Comments of the Attorneys General of Massachusetts, New York, California, Connecticut, Arizona, Colorado, Delaware, Hawai‘i, Illinois, Maine, Maryland, Michigan, Minnesota, Nevada, New Jersey, New Mexico, North Carolina, Oregon, Rhode Island, Vermont, Washington, Wisconsin, and the District of Columbia, and the Chief Legal Officers of the City of Chicago, Illinois; the City of New York, New York; the City of Oakland, California; Martin Luther King, Jr., County, Washington; the City and County of Denver, Colorado; the City and County of San Francisco, California; and the County of Santa Clara, California

on

the Proposed Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards, 90 Fed. Reg. 36,288 (Aug. 1, 2025)

ENDANGERMENT FINDING COMMENT

EPA-HQ-OAR-2025-0194

September 22, 2025

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I. INTRODUCTION

The Attorneys General of Massachusetts, New York, California, Connecticut, Arizona, Colorado, Delaware, Hawai'i, Illinois, Maine, Maryland, Michigan, Minnesota, Nevada, New Jersey, New Mexico, North Carolina, Oregon, Rhode Island, Vermont, Washington, Wisconsin, and the District of Columbia, and the Chief Legal Officers of the City of Chicago, Illinois; the City of New York, New York; the City of Oakland, California; Martin Luther King, Jr., County, Washington; the City and County of Denver, Colorado; the City and County of San Francisco, California; and the County of Santa Clara, California (together, States and Local Governments) submit these comments in strong opposition to the Environmental Protection Agency's (EPA) Proposed Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards, 90 Fed. Reg. 36,288 (Aug. 1, 2025) (Proposal). EPA's brazen proposed rescissions fly in the face of settled law, Supreme Court precedent, and the scientific consensus and will endanger the lives of millions of Americans. Indeed, just five days ago, the National Academies of Sciences, Engineering, and Medicine issued a consensus study report concluding that:

> EPA's 2009 finding that the human-caused emissions of greenhouse gases threaten human health and welfare was accurate, has stood the test of time, and is now reinforced by even stronger evidence. Today, many of EPA's conclusions are further supported by longer observational records and multiple new lines of evidence. Moreover, research has uncovered additional risks that were not apparent in 2009.[1]

EPA's Proposal to rescind the 2009 Endangerment Finding and vehicles greenhouse gas standards must be withdrawn.

Nearly two decades ago, the Supreme Court unequivocally held that greenhouse gases are air pollutants subject to regulation under section 202(a) of the Clean Air Act and directed EPA to determine whether greenhouse gases endanger public health and welfare. *Massachusetts v. EPA* (*Massachusetts*), 549 U.S. 497, 532 (2007). More than two years later, after extensive public process and consideration of decades of robust, peer-reviewed science, EPA issued the findings at issue here: Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009) (2009 Endangerment Finding). In that final rule, bolstered by a voluminous record including hundreds of thousands of comments, EPA found that greenhouse gases indeed endanger public health and welfare in myriad ways—a reality our States and Local Governments know all too well. In the intervening decades, EPA repeatedly affirmed the 2009 Endangerment Finding based on the growing body of evidence of endangerment. *E.g.*, Finding That Greenhouse Gas Emissions From Aircraft Cause or Contribute to Air Pollution That May Reasonably Be Anticipated To Endanger Public Health and Welfare, 81 Fed. Reg. 54,422 (Aug. 15, 2016). Indeed, just last year EPA acknowledged that "most recent information demonstrates that the climate is continuing to change in response to the

[1] NAT'L ACADS. OF SCIS., ENG'G, AND MED. (NASEM), EFFECTS OF HUMAN-CAUSED GREENHOUSE GAS EMISSIONS ON U.S. CLIMATE, HEALTH, AND WELFARE (Prepub. Copy) (2025) [hereinafter NAS CONSENSUS STUDY REPORT]. The National Academy of Sciences, together with the National Academy of Engineering and the National Academy of Medicine, comprise NASEM (referred to collectively herein as NAS).

human-induced buildup of GHGs in the atmosphere" and that "these 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." 89 Fed. Reg. 29,440, 29,673 (Apr. 22, 2024). Following the 2009 Endangerment Finding, EPA issued and amended greenhouse gas standards for motor vehicles under section 202(a)(1) (vehicles greenhouse gas standards), critical regulatory steps to curb emissions from one of the largest domestic sources of greenhouse gas emissions.

Now, in one fell—and fundamentally flawed—deregulatory swoop, EPA proposes to take down the 2009 Endangerment Finding and with it *all* vehicles greenhouse gas standards. EPA's Proposal is unlawful and unsupported, for the reasons explained in this comment and in the comments of many of our States and Local Governments on both EPA's proposed vehicles greenhouse gas standards rescission in the Proposal and the flawed Department of Energy (DOE) Climate Working Group (CWG) report (CWG Report), a draft of which EPA relies on for its specious science claims.[2] The Proposal must be withdrawn.

Section II of these comments describes the harms that the States and Local Governments are daily experiencing and that will be exacerbated if EPA finalizes the Proposal. This Section also documents how these harms disproportionately fall on communities already overburdened with environmental harms and other stressors. This section then describes the States and Local Governments' advocacy for federal greenhouse gas regulation, both in general and for motor vehicles in particular, and the resulting 2009 Endangerment Finding and vehicles greenhouse gas standards. Finally, this section describes how EPA's unlawful and misguided Proposal would do away with decades of agency progress engaging with the science and curbing harmful emissions.

Section III provides an overview of the statutory interpretation and reasoned decision making requirements with which EPA was required to comply, but which EPA has plainly flouted in its kitchen-sink attempt to take down the 2009 Endangerment Finding and vehicles greenhouse gas standards.

Section IV explains that EPA's primary proposal (Proposal § IV.A)—which proposes to conclude that EPA lacks authority to regulate greenhouse gas emissions under section 202(a) of the Clean Air Act, 90 Fed. Reg. at 36,299–307—is unlawful. As the Supreme Court and the D.C. Circuit have made clear, and as subsequent Congressional enactments confirm, the best reading of the Clean Air Act plainly authorizes EPA to regulate greenhouse gas emissions under section 202 to address global climate change. Section IV explains how each of EPA's arguments otherwise ignores the law and Supreme Court precedent. Section 202 plainly does not regulate only air pollution that endangers public health and welfare through local or regional exposure; the term "contribute" is not constrained by proximate causation principles; and the major questions, nondelegation, and constitutional avoidance doctrines do not apply. Section IV also explains why EPA's second "legal" rationale—that EPA lacks authority to separately issue endangerment findings and standards, *id.* at 36,302–05—is flawed and that motor vehicle

[2] *See* Att'ys Gen. of Calif. et al., Comment Letter on Proposed Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards (Sept. 22, 2025) (EPA-HQ-OAR-2025-0194) [hereinafter Vehicles Comment]; *see also* Att'ys Gen. of N.Y., et al., Comment Letter on A Critical Review of Impacts of GHG Emissions on the U.S. Climate (Sept. 2, 2025) [hereinafter CWG Report Comment], attached as ***Appendix 2***.

greenhouse gas emissions contribute to endangerment under any interpretation. Finally, Section IV explains that EPA lacks authority to retroactively rescind an endangerment finding based on uncertainty alone.

