admitted that the Endangerment Finding is fundamentally based on the unscientific evidence of government opinions, one-sided peer review publications, consensus opinions and excluded contradictory science, not on evidence derived by the scientific method.

Further, as to the key issue in the Endangerment Finding specifically of the purported link of GHGs to catastrophic temperature increases, which physics demonstrated does not exist, the TSD stated its most important source linking temperature to human GHGs was the government controlled IPCC:

- Two Summaries for Policymakers and
- The falsified science shown above in Part IV.B where the IPCC changed the independent scientists’ conclusion that, “No study to date has positively attributed all or part [of the climate warming observed to date] to anthropogenic [manmade] causes,” to “the balance of evidence suggests a discernible human influence on global climate.” (Emphasis added).

“Temperature

⁷³ 74 FR 66,511 (emphasis added and footnote omitted).

“IPCC statements on the linkage between GHGs and temperatures have strengthened since the organization’s early assessments ([IPCC]Solomon et al., 2007). The IPCC’s First Assessment Report in 1990 contained little observational evidence of a detectable anthropogenic influence on climate (IPCC, 1990). In its Second Assessment Report in 1995, the IPCC stated the balance of evidence suggests a discernible human influence on the climate of the 20th century (IPCC, 1996). The Third Assessment Report in 2001 concluded that most of the observed warming over the last 50 years is likely to have been due to the increase in GHG concentrations (IPCC, 2001b) [an SPM]. The conclusion in IPCC’s 2007 Fourth Assessment Report (2007b) [another SPM] is the strongest yet:

“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.” TSD 47-48. (Emphasis added).

It is a classic example of unscientific evidence, not derived by the scientific method, but from government written SPMs and falsified evidence.

Therefore the EPA inadvertently admitted government opinions, consensus and one-sided peer review and excluding contrary science is the unscientific evidence underpinning the Endangerment Finding. For this reason alone, the it should be repealed ASAP.

D. The U. S. Global Change Research Program (USGCRP and U. S. Climate Change Science Program (CCSP)

The USGCRP and earlier CCSP provided 17 papers the Endangerment Finding relied on (TSD 6) and since 2009 has provided various National Climate Assessments (NCAs).

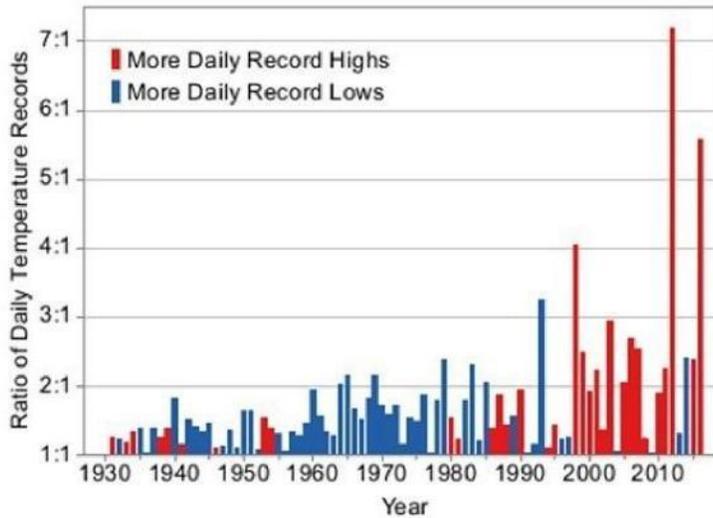
None of the 17 seemed relevant to rebutting the physics we demonstrated that increasing GHGs cannot cause catastrophic warming and extreme weather earlier in this comment.

However, USGCRP is not a reliable source of scientific knowledge, demonstrated next.

Shockingly, the USGCRP in several assessments fabricated, falsified and omitted contradictory data on heat waves, hurricanes, wildfires and sea levels that in science means that none of their assessments should ever be used as scientific knowledge.

For example, the USGCRP’s Fourth National Climate Assessment (NCA4) includes a chart stating, "Record Warm Daily Temperatures Are Occurring More Often."⁷⁴

⁷⁴ NCA4 Climate Science Special Report (CSSR) (2017), p. 19, Fig ES.5.

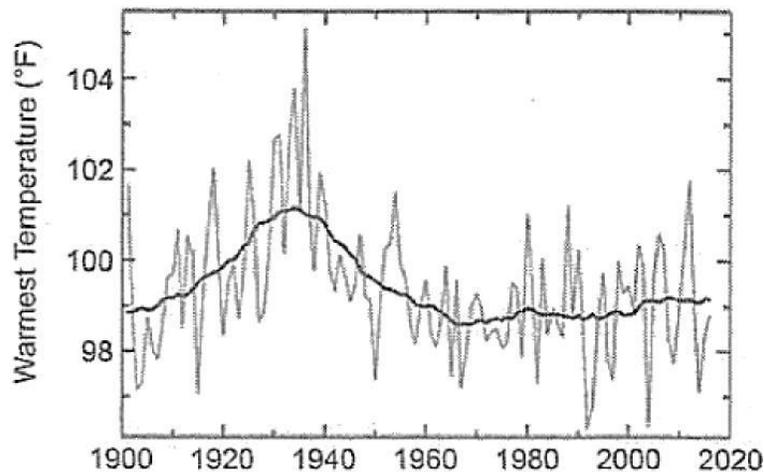


Prof. Koonin calls out this chart, and we agree, as "shockingly misleading." *Unsettled* (2d ed. 2024), p. 111.

Note the chart does not actually show "daily temperatures." Instead, it shows a "ratio" of daily record highs to lows—a number designed to create the impression that record-setting high temperatures are getting much more frequent.

Prof. Koonin explained: "I suspect that most readers were shocked by that figure, as I was when I first saw it. Who wouldn't be? An attention grabbing title ("record warm daily temperatures are occurring more often") backed up by data with a hockey-stick shape veering sharply upward in recent years (and, in the original, years with more 'highs' portrayed in alarming scarlet). It sure looks like temperatures are going through the roof. Id. p. 106.

He looked deeper and found daily temperature data buried on page 190 that totally contradicted the chart:⁷⁵



The spiked lines are yearly values. The dark line is the daily average temperatures over the last 120 years. This chart shows that:

⁷⁵ *Unsettled*, p. 106, NCA4 CSSR, p. 190, Fig. 6.3.

- The hottest temperatures occurred during the Dust Bowl in the 1930s.
- Today the average warm temperature is about the same as it was in 1900.
- Warm temperatures are not occurring more often.
- He asked, as we do:
“How could a report that proclaims itself ‘designed to be an authoritative assessment of the science of climate change’ so mischaracterize the data? After all, the [USGCRP] CSSR was subject to multiple reviews, including one by an expert panel convened by the National Academies of Sciences, Engineering and Medicine (NASEM).” Id. p. 107 (footnote omitted & emphasis added).

Thus, the USGCRP report’s ratio chart "Record Warm Daily Temperatures Are Occurring More Often" is what is called a "fabrication" in science.⁷⁶ Frankly, it is appalling that the thirteen federal agencies that make up the USGCRP and that the National Academy of Sciences that convened the review would publish such a false and fabricated climate assessment.

Hurricanes

The USGCRP Third NCA (NCA3) in 2014 asserts hurricanes are getting worse:

"Key Message 8. The intensity, frequency and duration of North Atlantic hurricanes, as well as the frequency of the strongest (Category 4 and 5) hurricanes, have all increased since the early 1980s."⁷⁷

Prof. Koonin in *Unsettled* notes the NCA report supports that statement with the graph below purporting to show an alarming increase in the strength of North Atlantic hurricanes, measured by what is called the Power Dissipation Index ("PDI"). The graph shows two sets of data from 1970 to 2010, with a sharp upward trend in the black line when the two are combined.⁷⁸

⁷⁶ David Goodstein, *On Fact and Fraud*, p. 135 (2010) (“Fabrication is making up data or results.”).

⁷⁷ Koonin, *supra*, p. 123, citing NCA3 p. 41 (emphasis added).

⁷⁸ Id. p.124, citing Fig. 2.23 on p. NCA3 p. 42.

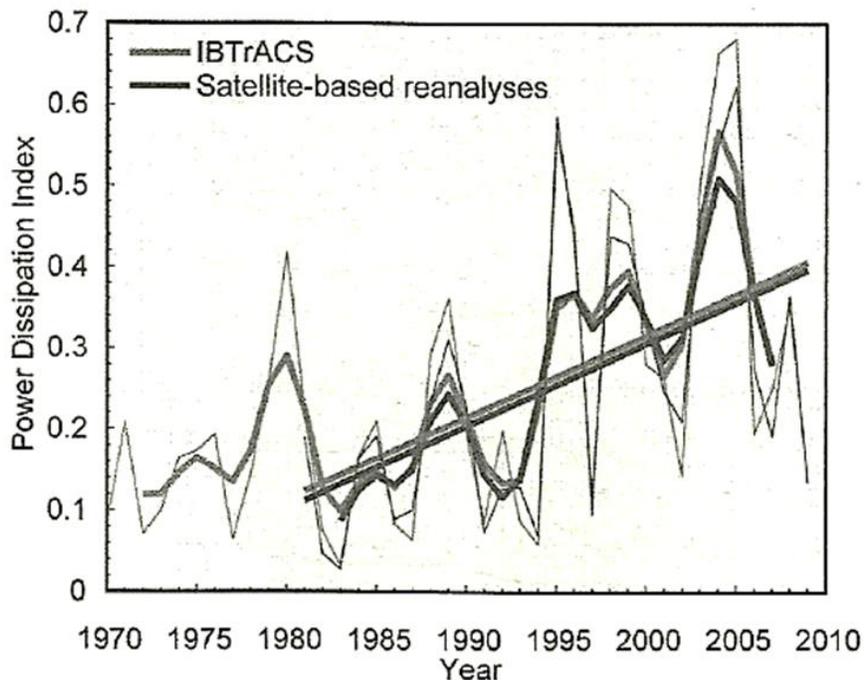
Observed Trends in Hurricanes Power Dissipation**POWER DISSIPATION INDEX IN THE
NORTH ATLANTIC OCEAN**

FIGURE 6.3 Power Dissipation Index in the North Atlantic Ocean. Two different analyses of the data are shown, along with straight lines indicating the trend in each. (NCA2014, Figure 2.23.)

Here again, the USGCRP has created the misleading appearance of a dangerous trend by what science deems falsifying data by cherry-picking data from a very short period of time, here, 1970–2010, and failing to consider extensive contradictory data.

And again the USGCRP contradicts itself with data buried deep in NCA3, Appendix 3, which states expressly:

"There has been no significant trend in the global number of tropical cyclones nor has any trend been identified in the number of U.S. land-falling hurricanes." *Id.* p. 769 (footnotes omitted and emphasis added).

Did USGCRP fix this error in NCA4?

No, NCA4 CSSR repeats the same false science:

"Human activities have contributed substantially...to the observed upward trend in North Atlantic hurricane activity since the 1970s."⁷⁹

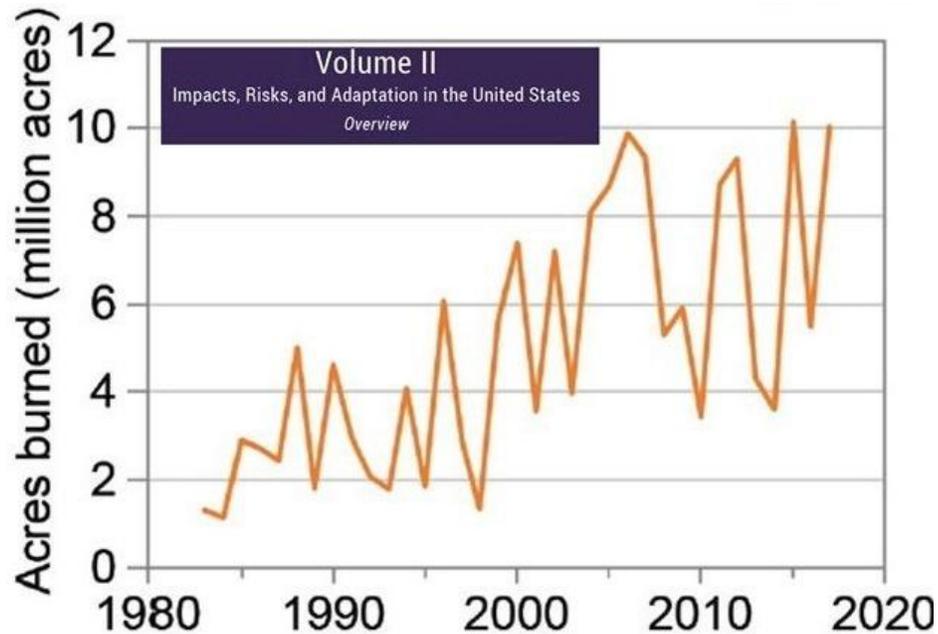
Thus, both the USGCRP's Third and Fourth NCA fabricated, falsified, and omitted and failed to consider contradictory data, which, in science, corrupts them both and means that can

⁷⁹ *Id.* p. 118 (footnote omitted).

never be cited as scientific knowledge to support any of the Net Zero Theory rules, subsidies or policies.

Wildfires

Volume II of USGCRP's NCA4 presents an alarming chart purporting to show a huge increase in the number of acres burned since 1984:⁸⁰



Also, the "Key Findings 6" of NCA4 CSSR states that the incidence of large forest fires in the West has increased since the early 1980s:

"The incidence of large forest fires in the western United States and Alaska has increased since the early 1980s (*high confidence*) and is projected to further increase in those regions as the climate warms, with profound changes to certain ecosystems (*medium confidence*). (Emphasis added)."⁸¹

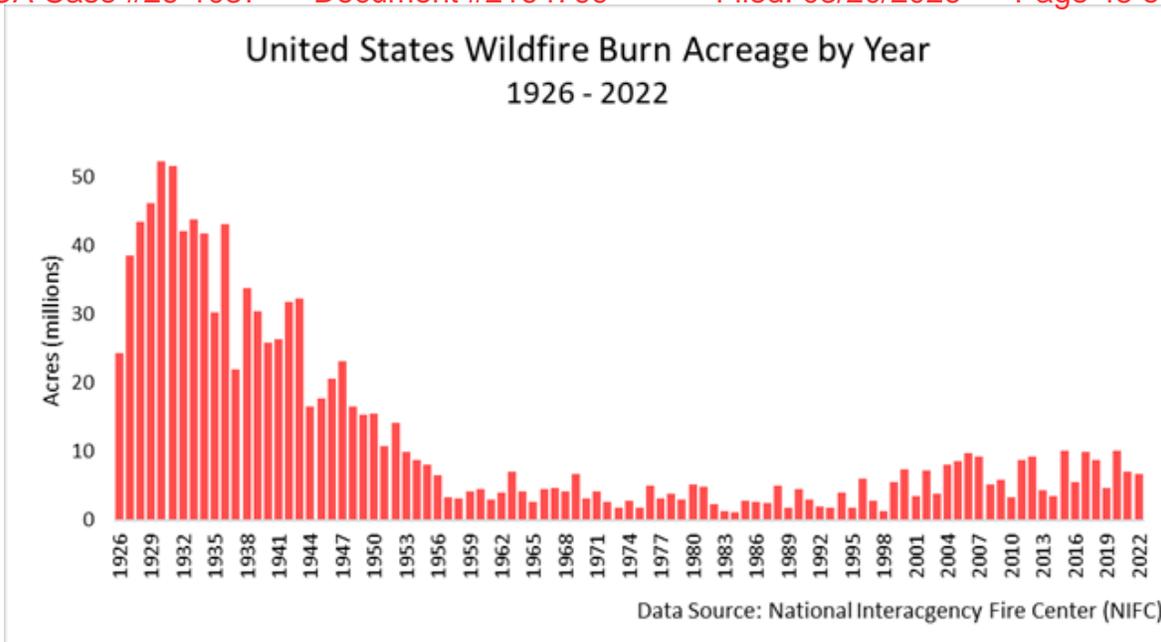
This is yet another example of the USGCRP doing what science deems falsifying data by cherry-picking a very short period of time—1980 onward—and not considering and omitting contradictory data from a longer period of relevant time.

The National Interagency Fire Center ("NIFC") used to provide data going back to 1926. The NIFC removed all the data before 1983 from their website in March 2021. Why? That data showed that the burned area has been declining, with more than a 75% reduction since their peak in the 1920s and 1930s—even though CO₂ has been increasing. Looking at contradictory omitted data before 1984, it shows the United States now is faring much better than in the past.⁸²

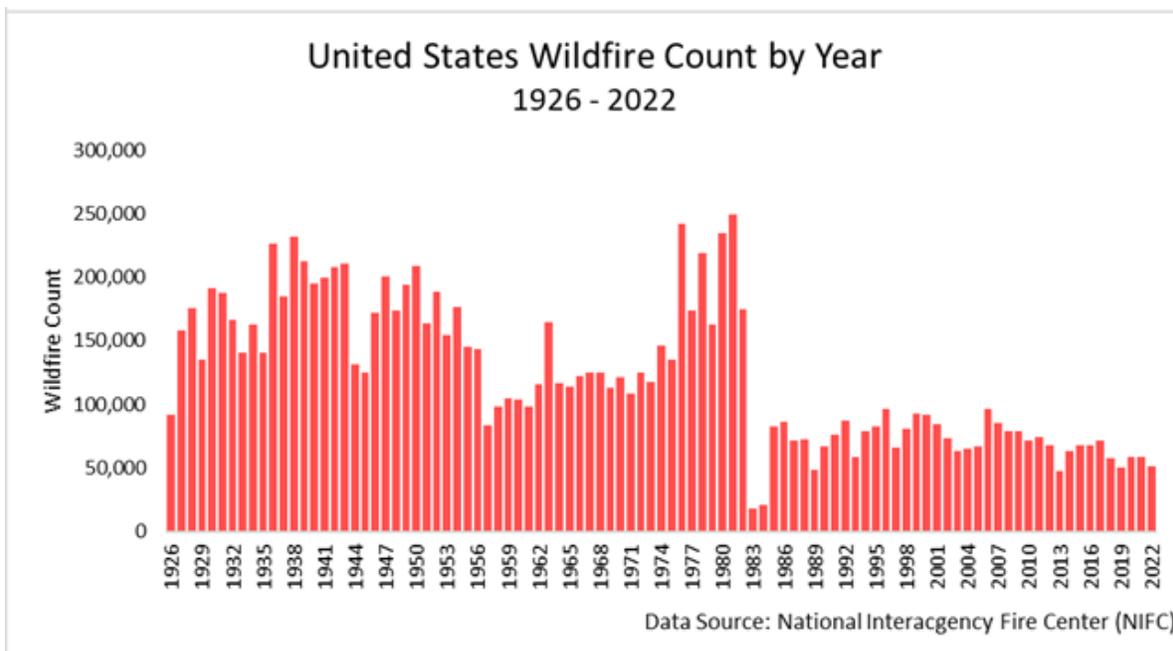
⁸⁰ USGCRP, *The 4th National Climate Assessment, Vol. II, Impacts, Risks, and Adaptation in the U.S.* (2018), p. 5 & 1508.

⁸¹ *Id.* p. 249.

⁸² *U.S. Wildfires, Climate at a Glance*, <https://climateataglance.com/climate-at-a-glance-u-s-wildfires/>.



Similarly, the total number of wildfires in the United States has dropped enormously since the 1930s.⁸³



Thus, there is no long trend of increased wildfires. Rather, to the contrary, there is a long-term trend of decreasing wildfires when the omitted contradictory data is considered as scientific method requires. Thus the NCA’s CSSR Wildfire data provides no scientific knowledge that supports any of the Net Zero Theory rules, subsidies or polices.

Sea Level

We agree with Steven Koonin's analysis in "A Deceptive New Report On Climate" on sea levels by the NCA4 CSSR in the *Wall Street Journal* (Nov. 2, 2017). He singled out the CSSR

⁸³ *Id.*

for what science deems falsifying data by cherry-picking data on this issue and omitting contradictory data.

The CSSR cited a sea level rise in two recent decades, but omitted data showing a similar sea level rise earlier in the century.

"The report ominously notes that while global sea level rose an average 0.05 inch a year during most of the 20th century, it has risen at about twice that rate since 1993. But it fails to mention that the rate fluctuated by comparable amounts several times during the 20th century. The same research papers the report cites show that recent rates are statistically indistinguishable from peak rates earlier in the 20th century, when human influences on the climate were much smaller. The report thus misleads by omission. ... Such data misrepresentations violate basic scientific norms."⁸⁴

Thus, the scientific method shows that there is no risk that CO₂, other GHGs and fossil fuels will cause increased damage from rising sea levels. Sea levels may rise and cause damage, but if that occurs it will have nothing to do with increases in CO₂ and other GHGs.

In summary, USGCRP fabricated, falsified and omitted contradictory data on heat waves, hurricanes, wildfires and sea levels. It could not have provided any scientific knowledge that supports the Endangerment Finding.

E. The National Academy of Sciences' Cited Publications and *Valuing Climate Damages* Book

The Endangerment Finding cited four NRC reports: *Climate Change Science: Analysis of Some Key Questions* (2001); *Radiative Forcing of Climate Change* (2005); *Surface Temperature Reconstructions for the Last 2,000 Years* (2006); *EPA Potential Impacts of Climate Change on U.S. Transportation* (2008). TSD 6.

None rebutted the physics we could find that we demonstrate above that increasing GHGs cannot cause dangerous warming or extreme weather because of saturation. In any event, the Endangerment Finding cannot stand without the deleted IPCC findings.

It should be noted that the National Academy of Sciences' ("NAS") *Valuing Climate Damages: Updating Estimating the Social Cost of Carbon Dioxide* (2017) was published after the Endangerment Finding was issued in late 2009. It is cited by the EPA in 2023 in its proposed Clean Power Plant rule 2.0 as one of the "major scientific assessments [that] continue to demonstrate ... the impacts that GHGs have on public health and welfare both for current and future generations."⁸⁵

However, for whatever reason, this book by this very prestigious scientific group expressly states that it limited its analysis to "peer reviewed literature" as the "scientific basis" for all "modules, their components, their interactions, and their implementation," rather than using the scientific method which requires considering all relevant science:

⁸⁴ *Id.*

⁸⁵ 88 Fed. Reg. 33,249.

"RECOMMENDATION 2-2 The Interagency Working Group should use three criteria to evaluate the overall integrated SC-CO₂ framework and the modules to be used in that framework: scientific basis, uncertainty characterization, and transparency.

- Scientific basis: Modules, their components, their interactions, and their implementation should be consistent with the state of scientific knowledge as reflected in the body of current, peer-reviewed literature."⁸⁶

Peer review, as noted, does not determine scientific knowledge. science.

More importantly as detailed above, “peer-reviewed literature” in climate science almost always excludes contradictory science, an egregious violation of the scientific method.

We both are members of the National Academy, but with all due respect, the National Academy’s book *Valuing Climate Damages*, by limiting its analysis to “peer-reviewed literature” and not using the scientific method means *Valuing Climate Damages* has no value as scientific knowledge and is merely this government organization’s opinion.

V. THE ENDANGERMENT FINDING IS ARBITRARY, CAPRICIOUS AND THUS INVALID UNDER THE SUPREME COURT’S *STATE FARM* DECISION

As a legal matter, we understand *State Farm*⁸⁷ is a key Supreme Court case that ruled that an agency regulation is arbitrary, capricious and thus invalid where, *inter alia*:

- “the agency has relied on factors which Congress has not intended it to consider.”
- “the agency has ... entirely failed to consider an important aspect of the problem.”

The Endangerment Finding fails each of these *State Farm* mandates:

First, Unscientific Evidence. Unscientific evidence, misrepresented as science, is all the EPA provided underlying the Endangerment Finding, demonstrated in Part IV. Congress never intended for the EPA to consider and rely on unscientific evidence in making its Endangerment Finding, as it did.

Second, Contradictory Scientific Evidence Ignored. The Endangerment Finding ignored and “entirely failed to consider an important aspect of the problem,” the robust and reliable contradictory scientific evidence detailed above in Part III.

Therefore the Endangerment Finding is arbitrary, capricious and thus invalid for either or both reasons under *State Farm*.

CONCLUSION

Accordingly, we demonstrated the Endangerment Finding is based on fatally flawed science, for two reasons:

⁸⁶ *Valuing Climate Damages*, p.47 (emphasis added).

⁸⁷“Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem” *Motor Vehicle Manufacturers Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company*, 463 U.S. 29, 43 (1983).

First, it fails to consider contradictory science, including:.

- The physics that demonstrates increasing carbon dioxide and other GHGs can only cause negligible increased warming.
- There is no risk that the continued use of fossil fuels and even a doubling of atmospheric CO₂ will cause catastrophic global warming.
- With no major warming, increasing GHGs cannot cause increased extreme weather.
- Doubling carbon dioxide from today's level will increase the world's food supply by 40% and have a trivial effect on temperature
- that eliminating carbon dioxide and fossil fuels will have disastrous effects for Americans, America, the poor and people worldwide.

Second, it is not based on science, it is based on unscientific sources.

Thus there is no scientific basis for the Endangerment Finding that GHGs will endanger the public health and welfare. Furthermore, it endangers the public health and welfare itself.

Accordingly, it should be repealed ASAP.

Finally, we repeat urgent action to repeal the Endangerment Finding and other government actions based on is required because they are policies that will destroy western economies, impoverish the working middle class, condemn billions of the world's poorest to continued poverty and increased starvation, leave our children despairing over the alleged absence of a future, and will enrich the enemies of the West who are enjoying the spectacle of our suicide march.

CURRICULUM VITAE**Richard Lindzen, Ph.D.**

I am an Alfred P. Sloan Professor of Atmospheric Science Emeritus at MIT. After completing my doctorate at Harvard in 1964 (with a thesis on the interaction of photochemistry, radiation and dynamics in the stratosphere), I did postdoctoral work at the University of Washington and at the University of Oslo before joining the National Center for Atmospheric Research as a staff scientist. p. the end of 1967, I moved to the University of Chicago as a tenured associate professor, and in 1971 I returned to Harvard to assume the Gordon McKay Professorship (and later the Burden Professorship) in Dynamic Meteorology. In 1981 I moved to MIT to assume the Alfred P. Sloan Professorship in Atmospheric Sciences. I have also held visiting professorships at UCLA, Tel Aviv University, and the National Physical Laboratory in Ahmedabad, India, and the Hebrew University in Jerusalem, the Jet Propulsion Laboratory in Pasadena, and the Laboratory for Dynamic Meteorology at the University of Paris.

I developed our current understanding of the quasi-biennial oscillation of the tropical stratosphere, the current explanation for dominance of the solar semidiurnal and diurnal tides at various levels of the atmosphere, the role of breaking gravity waves as a major source of friction in the atmosphere, and the role of this friction in reversing the meridional temperature gradient at the tropopause (where the equator is the coldest latitude) and the mesopause (where temperature is a minimum at the summer pole and a maximum at the winter pole). I have also developed the basic description of how surface temperature in the tropics controls the distribution of cumulus convection and led the group that discovered the iris effect where upper-level cirrus contract in response to warmer surface temperatures. I have published approximately 250 papers and books. I am an award recipient of the American Meteorological Society and the American Geophysical Union. I am a fellow of the American Meteorological Society, the American Geophysical Union and the American Association for the Advancement of Science, and a member of the National Academy of Sciences and the American Academy of Arts and Sciences.

I have served as the director of the Center for Earth and Planetary Sciences at Harvard and on numerous panels of the National Research Council. I was also a lead author on the Third Assessment Report of the UN's Intergovernmental Panel on Climate Change – the report for which the IPCC shared the Nobel Peace Prize with Al Gore.

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.

EXHIBIT B

Dr. D. Weston Allen, MBBS, FRACGP

Fellowship of the Royal Australian College of General Practitioners (FRACGP), full-time family physician at Kingscliff on the southern Gold Coast.

Dr. Jan Breslow, M.D.

Fredrick Henry Leonhardt Professor Rockefeller University; Head Laboratory of Biochemical Genetics and Metabolism; Senior Physician Rockefeller Hospital. Former President of the American Heart Association and a member of the National Academy of Sciences, the National Academy of Medicine, and the German National Academy of Sciences Leopoldina.

Dr. Daniel Nebert

Professor emeritus, Human Genetics Division, Department of Pediatrics and Molecular & Developmental Biology at Cincinnati Children's Hospital Medical Center and adjunct professor title in the Human Genetics Division, Department of Pediatrics and Molecular & Developmental Biology at Cincinnati Children's Hospital Medical Center.

U.S. Environmental Protection Agency
Docket ID No. EPA-HQ-OAR-2025-0194
1200 Pennsylvania Avenue NE
Washington, D.C.

Re: Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards ("Proposed Rule")

Dear Administrator Zeldin,

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

Our comment focuses on responding to your request for comments on:

2. The scientific underpinnings of the Endangerment Finding are weaker than previously believed and contradicted by empirical data, peer-reviewed studies, and scientific developments since 2009 (C-2).

¹ 90 FR 36288 (Aug. 1, 2025).

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Climate Change and Health

Dr. D. Weston Allen, Dr. Jan Breslow, M.D., Dr. Daniel Nebert

Introduction

Human health, morbidity, mortality and longevity are significantly impacted by climate. This review examines the evidence for past, present and possible future human health impacts of climate change and its ramifications. It will also examine the health impacts of different energy sources and climate actions. It will not examine every link in the literature to a range of conditions where attribution is implausible or tenuous, or where association assumes causation.

Warmth, Wealth and Health

For over two million years, Earth has been in the grip of an Ice Age interspersed every 100,000 years or so with interglacial warm periods. Our furless species evolved on the hottest continent, probably during the warm Purfleet interglacial,^{1,2} spread during the Eemian,³ also several degrees warmer than now,^{4,5} and populated the planet during the present Holocene, dating from 9,700 BCE when South Greenland warmed by 7°C in just 50 years.⁶ Agriculture began and civilizations arose during the Holocene Climatic Optimum⁷ which was warmer than now⁸ for several millennia in Russia⁹ and up to 7°C warmer in the Arctic.¹⁰

Humanity flourished and multiplied during the Minoan and Roman warm periods, after which rapid cooling ushered in the dreadful Dark Ages. The bubonic Plague of Justinian (541-542CE) killed 25 million people, 13% of the world's population, and twice that number died from plague over the next two centuries.¹¹ After flourishing again during the Medieval Warm Period,¹² humanity endured a miserable Little Ice Age (LIA) with frequent widespread crop failures, mass starvation, disease and depopulation.¹³ Crop failures over successive summers from 1315 produced the [Great Famine of Europe](#).¹⁴ The *Black Death* of 1346-1353 wiped out 30-60% of Europe's population and up to 200 million people across Eurasia.¹⁵

Global rewarming since the 18th century, associated with increasing prosperity, better housing, sanitation, food and water supplies, has greatly benefited human health and wealth. Deaths from typhoid and tuberculosis declined dramatically during pre-antibiotic 20th century warming (1910-1945).¹⁶ Mortality from all causes fell as temperatures rose.¹⁷ From a billion people in 1800, the global population doubled by 1927, doubled again to four billion in 1974 and again to 8 billion in 2022. Despite this fourfold increase over the last century, the number of deaths from extreme weather events declined by over 90%.¹⁸

Northern winters nevertheless remain more lethal than summers,¹⁹ 13% more so in 1952-67 in the U.S. and 16% more so in 1985-90, partly due to the increased availability and affordability of air-conditioning in summer.²⁰ Climate action in the UK, however, was largely responsible for [fuel poverty](#) affecting almost a third of the elderly²¹ and high winter death toll in 2017-18, the worst in 42 years despite global warming.²²

Davis et al (2003)²³ found a 74.4% decline in heat-related mortality in 28 of the largest U.S. cities from 1964 to 1998 and estimated that another 1°C increase would further reduce the net mortality rate.²⁴ **Analyzing over 74 million deaths in 384 locations across 13 countries,** [Gasparrini et al](#) (2015)²⁵ found that cold weather was over 17 times more lethal than hot weather: **7.3% of all deaths due to cold and 0.42% from heat.** Masselot et al (2023) found cold weather to be ten times more lethal than hot weather across Europe and forty times more so in northern Europe.²⁶ Their visual display of this difference (Fig. 1) was camouflaged by making the X-axis for heat-related deaths 5.6 times greater than the X-axis for cold-related deaths!

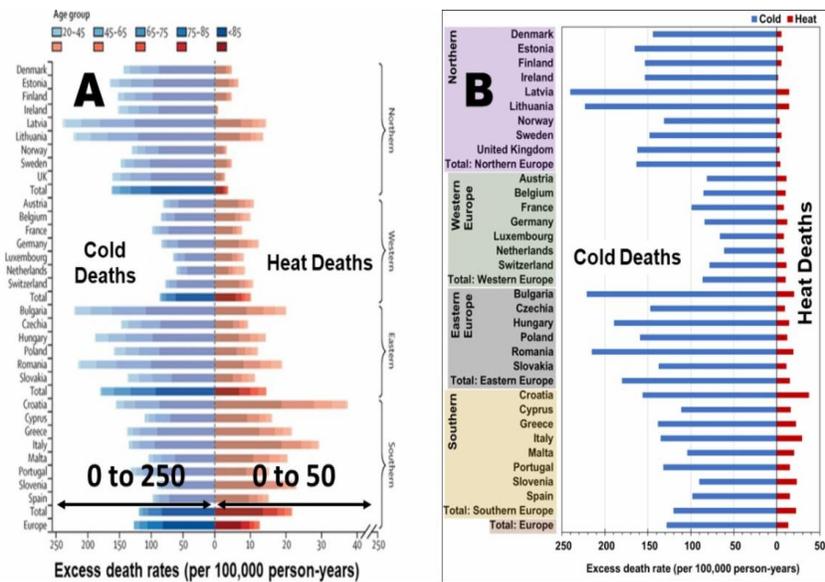


Figure 1: Temperature-related mortality in European cities from Masselot et al. 2023
 (A) As depicted in *the Lancet*
 (B) Identical X-axis for heat and cold, corrected by the CO₂ Coalition

Life expectancy is strongly associated with wealth or GDP per capita (Fig. 2).²⁷ Both have been increasing in all regions of a warming world since the Industrial Revolution, the global average life expectancy at birth more than doubling from 32 to 71 years between 1900 and 2021.²⁸

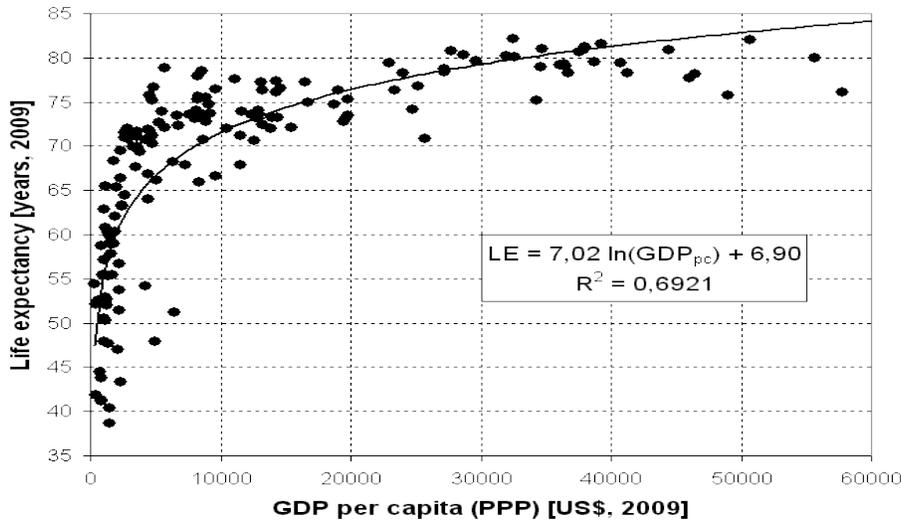


Figure 2: The Preston curve of Life Expectancy at birth increasing with GDP per capita
Source: https://en.wikipedia.org/wiki/Preston_curve

By cheaply and reliably powering industry, mechanizing agriculture and transport, fossil fuels helped to end slavery and emancipate women and children, propelled urbanization, sewerage, safe water supplies, electricity, heating and cooling. They also facilitated better hospitals and health care. Their products and by-products (fertilizers, pesticides and carbon dioxide) also boosted food production and human nutrition.

By how much fossil fuels have contributed to global warming, no one can say precisely, but probably less than earlier estimates.²⁹ Richard Tol (2010)³⁰ analyzed fourteen peer-reviewed papers examining the likely impacts on GDP and human welfare of 21st century warming – by 1°C (2 studies), 2.5°C (10 studies) and 3°C (2 studies) – and found that that 1-2°C would probably increase global GDP (Fig. 3). McKittrick (2025)³¹ analyzed 1,222 data sets on the impact on crop yields of warming due to increasing CO₂ and found it to be positive up to as much as 5°C of warming.

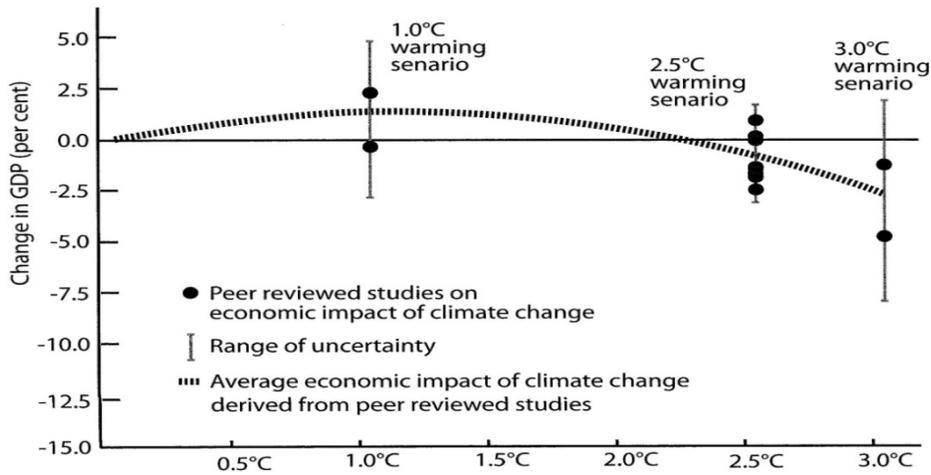


Figure 3: Projected economic impact of global warming of 1°C, 2.5°C and 3°C over the 21st century.
Source: Tol, 2010, derived from UN data

The Lancet confidently predicted in 2009 that climate change would be “the biggest global health threat of the 21st century” but in 1909 who could have predicted two devastating world wars, the atomic bomb, the 1919 influenza pandemic, HIV/AIDS or the global obesity/diabetes epidemic? And who could have predicted the marvels of modern medicine, antibiotics, antivirals, organ transplants, joint replacements, IVF, genetic engineering or a doubling or more of the average lifespan? Prophecies are in the province of religion, not science.