Section V demonstrates that EPA's secondary proposal (Proposal § IV.B)—in which it confoundingly claims that "empirical data, peer-reviewed studies, and real-world developments since 2009 cast significant doubt on many of the critical premises, assumptions, and conclusions in the Endangerment Finding," 90 Fed. Reg. at 36,291; *id.* at 36,307, 36,310—unlawfully disregards the overwhelming scientific consensus on climate change and endangerment. This section surveys the robust climate science, affirmed by the NAS Consensus Study Report just last week, documenting that it is clearer than ever that greenhouse gases contribute to climate change, and that climate change seriously endangers public health and welfare. Then, this section explains why EPA's feeble attempts to undermine the scientific consensus fail. The rushed and incomplete draft DOE CWG Report on which EPA primarily relies is both procedurally and substantively flawed, prepared by hand-selected climate skeptics over a mere two months, without complying with applicable federal scientific integrity, peer review, or advisory committee requirements. DOE appears to have realized as much when it disbanded the CWG on the eve of its deadline to respond to a lawsuit challenging its violations of the Federal Advisory Committee Act (FACA). And the court in that lawsuit already ruled that the CWG does not fall within the claimed exception to FACA.[3] Yet CWG plainly did not comply with any FACA requirements. On the substance, the CWG Report, including the draft on which EPA relies, gets it wrong on every issue.[4] EPA's additional attempts to undermine scientific consensus also all fail: unspecified "critiques" cannot undermine the National Climate Assessments (NCAs); EPA fails to acknowledge subsequent agency findings and conclusions regarding climate change; and EPA unlawfully invokes uncertainty to disregard the weight of climate science.

Section VI demonstrates that the Proposal is also arbitrary and capricious in myriad ways. First, the Proposal reflects a drastic reversal of EPA's longstanding statutory interpretations and findings, but EPA has failed to offer any explanation grounded in statutory factors or science. EPA also fails to consider the States and Local Governments' serious reliance interests in vehicles greenhouse gas emission reductions. This section also explains that EPA's

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[3] *Env't Def. Fund v. Wright*, No. 1:25-cv-12249, 2025 WL 2663068, at *3 (D. Mass. Sept. 17, 2025).

[4] There are two versions of the CWG Report: (1) the draft report submitted by the DOE CWG to Secretary of Energy Christopher Wright on May 27, 2025, titled "Impacts of Carbon Dioxide Emissions on the U.S. Climate," which EPA relies on in the Proposal and is included in this rulemaking record at EPA-HQ-OAR-2025-0194-0060; and (2) the version released July 29, 2025 (DOE CWG, A CRITICAL REVIEW OF IMPACTS OF GREENHOUSE GAS EMISSIONS ON THE U.S. CLIMATE (July 23, 2025), https://perma.cc/Y5WE-QX25), and is not part of this rulemaking record. Our comments on the Proposal refer to the two versions collectively as the CWG Report (or the Report), with citations provided to the May draft version, unless otherwise noted. EPA in the Proposal refers to this version as the "2025 CWG Draft Report." The States and Local Governments separately commented on the July 23, 2025, version pursuant to DOE's August 1, 2025, notice of public availability and request for comments, Notice of Availability: A Critical Review of Greenhouse Gas Emissions on the U.S. Climate, 90 Fed. Reg. 36,150 (Aug. 1, 2025). *See* CWG Report Comment, *supra* note 2. The same procedural and substantive infirmities that taint the July 23, 2025, CWG Report, *id.*, likewise compromise the May 27, 2025, draft, as outlined in the CWG Report Comment and *infra* Section V.B.

conclusory proposal to rescind long-past denials of petitions to reconsider the 2009 Endangerment Finding are misguided. Additionally, the Proposal is both prejudged and pretextual; EPA Administrator Zeldin's repeated, definitive, and unequivocal statements regarding the Agency's dramatic change in position—and his gratuitous, prejudicial statements that, for example, EPA is "driving a dagger straight into the heart of the climate change religion"[5]—reflect a prejudged political conclusion that renders the rulemaking process a farce.

Section VII explains that the Proposal is procedurally flawed in numerous respects, including that EPA failed to: provide a meaningful opportunity for comment; docket and timely make available for comment data and other information considered; explain if and how it plans to employ artificial intelligence in the decision making process; explain its deviation from pertinent findings of the NAS; and consider the cumulative effects of its contemporaneous rules. Each of these serious failures is of central relevance to the outcome of this rulemaking and warrants withdrawal of the Proposal altogether.

Section VIII contends that EPA's draft Regulatory Impact Analysis (RIA) is likewise arbitrary and capricious. Among other flaws, EPA failed to assess the cumulative impacts of contemporaneous deregulatory actions in its baseline, and failed to assign *any* monetary value to greenhouse gas emission reductions in the RIA, ignoring its own well-established methodologies for monetizing climate-related harms and thus disregarding the enormous social cost of greenhouse gas emissions associated with the Proposal. This section also documents how the States have incorporated the social costs of greenhouse gas emissions into their own decision making, underscoring that EPA's failure to do so here is arbitrary and capricious.

Finally, **Section IX** explains how the Proposal's discussion of preemption and displacement is woefully misguided. If EPA finalizes the Proposal, then States and Local Governments stand ready to use all tools that are available and necessary to redress harms from vehicular greenhouse gas pollution. Where, as here, the federal government refuses to protect public health and welfare, the States and Local Governments remain steadfast in their commitment to do so.

For each of these reasons, as further described below, and for the reasons set forth in the Vehicles Comment and the CWG Report Comment, EPA should abandon its unlawful and unsupported Proposal.

[5] Press Release, EPA, Trump EPA Kicks Off Formal Reconsideration of Endangerment Finding with Agency Partners (Mar. 12, 2025) [hereinafter March 12 EPA Endangerment Finding Press Release], https://perma.cc/ZJD6-RWQ6; Lee Zeldin, *EPA Ends the 'Green New Deal,'* WALL ST. J. (Mar. 12, 2025) [hereinafter March 12 Zeldin *WSJ* Op-Ed], https://tinyurl.com/2s39khjb.

II. BACKGROUND

A. Climate Change and Associated Harms to States and Local Governments

The Nation, generally, and our States and Local Governments, specifically, are daily experiencing significant harms caused by climate change and pollution emitted by motor vehicles. As further described herein, motor vehicles emit greenhouse gas emissions—dangerous air pollution that causes climate change and its many harms. *See infra* Section IV.D.3. The Proposal, if finalized, would exacerbate these harms at great cost to us all. These impacts particularly harm communities already experiencing disproportionate burdens.

1. States and Local Governments are experiencing and will continue to experience significant harms from climate change and motor vehicle pollution.

As further described *infra* Section V.A, the 2023 Fifth National Climate Assessment (NCA5) determined that the effects of climate change—including changes in temperature, precipitation, and sea level rise—are apparent in every region of the United States.[6] These changes contribute directly to the degradation of public health and wellbeing. An enormous body of scientific research affirms that human activity—primarily burning fossil fuels—is exacerbating climate change and harming public health and welfare and the environment across the United States. Summer 2024 was the hottest summer recorded in the Northern Hemisphere—breaking the previous record set in 2023.[7] Extreme summer heat driven by climate change is leading to increased rates of heat-related illness and death, particularly among populations vulnerable to high heat, including children, the elderly, low-income individuals, and workers.[8] Wildfires, which are fueled by hotter, drier conditions, are becoming one of the deadliest and most costly environmental threats in the country. A 2025 study found that particulate pollution ($PM_{2.5}$) from wildfires caused approximately 15,000 premature deaths in the United States from 2006 to 2020, disproportionately impacting communities in the West and Midwest.[9] The study also found that the cumulative economic burden of climate change-related wildfire $PM_{2.5}$ mortality was $160 billion.[10]

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[6] ALLISON R. CRIMMINS ET AL., U.S. GLOB. CHANGE RSCH. PROGRAM, FIFTH NATIONAL CLIMATE ASSESSMENT, Ch. 1, at 1-6 – 1-7, fig. 1.1 (2023) [hereinafter NCA5], https://tinyurl.com/4j7a8j9v.

[7] Sally Younger, *NASA Finds Summer 2024 Hottest to Date*, NASA (Sept. 11, 2024), https://perma.cc/V4UK-MZNP; NOAA, *Earth Had Its Hottest August in 175-Year Record* (Sept. 12, 2024), https://perma.cc/A7RW-A6FP.

[8] Marina Romanello et al., *The 2024 Report of the Lancet Countdown on Health and Climate Change: Facing Record-Breaking Threats from Delayed Action*, 404 THE LANCET 1847–96 (2024), https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)01822-1/abstract https://perma.cc/R544-MTT5.

[9] Beverly E. Law et al., *Anthropogenic Climate Change Contributes to Wildfire Particulate Matter and Related Mortality in the United States*, 6 COMMS. EARTH & ENV'T 1, 2 (2025), https://perma.cc/QVF5-SQ7S.

[10] *Id.*

These changes and harms have had devastating effects on our States and Local Governments and our residents. Attached to these comments as ***Appendix 1*** is a detailed discussion of the range and breadth of climate change impacts to our States and Local Governments. This subsection highlights just a few examples of these harms:

- In 2012 Superstorm Sandy brought strong winds, record storm tide levels, coastal flooding, and loss of power for 385,000 Massachusetts residents.[11] Massachusetts suffered an estimated $375 million in property losses alone.[12] In January 2018, the storm surge from a powerful winter storm caused major coastal flooding and resulted in a high tide in Boston of 15.16 feet, the highest tide since recordkeeping began in 1921.[13] Two months later, a March 2018 coastal storm resulted in a 14.67 foot tide in Boston, the third-highest on record.[14] That March 2018 coastal storm damaged 2,113 homes, including destroying 147 homes, and caused more than $24 million in flood damage across six Massachusetts coastal counties.[15] In Massachusetts, by 2050, sea levels along the southern coastal region are expected to rise over 2 feet, which will cause over 25 miles of road and more than 1,400 buildings in the region to flood every day at high tide.[16]

- In Northern California, a September 2022 heatwave reached record-breaking temperatures in 1,500 distinct places.[17] In Sacramento, "temperatures reached 116°F (46.7°C), their highest temperatures since record-keeping began in 1899 . . . . The Sacramento record, which was previously 110°F (43.3°C), was broken by a significant margin."[18] 395 deaths were traced to this heatwave.[19]

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[11] Nat'l Ctrs. for Env't Info., NOAA, *Massachusetts State Climate Summary*, at 4 (2022), https://perma.cc/N6HR-DXX8.

[12] *Id.*

[13] Martin Finucane, *It's Official: Boston Breaks Tide Record*, BOSTON GLOBE (Jan. 5, 2017), https://perma.cc/QT6D-A8LH?type=standard.

[14] Christina Prignano, *The Noon High Tide Was Bad, but the Midnight High Tide Could Be Worse,* BOSTON GLOBE (Mar. 2, 2018), https://perma.cc/FQM8-X4FN.

[15] Christian M. Wade, *Baker Seeks Federal Disaster Funds for Storm Damages*, LAWRENCE EAGLE-TRIB. (May 1, 2018), https://tinyurl.com/4s6j4w3j.

[16] Barbara Moran, *Rising seas threaten Mass. South Coast and prosperous fishing port, report finds. Here are 5 takeaways*, WBUR (Sept. 19, 2022), https://perma.cc/P7AS-J8EU.

[17] Cal. Dep't of Pub. Health, *Excess Mortality During the September 2022 Heat Wave in California*, at 4 (2023), https://perma.cc/YU9L-8F6X.

[18] Sara E. Pratt, *A Long-Lasting Western Heatwave*, NASA EARTH OBSERVATORY (Sept. 6, 2022), https://perma.cc/5NLP-Y92A.

[19] Cal. Dep't of Pub. Health, *supra* note 17, at 3.

- In the Pacific Northwest, a 2021 heatwave "shattered" temperature records, with "all-time highs of . . . 108°F (42°C) in Seattle, Washington."[20] The temperature hit 115°F in Portland, Oregon, where during that time of year the typical temperature is 73°F.[21] These soaring temperatures ruined crops and caused roads to buckle.[22] "The heatwave led to more than 1,400 heat-related deaths, another severe wildfire season, mass die-offs of fishery species important to the region's economy and Indigenous communities, and total damages exceeding $38.5 billion."[23]

- In 2024, Phoenix, Arizona, experienced a record-breaking 70 days with temperatures at or above 110°F, and the city reached 100°F for 113 consecutive days, another record.[24] *See* App. 1 at 1.

- Since 2000 the Southwest has experienced a "megadrought"—defined as "an episode of intense aridity that persists for multiple decades"—that is recognized as the driest two decades in 1,200 years.[25] This drought has "drastically shrunk the Colorado River, which provides water for drinking and irrigation" for over 40 million people in seven states, 30 tribes, and Mexico.[26] *See* App. 1 at 27, 77.

- In 2018 California experienced the worst wildfire season in its recorded history. Over 24,226 structures were damaged or destroyed, and over 100 lives lost.[27] The Camp Fire alone resulted in damages of $16.5 billion.[28] And a 2021 drought in California "cost California farming sectors an estimate[d] $1.28 billion (in 2022 dollars)" and "the loss of

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[20] Emily Bercos-Hickey et al., *Anthropogenic Contributions to the 2021 Pacific Northwest Heatwave*, 49 GEOPHYSICAL RSCH. LETTERS 1 (2022), https://perma.cc/C5Z3-6ZXV.

[21] Neil Vigdor, *Pacific Northwest Heat Wave Shatters Temperature Records*, N.Y. TIMES (June 30, 2021), https://perma.cc/5JXR-XEQZ.

[22] Bercos-Hickey et al., *supra* note 20, at 1.

[23] NCA5, *supra* note 6, at 1-19.

[24] Hayleigh Evans, *Arizona Weather Wrapped: A Broken Record of Broken Records in Phoenix During 2024*, ARIZ. REPUBLIC (Dec. 21, 2024, 6:02 AM MT), https://perma.cc/2CBH-5F3R.

[25] A. Park Williams et al., *Rapid Intensification of the Emerging Southwestern North American Megadrought in 2020–2021*, 12 NATURE CLIMATE CHANGE 232–34 (2022).

[26] Jennifer Weeks, *The Colorado River Drought Crisis: 5 Essential Reads,* THE CONVERSATION (Apr. 13, 2023, 8:26 AM ET), https://perma.cc/6WKK-Q4ZG; *"Mega-drought" Takes Dramatic Toll on Colorado River System that Provides Water to 40 Million People*, CBS NEWS (June 9, 2021, 7:05 AM ET), https://perma.cc/4MS4-9LUF; Nat'l Integrated Drought Info. Sys., NOAA, *National Conditions: Colorado* https://perma.cc/L9UX-QDE7.

[27] Cal. Air Res. Bd. (CARB), *2022 Scoping Plan for Achieving Carbon Neutrality*, 15–16 (Nov. 16, 2022), https://perma.cc/P8FH-82A8.

[28] *Id.*

8,745 full or part-time jobs."[29] California's almond industry—which produces 80% of the world's supply—experienced a yield 10% lower than the preceding year.[30]

- In late September 2024, Hurricane Helene brought torrential rain to Western North Carolina, exceeding previous records for rainfall in the region and causing catastrophic and unprecedented damage.[31] North Carolina experienced over 30 inches of rainfall in some locations, and more than a thousand landslides.[32] As of June 17, 2025, 108 verified deaths in North Carolina were attributed to Helene.[33] The National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information estimates that Helene has caused $78.7 billion in damage.[34] *See* App. 1 at 87–88.