Temperature, Morbidity and Mortality

By absorbing some solar radiation by day and emitting it to earth’s surface by night, greenhouse gases reduce the **diurnal temperature range (DTR)**,³² especially at high latitudes. Whereas solar warming increases daytime maximum temperatures, greenhouse gases primarily impact nocturnal minimums, nicely demonstrated in a study of nighttime temperatures across the U.S.³³ Whereas warming during 1910-1939 was rather even across the year, warming during 1970-1997 impacted primarily the coldest nights (Fig. 4).

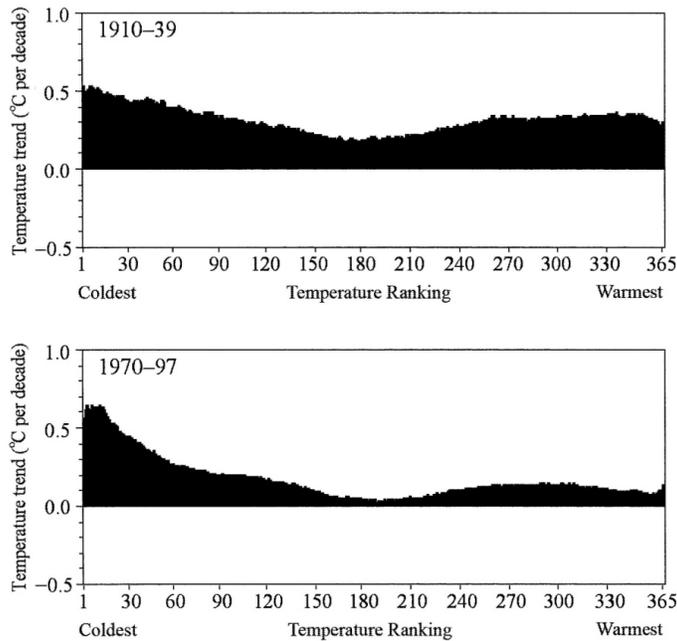


Figure 4: Nocturnal temperature trends for 1910-39 (Top) and 1970-97 (Bottom): trends plotted for the coldest nights from the left (No. 1) to the warmest (No. 365). Source: Knappenberger, Michaels and Davis, 2001

High temperature variability is associated with increased cardiovascular and respiratory mortality in the U.S.³⁴ Cardiac mortality increased by 1.7% in Hong Kong³⁵ and by ~3.2% in Shanghai³⁶ for every 1°C increase in DTR. Emergency visits to the Huashan Hospital (Shanghai) with respiratory infections were 1% and 2% higher for every 1°C increase in the current-day and 2-day moving average DTR respectively.³⁷ DTR is also a risk factor for chronic obstructive pulmonary disease (COPD) mortality.³⁸

The declining DTR,³⁹ temperature variability⁴⁰ and cold nights globally⁴¹ significantly reduce human morbidity and mortality short-term and over time. In a prospective ~5-year study in China, Tang et al (2022)⁴² found that the risks for all-cause mortality, cardiovascular disease, and stroke increase by 13% (95% CI: 8–18%), 12% (95% CI: 7–18%), and 9% (95% CI: 2–16%), respectively, per 1 °C increment in DTR. Xu et al. (2013)⁴³ found that childhood asthma in Brisbane increased for up to 9 days after a DTR above 10°C, with a 31% increase in emergency department admissions per 5°C increment in DTR. His team also found a 1°C increase in DTR to

be associated with a 3% increase in Emergency Department Admissions for childhood diarrhea but wrongly concluded: "As climate change continues, DTRs are likely to become more variable. Therefore, the associated health impacts are also likely to increase."⁴⁴ When researchers realized that their findings favored climate change, the research dried up!

Cardiovascular disease (CVD) is the major cause of death worldwide. It presents more often in winter and is more often fatal on cold days.⁴⁵ A study in the Hunter Region of New South Wales, Australia (1985-1990) found that "fatal coronary events and non-fatal definite myocardial infarction were 20–40% more common in winter and spring than at other times of year"; coronary deaths were up to 40% more likely to occur on cold days than at moderate temperatures.⁴⁶ Cardiovascular mortality was 15% higher in the colder months October-March than in April-September in Norway (1990-1995),⁴⁷ 33% higher in Californian winters (1985-1996)⁴⁸ and 50% higher in mid-winter than in mid-summer in both London (1994-1996)⁴⁹ and Israel (1976-1985),⁵⁰ despite summer temperatures often exceeding 30°C.

Braga et al (2002)³⁴ compared cardiovascular mortality in "hot" cities in the southern United States with "cold" cities in northern states. They found neither hot nor cold weather had much impact in the "hot" cities but significantly increased the mortality in the "cold" cities, where the cold-day effect was five times as great as the hot-day effect and persisted for days. There was a deficit of deaths for a few days after the hot days, indicating that hot days had a "harvesting effect" on those who were about to die. Cagle and Hubbard (2005)⁵¹ examined the relationship between temperature and out-of-hospital cardiac deaths in people over 54 years of age in King County, Washington (USA) over the period 1980-2000; mortality rose by 15% on days with maximum temperatures below 5°C and dropped by 3% on days with maximum temperatures over 30°C. In Japan (1970-1999), heart disease and stroke mortality rates were nearly twice as high in winter as in summer.⁵²

Stroke is more common in cold weather. Novosibirsk, Siberia has one of the world's highest rates of stroke, 87% being ischemic (due to blocked cerebral blood vessels) and 32% higher on days with low ambient temperature.⁵³ A similar association was found in Korea, where Hong et al. (2003)⁵⁴ found a 24-48-hour lag between exposure to cold and the onset of stroke. A study of World Health Organization (WHO) data on women aged 15-49 from 17 countries in Africa, Asia, Europe, Latin America, and the Caribbean found that a 5°C reduction in mean air temperature was associated with a 7% increase in hospitalization with stroke.⁵⁵ Aneurismal subarachnoid hemorrhage is also strongly correlated with winter and cold weather.⁵⁶

Respiratory disease is strongly related to temperature. Coughs, colds and influenza are far more prevalent in winter. Consultations for respiratory disease in London (1992-1995) increased linearly by 10.5% per degree (below 5°C).⁵⁷ Keatinge and Donaldson (2001)⁵⁸ found a linear increase in mortality from respiratory disease in Londoners aged over 50 as the temperature fell

below 15°C. The bronchiolitis season in central England was shortened by about three weeks for every 1°C of annual warming from 1981 to 2004.⁵⁹ Carder et al. (2005)⁶⁰ analyzed non-violent deaths in Scotland (1981-2001) and found that every 1°C drop in the daytime mean temperature below 11°C on any one day was associated with a 4.8% increased respiratory mortality over the following month. Respiratory-related deaths were 47% higher in winter than in summer in Oslo during the period 1990-1995.⁴⁷ Even in Sao Paulo, Brazil, Gouveia et al. (2003)⁶¹ found the fewest respiratory deaths in all age groups occurred at 20°C; mortality increased twice as much per degree below 20°C as it did above 20°C.

Asthma increased in many countries by 50% per decade last century⁶² and the Centers for Disease Control (CDC) [linked](#) this to climate change.⁶³ Alternative explanations include increasing hygiene,⁶⁴ antibiotic use⁶⁵ and pasteurization of cow's milk.⁶⁶ ⁶⁷ Although rising CO₂ concentrations and temperatures may increase ragweed pollen numbers,⁶⁸ they are highly variable both spatially and temporally.⁶⁹ Ragweed pollen has been decreasing in Zurich since 1982, and the major allergenic pollens have been declining in Basel since the early 1990s, as has the incidence of allergic rhinitis (hay fever) in Switzerland.⁷⁰ The Poaceae family of herbaceous grasses affects 80% of pollen allergy sufferers in Europe.⁷¹ Jato et al. (2009)⁷² found that the Poaceae pollen count had declined in four Spanish cities since 1993, by ~75% in Lugo and by 80% in Santiago. They also found a delayed onset and shorter duration of the atmospheric pollen season.

Eczema prevalence in the U.S. is significantly lower when the temperature and relative humidity are highest.⁷³ A study of atopic eczema in the mountainous area of Davos, Switzerland in 1983–1989 found itch-intensity to be inversely correlated with temperature.⁷⁴ Thirty Norwegian children improved in severity of eczema, quality of life, skin bacterial culture and medication usage after spending a month in the Canary Islands, and the improvement compared to a matched control group was still apparent three months later.⁷⁵

Cholera, which afflicts 3-5 million people and kills about 100,000 annually,⁷⁶ is now confined to developing countries in the tropics and subtropics (Fig. 5). When an epidemic broke out in London in 1848, [Dr. John Snow](#) performed the world's first epidemiological studies in linking it to contaminated water. Nearly a century and a half later, a paper in the prestigious journal *Science*⁷⁷ linked a 1991 outbreak in South America to climate change. The real cause, however, was a failure of the Peruvian authorities to properly chlorinate water supplies.⁷⁸ Climate change can be a convenient scapegoat for government failure!

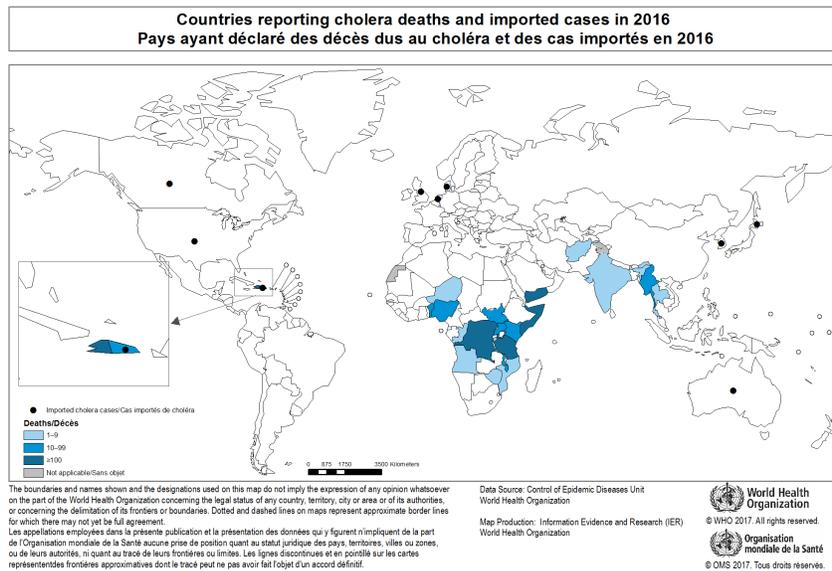


Figure 5: Distribution of cholera in 2016 as reported to the World Health Organisation.

Source: [http://gamapserver.who.int/mapLibrary/Files/Maps/Global_Cholera\(WER\)_2016.png](http://gamapserver.who.int/mapLibrary/Files/Maps/Global_Cholera(WER)_2016.png)

Gastroenteritis, which kills around 444,000 children every year globally,⁷⁹ is predicted to increase with climate change⁸⁰ from enteroviruses released in glacial melt⁸¹ and more bacteria in warmer seas and flood water.⁸² Rotavirus and norovirus, the most common pathogens causing diarrhea in children and adults respectively, survive less well at warmer temperatures however.⁸³ Moreover, ED admissions for childhood diarrhea decline as DTR declines with climate change.⁴⁵ Infectious disease accounted for 74% of infant deaths in the UK⁸⁴ before the motor vehicle saved cities from drowning in fly-breeding horse dung, the reason for the first international urban planning conference in 1898. Waste removal, fly control, clean water reticulation, the heating and refrigeration of food reduced diarrheal disease dramatically in the developed world. The question is whether depriving developing countries of cheap reliable energy for such proven preventive measures to reduce global emissions will save more lives than it loses.

Future Warming

Predictions are notoriously difficult and uncertain. Modelled mortality risks based on modelled climate changes based on modelled emissions scenarios are prone to so many biases and errors that they should be regarded as mere guesstimates. Keatinge and Donaldson (2004)⁸⁵

postulated that “the overall effect of global warming on health can be expected to be a beneficial one.” Evaluating the future impact of unchecked global warming on human health, Bosello, Roson and Tol (2006)⁸⁶ projected 1.4 million fewer deaths annually to 2050 and a lower mortality rate until at least 2200. More recently, Gasparrini et al. (2017)⁸⁷ projected unmitigated heat-related mortality to soon overtake cold-related mortality in SE Asia regardless of emissions scenario used, but not in Australia or North America until the end of this century and then only with the highest and most unlikely⁸⁸ emissions scenario (RCP8.5 = 1,370ppm CO₂ equivalent) and warming (4.9°C). Using the more realistic RCP4.5 scenario (650ppm CO₂ equivalent and 2.4°C of warming), cold remains more lethal than heat in all regions studied except SE Asia and South America (Fig. 6). The best fit with the global climate trend of 0.16°C/decade in the satellite data since 1978⁸⁹ is the RCP2.6 scenario.

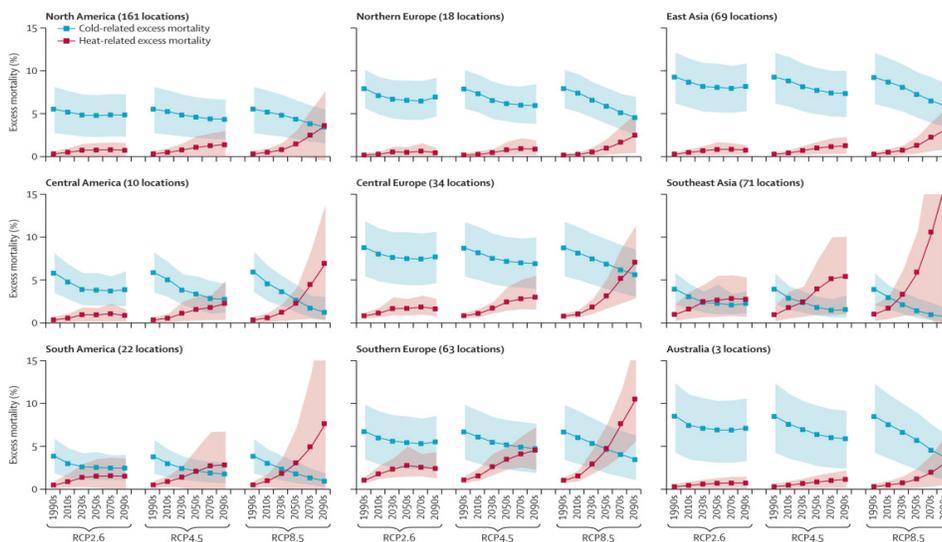


Figure 6: Projected changes in cold-related and heat-related excess mortality over the 21st century for nine regions and three emissions scenarios: RCP2.6, RCP4.5 and RCP8.5

Alaska, Africa, the Middle East, northern and central Asia, India, Indonesia and Russia were not included. **Adaptation and demographic changes** were also ignored. The authors warned: “The reported figures should therefore be interpreted as potential impacts under well-defined but hypothetical scenarios, and not as predictions of future excess mortality.” When Christidis et al. (2010)⁹⁰ factored **adaptation** into an analysis of the benefit of global warming on the mortality rate in England and Wales during the period 1976-2005, they found the lives-saved to lives-lost ratio increased fourfold to 121.4. A projection that ignores adaptation can safely be ignored.

Demographic changes also favor warmth. So many U.S. citizens move from the cold northeast states to warm southern states that it is thought to have contributed 3-7% of the late 20th century gains in longevity and delay about 4,600 deaths annually.⁹¹ We don't see Singaporeans, Malaysians or Indonesians fleeing the heat. Overpopulation, poverty, religious/tribal conflicts, political instability and corruption dwarf climate change in driving migration.⁹² Fertility rates tend to fall as countries become wealthier and carbon emissions per capita increase.

Temperature Extremes

Deadly heatwaves such as the European one in 2003 are often attributed to climate change.⁹³ Temperatures elsewhere across the globe at the time, however, were normal or below normal (Fig. 7).⁹⁴

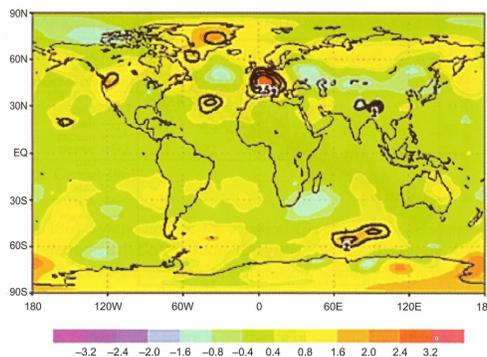


Figure 7: Global tropospheric temperature anomalies, June-August 2003.

Source: Chase et al. (2006)

Australia's deadliest heatwave,⁹⁵ with temperatures of 102°F (38.9°C) or above for 24 days straight, 120°F (49.9°C) in the shade at Bourke, and 109°F (42.8°C) at [midnight at Brewarrina, was](#) in January **1896**.⁹⁶ Seven months later, the eastern United States had a 10-day heatwave that [killed nearly 1,500](#) people.⁹⁷ Another very prolonged heatwave there in 1901 killed 9,500 people, making it easily the most destructive heatwave in U.S. history.⁹⁸ The 1936 North American heatwave during the Dust Bowl decade set record temperatures across 14 states, reaching 49°C in [Steele, North Dakota](#), and killed at least 5,000 people.⁹⁹ The 1954 summer-long heatwave across the Midwest, reaching 117°F (47.2°C) in East St Louis, ranks as the hottest in 11 states (Fig. 8) based on an analysis of Midwest temperature records from 1845 to 2009.¹⁰⁰ [Nancy Westcott](#) (2011) also found a *reducing* trend of heatwaves over the 20th century.

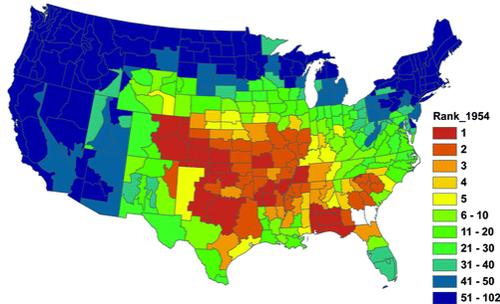


Figure 8: Rank of the June–September 1954 heat wave based on National Climatic Data Center (NCDC) climate division temperature data for the years 1895–2009. Source: Westcott (2011)

The fourth National Climate Assessment (NCA4) states: “Heat waves (6-day periods with a maximum temperature above the 90th percentile for 1961–1990) increased in frequency until the mid-1930s, became considerably less common through the mid-1960s, and increased in frequency again thereafter. As with warm daily temperatures, heat wave magnitude reached a maximum in the 1930s”¹⁰¹ (Fig. 9). A 1915-2025 analysis of U.S. heatwaves by region reveals that heatwaves in the first half of the 20th century were primarily in the eastern two-thirds and primarily in the West since 1990.¹⁰² The frequency and severity of both extreme heat and extreme cold in the U.S. have declined since 1898.¹⁰³

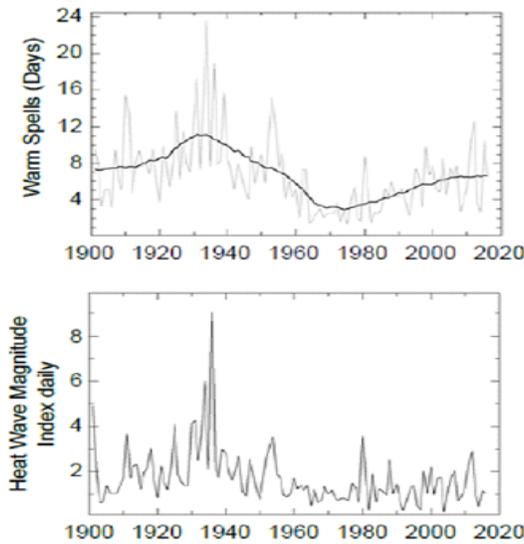


Figure 9: U.S. Heatwaves since 1900. Source: NCA4 Figure 6.4

Urban heat intensifies heatwaves and heatwave mortality much more than does global warming.¹⁰⁴ Cities can be over 11°C hotter than the surrounding countryside; the larger the city the greater the difference.¹⁰⁵ The percentage of the global population classed as urban increased from 30% in 1950 to 50% in 2008 and is [expected to reach 70%](#) by 2050.¹⁰⁶ The U.S. population is now nearly 90% urban. Unlike global warming, urban heat can be effectively and efficiently mitigated,¹⁰⁷ creating cool city refuges¹⁰⁸ using greenery and water features, requiring careful urban planning and adequate water resources.