- Since the 2010s, when Tropical Storm Lee, Hurricane Irene, and Hurricane Sandy, collectively killed over 50 people and caused billions of dollars in damage, New York State has continued to experience an increase in the intensity, duration, and frequency of hurricanes and tropical storm events. Tropical Storm Henri and Hurricane Ida occurred within two weeks of each other in 2021. Tropical Storm Henri broke several meteorological records in New York City, including the biggest two-day rainfall event since Hurricane Irene with 7.04 inches total.[35] Eight days later, Hurricane Ida shattered many of these records. Some parts of the City experienced 3.15 inches of rainfall in one hour, and the National Weather Service issued the first ever flash flood emergency for New York City.[36] In total, Hurricane Ida caused 17 deaths in New York State and 7.5 billion dollars' worth of damage, including flood damage to 11,000 homes.[37] *See* App. 1 at 82–83, 120.

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[29] NCA5, *supra* note 6, at 28-19.

[30] Adeel Hassan, *The Plains and Upper Midwest Are Growing Drier As Drought Deepens in the West*, N.Y. TIMES (Aug. 23, 2022), https://perma.cc/C469-ZR6Z.

[31] ANDREW B. HAGEN ET AL., NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT: HURRICANE HELENE (AL092024) 24-27 SEPTEMBER 2024 at 1, 14–17, 22–26 (Apr. 8, 2025), https://perma.cc/JT6Z-V43D.

[32] *Id.* at 14, 22–24.

[33] N.C. Dep't of Health & Human Servs., *Hurricane Helene Storm Related Fatalities*, https://perma.cc/4YAT-3Y7Q.

[34] Hagen et al., *supra* note 31, at 19.

[35] Andy Newman & Ellen Barry, *Tropical Storm Henri Brings Power Outages and Record Rain to Northeast*, N.Y. TIMES (Oct. 28, 2021), https://perma.cc/Z7FX-U76J.

[36] Jesus Jiménez, *New York City Faces the First 'Flash Flood Emergency' in Its History*, N.Y. TIMES (Nov. 12, 2021), https://perma.cc/TAC5-4YH2.

[37] Press Release, Kathy Hochul, N.Y. State Governor, Governor Hochul Announces Hurricane Ida Recovery Action Plan to Assist New Yorkers Impacted by Deadly Storm (Aug. 29, 2022), https://perma.cc/RA44-F78J.

- Illinois experienced twelve weather and climate disasters in 2024 that caused over a billion dollars of damage each.[38] Nine of these disasters were severe storm events. These storms included a July 15, 2024, "derecho" that produced 100 mile-per-hour winds and 48 separate tornadoes.[39] In the Chicago area alone, the derecho produced 32 tornadoes, breaking the previous records set by the July 2014 "double derecho" and March 2023 storm.[40] *See* App. 1 at 47.

- A series of heavy rain and flooding events occurred over New England in July 2023 which dumped as much as 9 inches of rain on Vermont, at a time when rivers were high and soils were saturated from prior storms.[41] That storm caused catastrophic flooding in downtown Montpelier, the state's capital, and numerous other cities and towns. One year later, on July 10–11, 2024, the remnants of tropical cyclone Beryl converged with a stationary front, leading to heavy localized rainfall and riverine and flash flooding across northeastern and northwestern Vermont.[42] Rainfall exceeded 7 inches, with heavy thunderstorms resulting in heavy winds and large hail up to 1.5 inches in diameter. Numerous roads and bridges were impacted, or in some cases washed out, and more than 100 evacuations were conducted by local first responders or teams from Vermont Swift Water Rescue. At least two deaths are believed to have been caused by the flooding.[43] *See* App. 1 at 102.

- States across the United States have experienced an average of 18% decline in snowpack between 1950 and 2023, with especially pronounced declines in Washington, Oregon, and Northern California.[44] Not only does reduced snowpack impact tourism and winter

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[38] Nat'l Ctrs. for Env't Info., NOAA, *Billion-Dollar Weather and Climate Disasters: Illinois Summary*, https://perma.cc/MTD9-CRN5. Notably, the current Administration will cease recording billion-dollar weather incidents.

[39] Nat'l Weather Serv.: Chi. Ill. Weather Forecast Off., NOAA, *July 15, 2024: Derecho Produces Widespread Wind Damage and Numerous Tornadoes*, https://perma.cc/4EBT-4SRG; *see also* David Struett, *Tornado Record Broken with 27 Chicago Area Twisters July 15—Spawned by 'Ring of Fire'*, WBEZ CHI. (July 24, 2024, 8:34 AM ET), https://perma.cc/4XBC-D7GU.

[40] *Id.*

[41] Seven Days Staff, *'Historic and Catastrophic': Unrelenting Rain Swamped Vermont's Cities, Towns and Hamlets. The Recovery is Just Beginning*, SEVEN DAYS (July 19, 2023, 9:56 AM ET), https://perma.cc/2L2J-C8QC.

[42] John Goff, Brooke Taber & Pete Banacos, NOAA Nat'l Weather Serv., *The Significant Flooding and Severe Weather Event of 10-11 July 2024* (Aug. 10, 2024, 9:45 PM ET), https://perma.cc/U8VN-SAMP.

[43] Jenna Russell, *Flash Flooding Leads to Evacuations and Rescues in Central Vermont*, N.Y. TIMES (July 11, 2024), https://perma.cc/HZ3V-7QDF.

[44] EPA, *Climate Change Indicators: Snowpack* (June 2024), https://perma.cc/6WP9-CRMG; *see also* Alexander R. Gottlieb & Justin S. Mankin, *Evidence of human influence on Northern Hemisphere snow loss*, 625 NATURE 293–300 (Jan. 10, 2024), https://perma.cc/6EDP-ZYZK.

sport economies in Colorado[45] and other states, but it also alters the volume and timing of streamflow that affects hydropower, irrigation, and availability of drinking water and increases the risk of wildfires.[46]

- Coral reefs are currently undergoing the most severe bleaching event in history; ocean temperatures are rising such that *80%* of all corals on a reef are at risk of dying due to prolonged bleaching.[47] Coral reefs sustain upward of $10 trillion in value in connection with food, jobs, and coastal protection.[48] Similarly, abundant kelp forests like those off the coasts of California, Oregon and Washington State generate "an average of $500 billion" annually, considering the fisheries that kelp forests support, and the excess nutrients (which can be dangerous in large quantities)[49] that kelp forests absorb.[50] Like coral reefs, climate change is exacting a toll on kelp forests around the globe.[51]

- Ocean acidification also threatens coral and marine ecosystems throughout the coastal waters of the United States, with global oceans already experiencing an 18% increase in acidity between 1982 and 2022.[52] This acidification endangers the survival of the crab, lobster and scallop industries, whose fisheries total around $1.5 billion each year.[53] These impacts would particularly harm coastal and Indigenous communities who rely on these resources for their livelihoods and for their cultural significance.[54]

2. Climate harms negatively impact our residents and disproportionately affect certain vulnerable groups and communities with environmental justice concerns.

As explained above and more fully summarized in ***Appendix 1***, no region of the United States will be spared from the harms of climate change. But such harms will be especially pronounced in communities with environmental justice concerns and other vulnerable

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[45] EPA, *Climate Change Connections: Colorado (Winter Sports)* (last updated Aug. 11, 2025), https://perma.cc/9MVG-DNCJ.

[46] *Id.*; *see also* NCA5, *supra* note 6, at 1-23.

[47] Int'l Coral Reef Initiative, *84% of the world's coral reefs impacted in the most intense global coral bleaching event ever* (Apr. 23, 2025), https://perma.cc/ZMY6-SHAV.

[48] *Id.*

[49] EPA, *Basic Information on Nutrient Pollution* (last updated Apr. 22, 2025), https://perma.cc/U2WG-QG45.

[50] *See generally* Aaron Eger, *The Value of Ecosystem Services in Global Marine Kelp Forests*, 14 NATURE COMMC'NS. 1–13 (Apr. 18, 2023), https://perma.cc/99WK-5T26.

[51] Dan A. Smale, *Impacts of Ocean Warming on Kelp Forest Ecosystems*, 225 NEW PHYTOLOGIST 1447–52 (2020); *see also* NCA5, *supra* note 6, at 10-5.

[52] INTERAGENCY WORKING GRP. ON OCEAN ACIDIFICATION, THE UNITED STATES OCEAN ACIDIFICATION ACTION PLAN 2 (Dec. 2023), https://perma.cc/Q4LM-XR38.

[53] *Id.* at 5.

[54] *Id.*

populations. These communities already bear the disproportionate burden of environmental harms and adverse health outcomes stemming from the longstanding cumulative impacts of multiple polluting sources[55] and exacerbated by climate change attributed to greenhouse gas emissions from mobile and other sources.[56] Evidence-based studies and residents' lived experiences demonstrate that certain communities most commonly and acutely experience the impacts of both environmental injustice and the harms associated with climate change: communities of color;[57] Indigenous people and Tribal nations;[58] low-income,[59] rural, [60] and unincorporated communities;[61] communities in which a high proportion of residents speak a

[55] EPA, INTERIM FRAMEWORK FOR ADVANCING CONSIDERATION OF CUMULATIVE IMPACTS 4 (Nov. 2024), https://perma.cc/JP4K-CGE9 ("Environmental public health research has shown that the cumulative impacts of longstanding place-based inequalities in exposures to environmental hazards are significant, with health disparities linked to these inequalities" (citations omitted)); *see also* Rachel Morello-Frosch et al., *Understanding the Cumulative Impacts of Inequalities in Environmental Health: Implications for Policy*, 30 HEALTH AFFS. 879 (2011); COUNCIL ON ENV'T QUALITY, THE SECOND ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY 191–96 (Aug. 1971), https://perma.cc/2K5J-UCTS.

[56] Alique G. Berberian, David J. X. Gonzalez & Lara J. Cushing, *Racial Disparities in Climate Change-Related Health Effects in the United States*, 9 CURRENT ENV'T HEALTH REP. 451, 451–52 (2022), https://perma.cc/4BUF-7RMP; H. Orru, K. L. Ebi & B. Forsberg, *The Interplay of Climate Change and Air Pollution on Health*, 4 CURRENT ENV'T HEALTH REP. 504, 504 (2017), https://perma.cc/GY2P-M4DW; *see also* NCA5, *supra* note 6, at Ch. 14: Air Quality.

[57] Christopher W. Tessum et al., *$PM_{2.5}$ Polluters Disproportionately and Systemically Affect People of Color in the United States*, 7 SCI. ADVANCES 1 (2021); *see also* UNITED CHURCH OF CHRIST COMM'N FOR RACIAL JUST., TOXIC WASTES AND RACE IN THE UNITED STATES: A NATIONAL REPORT ON THE RACIAL AND SOCIO-ECONOMIC CHARACTERISTICS OF COMMUNITIES WITH HAZARDOUS WASTE SITES (1987), https://perma.cc/6L8E-E4GW; UNITED CHURCH OF CHRIST JUST. & WITNESS MINISTRIES, TOXIC WASTES AND RACE AT TWENTY, 1987–2007 (2007), https://perma.cc/SM6W-A7DD.

[58] U.N. Special Rapporteur, End of Mission Statement by the United Nations Special Rapporteur on the Rights of Indigenous Peoples, Victoria Tauli-Corpuz of Her Visit to the United States of America (Mar. 3, 2017), https://perma.cc/UQ6P-CSFK.

[59] Ihab Mikati et al., *Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status*, 108 AM. J. PUB. HEALTH 480 (2018), https://perma.cc/Z9CZ-UXLE; Qian Di et al., *Air Pollution and Mortality in the Medicare Population*, 376 NEW ENG. J. MED. 2513 (2017).

[60] Monica Sanders, *Understanding Environmental Justice in Rural Communities*, FORBES (Aug. 26, 2024, 9:30 AM ET), https://perma.cc/9EKS-564U.

[61] Cristina Gomez-Vidal & Anu Manchikanti Gomez, *Invisible and Unequal: Unincorporated Community Status as a Structural Determinant of Health*, 285 SOC. SCI. & MED. 1 (2021), https://perma.cc/2UVF-SQA5.

language other than English;[62] people experiencing housing insecurity,[63] people with disabilities;[64] and LGBTQ+ people.[65]

Climate change worsens the problems faced by communities with environmental justice concerns. As described above, climate change will continue to increase the frequency and severity of extreme temperature events,[66] and EPA has projected that heat-related mortality will increase even more in communities with environmental justice concerns.[67] EPA's own public information also highlights that the rising heat associated with climate change contributes to the already-damaging heat island effects that many cities face.[68] Heat further degrades air quality in historically redlined neighborhoods, leading to heat-related deaths, asthma diagnoses, and lost

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[62] Kelvin C. Fong et al., *The Intersection of Immigrant and Environmental Health: A Scoping Review of Observational Population Exposure and Epidemiologic Studies*, 130 ENV'T HEALTH PERSPS. 1 (2022), https://perma.cc/X36G-VTSX; Yoshira Ornelas Van Horne et al., *Toward Language Justice in Environmental Health Sciences in the United States: A Case for Spanish as a Language of Science*, 131 ENV'T HEALTH PERSPS. 1 (2023), https://perma.cc/3XNF-E8ZM.

[63] Chima Anyanwu & Kirsten M.M. Beyer, *Intersections Among Housing, Environmental Conditions, and Health Equity: A Conceptual Model for Environmental Justice Policy*, 9 SOC. SCI. & HUMAN. OPEN 1 (2024), https://perma.cc/C66L-TQY3; Mariya Bezgrebelna, et al., *Climate Change, Weather, Housing Precarity, and Homelessness: A Systematic Review of Reviews*, 18 INT'L J. ENV'T RSCH. PUB. HEALTH 1, 11 (2021), https://perma.cc/46Y9-28PA.

[64] Jayajit Chakraborty, *Disparities in Exposure to Fine Particulate Air Pollution for People with Disabilities in the US*, 842 SCI. OF THE TOTAL ENV'T 1 (2022); NAS, CONSTRUCTING VALID GEOSPATIAL TOOLS FOR ENVIRONMENTAL JUSTICE 38–39 (2024); Cadeyrn J. Gaskin et al., *Factors Associated with the Climate Change Vulnerability and the Adaptive Capacity of People with Disability: A Systematic Review*, 9 WEATHER, CLIMATE & SOC'Y 801 (2017), https://perma.cc/GN46-3H49.

[65] Timothy W. Collins et al., *Environmental Injustice and Sexual Minority Health Disparities: A National Study of Inequitable Health Risks from Air Pollution Among Same-Sex Partners*, 191 SOC. SCI. & MED. 38 (2017), https://perma.cc/6PM9-UCEP; Lindsay Mahowald & Ari Shaw, *Climate Change Risk for LGBT People in the United States*, UCLA SCH. OF L. WILLIAMS INST. (2024), https://perma.cc/BSY7-DRLK.

[66] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE: 2023 SYNTHESIS REPORT 12, 14 (2023) [hereinafter 2023 IPCC SYNTHESIS REPORT], https://perma.cc/PUK3-W57E; IPCC, CLIMATE CHANGE 2022: IMPACTS, ADAPTATION AND VULNERABILITY 9, 13 (2022), https://perma.cc/QP68-4N5Z.