Air pollution also exacerbates heatwave mortality. Of the estimated excess deaths attributed to unusually high temperatures during the 2003 European summer,¹⁰⁹ elevated atmospheric concentrations of ozone and particulate matter less than 10µm diameter (PM₁₀) accounted for 21-38% in the UK¹¹⁰ and 33-50% in the Netherlands.¹¹¹ Mortality was also higher than expected from temperature alone in France.¹¹² The [EU's decision in 2001](#) to promote diesel to reduce CO₂ emissions probably increased heatwave mortality!

Obesity, now an epidemic,¹¹³ exacerbates heatwave mortality by reducing heat-tolerance¹¹⁴ while aerobic fitness increases it.¹¹⁵ Acclimatization reduces mortality from heatwaves but not cold waves.¹¹⁶ Whereas mortality from the latter remains higher for weeks, it drops rapidly and dramatically after heatwaves, indicating that most of those who die were close to death anyway.¹¹⁷ This *harvesting effect* found in the U.S. and Europe¹¹⁸ results in “virtually no lasting impact of heat waves on mortality.”¹¹⁹

Affordable energy reduces heatwave mortality. The 1954 Midwest heatwave was worse than the 1936 heatwave in intensity, extent and duration, but killed fewer than a fifth as many people,¹²⁰ largely because air conditioners, electric fans, refrigerators, ice and cold drinks had become available and affordable.

Heatwave planning. Following the 2003 European heatwave, which caused 15,000 excess deaths during France's August vacation with its relative lack of care for the isolated and vulnerable, the French Directorate General for Health set up a National Heat Wave Plan. This included a system for real-time surveillance, prevention and treatment of heat-related diseases, air-conditioning equipment for hospitals and retirement homes, city-scale censuses of the isolated and vulnerable, visits to them during the alert periods, a warning system and preventive message broadcasting by the media. When France experienced another severe heatwave in July 2006, there were nearly 4,400 fewer deaths than expected. Modern forecast and warning systems have also been shown to be very effective in preventing heat-related deaths.¹²¹ Lazy governments blame climate change instead of implementing effective heatwave mortality-reduction measures.

Temperature and Disease Vectors

Vector-borne infection is regarded by the IPCC as a major climate change challenge to human health.¹²² [The World Health Organization \(WHO\) states that vector-borne diseases](#) account for over 17% of all infectious diseases and causes more than 700,000 deaths annually.¹²³ It is postulated that global warming will spread the following disease vectors to areas that have hitherto been too cool for them.¹²⁴

Vector	Species	Diseases
Mosquitoes <i>malariae</i>	<i>Anopheles</i>	Malaria – <i>P. falciparum</i> , <i>P. vivax</i> , <i>P. ovale</i> and <i>P.</i>
	<i>Aedes</i>	Chikangunya, Dengue, Yellow Fever, Ziga
	<i>Culex</i>	West Nile Virus
Ticks	<i>Ixodes</i>	Lyme disease
Sandflies		Leishmaniasis

Malaria was endemic for millennia in Europe and England¹²⁵ where 17th century burial records reveal a mortality rate comparable to that in sub-Saharan Africa today.¹²⁶ Apart from epidemics during the unusually hot summers of 1848 and 1859, there was a near-linear decline in endemic malaria in the UK from 1840 to 1910. It disappeared in 1953 and re-establishment is considered highly unlikely regardless of warming.¹²⁷ Endemic malaria in Finland likewise faded out over two centuries of warming with limited or no counter measures or medication, leading Hulden and Hulden (2009)¹²⁸ to conclude that, “malaria in Finland basically was a sociological disease and that malaria trends were strongly linked to changes in the human household size and housing standard.” Helsinki had its last malaria epidemic in 1902. Devastating epidemics occurred in parts of northern Europe, even in the Arctic Circle, until the middle of the 20th century.¹²⁹ In the U.S., a malaria epidemic affected 30% of the population of the Tennessee River Valley in 1933.¹³⁰ Despite rapid warming from 1916 to 1937, there was a four-fold decline in deaths from malaria in Mississippi; the only significant correlation was with family income: the higher the income the fewer the deaths.¹³¹ Malaria remained endemic in 36 states until the CDC was created to tackle it after World War II. Swamps were drained, agricultural practices were changed, cases were isolated from mosquitoes and treated, mosquito nets and DDT were widely used, millions of homes were sprayed, and the U.S. was considered malaria-free in 1951.¹³² Despite global warming, the 20th century saw a dramatic decline globally in both endemicity¹³³ and per capita mortality rate (down 95.4%).¹³⁴

Studies extending over 10-32 years found no correlation between temperature or rainfall and the incidence of malaria in western Africa,¹³⁵ at four highland sites in east Africa¹³⁶ or in western

Kenya.¹³⁷ A comprehensive study across Africa over an 85-year period (1911-1995) found a correlation with precipitation in Southern Mozambique but none with temperature anywhere.¹³⁸ In a review paper, Rogers and Randolph (2006)¹³⁹ attribute the observed increase in malaria in many parts of Africa it to “land-cover and land-use changes and, most importantly, drug resistance rather than any effect of climate,” noting “the recrudescence of malaria in the tea estates near Kericho, Kenya, in East Africa, where temperature has not changed significantly, shows all the signs of a disease that has escaped drug control following the evolution of chloroquine resistance by the malarial parasite.”

Haque *et al.* (2010)¹⁴⁰ analyzed monthly malaria case data for the malaria endemic district of Chittagong Hill Tracts in Bangladesh from January 1989 to December 2008. They found no correlation with temperature, rainfall or humidity, but a strong negative association with the normalized difference vegetation index (NDVI), a satellite-derived measure of surface vegetation greenness. They state: “each 0.1 increase in monthly NDVI was associated with a 30.4% decrease in malaria cases” probably due to increasing insectivorous bird populations. By stimulating plant growth, CO₂ may be reducing malaria risk.

It is thought that global warming will allow malaria to climb to higher altitudes.¹⁴¹ Before the introduction of DDT and other public health measures, however, malaria transmission occurred much higher than now, at up to 2,600m in Kenya, 2,450m in Ethiopia, 2,500m in the Himalayas, 2,180m in Argentina and 2,773m (near thermal springs) in Bolivia.¹⁴² After considering forest clearance, agriculture, urbanization, health infrastructure, drug and insecticide resistance, civil strife and other influences on endemic malaria in the Highlands of Kenya and New Guinea, Paul Reiter of the Insects and Infectious Disease Unit of the Institut Pasteur in Paris, France concluded that “simplistic reasoning on the future prevalence of malaria is ill-founded; malaria is not limited by climate in most temperate regions, nor in the tropics, and in nearly all cases, ‘new’ malaria at high altitudes is well below the maximum altitudinal limits for transmission.”

The impact of climate change on future global malaria distribution proved to be much weaker when GDP per capita was included in the models.¹⁴³ One model using five variables and a high-emissions scenario actually produced a 0.92% decrease.⁸⁹ Indur Goklany (2004)¹⁴⁴ calculated that the malaria death toll could be halved through a combination of proven measures costing a tiny fraction of mitigation costs.

Chikungunya virus (CHIKV) was first isolated in Tanzania during an outbreak of incapacitating arthralgia in 1953.¹⁴⁵ The African primary hosts are non-human primates and small mammals, and *Aedes aegypti* is its primary vector. CHIKV has been spreading rapidly in recent decades but not due to climate change. *A. aegypti* had escaped Africa centuries ago with the slave trade and established itself widely across tropical and subtropical regions (Fig. 10), even in southern Europe before disappearing there in the mid-1990s.¹⁴⁶

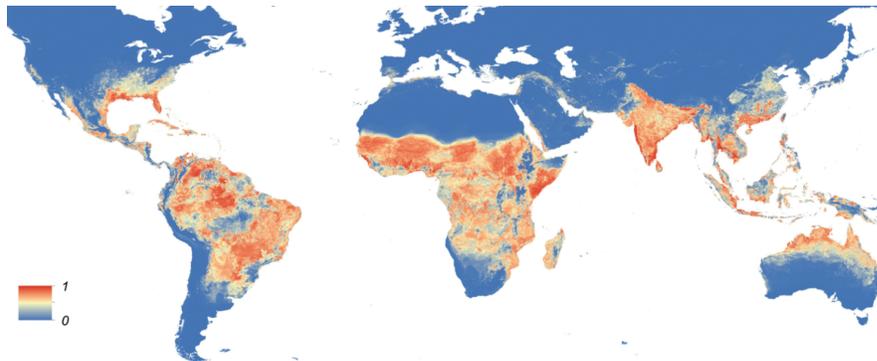


Figure 10: [Global distribution](#) of *Aedes aegypti*: probability from 0 blue to 1 red.

Source: [Kraemer et al 2015](#)¹⁴⁷

CHIKV broke out on Reunion Island and neighboring Indian Ocean islands in 2005 and in India in 2006. It then spread to South-East Asia,¹⁴⁸ simultaneously undergoing a genomic micro-evolution which enabled it to be transmitted by *Aedes albopictus*, the tiger mosquito of SE Asia.¹⁴⁹ *A. albopictus*, which is intolerant to extreme heat,¹⁵⁰ has been adapting to cold climates in temperate regions such as Japan. It can hibernate over winter and produce eggs that are more cold-tolerant.¹⁵¹ Adult mosquitoes can even survive freezing winters in suitable microhabitats.¹⁵² It spread to Albania in 1979¹⁵³ and to Genoa, Italy in imported used tyres in 1990.¹⁵⁴ By 2007, it had spread extensively across southern Europe (Fig. 11). Ravenna in northern Italy experienced Europe's first CHIKV epidemic after the virus was introduced from India.¹⁵⁵ *A. albopictus* has recently spread westward in the continental United States, where locally acquired cases occurred in 2014,¹⁵⁶ but only travel-associated cases have been [reported](#) since 2015.¹⁵⁷

Modelling by [Fischer et al. \(2013\)](#)¹⁵⁸ projected an increased risk "for Western Europe (e.g. France and Benelux-States) in the first half of the 21st century and from mid-century onwards for central parts of Europe (e.g. Germany). Interestingly, the southernmost parts of Europe do not generally provide suitable conditions in these projections." In other words, their emissions scenarios will make it too warm for *A. albopictus* to remain established in southern Europe.

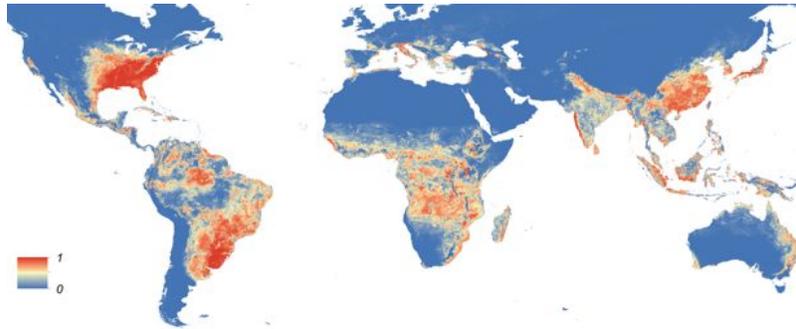


Figure 11: [Global distribution](#) of *Aedes albopictus*: probability of occurrence from 0 blue to 1 red. Source: [Kraemer et al 2015147](#)

The reality, of course, is that no one knows what might happen this century; warming may be less than thought, vaccines and public health measures may control or even eradicate the virus from the developed world, it may mutate again, or more CO₂ may even reduce the incidence. Tuchman *et al.* (2003)¹⁵⁹ grew the quaking aspen (*Populus tremuloides*) (Michaux) trees at atmospheric CO₂ concentrations of either 360 ppm or 720 ppm for an entire growing season and fed the incubated leaf litter to four species of mosquito larvae to assess the effect on development. They found the larvae of *Aedes albopictus* had a mortality rate 2.2 times higher when fed the high-CO₂ litter, which delayed the development of all larvae by 9-20 days.

Dengue fever is arguably the most important vector-borne viral disease globally, infecting over 200 million people, 1% of them severely with over 20 thousand deaths annually.^{160, 161, 162} [A review](#) of 16 studies, carefully selected from 75 papers with methodologies of varying quality, found dengue transmission to be highly sensitive to climatic conditions, especially temperature, rainfall and relative humidity.¹⁶³ Climate change is implicated by the following: incidence increasing 30-fold over the past 5-6 decades; endemicity increasing to involve 119 countries; expanding transmission zone to include half the world's population; lengthening mosquito lifespan and shortening virus incubation period with warming, resulting in more infected mosquitoes over longer periods.¹⁶⁴ This must be weighed against other historical facts, scientific evidence, research and developments:

- Dengue and yellow fever were major public health problems in the U.S. during the cold 17th century but disappeared during the warm 20th century.¹⁶⁵ The [CDC](#) states: "As recently as the 1940s, large dengue outbreaks were documented in the United States reaching places as far north as Boston. Today, the situation has changed significantly. Reasonable climate, competent mosquito vectors, and susceptible human hosts are all still present in the continental United States, and dengue viruses are frequently reintroduced by infected travelers."¹⁶⁶ Transmission in

the U.S. is rare, however, because there is insufficient contact between infected humans, vector mosquito species, and susceptible humans to sustain transmission.”

- Alternative explanations for the observed global increase in incidence include rapid urbanisation, international travel and disruption of vector control programs.¹⁶¹ The authors conclude: “Population dynamics and viral evolution offer the most parsimonious explanation for the observed epidemic cycles of the disease, far more than climatic factors.” In 1995, dengue afflicted over 4,000 Mexicans in Tamaulipas while Texas had only a handful of non-imported cases. The essential difference was not climate but living standards and sound public health policies.¹⁶⁷ Laredo, Texas, (population 200,000) and Nuevo Laredo, Tamaulipas, (population 290,000) are connected by bridges across the Rio Grande. After an outbreak in 1999, Reiter et al. (2003)¹⁶⁸ found “the incidence of recent cases, indicated by immunoglobulin M antibody serosurvey, was [12.3 times] higher in Nuevo Laredo, although the vector, *Aedes aegypti*, was more abundant in Laredo.” Reiter *et al.* determined that “the proportion of dengue infections attributable to lack of air-conditioning in Nuevo Laredo was 55% ... [and] if the current warming trend in world climates continues, air-conditioning may become even more prevalent in the United States, in which case, the probability of dengue transmission will likely decrease.” The [CDC](#) endorsed this: “Studies on the U.S.-Mexico border, for example, suggest that the restriction of transmission there is due to the limitation of contact between human hosts and mosquito vectors that comes with low housing density and the use of air conditioning and screens.”¹⁶⁹
- Future solutions to dengue could include the development of [effective dengue vaccines](#), [genetic modification of *A. aegypti*](#),¹⁷⁰ the [sterile insect technique](#)¹⁷¹ (shown to reduce the target mosquito population by more than 90%) and the [Wolbachia](#) bacterium,¹⁷² which allows mosquitoes to be resistant to arboviruses such as dengue and Zika.

West Nile Virus (WNV) was first identified in a West Nile district of Uganda in 1937. It is asymptomatic in 80% of infected people but can cause severe encephalitis or meningitis in about 1 in 150 infected persons, especially the elderly or immunocompromised. It is transmitted by a *Culex* species of mosquito that has bitten an infected bird (not human). Appearing in New York in 1999 and spreading across the states taking hundreds of lives, it was [soon linked to climate change](#).^{173 174} But its rapid spread from northeast to the south and west (Fig. 12) and its decline despite warming (Figs. 13 and 14) indicates that the vector was already there and climate change had nothing to do with that.



Figure 12: Progress of WNV in the U.S. 1999-2003. White 0, Blue <1%, Green 1-5%, Yellow 5-10%, Red >10%

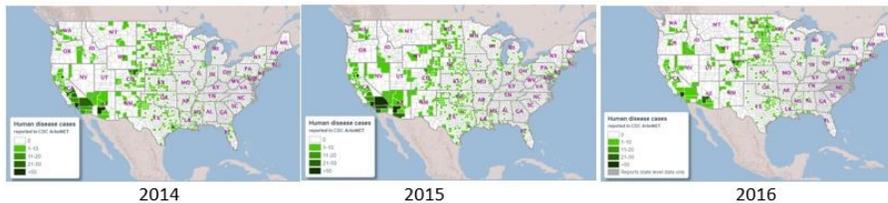


Figure 13: WNV cases reported to the CDC 2014-2016. White 0, Green light 1-10, dark 21-50, Black >50

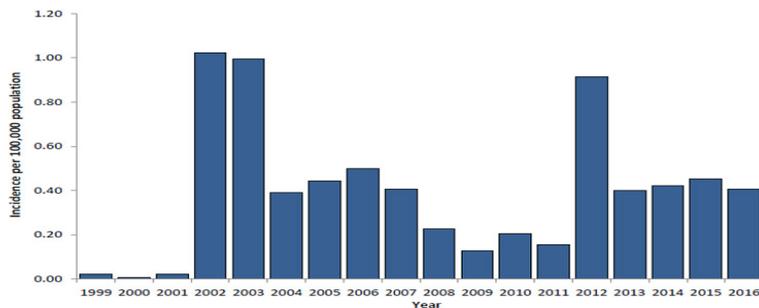


Figure 14: West Nile virus neuro-invasive disease incidence reported to CDC by year, 1999-2016

Source of Figs 9-11: [CDC Cumulative Maps and Data](#)¹⁷⁵ and [Wikipedia](#)¹⁷⁶

Yellow fever spread from Africa to the Americas and Caribbean via the slave trade. The first recorded outbreak was in 1647 on the island of Barbados.¹⁷⁷ It reached New York City in 1668 and Philadelphia a year later; a [1793 epidemic in Philadelphia](#)¹⁷⁸ wiped out nearly 10% of its population.¹⁷⁹ Major outbreaks hit New Orleans in 1833 and 1853, and Memphis in 1878.¹⁸⁰ It spread to Europe early in the 19th century and took the lives of thousands in [Gibraltar](#)¹⁸¹ and Barcelona.¹⁸² There were even small outbreaks in France¹⁸³ and Wales.¹⁸⁴ Thanks to an effective vaccine¹⁸⁵ and stringent travel regulations, it is now confined to central Africa and South America. The story of yellow fever illustrates that the answer to vector-borne disease is not climate action but sound science and public health policies.