[67] EPA, CLIMATE CHANGE AND SOCIAL VULNERABILITY IN THE UNITED STATES: A FOCUS ON SIX IMPACTS 35 (Sept. 2021) [hereinafter CLIMATE CHANGE AND SOCIAL VULNERABILITY], https://perma.cc/PJS8-WPZG ("In the cities analyzed, minorities and those with low income are more likely . . . to currently live in areas with the highest projected increases in temperature mortality from climate-driven changes in extreme temperatures.").

[68] EPA, *Heat Island Trends* (last updated Feb. 13, 2025), https://perma.cc/KAL3-ESPU ("Climate change and heat islands interact in important ways. In many areas of the U.S., steadily increasing warming trends are intensifying already higher temperatures in heat island areas [and] is expected to worsen heat islands in the future.")

work.[69] Low-income households and households of color are less likely to have good insulation and efficient indoor climate control,[70] and so are more likely to face energy affordability challenges,[71] forego necessities such as food and healthcare to afford their energy bills,[72] and keep their homes at unsafe temperatures,[73] which has associated adverse health outcomes.[74] People with disabilities and seniors are also more likely to experience greater risks from extreme temperatures and a lack of electricity,[75] while energy poverty increases health risks overall.[76]

The increasing frequency and intensity of extreme temperatures are also projected to cause labor disruptions in sectors such as agriculture and construction where people work

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[69] *See* CLIMATE CHANGE AND SOCIAL VULNERABILITY, *supra* note 67, at 8; Jeremy Hoffman, Vivek Shandas & Nicholas Pendleton, *The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas*, 8 CLIMATE 1 (2020), https://perma.cc/K7UW-ZDPH.

[70] *See* Luling Huang et al., *Inequalities Across Cooling and Heating in Households: Energy Equity Gaps*, 182 ENERGY POL'Y 1, 10 (2023), https://perma.cc/4R7L-2N3C.

[71] *See* Claire McKenna et al., *Heating with Justice: Barriers and Solutions to a Just Energy Transition in Cold Climates*, 208 RES., CONSERVATION, & RECYCLING 1, 9 (2024), https://perma.cc/2KXT-UH66; MARILYN ANN BROWN ET AL., U.S. DEP'T OF ENERGY, LOW-INCOME ENERGY AFFORDABILITY: CONCLUSIONS FROM A LITERATURE REVIEW (Mar. 2020), https://perma.cc/6Q5L-29T4; SANYA CARLEY ET AL., IND. UNIV. ENERGY JUST. LAB, HOUSEHOLD ENERGY INSECURITY SURVEY, WINTER 2021–2022 (2022), https://perma.cc/S9YF-8Y97.

[72] Shuchen Cong et al., *Unveiling Hidden Energy Poverty Using the Energy Equity Gap*, 13 NATURE COMMC'NS 1, 22 (2022), https://perma.cc/P43C-2MSA; N.Y.C. MAYOR'S OFF. OF SUSTAINABILITY & N.Y.C. MAYOR'S OFF. FOR ECON. OPPORTUNITY, UNDERSTANDING AND ALLEVIATING ENERGY COST BURDEN IN NEW YORK CITY (Aug. 2019), https://perma.cc/6CNA-TZAE.

[73] Cong et al., *supra* note 72, at 2 ("As the effects of climate change manifest themselves in heatwaves and deep freezes, communities will need to adapt (i.e., reduce their risk of illness and death) by creating comfortable indoor temperatures within their homes. However . . . many vulnerable households who limit their energy consumption, potentially putting themselves at risk of heatstroke or hypothermia, may not qualify for energy poverty alleviation under current programs." (citations omitted)).

[74] Limiting cooling usage puts people at risk of heat stroke and heat illness and limiting heat in cold temperatures may cause increased incidence of illness. *See*, *e.g.*, Sally Ann Iverson et al., *Heat-Associated Mortality in a Hot Climate: Maricopa County, Arizona, 2006-2016*, 135 PUB. HEALTH REPS. 631–39 (2020); Alan Barreca et al., *Adapting to Climate Change: The Remarkable Decline in the US Temperature-Mortality Relationship over the Twentieth Century*, 124 J. POL. ECON. 105 (2016); NAT'L ENERGY ASSISTANCE DIRS.' ASS'N, 2005 NATIONAL ENERGY ASSISTANCE SURVEY (Sept. 2005), https://perma.cc/FMK5-GTM2.

[75] Carli Friedman, *Unsafe Temperatures, Going Without Necessities, and Unpayable Bills: Energy Insecurity of People with Disabilities in the United States During the COVID-19 Pandemic*, 92 ENERGY RSCH. & SOC. SCI. 1 (2022); MARQUISHA JOHNS ET AL., PROTECTING OLDER ADULTS FROM THE GROWING THREATS OF EXTREME HEAT, CTR. FOR AM. PROGRESS, CTR. FOR AM. PROGRESS (Aug. 22, 2024), https://perma.cc/6ZCB-NSFF.

[76] Diana Hernández, *Understanding 'Energy Insecurity' and Why It Matters to Health*, 167 SOC. SCI. & MED. 1 (2016); Eva Laura Siegel et al., *Energy Insecurity Indicators Associated With Increased Odds of Respiratory, Mental Health, And Cardiovascular Conditions*, 43 HEALTH AFFS. 260 (2024), https://perma.cc/TDQ7-6X3Z.

outdoors or in indoor environments without air conditioning, leading to lost wages for already low-income populations and forcing workers to choose between losing essential pay and working in unsafe conditions.[77] Those same workers (and their families) are less likely to have access to quality healthcare, rendering them even more vulnerable to health risks from heat exposure.[78]

Climate change also will continue to cause an increase in the frequency and severity of extreme weather events and natural disasters in every region of the United States, causing deaths, displacement, and economic upheaval.[79] Communities with environmental justice concerns—such as communities of color and low-income communities—are disproportionately vulnerable to such events,[80] and they are less equipped to recover.[81] Climate change also will lead to an increased threat from infectious diseases,[82] and threaten food and water safety and security for Indigenous populations, many of whom rely "on the environment for sustenance or [] live in geographically isolated or impoverished communities" and so will "experience greater exposure and lower resilience to climate related health effects."[83] The impacts of climate change are particularly stark for people with disabilities, who face disproportionate health risks,[84] are often not fully considered in disaster planning, and are far more likely to be displaced by extreme weather events.[85] The climate change-fueled increase in extreme precipitation events will lead to

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[77] *See* CLIMATE CHANGE AND SOCIAL VULNERABILITY, *supra* note 67, at 38.

[78] *Id.*

[79] 2023 IPCC SYNTHESIS REPORT, *supra* note 66, at 5–11.

[80] JANET L. GAMBLE ET AL., U.S. GLOB. CHANGE RSCH. PROGRAM, THE IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH IN THE UNITED STATES: A SCIENTIFIC ASSESSMENT, CH. 9: POPULATIONS OF CONCERN, 248, 253 (2016), https://perma.cc/3E2S-ZRFA ("Given the relatively higher rates of cardiovascular and respiratory diseases in low-income urban populations, these populations are more sensitive to degraded air quality, resulting in increases in illness, hospitalization, and premature death. In addition, climate change can contribute to increases in aeroallergens, which exacerbate asthma, an illness that is relatively more common among some communities of color and low-income groups." (citations omitted)).

[81] *See* NCA5, *supra* note 6, at Ch. 31, 11–14; Patrick Boyle, *Rural Americans Find Little Escape from Climate Change*, ASS'N OF AM. MED. COLLS. (July 13, 2023), https://perma.cc/H9KC-SFVN; *see also* Gamble et al., *supra* note 80, at 249–50 ("For example, people with limited economic resources living in areas with deteriorating infrastructure are more likely to experience disproportionate impacts and are less able to recover following extreme events, increasing their vulnerability to climate-related health effects[.]").