Zika virus was first identified in the 1960s in South-East Asia, where it produced nothing more than a mild illness: fever, rash and aching joints. In 2013, a Zika strain suddenly appeared in French Polynesia, then in the Caribbean and Brazil, where it exploded and resulted in over 4,000 cases of microcephaly between late 2015 and early 2016. By September 2017, there were thought to have been between three and four million cases of Zika across 84 countries due to

international air travel. A Singaporean outbreak that began in August 2016 resulted in 455 cases over three months. When Singapore's Ministry of Health and National Environment Agency quickly identified and managed infected people, eradicated mosquitoes and removed breeding sites, new cases were reduced by 48% within a month.¹⁸⁶ Public health measures can control such outbreaks before climate mitigation gets its boots on! Climate action which impedes proven preventive measures is actually counterproductive.

Lyme disease was first diagnosed in 1975 in [Old Lyme, Connecticut](#),¹⁸⁷ from whence it derived its name. It is the most common tick-borne human disease, with an estimated annual incidence of 300,000 in the United States¹⁸⁸ and at least [85,000 in Europe](#).¹⁸⁹ It is caused by the spirochete bacteria, *Borrelia burgdorferi* and sometimes by *Borrelia mayonii*.¹⁹⁰ It is transmitted in the eastern United States and parts of Canada by the tick, *Ixodes scapularis*, and on the Pacific Coast by *I. pacificus*.¹⁹¹ As these ticks like habitats with at least 85% humidity and need temperatures over 7 °C (45 °F) during host questing in spring,¹⁹² the northeast United States is especially suitable (Fig. 15).

The impact of climate change on Lyme disease appears to be complex. Subak (2003)¹⁹³ found a correlation between warmer winters and the incidence of Lyme disease the next summer, perhaps because mild winters enhance survival of the ticks' primary host, the white-footed mouse. Warm dry summers, on the other hand, are associated with a reduced incidence, perhaps because of reduced survival of both mouse and *Ixodes* nymph.¹⁹⁴ The number of reported cases of Lyme disease appears to have peaked in 2009, despite further warming (Fig. 16).

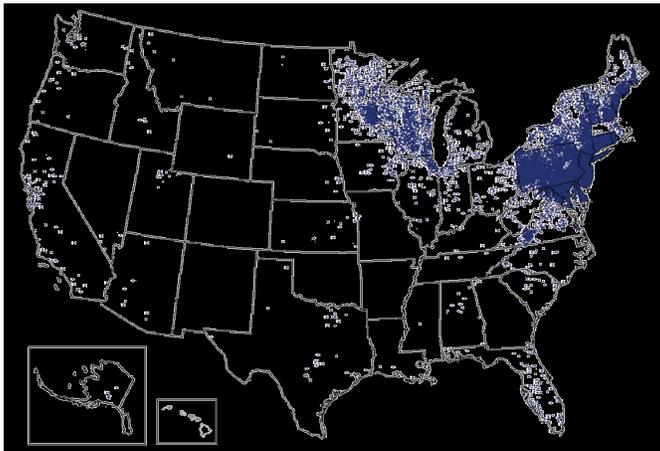


Figure 15: Reported cases of Lyme disease in the U.S. in 2016.
Source: [CDC Lyme Resources Brochure](#)¹⁹⁵

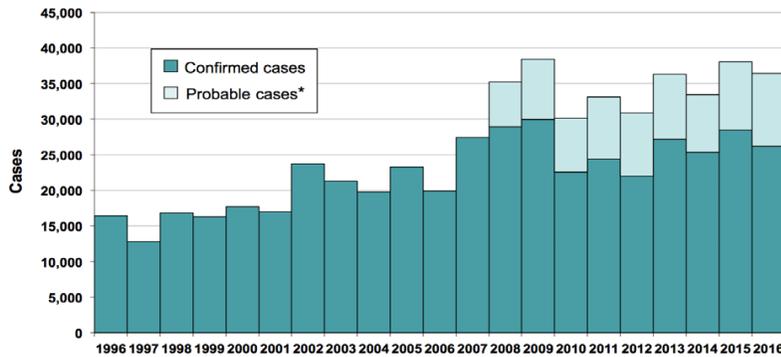


Figure 16: Reported cases of Lyme disease in the U.S., 1996-2016.

Source: [CDC Lyme Resources Brochure195](#)

Modelling by [Brownstein et al. \(2005\)](#):¹⁹⁶ “generated the current pattern of *I. scapularis* across North America with an accuracy of 89% ($P < 0.0001$). Extrapolation of the model revealed a significant expansion of *I. scapularis* north into Canada with an increase in suitable habitat of 213% by the 2080s. Climate change will also result in a retraction of the vector from the southern U.S. and movement into the central U.S.” As their modelled transmission zone migrates northwards into Canada over the next 70 years, it retreats from Florida and Texas, and the population exposed to Lyme *diminishes*, by 28% in the 2020s, by 12.7% in the 2050s and by 1.9% in the 2080s. The connection between suitable *I. scapularis* and deciduous forest is so strong that the authors state: “Recent emergence of Lyme disease throughout the northeastern and mid-Atlantic states has been linked to reforestation.” The motor car may thus have contributed to the emergence of Lyme disease by converting numerous redundant horse-paddocks into woodlands and by fertilizing them with carbon dioxide. The focus should be on educating the public, early diagnosis and treatment rather than on climate mitigation.

Leishmaniasis, from over 20 *Leishmania* species of protozoa parasite, is transmitted by an infected female sandfly, with over 50 species of the genus *Phlebotomus* in the Old World and genus *Lutzomyia* in the New World. The main animal reservoirs include rodents, dogs, wild cats, jackals, foxes, sloths, hyraxes, and other carnivores. It is endemic in 88 countries across Africa, Asia, Europe, and North and South America, infecting up to a million people and killing up to 30,000 annually, mainly among the [poorest people on Earth](#).¹⁹⁷ It is associated with malnutrition, population displacement, poor housing, a weak immune system and lack of financial resources. It is also linked to environmental changes such as deforestation, building of dams, irrigation schemes, and urbanization. Manifesting as visceral, cutaneous, or

mucocutaneous forms,¹⁹⁸ the most common is cutaneous leishmaniasis which occurs in the Americas, the Mediterranean basin, central Asia and the Middle East.¹⁹⁹ In North America, leishmaniasis is endemic in Mexico and Texas and has begun to expand its range northward (Fig. 17).

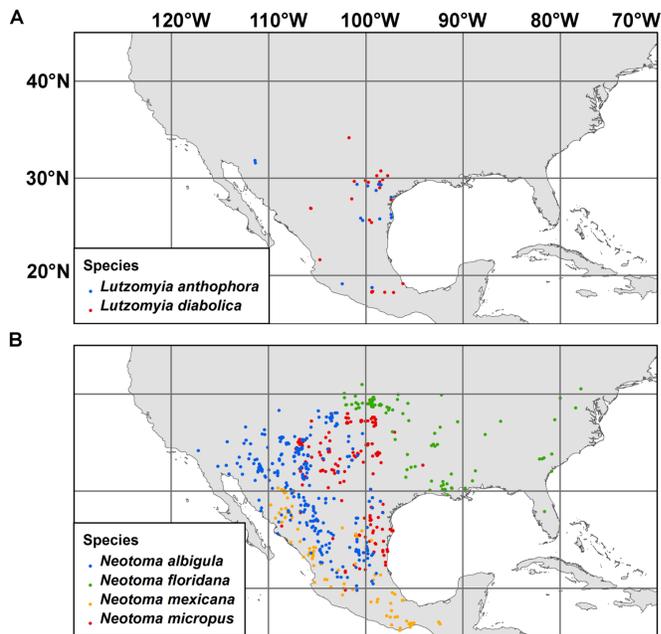


Figure 17: Vector and reservoir data points in North America (2009 data)

.A: Both vector species. B: All four reservoir species.

Source: [Gonzalez et al. Fig.1 \(2010\)](#)²⁰⁰

Modelling extending the risk of human exposure northwards, even into southern Canada, with climate change,²⁰⁰ assumes that the United States will be no more effective than African nations in preventing the spread of this disease and its vectors.

Leptospirosis is a zoonotic disease acquired from infected animals, soil or water, especially flood water contaminated with rat urine. Globally, there are about a million severe cases and 60,000 deaths reported annually. Recent unprecedented outbreaks have been blamed on climate change, but the main reason is population growth plus poverty resulting in urban slums in developing countries.²⁰¹

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Extreme Weather Events

It is now widely believed that tropical cyclones, wild storms, tornadoes, floods, droughts, heatwaves and wildfires are increasing in frequency and/or severity due to climate change, thus posing an existential threat to humanity.

Tropical cyclones, termed **hurricanes** in the North Atlantic and **typhoons** in the Northwest Pacific, rank among the deadliest of natural disasters due to wind speed (120-300+ km/h), storm surge and flooding rain. A tropical cyclone killed an estimated 300,000 people in what is now Bangladesh in 1970.²⁰² The deadliest Atlantic hurricane was probably the [Great Hurricane of 1780](#),²⁰³ which took about 22,000 lives. Major hurricanes hit New York City in [1815](#)²⁰⁴ and [1821](#),²⁰⁵ and another in [1893](#).²⁰⁶ Atlantic hurricane activity declined from around 1800 and became unusually quiet from 1970 to 1995 (Fig. 18).

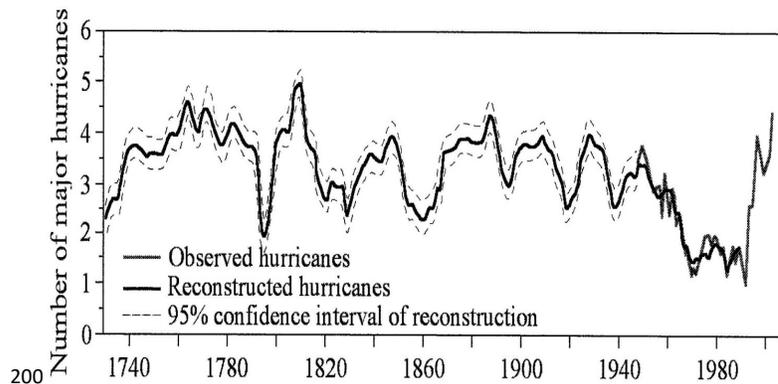


Figure 18: Annual Number of Major Atlantic Basin Hurricanes, 1730-2005: Reconstructed from coral and plankton sediments in the Caribbean Sea and matched observations.

Source: Nyberg et al. (2005)²⁰⁷

Klotzbach et al. (2018)²⁰⁸ conducted a comprehensive evaluation of landfalling hurricane data for the Continental U.S. from 1900, updated through 2024 in figure. 21. While the largest numbers of landfalling hurricanes occurred in 2004-5, with 4 major hurricane landfalls in 2005, there is no statistically significant trend. No major hurricanes hit the U.S during the 2006-2016 decade, the longest such period since 1920.²⁰⁹

[Typhoons](#) account for nearly a third of the world's tropical cyclones.²¹⁰ The deadliest, Typhoon Nina, took 230,000 lives in 1975, nearly half being caused by 12 Chinese reservoirs failing.²¹¹ The second deadliest, Typhoon Haiyan, had wind speeds up to 315km/h and took 6,352 lives in 2013.²¹² The most intense was Typhoon Tip in 1979,²¹³ with wind speeds over 350km/h before making landfall in the central Philippines. The Joint Typhoon Warning Centre began identifying

super typhoons with wind speeds >150mph (240km/h) in 1947, listing ten fewer during the last 2015-24 decade than during the 1952-61 decade.²¹⁴

Water vapor reaching high altitudes and precipitating as cyclonic rain contains a higher proportion of the oxygen-16 isotope than the heavier oxygen-18 isotope. Nott et al (2007)²¹⁵ used this to analyze cyclonic activity over 800 years from stalagmites in a Chillagoe cave in North Queensland and confirmed a close correlation with the 20th century historical record. They were surprised to find the most intense cyclones occurred during the Little Ice Age (Fig. 19). From “a new tropical cyclone activity index spanning the last 1,500 years”, [Haig and Nott \(2016\)](#)²¹⁶ found that “solar forcing largely drives decadal, interdecadal, and centennial cycles within the tropical cyclone record.” The frequency and intensity of tropical cyclones in North Queensland continue to decline (Fig. 20).

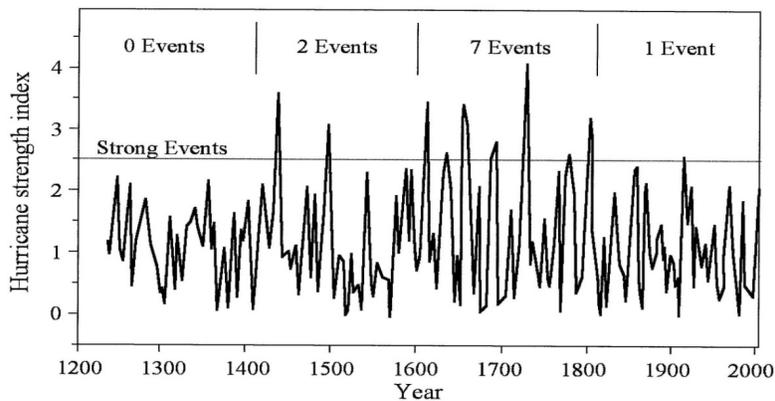


Figure 19: Strength Index of Tropical Cyclone Events in North Qld., 1226-2003
Source: Nott et al 2007.

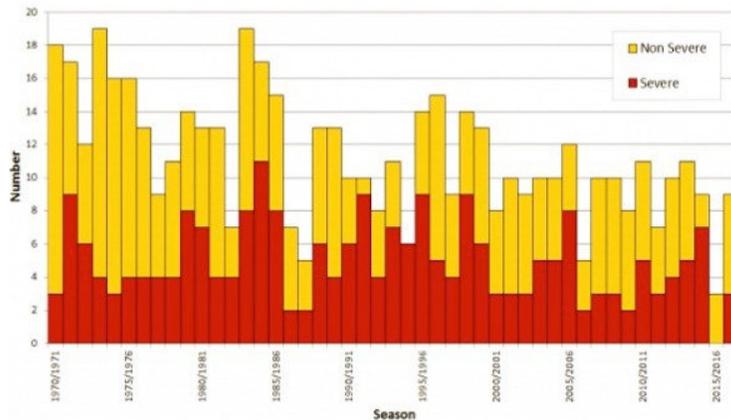


Figure 20: Number of severe and non-severe tropical cyclones in Australia, 1970-2017. Severe tropical cyclones are those with a minimum central pressure less than 970 hPa.

Source: [Bureau of Meteorology](#)²¹⁷

Cyclones have caused [over 2,100 deaths](#) in Australia [since 1839](#),²¹⁸ the deadliest being category 5 [Cyclone Mahina](#),²¹⁹ killing over 300 people in 1899. Thanks to better forecast and warning systems, and to improved building codes in cyclone-prone regions, the loss of life from cyclonic activity is now rare. [Category 5 Cyclone Yasi did not cause a single death in 2011](#).²²⁰ While deaths declined dramatically, damages increased but not due to climate change. The [World Meteorological Organization states](#): “The recent increase in societal impact from tropical cyclones has largely been caused by rising concentrations of population and infrastructure in coastal regions.”²²¹ After normalizing the mainland U.S. hurricane damage from 1900 to 2005 to 2005-values, Pielke *et al.* (2008)²²² found no trend in damages. The greatest normalized damage (\$157 billion) was from the [1926 Miami hurricane](#).²²³

Hailstorms The [deadliest storm](#) killed 1,300 people in the Manikganj District of Bangladesh in April 1989.²²⁴ Hail the size of cricket balls killed 246 people near Moradabad, India, in April 1888.²²⁵ A similar [hailstorm hit Sydney](#)²²⁶ on 14 April 1999, inflicting enormous damages but killed no one, the essential difference being wealth and warning systems. An [analysis of hail pads in France](#) from 1990 to 2010 by Hermida *et al.* (2013)²²⁷ showed an upward trend in 154 (significant in 10%) and a downward trend in 177 (significant in 17%). Changnon and Changnon (2000)²²⁸ assessed hail-day trends from carefully screened records of 66 stations across the United States over a 100-yr period, 1896-1995, and found five types of 20-year fluctuation:

One present in the Midwest had a peak in hail activity in 1916–35 followed by a general decline to 1976–95. Another distribution had a mid-century peak and was found at stations in three areas: the central high plains, northern Rockies, and East Coast. The third distribution peaked during 1956–75 and was found at stations in the northern and south-central high plains. The fourth temporal distribution showed a steady increase during the 100-yr period, peaking in 1976–95, and was found in an area from the Pacific Northwest to the central Rockies and southern plains. The fifth distribution found at stations in the eastern Gulf Coast had a maximum at the beginning of the century and declined thereafter. The 100-yr linear trends defined four regions across the United States with significant up trends in the high plains, central Rockies, and southeast, but with decreasing trends elsewhere in the nation. . . The national average based on all station hail values formed a bell-shaped 100-yr distribution with hail occurrences peaking in mid-century.

Tornadoes in the U.S. may have increased in number but have decreased in severity since recording began in 1950 (Fig. 21). NOAA explains: “The increase in tornado reports over the last 54 years is almost entirely due to secular trends such as population increase, increased tornado awareness, and more robust and advanced reporting networks.”²²⁹ Tornado activity increases with La Niña events, when the eastern Pacific Ocean is cool, and decreases during El Niño events.²³⁰ **The 2011 tornado season, for example, was particularly active (1,676 tornadoes), deadly (553 deaths) and costly (>\$28 billion)**²³¹ **while 2016 was unusually quiet (18 deaths).** Over three times as many deaths occurred during the warming-hiatus decade as during the recent rapidly warming decade (1,084 from 2005 to 2014 and 350 from 2015 to 2024).²³²

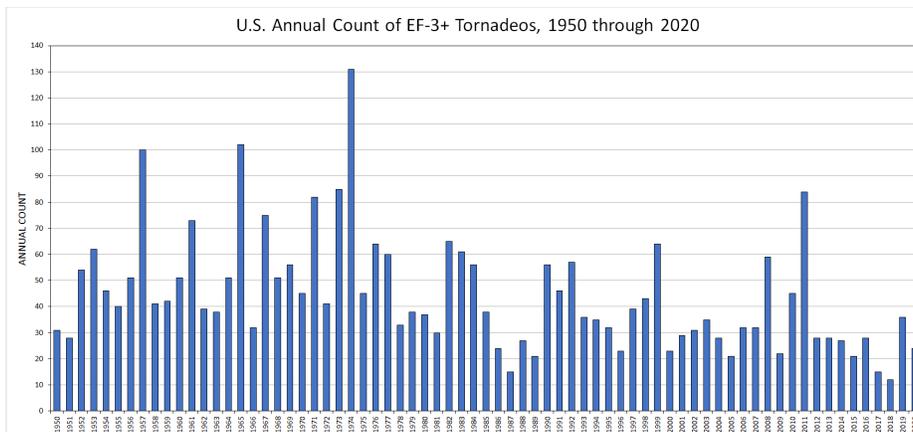


Figure 21: Annual number of strong tornadoes across the United States, 1950-2020. Source: [NCDC/NOAA](#)²³³

Floods take many lives and impact the health of survivors, often long after the event. The world’s deadliest flood occurred when China’s Huang He (Yellow) River killed seven million people in 1332. The next most deadly occurred when the same river killed between one and four million people in 1887 and 1931.²³⁴ Approximately 100,000 flood fatalities occurred in England and the Netherlands in 1099, another 80,000 in the Netherlands when the Great Storm broke a dike in 1287, and another 10,000 from a similar incident in 1421. Late-thaw ice jams blocked swollen rivers and burst dikes in the Netherlands during the cold 18th century.²³⁵ The highest flood risk in Germany’s River Werra was in the 1700’s.²³⁶ California’s worst recorded flood occurred during 1861-1862 when nearly 10 feet of rain submerged the entire Central Valley for weeks.²³⁷ Flooding of the river Vltava in the Czech Republic decreased over the last century.²³⁸ Australia’s Mary River had its worst recorded flood in 1893, with Aboriginal legends of even worse floods.²³⁹ Brisbane had more frequent and severe recorded floods during the 19th century than the subsequent 125 years, the highest being in 1841 and the next highest in 1893 (Fig. 22). A global analysis of nearly 200 rivers revealed that flows over the last century were unchanged in the majority, increasing in 27 and decreasing in 31.²⁴⁰ This is also true for those rivers with observations stretching back much further in time.²⁴¹ The [IPCC’s AR5](#)²⁴² agrees: “There continues to be a lack of evidence and thus low confidence regarding the sign of trend in the magnitude and/or frequency of floods on a global scale.” Christy et al (2025) computed the 26 highest 5-day precipitation totals every 5 years over 130 years at 29 recoding stations on the Pacific coast and found no trends (Fig 23) Deluges associated with the massive 1997-98 El Niño event is apparent. They likewise found no trends in the humid Southeast nor the Northeast of the U.S.²²⁶

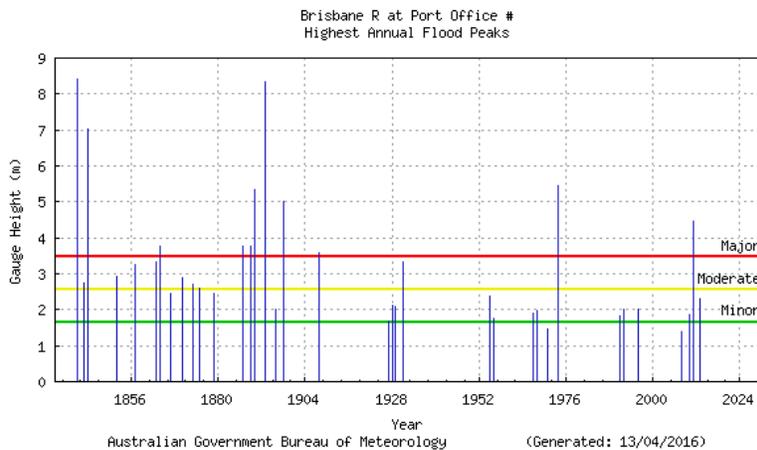


Figure 22: Brisbane River heights in metres, 1840-2016.
 Source: [Australian Bureau of Meteorology](#)²⁴³

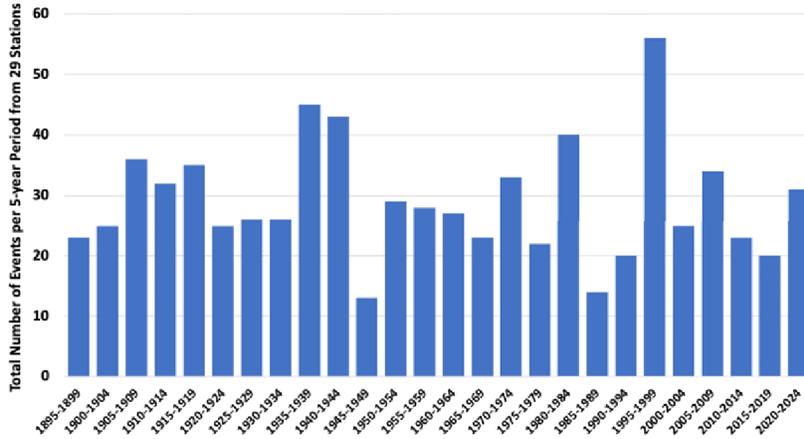


Figure 23: Time distribution by 5-year periods of the 26 heaviest (1-in-5 yr) occurrences for 29 stations on the Pacific coast. Source: Christy et al 2025 (Figure 6.4.2)

Most flood fatalities occurring worldwide between 2005 and 2014 were in Asia and among women.²⁴⁴ Haynes et al. (2016)²⁴⁵ analyzed 1,859 Australian flood fatalities from 1900 to 2015 and found a dramatic decline (Fig. 24). Ashley and Ashley (2008)²⁴⁶ found no statistically significant trend in fatalities over the period 1959-2005 in the United States (Fig. 25).

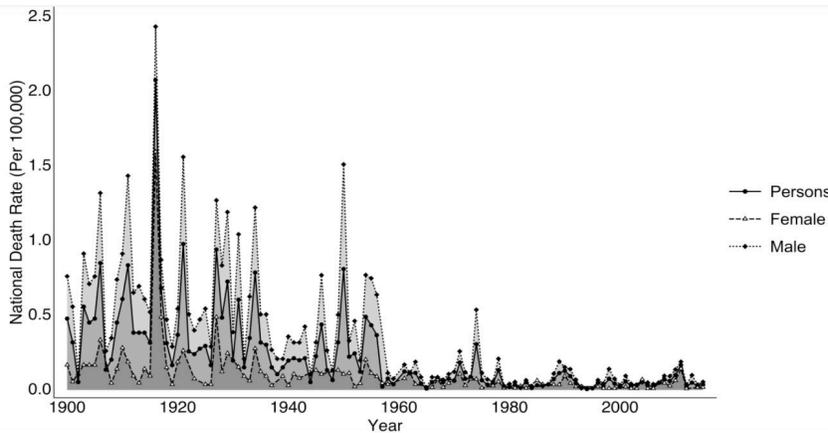


Figure 24: Australian flood fatality rate from 1900 to 2015.

Source: Haynes et al. (2016)²⁴⁵

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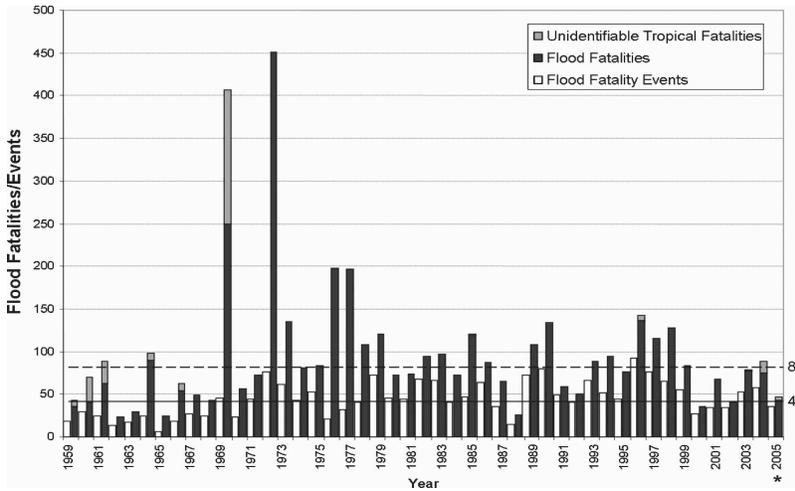


Figure 25: Flood fatalities in the continental United States, 1959-2005. Black bars represent deaths due strictly to flooding for all event types in the study. Gray bars represent deaths due to tropical systems but not to flooding alone. Light grey bars represent deadly events. The dashed horizontal line represents yearly fatality median, and the non-dashed horizontal line represents yearly fatality event median. The asterisk indicates that 2005 data are preliminary and do not include Hurricane Katrina fatalities from Louisiana.

(Source: [Ashley and Ashley 2008](#))

The Australian evidence indicates that the solution to flooding is not climate mitigation but better infrastructure, warning systems, evacuation centers, rescue services etc. While flood casualties have been declining, health problems associated with dislocation and economic losses have been increasing due to population growth, especially along waterways. Altered land use and loss of flood plains and wetlands impacts flooding far more than does climate change. Bjorn Lomborg put it simply and starkly: “A dollar spent on flood management will reduce flooding 1,300 times better than a dollar spent on Kyoto.”²⁴⁷

Drought in the American west is often attributed to climate change, but accurate records of precipitation going back to 1895 indicate no significant trend in either the Southwest or Northwest Regions.²⁴⁸ After demonstrating a robust relationship between tree-rings and observed Colorado River flows over the 20th century, Meko et al (2007)²⁴⁹ examined these proxies back to 762CE and found many more severe droughts, the worst occupying almost the entire 12th century (Fig. 26).

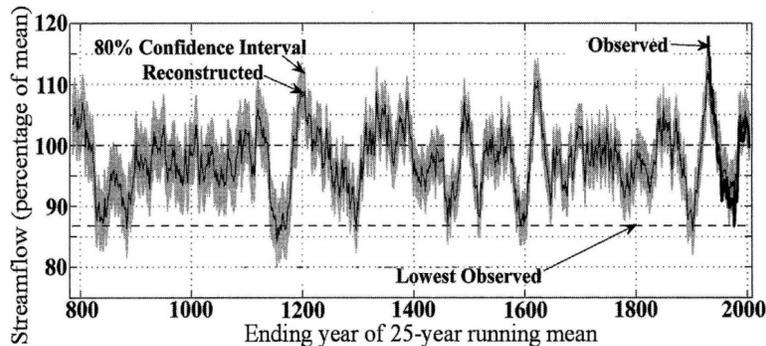


Figure 26: Colorado River stream flow, Observed: 1905-2005 & Reconstructed from Tree Rings: 762-2005
Source: Adapted from Meko et al, 2007.

Models project wet regions becoming wetter and dry regions drier,²⁵⁰ but Sun et al. (2012)²⁵¹ found that wet areas got drier and dry areas got wetter from 1940 to 2005, and Greve et al. (2014)²⁵² found no difference.

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Leaf stomata density and water loss decrease as atmospheric CO₂ increases;²⁵³ thus increasing drought tolerance. From 1982 to 2012, **CO₂ increased by 15% and vegetation cover increased by 11% in arid areas.**²⁵⁴ Scientists once worried about increasing desertification due to climate change²⁵⁵ but now worry about a greening planet²⁵⁶ and shrinking deserts!²⁵⁷

Commented [AW5]: Why is this bold?

Konzmann et al. (2013)²⁵⁸ estimated that global irrigation demand will decline by about 17% by the 2080s due to a combination of increasing carbon dioxide, shorter growing periods and precipitation increases. Wiltshire et al. (2013)²⁵⁹ estimate that population growth will increase the number at risk of water stress from 2.6 billion to 4.1 billion in 2000 but to only 2.9 billion under the IPCC's A1FI scenario with the benefits of CO₂ factored in; the higher the CO₂, the greater the risk reduction.

Wildfires can cause not only immediate death and destruction but also protracted mental health consequences for firefighters²⁶⁰ and survivors, especially those losing loved ones, livelihoods and/or property, over many months or even years.²⁶¹ Toxic and potentially carcinogenic smoke can also impact health, even hundreds of kilometers away.²⁶² Particulate matter smaller than 2.5 microns (PM_{2.5}) from wildfires is more toxic to the respiratory system than equivalent concentrations of PM_{2.5} from background urban sources.²⁶³ Johnson et al (2012)²⁶⁴ estimated that the smoke from wildfires kills over 300,000 people globally, mostly in Africa and Asia and especially among the elderly and those with chronic heart and lung conditions.²⁶⁵ The annual PM_{2.5} emissions from wildfires have significantly declined this century except in Canada.²⁶⁶ Wildfires in catchment areas can also reduce runoff by as much as 50%, as trees²⁶⁷

regenerate over subsequent years or decades,²⁶⁸ and render it temporarily unfit for human consumption.²⁶⁹

The burning question, of course, is whether wildfires are caused by climate change. The burned area in the U.S. and globally declined last century,²⁷⁰ by 27% this century and on every continent,²⁶⁷ but the intensity of wildfires may be increasing in some areas.²⁷¹ Increased forest fire frequency, intensity and/or duration of fire season has been observed in Africa,²⁷² South Africa,²⁷³ Australia,²⁷⁴ Alaska,²⁷⁵ Canada,²⁷⁶ western USA,²⁷⁷ [Russia](#)²⁷⁸ and Spain,²⁷⁹ but this does not necessarily incriminate climate change. Whereas the 2019-20 Australian summer bushfires, attributed to climate change,²⁸⁰ burnt 7% of New South Wales, a quarter of Victoria burnt back in 1851,²⁸¹ after white settlement had disrupted thousands of years of traditional cool burning of a fire-prone region with wet winters and hot dry summers. The highest profile forest fire in the U.S. West, the 1910 Big Blowup fire which destroyed over three million acres and entire towns, led the U.S. Forest Service to focus on fire suppression of all forest fires until the U.S. Forest Service recognised that more frequent smaller prescribed burns, fuel elimination, and controlled wildfires are more appropriate²⁸² and result in healthier forests, water ecosystems and biodiversity.²⁸³

Wildfires require a fuel load (dry, flammable vegetation), suitable weather (hot dry winds), and an ignition source (natural or human). Increasing carbon dioxide can increase all three: fuel loads via CO₂-fertilisation, warmer and wetter growth conditions,²⁸⁴ combustibility via increased temperatures,²⁸⁵ and ignition via lightning strikes.²⁸⁶ It is not that simple, however. Increased atmospheric CO₂ benefits (C3) trees more than (C4) grasses, which dry out and burn faster, and survive fires. Deforestation in the tropics is a major fire factor.²⁶⁸ Ecosystem models tend to overestimate precipitation and the growth response to it. They don't include plant diversity, evapotranspiration and ground water, mineral composition of the soil, forest management, grazing, changes in cultivation practices and varieties, irrigation, storms, insect attacks and other disturbances which together contribute more to fuel load variations.²⁸⁷ Greenhouse gases impact winter minimums much more than summer maximum temperatures. Lightning strikes, thought to increase by 5-6% per degree (1°C) of warming, account for very few ignitions.²⁸⁸ [Balch et al. \(2017\)](#)²⁸⁹ evaluated over 1.5 million government records of wildfires in the U.S. from 1992 to 2012 and found that humans accounted for 84% of them and that the human-caused fire season was three times longer than the lightning-caused fire season. Whereas human ignition accounted for 5.1 million km², lightning accounted for only 0.7 million km², primarily in sparsely populated mountainous areas of the western United States. Many wildfires, such as California's Wine Country fires in 2017, are started by downed power lines in high winds.²⁹⁰

The human impact on wildfires also involves controlled burning, firebreaks, clearing around dwellings, fire protection, warning systems, fire-fighting capabilities and demographics. Most

buildings affected by major bushfires in Australia are within 100 meters of bushland, and many back right onto it.²⁹¹ Altered ecosystems can also have a profound impact; the introduction of African [gamba grass](#)²⁹² to northern Australia has greatly intensified wildfires there. [Curran, Perry and Wyse \(2017\)](#)²⁹³ point out that: “Plantations of highly flammable exotic species, such as pines and eucalypts, probably helped to fuel the recent catastrophic fires in Portugal and in Chile. In arid regions, such as parts of the U.S. southwest, the introduction of exotic grasses has transformed shrublands, as fires increase in severity.” Focusing on CO₂ to prevent wildfires may be as misguided as the former focus on eggs to prevent heart attacks and diverts attention from proven preventive measures:

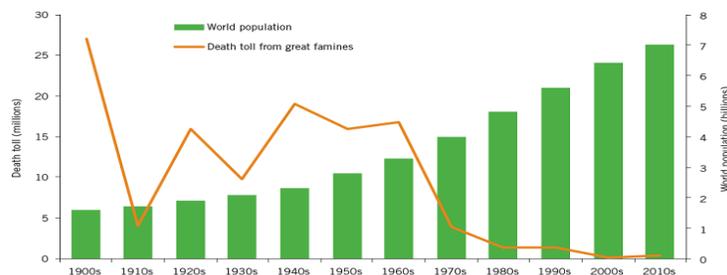
- Adequate and properly maintained firebreaks, including green firebreaks
- Preventing or limiting the spread of highly flammable exotics
- Maintaining safe electrical networks, placing them underground in high-risk areas
- Regular planned/controlled burning at appropriate times/weather conditions
- Timely effective communication to the public of fire risk, planned burns and smoke pollution
- Making dwellings as fire-resistant and smoke-proof (sealed) as possible
- Using effective air cleaners to reduce indoor smoke pollution, especially for asthmatics.

Denying the use of fossil fuels for such preventive measures and for firefighting could cost countless lives.

Food, Famine, Climate and CO₂

In his 1968 book *The Population Bomb*, Paul Ehrlich predicted widespread famine with hundreds of millions starving to death in the 1970s, but the death toll declined as the population grew (Fig. 27).

FIGURE 3.3 WORLD POPULATION GROWTH AND DEATH TOLL FROM GREAT FAMINES, 1900–2015



Note: Each great famine killed more than 100,000 people.
Source: US Census Bureau (2013a, 2013b); World Peace Foundation (2015).

Figure 27: Global population (billions) and mortality from great famines (millions)

While pessimists panicked, Norman Borlaug, a Minnesota agronomist, quietly launched a green revolution in Mexico, which became a net wheat exporter in 1963, in the Philippines, which

became a rice exporter in 1968, and India and Pakistan which had more than doubled their wheat production when “the man who saved a billion lives” was awarded the Nobel Peace Prize in 1970. Thanks to his disease-resistant high-yield hybrids and fertilizers, global food production increased from 1961 to 2005 by 2.3% pa (35% faster than the population rate of 1.7% pa). Food consumption increased from 2280 kcal/d to 2800 kcal/d per person as agricultural production grew along with GDP.²⁹⁴ In *Nature Climate Change*, Asseng et al (2015)²⁹⁵ warned: “Warming is already slowing yield gains at a majority of wheat-growing locations. Global wheat production is estimated to fall by 6% for each °C of further temperature increase.” Despite subsequent warming, [The Times of India \(17 August 2017\)](#)²⁹⁶ reported a record food-grain production, up 4% on the previous record, a five-fold increase since 1951 and a four-fold yield per hectare. The global wheat production also reached record levels due to increases in India, Russia and the U.S. (Fig. 28). **New durum varieties can withstand 40°C temperatures.**²⁹⁷

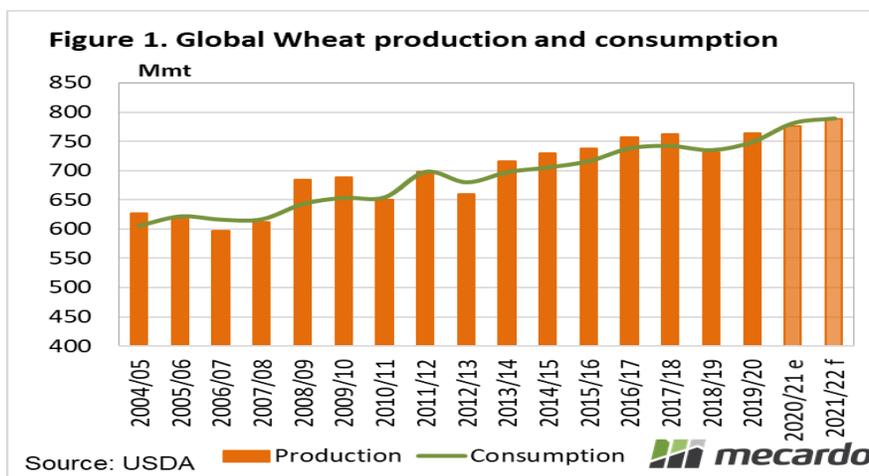


Figure 28: Global wheat production and consumption 2004-2022

Global warming has **extended the arable area, growth rate and growing season for food crops.**²⁹⁸ From 1980 to 2003, global food production increased by 62.8% as atmospheric CO₂ increased by 11.2%, fertilizer use by 27.5% and land use barely at all.²⁹⁹ Numerous studies of CO₂ enrichment have demonstrated dramatically improved crop yields.^{300, 301} It also reduces water requirements and mitigates drought.³⁰² Horticulturalists increase it two and a half times the present atmospheric level in greenhouses. Ainsworth-Long (2005)³⁰³ performed a meta-analysis of 124 papers on 40 species tested at 12 sites, 7 in the USA, 3 in Europe, 2 in New Zealand and Japan, using free-air CO₂ enrichment (FACE) to around 550 ppm. The actual

increases achieved (above the ambient CO₂ level at the time of the study) varied from 30.5% to 68% with an average of 49.2%. They found that trees benefited the most, more than anticipated from chamber studies, while crop yields increased by 17% on average, less than expected from chamber studies. Sorghum yields increased by as much as 28% under dry conditions, due to reduced water loss from fewer transpiration stomata. Light-saturated CO₂ uptake was increased by 19% at temperatures under 25°C and by 30% at higher temperatures, indicating better heat-tolerance under elevated CO₂.³⁰⁴ Two FACE facilities using CO₂ at up to 200 ppm above ambient levels produced a 5-7% increase in rice yield and 8% increase in wheat yield, which would result in an extra 59 million metric tons a year globally, enough to feed an extra 550 million mouths at the average per capita consumption. Reducing it to preindustrial levels would put billions of lives at risk of starvation and constitute a crime against humanity.