[82] 2023 IPCC SYNTHESIS REPORT, *supra* note 66, at 6–7, 15; Gamble et al., *supra* note 80, at 253 (describing the impacts of climate change on vector-borne diseases and water-related illness).

[83] Gamble et al., *supra* note 80, at 253.

[84] Nakyung Rhim et al., *Adverse Health Effects of Climate Change and Air Pollution in People with Disabilities: A Systematic Review*, 46 EPIDEMIOLOGY & HEALTH 1 (2024), https://perma.cc/3PMN-CAV5.

[85] Ash Reynolds, *Disability Amid Disaster: People with Disabilities Are Disproportionately Impacted by Natural Disasters*, NBC NEWS (Feb. 23, 2025, 3:10 PM ET), https://perma.cc/W8WM-SQ8F.

increased exposure to water-born pollutants and illnesses,[86] to which communities with environmental justice concerns are also particularly vulnerable.[87]

Climate impacts impede communities' ability to recover from the historic and ongoing disproportionate location of pollution sources,[88] toxic sites,[89] transportation infrastructure,[90] and

[86] JULI TRTANJ ET AL., U.S. GLOB. CHANGE RSCH. PROGRAM, THE IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH IN THE UNITED STATES: A SCIENTIFIC ASSESSMENT: CHAPTER 6: CLIMATE IMPACTS ON WATER-RELATED ILLNESSES 158 (2016), https://perma.cc/8SXM-P92J.

[87] *Id.* at 170 ("Climate change impacts on the drinking water exposure pathway . . . will act as an additional stressor on top of existing exposure disparities in the United States. Lack of consistent access to potable drinking water ..disproportionately affects the following populations: tribes and Alaska Natives . . . , residents of low-income rural subdivisions known as colonias along the U.S.-Mexico border; migrant farm workers; the homeless; and low-income communities not served by public water utilities . . . some of which are predominantly Hispanic or Latino and Black or African American communities in certain regions of the country." (citations omitted)).

[88] Landfills and incinerators, industrial facilities, concentrated agricultural operations, and other pollution sources have been and continue to be concentrated in communities of color, low-income communities, and Indigenous communities. *See* ANA ISABEL BAPTISTA ET AL., TISHMAN ENV'T & DESIGN CTR. AT THE NEW SCH., U.S. MUNICIPAL SOLID WASTE INCINERATORS: AN INDUSTRY IN DECLINE 13–16 (May 2019); Robert D. Bullard et al., *Toxic Wastes and Race at Twenty: Why Race Still Matters After All of These Years*, 38 ENV'T L. 371 (2008); Jill Johnson & Lara Cushing, *Chemical Exposures, Health, and Environmental Justice in Communities Living on the Fenceline of Industry*, 7 CURRENT ENV'T HEALTH REP. 48 (2020). The impacts of such facilities are exacerbated by extreme weather. *See The Interplay of Climate Change and Air Pollution on Health*, *supra* note 56, at 504.

[89] NCA5, *supra* note 6, at Ch. 9, 9-14 ("[C]ontaminated sites, such as Superfund sites, face increasing exposure to rising groundwater and flood damages, which could lead to future public health and environmental concerns if buried contaminants are mobilized and enter groundwater or river systems[.]"); NCA5, *supra* note 6, at Ch. 15, 15-13 ("[A]bout 70% of Superfund sites . . . are located within one mile of federally assisted housing, which disproportionately houses people of color, individuals with low wealth, and those with disabilities." (citations omitted)); U.S. GOV'T ACCOUNTABILITY OFF., GAO-21-555T, SUPERFUND: EPA SHOULD TAKE ADDITIONAL ACTIONS TO MANAGE RISKS FROM CLIMATE CHANGE EFFECTS (May 13, 2021) (Statement of J. Alfredo Gómez, Dir., Natural Res. and Env't), https://perma.cc/7UEX-A3R4.

[90] Deborah N. Archer, *Transportation Policy and the Underdevelopment of Black Communities*, 106 IOWA L. REV. 2125, 2131–48 (2021), https://perma.cc/C85R-9984.

underinvestment,[91] all while widening the wealth gap.[92] At the same time, communities with environmental justice concerns experience disparities in access to benefits that support environmental and public health, mitigate the worst impacts of climate change, and assist in recovering from disasters. These disparities exist for a wide range of infrastructure and resources, such as clean drinking water and sanitation,[93] affordable and reliable energy,[94] transportation,[95] housing,[96] food access,[97] health care,[98] and disaster mitigation and recovery

[91] Neighborhoods formerly subject to explicitly racist federal housing policy known as "redlining," which made it difficult or impossible for Black and immigrant families to obtain mortgages and become homeowners, have less green space, higher impervious ground cover, and are subject to greater urban heat island effects. *See* David J. Novak, Alexis Ellis & Eric J. Greenfield, *The Disparity in Tree Cover and Ecosystem Service Values Among Redlining Classes in the United States*, 221 LANDSCAPE & URB. PLANNING 1 (2022), https://perma.cc/3CJ7-SVJE; *see also* Haley M. Lane et al., *Historical Redlining Is Associated with Present-Day Air Pollution Disparities in U.S. Cities*, 9 ENV'T SCI. TECH. LETTERS 345 (2022); Cesar O. Estien et al., *Historical Redlining Is Associated with Disparities in Environmental Quality Across California*, 11 ENV'T SCI. TECH. LETTERS 54 (2024); Bev Wilson, *Urban Heat Management and the Legacy of Redlining*, 86 J. AM. PLANNING ASS'N 443 (2020), https://perma.cc/9NMY-EQQB.

[92] Avery Ellfeldt & E&E NEWS, *Climate Disasters Threaten to Widen U.S. Wealth Gap*, SCI. AM. (Oct. 2, 2023), https://perma.cc/9QQ5-NTBS.

[93] Leila M. Harris et al., *Revisiting the Human Right to Water from an Environmental Justice Lens*, 3 POL. GRPS., & IDENTITIES 660 (2015), https://perma.cc/DHW2-AD4Q; DIG DEEP AND U.S. WATER ALLIANCE, CLOSING THE WATER ACCESS GAP IN THE UNITED STATES: A NATIONAL ACTION PLAN 20–25 (2019), https://perma.cc/2C4P-8X42.

[94] Diana Hernández, *Understanding 'Energy Insecurity' and Why it Matters to Health*, 167 SOC. SCI. & MED. 1 (2016); ARIEL DREHOBL, ET AL., HOW HIGH ARE HOUSEHOLD ENERGY BURDENS? iii–iv (2020), https://perma.cc/Y8GA-QBYW.

[95] *See* Robert Bullard, *Addressing Urban Transportation Equity in the United States*, 31 FORDHAM U. L. J. 1183 (2004), https://perma.cc/WJ7B-QAVZ; STEPHANIE POLLACK ET AL., NE. UNIV. DUKAKIS CTR. FOR URB. & REG'L POL'Y, THE TOLL OF TRANSPORTATION (Nov. 2013), https://perma.cc/9WW9-NTE2; Brian S. McKenzie, *Neighborhood Access to Transit by Race, Ethnicity, and Poverty in Portland, OR*, 12 CITY & CMTY. 134–55 (2013).

[96] Chima Anyanwu and Kirsten M.M. Beyer, *Intersections among housing, environmental conditions, and health equity: A conceptual model for environmental justice policy*, 9 SOC. SCI. & HUMAN. OPEN 1 (2024), https://perma.cc/45N4-JK2Y.