Commented [AW6]: Why is so much of this bold?

The U.S. National Bureau of Economic Research matched satellite-based observations of outdoor CO₂ levels across the U.S. with county-level agricultural output data and other economic variables and concluded that CO₂ emissions had boosted U.S. crop production since 1940 by 50 to 80%, much larger than previous estimations using FACE experiments, and found that every ppm of increase in CO₂ boosts corn yields by 0.5%, soybeans by 0.6%, and wheat by 0.8 % (Fig. 29).³⁰⁵

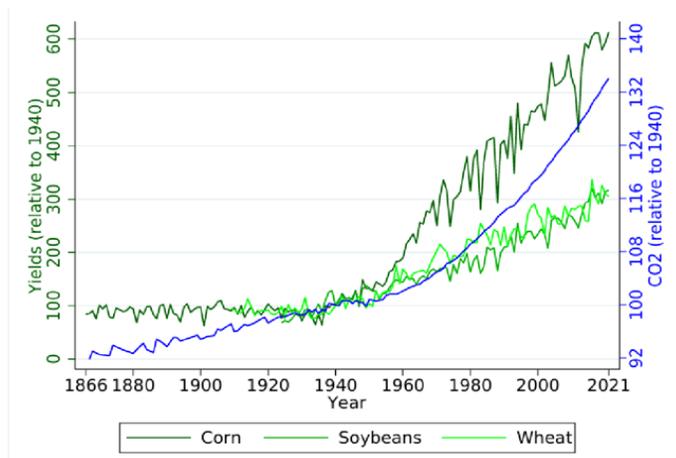


Figure 29: U.S. average CO₂ levels and yields of corn, soy and wheat all normalized so 1940=100.

Source: Taylor and Schlenker (2023)

Climate activists focus on the fact that CO₂ enrichment lowers the protein and mineral content of some foods, but genotype selection and nitrogen/mineral fertilization can maintain protein/mineral content.^{306,307} CO₂ enhancement significantly increases the

flavonoid/antioxidant content of wheat³⁰⁸ and strawberries³⁰⁹ by 55% and 112%, ascorbic acid (vitamin C) by 10% and 13% and glutathione by 3% and 171% at 300 ppm and 600 ppm respectively. Tomatoes grown in enriched CO₂ are higher in vitamins A³¹⁰ and C.³¹¹ Idso et al. (2002)³¹² found that CO₂-enriched oranges were 4% heavier, 74% more in number and 5% higher in vitamin C. Soy beans grown from seedlings in CO₂ at 700 ppm (compared to 400 ppm) had an isoflavone content 8% higher when grown at the usual mean temperature of 18°C, 104% higher when grown at 23°C and 101% higher at 28°C.³¹³ When drought was added to heat stress, the isoflavone content was 38-186% higher in plants exposed to 700 ppm. Kim et al (2005) likewise found a 72% increase in soy isoflavones grown at 650ppm (vs. 360 ppm), and a 96% increase in total plant biomass. Broccoli grown in 65%-enriched CO₂ produced heads 7% heavier and containing 37% more glucosinolates.³¹⁴ These not only enhance flavor but also help to prevent cancer.³¹⁵ Similar results were found with Chinese kale.³¹⁶ Growing spinach at 800 ppm increased the fresh weight by 67%, the soluble protein concentration by about 52% and vitamin C by 21%.³¹⁷ Gwynn-Jones et al. (2012)³¹⁸ found that quercetin glycosides and various other antioxidants were significantly higher in several types of berry consumed by humans and other animals at Northern Latitudes when grown at 600 ppm. It is very likely that CO₂ has been quietly improving food quantity and quality.

Global food security depends not only on production but also on distribution and transport, which invariably involves the use of fossil fuels. Misguided climate action can threaten food security. The diversion of good food into biofuel may **have pushed 130-155 million people into absolute poverty, hunger and starvation in 2008 and caused 190,000 premature deaths in 2010.**³¹⁹ In 2007, Australia's CSIRO warned: "If all of the ethanol capacity that is currently proposed was to be fulfilled by existing crops (principally wheat and sugar), or if a national E10 target were to be met (eg. by 5.5 Mt of wheat as the feedstock), it could force the import of wheat in drought years." Despite a severe U.S. drought in 2012, [40% of its corn crop](#)³²⁰ went into ethanol. Researchers noted the real irony as follows: "Once estimates from the literature for process emissions and displacement effects including land-use change are considered, the conclusion is that U.S. biofuel use to date is associated with a net increase rather than a net decrease in CO₂ emissions."³²¹ What folly!

Seafood supplies about [10% of the world's human calorific intake](#)³²² and is an important source of omega-3 fatty acids (ω -3 FAs) which may [reduce](#) cardiovascular morbidity and mortality and benefit some metabolic, inflammatory, neurological, neuropsychiatric and eye disorders.³²³ It is thought that increasing CO₂ will impact seafood via higher sea surface temperatures, ocean 'acidification' (reduced alkalinity), altered precipitation and sea level rise. [Cheung et al. \(2009\)](#)³²⁴ rely on unlikely emissions scenarios and temperature projections to "show that climate change may lead to large-scale redistribution of global catch potential, with an average of 30-70% increase in high-latitude regions and a drop of up to 40% in the tropics." Crustaceans (crabs,

lobsters, shrimps and krill) appear to benefit from more dissolved CO₂ even at many times today's atmospheric level.³²⁵ Samaila, Cheung et al (2011) put climate change into perspective: "Global marine fisheries are underperforming economically because of overfishing, pollution and habitat degradation."³²⁶ Protecting and promoting sea grass will increase seafood supplies and mitigate climate change more effectively than focusing on emissions.³²⁷

Mental Health

We are now seeing a global epidemic of climate-related eco-anxiety (fear, guilt, hopelessness, depression, anger, grief, shame, hopelessness etc.) among children and young people, affecting 84% of the latter and negatively affecting the daily life and function of nearly half.^{328 329} Many are so convinced that climate change is an existential threat that they elect not to propagate the race! ^{ibid} A study of 5,500 Australian adults found that 25% met the screening criteria for clinical anxiety or trauma related to climate change, and 20% of those aged 18-34 were functionally impaired by it.³³⁰ Why are the children and young people so anxious about climate change? One reason is that the media now links climate change to almost every extreme weather and wildfire event, labelling many of them 'unprecedented'. Older people with long memories have a better perspective.

A more sinister reason is the deliberate indoctrination of the young. A 2007 survey of 600 Australian children aged 10-14 who had recently been shown Al Gore's docudrama, [An Inconvenient Truth](#),³³¹ emotively depicting drowning polar bears, oceans rising 20 feet, dreadful epidemics and more happening very soon unless we '**save the planet**', found that 44% were nervous about the future impact of climate change and 25% believed the world would end before they got much older.³³² Another survey of 200 schoolchildren in New South Wales likewise found that fears over climate change were producing feelings of powerlessness and despair: "Many children thought they would not survive to adulthood."³³³ Teachers are now encouraged to use 'sustainable' educational material,³³⁴ some of it apocalyptic predictions and frightening propaganda bordering on child abuse.

Dire predictions are often based on flawed models, exaggerations, wild imaginations and a failure to factor in human ingenuity.³³⁵ Predictions made in the 1970s of an impending ice age, falling crop yields, increasing global famine, advancing deserts, a pesticide-induced cancer epidemic, of oil, gas and other resources rapidly running out, were not only wrong but the very opposite has happened. More recent predictions of malaria spreading across the globe, Arctic ice disappearing by 2013, increasing droughts and tropical cyclones have all failed to materialize. Indeed, the world has never been safer than now (Fig. 30).

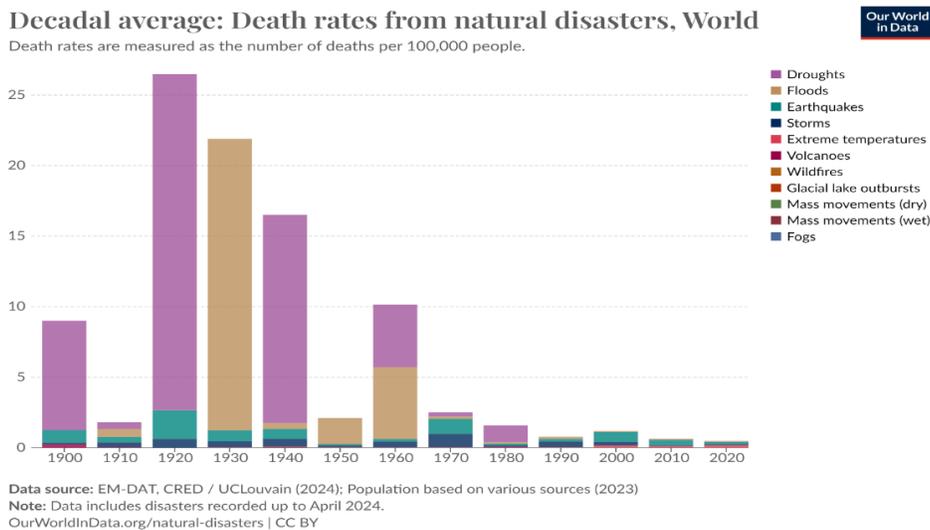


Figure 30: Global mortality from natural disasters from 1900 to 2024

Child psychologist Clare Rowe has seen many cases of eco-anxiety including an 8-year-old girl with “a deep and persistent fear about her family’s car usage. She would cry and refuse to get in the vehicle, believing that each trip was directly killing the planet.”³³⁶ Childhood anxiety is normally treated by offering realistic perspectives and reassuring safety but “when it comes to climate change, we abandon this approach entirely and instead of reassurance, we validate their fears. We even encourage them to remain anxious as a form of moral engagement.”^{ibid} Australian doctors are also advised “to avoid invalidating when challenging thoughts and feelings about climate change” and to “not dispute the accuracy or otherwise of thoughts” but rather “identify action which is meaningful and sustainable for them (e.g., eating less meat or joining a local environmental group).”³³⁷ When this was challenged, and their assertion that climate change is a “significant existential threat that most Australians are rationally worried about”, the authors dismissed dozens of cited scientific papers as “outlier opinion and research” in favor of an authoritative “consensus of the global scientific community”.³³⁸

The academic left first quarreled with science³³⁹ before capturing, corrupting and politicizing it.^{340 341 342} They then ignored quantitative uncertainties³⁴³ to contrive a catastrophic climate change consensus,³⁴⁴ calling sceptics *deniers*³⁴⁵ and inventing a climate crisis and global boiling³⁴⁶ to foster fear, funding and a rush to renewables. Anthropocentric purists prohibit alternative diagnoses, prognoses, priorities or remedies and suspect fossil fuel funding behind anyone challenging “The Science”. Climate change does impact the poorest the most but, as we

shall see in the next section, a lucrative climate industry makes them even poorer and more vulnerable.

Energy Sources and Health

Humanity has climbed an energy ladder from burning biomass (wood, charcoal, crop waste and dung) to wind and hydropower (windmills and watermills) to fossil fuels (coal, oil and gas) and biofuels (ethanol and biodiesel), to nuclear power, solar (photovoltaic and thermal) and then back to wind power (turbines).

Biomass accounts for about 10% of global energy consumption³⁴⁷ and around 90% in South Asia and sub-Saharan Africa (except South Africa).³⁴⁸ It is unquestionably the most air-polluting and lethal of all energy sources. According to the WHO,³⁴⁹ over 2 billion people (around a third of the world's population) still cook and heat their homes using biomass, estimated in 2020 to cause 3.2 million deaths a year: 32% from heart disease, 23% from stroke, 21% from pneumonia, 19% from chronic obstructive pulmonary disease (COPD), and 6% from lung cancer. Lelieveld et al. (2015)³⁵⁰ attributed 90% of the ambient air pollution in South Asian megacities to the burning of biomass in homes. This led [Mikko Paunio](#),³⁵¹ an epidemiologist at the University of Helsinki, to state: "Perhaps around six million deaths globally are attributable to domestic combustion of solid (bio)fuels. However, despite these appalling statistics, the development community has focused its efforts on mitigating global warming instead. Some ... have even encouraged the burning of crop residues in homes. The effect of this headlong rush to 'save the climate' has horrifying implications for human health." Paunio also points out that burning wood pellets in Europe is not only more polluting than coal but also destroying forests and increasing CO₂ emissions.³⁵²

A large prospective study from 2000 to 2009 across the United States indicated that fine particulate matter (≤ 2.5 microns or PM_{2.5}) levels over $10\mu\text{g}/\text{m}^3$ increased total mortality by 3%, CVD mortality by 10% and respiratory mortality in never smokers by 27%.³⁵³ The [most air-polluted region](#) of the planet, with an annual mean ambient PM 2.5 of greater than $26\mu\text{g}/\text{m}^3$, stretches band-like from northwest Africa across Arabia and northern India to eastern China; countries with the highest CO₂ emissions per capita, Australia, Canada and United States, have among the lowest actual air pollution (i.e. $\text{PM}_{2.5} \leq 10\mu\text{g}/\text{m}^3$); only Siberia, Scandinavia, Scotland and Ireland have less, and the only areas in Australia with a PM_{2.5} greater than $10\mu\text{g}/\text{m}^3$ are in the wildfire-affected north and the dry undeveloped centre.³⁵⁴ The answer to life-threatening air pollution is development, and that requires the intelligent use of fossil fuels.

Coal fueled the Industrial Revolution, allowing machines to replace muscles, thus liberating animals, serfs and slaves and permitting train travel and the rise of a prosperous middle class.

Downsides included hazards associated with the mining, transport and burning of coal. Wikipedia lists [50 mining disasters](#)³⁵⁵ since 1885, mostly underground cave-ins and explosions. The worst year on record was 1907 when over [3,000 U.S. miners died](#).³⁵⁶ Those risks are now greatly reduced by open-cut mining and by automation.³⁵⁷

Coal worker pneumoconiosis (CWP), commonly known as 'black lung', took about 25,000 lives globally in 2013,³⁵⁸ but was almost eliminated in Queensland in the 1970s and in New South Wales a little later (Fig. 31). The U.S. has been less successful in preventing CWP, probably due to the [higher quartz content in mine dust](#).³⁵⁹ Spraying a bio-degradable binding polymer onto the surface has been shown to reduce coal dust lost to the environment by 75% and this is included in good management controls.³⁶⁰

By replacing biomass for cooking and heating and supplying over a third of the world's electricity, coal prevents millions of deaths every year, and many more by helping to lift people out of poverty. High-efficiency low-emission ([HELE](#)) power plants³⁶¹ use scrubbers and precipitators to remove 99% of the fly ash, 97% of the sulfur dioxide and up to 90% of the nitrogen oxides. New ultra-clean coal (UCC) technologies can remove 99.75% of particulates and almost all the sulfur. Coal power in the U.S. is 17 times safer than in India and China (Table 1). India has huge coal reserves but mostly of low-quality with [high ash content](#).³⁶²

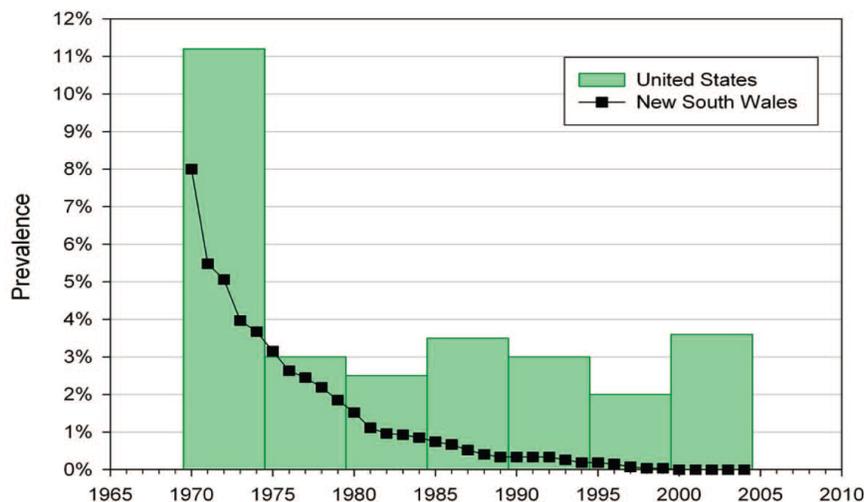


Figure 31: Prevalence of pneumoconiosis among U.S. underground coal miners and NSW coal workers.

Source: [Joy, Colinet and Landen: CDC](#)³⁶³

Oil and its distillates (petroleum, kerosene and diesel) revolutionized 20th century transport even more than did coal in the 19th century. It solved the horse dung problem and allowed cities

and trees to grow on former denuded horse paddocks. Downsides included the lead added to petrol as anti-knock and other particulates contaminating the air in big cities and the soil along busy roadways until unleaded petrol and [catalytic converters were mandated in developed countries in the 1980s](#).³⁶⁴ [When the EU promoted diesel in 2001 to reduce CO₂ emissions](#),³⁶⁵ by 2016 most European cars were diesel, spewing out nitrogen oxides and particulates (soot). In 2007, the U.S. mandated diesel particulate filters which tend to clog up during short trips around town and require periodic long CO₂-emitting trips to remove the accumulated carbon. Even “Euro 6 Standard” vehicles miss their pollution targets by a [whopping 400%](#).³⁶⁶ A misguided attempt to reduce a non-pollutant actually increased real pollution! After successive Indian governments subsidized diesel to assist farmers, the number of diesel cars increased ten-fold and New Delhi became the city with world’s most polluted air, killing up to 50,000 people a year.³⁶⁷ Biodiesel is no less polluting. EVs recharged overnight with coal-generated electricity may reduce air pollution in cities but are really coal cars. “Just Stop Oil” campaigners depend on oil for food, clothing, accessories, medicine, prosthetics, furniture, phones, electricity (insulation), transport and even the paint they throw on precious artwork!

Gas (methane) produces almost no pollutants and less CO₂ per unit energy than coal, which it is fast replacing in the United States. [Fracking](#) for shale gas has a good safety record.^{368 369} Being far more flammable than other fossil fuels, its storage and distribution requires stringent safety standards. Fatal explosions are not uncommon,³⁷⁰ but, as shown in Table 1, there are far fewer deaths per unit of energy produced than with coal or oil. As the primary source of fertilizer, natural gas saves numerous lives.

Solar power includes photovoltaic (PV) and thermal solar plants, which can store heat for use after dark. There are hazards associated with PV in its manufacturing, rooftop installation, cleaning, servicing and removal/replacement.³⁷¹ Potentially toxic materials used in PV manufacture include silicon, gallium arsenide and cadmium.³⁷² The PV solar industry has become a leading [emitter](#)³⁷³ of hexafluoroethane, nitrogen trifluoride and sulfur hexafluoride, all potent and potentially toxic greenhouse gases.³⁷⁴ Falls from ladders and rooves are the leading cause of fatalities in the U.S. construction industry. [Brian Wang](#) (2008)³⁷⁵ estimated 100-150 fatal falls from solar panel roof installations annually. Per unit of energy produced, the lifecycle CO₂ emissions are four times greater for PV solar than for nuclear power and the quantity of toxic waste (lead, chromium, cadmium etc) is 300 times greater than the nuclear waste, posing a future [solar-waste crisis](#).³⁷⁶

Wind power impacts human health in the manufacture and installation of turbines, in the visual amenity, noise, economic and agricultural impacts, many farms now growing turbines instead of turnips! Injuries and fatalities, over 1,500 times U.S. nuclear fatalities per unit of energy produced (Table 1), occur during the transportation, installation and maintenance of turbines.

Sunlight flickering through massive rotating blades can be annoying and even trigger epileptic seizures in susceptible subjects.³⁷⁷ Studies and reports on wind turbine noise are many, varied and often biased.³⁷⁸ A comprehensive review by Schmidt and Klokker (2014)³⁷⁹ found evidence of a dose-response relationship between wind turbine noise and annoyance, sleep disturbance and possibly psychological distress but no statistically-significant association with tinnitus, hearing loss, vertigo or headache. Infrasound in the 5–8 Hz range can cause a rattling of doors and windows which can be annoying to those living close to wind turbines.³⁸⁰ Tang et al. (2017)³⁸¹ found that wind turbines in northern China affected the soil temperature and moisture of nearby farms, thereby reducing gross summer production by 8.9% and annual net production by 4%. Mining and refining rare earths for turbines and EVs pollutes Inner Mongolian lakes with large quantities of toxic and radioactive waste.^{382 383}

The major problem with wind and solar is weather-dependent intermittency and unreliability necessitating very costly storage and infrastructure which increase the retail price of dispatchable electricity (Fig. 32) and hence fuel poverty and temperature-related mortality.

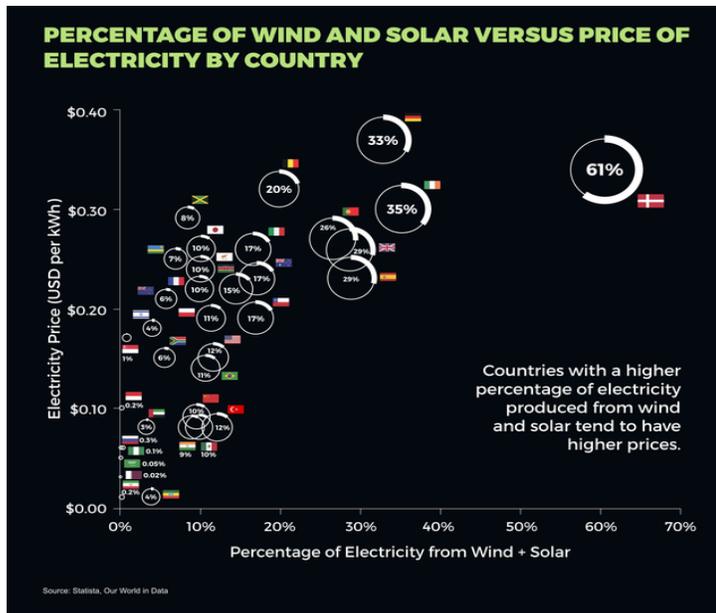


Figure 32: Relationship between electricity prices and percentage of intermittent energy by country in 2021.

Hydropower is the most reliable renewable energy provided the rain comes. Pumped hydro allows surplus wind and solar energy to be stored but is expensive. It is vital that dams and reservoirs are well designed and built only on suitable sites. When the Banqiao dam on the Ru

River in China burst in 1975, more than 170,000 people perished. A 1972 dam failure in Buffalo Creek, West Virginia took 125 lives, injured over 1,100 and left nearly 5,000 people homeless. In 1972, a dam near Rapid City, South Dakota, failed, which flooded the entire downtown during the night. This event killed 237 and injured 2,932 people.¹⁸⁰

Nuclear power became unpopular after a tsunami hit Fukushima on 11 March 2011, even though no one died from radiation.^{384, 385} Nuclear has by far the lowest fatality footprint (Table 1). Even Chernobyl was responsible for fewer than 50 confirmed deaths.³⁸⁶ Laser enrichment³⁸⁷ of radioactive waste and fusion breeding³⁸⁸ might soon revolutionize the nuclear industry, making it more efficient and safer than ever. For optimal health, every country should be free to choose the most affordable and reliable energy sources. Those using coal should be encouraged and perhaps assisted to make it as clean as possible. Most will probably transition to gas and eventually to nuclear energy. Biomass should be phased out, as should all subsidies, and intermittent renewables must remain minor players. The underlying principle should be the conservation and best use of resources.

Table 1: Comparison of energy sources in relation to greenhouse gas (GHG) emissions, energy return on energy invested (EROI), required land and resources, and human mortality rate per unit of energy produced

Metric/Source	Coal (No CCS)	Biomass ¹	Gas (No CCS)	Nuclear	Hydro (Med-Large)	Wind ²	Solar Silicon PV ³
GHG Emissions (g CO ₂ e/kWh) ⁴	903	900	449	12	24	12	48
EROEI (buffered)	30.00	3.50	28.00	75.00	35.00	3.90	1.60
Land Use (CCUS) (m ² /MWh)	21.0	760.0	1.3	0.3	14.0	99.0	19.0
Critical Mineral Usage (kg/TWh)	7	7	8	12	6	165	124
Bulk Material Usage (CCUS) (t/TWh)	606	606	713	1,192	15,658	5,931	2,441
Mortality (Deaths/TWh)	64.4	14.3	3.4	0.04	0.71	0.10	0.23
Dispatchable/Intermittent (R/I)	D	D	D	D	D	I	I

1. Biomass gross CO2 emissions per Drax annual report; EROI for corn biomass; Land Use from Freeing Energy; Mineral usage assumed same as coal
 2. Wind land usage taken as median of Our World in Data analysis
 3. Solar PV land use assumed ground-based silicon
 4. GHG Emissions (except biomass) taken as median from UNECE report p83 <https://unece.org/sites/default/files/2021-10/LCA-2.pdf>

Conclusion

Warmth is good for human health and prosperity. Fossil fuels have played a vital role in providing the wealth essential for health and environmental protection. They have also boosted atmospheric CO₂ and added a little warmth, both being hitherto beneficial overall for plants and people. The ingenuity of Homo sapiens at adapting to climate has permitted people to populate almost the entire globe from the freezing Arctic to the steamy tropics. If we stick to doing what we do best – adaptation – we will continue to thrive. We must be prepared not only for global warming, but also for global cooling, which will surely occur as our present warm Holocene draws to its inevitable end.

Human health and that of the planet depends on balancing productivity and development with conservation and environmental protection. Only developed countries with people lifted out of poverty can afford to produce clean energy, protect the environment, put power lines underground, construct buildings with 5-star energy ratings and use efficient lighting/appliances to minimize energy and water use, provide adequate safe water supplies and effective public health measures to control communicable diseases. It is vital that governments focus on real pollutants, not imagined ones, and that they avoid using climate change as a scapegoat for failure to implement sound public health policies and proven preventive measures. Misguided climate action can be worse than unmitigated climate change.

Urban design can be improved to reduce urban heat, and to encourage health-promoting walking and cycling. Smoggy cities could also encourage a switch to electric vehicles, but not with generous taxpayer-funded subsidies. Energy costs need to be kept as low as possible, especially in cold climates, so that poor people can afford to keep warm in winter. Fossil fuels, including coal, will continue to have an important role to play in advancing civilization and human health over the 21st century. Our focus should be on conservation and health-promoting activities rather than on CO₂ and climate change. Unmitigated warming this century is likely to be more beneficial than harmful for humanity and the planet.

The 2014 IPCC Summary for Policymakers nicely summed it up: “The most effective vulnerability reduction measures for health in the near term are programs that implement and improve basic public health measures such as provision of clean water and sanitation, secure essential health care including vaccination and child health services, increase capacity for disaster preparedness and response, and alleviate poverty (*very high confidence*).”³⁸⁹

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IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

AMERICAN PUBLIC HEALTH
ASSOCIATION, *et al.*,

Petitioners,

v.

U.S. ENVIRONMENTAL
PROTECTION AGENCY and LEE
ZELDIN, Administrator, U.S.
Environmental Protection Agency,

Respondents.

Case No. 26-1037

DECLARATION OF DAVID GALLIGAN

I, David Galligan, declare as follows:

1. My name is David Galligan, and I am of legal age and competent to give this declaration. All information herein is based on my own personal knowledge unless otherwise indicated.
2. I am a member of the CO2 Coalition.
3. I received a BA in Biology from the University of Pennsylvania in 1976, a VMD from the University of Pennsylvania School of Veterinary Medicine in 1981, and an MBA from the Wharton School, University of Pennsylvania in 1985.

4. For 40 years I was a faculty member at the University of Pennsylvania's School of Veterinary Medicine. I also served as the Director of the University of Pennsylvania School of Veterinary Medicine's Center for Animal Health and Productivity. I retired in 2021 as a Professor of Animal Health and Productivity at the University of Pennsylvania, holding the Marilyn M. Simpson Endowed Chaired position.
5. The Center specialized in production agriculture, and the results of the Center's significant research efforts, including nutrition, economic, and breeding models, have been used throughout the world.
6. I own 3 Highland cows and 1 Dexter cow, and I also work closely with farms of various sizes to help them understand the economic value of veterinary issues in animal production.
7. My cattle consume, among other things, vegetation grown on my property. This vegetation is enhanced by increased levels of emissions that EPA has regulated pursuant to the Endangerment Finding.
8. Therefore, even herds as small as mine have been adversely impacted by the Endangerment Finding, will benefit if its rescission in the Final

Rule is upheld, and would continue to be adversely impacted if the Endangerment Finding is reinstated.

9. Indeed, the Endangerment Finding has harmed herds of all sizes – small and large – through direct and indirect channels, including regulations on fertilizer production (affecting animal feed costs) and mandated vehicle emissions standards (increasing transportations costs for inputs and outputs). I have witnessed these harms both with my own small herd and with large farm owners with whom I have worked.
10. Reinstatement of the Endangerment Finding would serve as a regulatory sledgehammer against both small and large dairy herds as they struggle to remain viable. It will join a long list of legislative and regulatory action that has negatively impacted the industry—despite the illusion of serving the public good.
11. The Pennsylvania dairy farmer has little to no margin for increased costs, particularly with no countervailing benefit. The average projected profit per dairy cow in Pennsylvania in 2026 is about \$374/year.

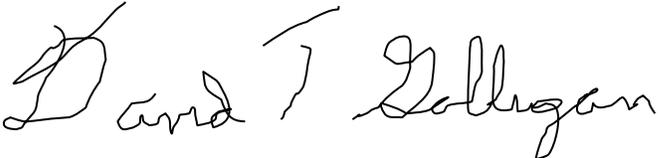
12. Further, in 1950, there were about 3.7 million dairy herds in the United States. Today, that number is down to about 24,000. In 1950, 22 million cows produced an average of 5,314 pounds of milk per year. Today, 9.5 million cows produce an average of 24,390 pounds of milk per year.

13. The Endangerment Finding has played a significant role in harming, in particular, small dairy farmers, who cannot bear to comply with the increased costs caused by regulation. Its rescission in the Final Rule will not only benefit my small herd, but will benefit the many herds with whom I have worked closely in helping to stay sustainable and provide an essential function upon which hundreds of millions of Americans rely.

I certify, under penalty of perjury under the laws of the United States of America, that the foregoing is true and correct.

Executed on:

March 19, 2026

A handwritten signature in black ink that reads "David T. Galligan". The signature is written in a cursive style with a large initial "D".

David Galligan

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DECLARATION OF DEBBIE BACIGALUPI

I, Debbie Bacigalupi, declare as follows:

1. My name is Debbie Bacigalupi, and I am of legal age and competent to give this declaration. All information herein is based on my own personal knowledge unless otherwise indicated.
2. I am a member of the CO2 Coalition.
3. I am a sixth-generation California rancher and a decades' long activist for Siskiyou County and rural America.
4. I serve as Vice President of Education for American Agri-Women and Vice President of the Siskiyou County chapter of Back Country

Horsemen, where I defend agricultural education, animal ownership, and the great outdoors.

5. For more than 16 years, I have researched and spoken about environmental governance and policies, including how these policies often adversely impact small family farms like mine.
6. My parents and I own between 250 - 275 head of cattle, which are primarily bred and raised for beef.
7. My cattle consume, among other things, vegetation grown on my property. This vegetation is enhanced by increased levels of emissions that EPA has regulated pursuant to the Endangerment Finding.
8. Therefore, even relatively small herds such as mine have been adversely impacted by the Endangerment Finding, will benefit if its rescission in the Final Rule is upheld, and would continue to be adversely impacted if the Endangerment Finding is reinstated.
9. My work as a cattle farmer has been additionally adversely impacted by the rise in farming costs caused by the Endangerment Finding, including the rise in diesel and hydraulic costs.

10. From my research, I know the adverse impacts I have felt have been felt by farmers of all sizes throughout Siskiyou County and throughout California.

I certify, under penalty of perjury under the laws of the United States of America, that the foregoing is true and correct.

Executed on:

March 20, 2026



Debbie Bacigalupi

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DECLARATION OF PROFESSOR ROLF REITZ

I, Rolf Reitz, declare as follows:

1. My name is Rolf Reitz, and I am of legal age and competent to give this declaration. All information herein is based on my own personal knowledge unless otherwise indicated.
2. I am a member of the CO2 Coalition.
3. I am Professor Emeritus in the College of Engineering at the University of Wisconsin-Madison. I first began teaching at the University of Wisconsin in 1989.

4. Prior to joining the University of Wisconsin, I spent six years at the General Motors Research Laboratories, three years as a research staff member at Princeton University, and two years as a research scientist at the Courant Institute of Mathematical Sciences, New York University.
5. I am a consultant to many industries and a member of the Combustion Institute, and I am a Fellow member of the American Society of Mechanical Engineers and of the Society of Automotive Engineers.
6. My research focuses on internal combustion engines, chemical kinetics, and sprays. A major research focus of my group has been the development and application of advanced computer models for the design of fuel injected engines, including diesel and spark-ignited engines.
7. In 2004, I founded the Diesel Engine Research Consortium (DERC) at the University of Wisconsin. DERC's objective is to assist manufacturers and related industries in meeting future engine requirements for improved fuel efficiency and reduced costs while reducing or eliminating emissions.

8. DERC currently has about 16 member companies and institutes from industries related to traditional diesel, gasoline, and gas engines.
9. DERC relies on government grants and industry participation to support its research goals. Because of the 2009 Endangerment Finding, DERC's funding and membership has seen a substantial decline caused by industry hesitance to invest in research for CO2 generating devices. This has led to more than a 50% decline in support for student research and played a significant role in my decision to retire from full-time teaching and my leadership as Director of DERC.
10. Should the rescission of the Endangerment Finding be upheld in the Final Rule, the government-mandated incentives to divest from CO2 generating devices will be reduced or eliminated, and DERC will likely see an increase in funding and membership.

I certify, under penalty of perjury under the laws of the United States of America, that the foregoing is true and correct.

Executed on:

March 19, 2026



Rolf Reitz

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DECLARATION OF PERRY LONG

I, Perry Long, declare as follows:

1. My name is Perry Long, and I am of legal age and competent to give this declaration. All information herein is based on my own personal knowledge unless otherwise indicated.
2. I am a member of the CO2 Coalition.
3. I am the owner of a third-generation family farm and a member of the Lehigh County Farm Bureau. I have been involved in the sale of land and farms for over 50 years.

4. I rent the majority of my farm to a local farmer and use the rest for equestrian activities.
5. The Endangerment Finding has caused substantial harm to both my farm and the other farms in Lehigh County.
6. For example, the cost of farm equipment has increased 20% because of the environmental and pollution regulations issued pursuant to the Endangerment Finding. The regulations have increased the cost of farm equipment while also making the equipment less efficient and less reliable, causing poorer performance.
7. My livestock consume, among other things, vegetation grown on my farm. This vegetation is enhanced by increased levels of emissions that EPA has regulated pursuant to the Endangerment Finding.

I certify, under penalty of perjury under the laws of the United States of America, that the foregoing is true and correct.

Executed on:

March 19, 2026



Perry Long

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DECLARATION OF JIM PETERSEN

I, Jim Petersen, declare as follows:

1. My name is Jim Petersen, and I am of legal age and competent to give this declaration. All information herein is based on my own personal knowledge unless otherwise indicated.
2. I am a member of the CO2 Coalition, and I live in Dalton Gardens, Idaho.
3. In 1986, I founded the 501(c)(3) non-profit Evergreen Foundation, which advances public understanding and support for science based

forestry and forest policy. I am also the publisher of the Foundation's periodic journal, *Evergreen Magazine*.

4. Most of the donations to the Evergreen Foundation come from those in the forest industry and those committed to protecting sound forestry practices.
5. I have written five books about lumbermen and the forest industry in the Pacific Northwest.
6. Because of my work supporting sound forestry and forest policy, I have won a number of awards, including: Best Forestry Public Relations Program in the National (American Forest & Paper Association, 1991); National Public Service Award (Association of Consulting Foresters, 1996); Outstanding Contributions to Forestry Education (Northeastern Loggers Association, 1999); Communicator of the Year Award (Montana Wood Products Association, 2004).
7. For decades, the federal timber sale program has been in a state of collapse. The Endangerment Finding has only prolonged and exacerbated that collapse, resulting in a continued federal timber supply shortage.

8. Because of this shortage, prolonged by the Endangerment Finding, donations to the Evergreen Foundation went into steep decline.
9. As a result, I and my wife have had to pay hundreds of thousands of dollars to keep the Foundation running and relevant.
10. Further, the increase in Endangerment Finding regulated emissions, particularly carbon dioxide, has been a likely cause of the nearly century-old decline in the number and area of fires in the Pacific Northwest.
11. If the Final Rule is upheld and the Endangerment Finding is rescinded, the increase in emissions previously regulated under the Endangerment Finding will likely continue to drive a decline in forest fires.

I certify, under penalty of perjury under the laws of the United States of America, that the foregoing is true and correct.

Executed on:

March 20, 2026

Jim Petersen
Jim Petersen