[97] *See, e.g.*, Lisa Powell et al., *Food Store Availability and Neighborhood Characteristics in the United States*, 44 PREVENTATIVE MED. 189 (2007), https://perma.cc/VXH8-Z7HL; THOMAS A. LAVEIST ET AL., JOINT CTR. FOR POL. & ECON. STUD. SEGREGATED SPACES, RISKY PLACES: THE EFFECTS OF RACIAL SEGREGATION ON HEALTH INEQUALITIES (Sept. 2011), https://perma.cc/55GC-LVHW; *see also* ALISON HOPE ALKON & JULIAN AGYEMAN, CULTIVATING FOOD JUST.: RACE, CLASS, AND SUSTAINABILITY 89, 93 (2011); *see* MARI GALLAGHER RSCH. & CONSULTING GRP., GOOD FOOD: EXAMINING THE IMPACT OF FOOD DESERTS ON PUBLIC HEALTH IN CHICAGO: EXECUTIVE SUMMARY 2, 4 (2006), https://perma.cc/KU3L-9Q5N; Philip J. Landrigan et al., *Environmental Justice and the Health of Children*, 77 MT. SINAI J. OF MED. 178, 179 (2010).

[98] SARAH DEWEES & BENJAMIN MARKS, FIRST NATIONS DEV. INST., TWICE INVISIBLE: UNDERSTANDING RURAL NATIVE AMERICA 1 (Apr. 2017) (indicating that 54% of Native American and

resources.[99] As discussed above, and in further detail in ***Appendix 1***, our States and Local Governments have faced myriad impacts from climate change in recent years. The increasing frequency, size, and intensity of such events have been conclusively tied to a warming planet as well as to widening environmental, health, and economic disparities for disadvantaged communities in our States and nationwide.[100] In short, our most vulnerable residents are experiencing widespread climate and environmental injustices. These harmful effects are reduced when actions are taken to cut greenhouse gas emissions,[101] and will only increase, along with associated disparities, in the absence of drastic emission reductions.

3. Co-pollutants of greenhouse gas emissions from motor vehicles also harm the health and wellbeing of our communities and impose disproportionate burdens on overburdened and sensitive populations.

Our States and Local Governments also face major public health challenges caused by motor vehicle emissions of criteria pollutants and air toxics, such as fine particulate matter $PM_{2.5}$, nitrogen oxides (NO_x), and non-methane organic compounds, that would increase if EPA's Proposal is finalized.[102] Indeed, EPA's own modeling, included in the docket but entirely ignored in the Proposal itself, taken at face value found that the Proposal would yield massive increases

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Alaska Native people live in rural or small-town areas on or near reservations, areas which lack reliable access to healthcare and experience other economic and social disparities); Michael Gochfeld & Joanna Burger, *Disproportionate Exposures in Environmental Justice and Other Populations: The Importance of Outliers*, 101 AM. J. PUB. HEALTH S53 (2011), https://perma.cc/S3TC-LRZM ("Disparities in access to health information and health care are important aspects of the disproportionate burden faced by environmental justice communities. Poor access to health information and health care means less health promotion, less risk avoidance, a less healthy diet, and more adverse conditions that increase susceptibility to exposure."); Landrigan et al., *supra* note 97.

[99] Christopher T. Emrich, Sanam K. Aksha & Yao Zhou, *Assessing distributive inequities in FEMA's Disaster recovery assistance fund allocation*, 74 INT'L J. DISASTER RISK REDUCT., 1 (May 2022), https://perma.cc/7YJ5-JZRF; Lidia Cano Pecharroman and ChangHoon Hahn, *Exposing disparities in flood adaptation for equitable future interventions in the USA*, 15 NATURE COMMC'NS 1 (2024), https://perma.cc/DR79-65S4; Lauren Lee, *Racial Disparities Are Working Against Disaster Recovery for People of Color. Climate Change Could Make It Worse*, CNN (Apr. 17, 2023, 8:03 AM ET), https://perma.cc/JTL2-TJBT.

[100] David Herring, *What is an "Extreme Event"?*, CLIMATE.GOV (Oct. 29, 2020) https://perma.cc/2Z46-BNN7.

[101] Sarah Whitmee et al., *Pathways to a Healthy Net-Zero Future*, 403 THE LANCET COMM'NS 67, 67 (Jan. 6, 2024), https://perma.cc/MCD9-L4FM.

[102] *See, e.g.*, LAKE MICH. AIR DIRS. CONSORTIUM, *Attainment Demonstration Modeling for the 2015 Ozone National Ambient Air Quality Standard: Technical Support Document* (Sept. 21, 2022), https://perma.cc/VR53-SGCS (Onroad mobile non-diesel sources are the largest contributor to ozone in all of Wisconsin's remaining 2015 ozone NAAQS nonattainment areas); EPA, *Current Nonattainment Counties for All Criteria Pollutants* (last updated July 31, 2025), https://perma.cc/ZS77-C53D (listing 19 of the 67 counties in Pennsylvania as nonattainment areas); EPA, *8-Hour Ozone (2008) Nonattainment Areas* (last updated July 31, 2025), https://perma.cc/TKL7-PBMN (listing New York, northern New Jersey, and Long Island area as Severe 15 for 8-hour ozone nonattainment).

in $PM_{2.5,}$ NO_x, and volatile organic compounds (VOCs).[103] These and other co-pollutants of greenhouse gas emissions include known carcinogens and well-studied and regulated toxics that deteriorate the health of communities often already burdened by other health harms. EPA's failure to account for the additional harms from co-pollutants as a result of the Proposal leaves overburdened and sensitive populations in danger of substantial health harms, and renders its analysis of harms incomplete and unlawful, as discussed further *infra* Section VIII.A.

Mobile sources substantially contribute to the share of $PM_{2.5}$, NO_x, and other harmful air pollutants in the atmosphere. Co-pollutants to greenhouse gases, such as NO_x, SO_x, and $NH_{3,}$ and NO_x and VOCs, are precursors to $PM_{2.5}$ and ozone, respectively.[104] *See* Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, 88 Fed. Reg. 29,184, 29,186 (May 5, 2023) ("Light- and medium-duty vehicles will account for approximately 20%, 19%, and 41% of 2023 mobile source NO_x, $PM_{2.5}$, and VOC emissions, respectively."). In some states and urban areas, mobile sources are the primary contributors of emissions of these harmful air pollutants.[105]

These pollutants both directly and indirectly contribute to a wide range of health harms. Exposure to $PM_{2.5}$ is causally related to premature mortality[106] and cardiovascular effects;

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[103] T. Sherwood, EPA-HQ-OAR-2025-0194-0047, *Vehicle Rule LD/MD/HD Physical Effects* (July 7, 2025) [hereinafter EPA Physical Effects].

[104] *See* Margaret Zawacki et al., *Mobile Source Contributions to Ambient Ozone and Particulate Matter in 2025*, 188 ATMOSPHERIC ENV'T 129 (1994), https://perma.cc/M98P-JGAT.

[105] *See*, *e.g.*, VT. DEP'T OF ENV'T CONSERVATION, AGENCY OF NAT. RES., *Mobile Sources*, https://perma.cc/7YR5-FSP8 (mobile sources contribute approximately 50% of the NO_x emissions in Vermont); CARB, *2020 Mobile Source Strategy* 19–20 (Oct. 28, 2021), https://perma.cc/B6A8-25SS ("Every year, over 5,000 premature deaths and hundreds of illnesses and emergency room visits for respiratory and cardiovascular disease in California are linked to $PM_{2.5}$ pollution, of which more than half is produced by mobile sources."); CARB, DISCUSSION DRAFT 2025 MOBILE SOURCE STRATEGY 15 (Oct. 11, 2024), https://perma.cc/RRE3-LZ4N ("mobile sources continue to contribute a majority of the NOx emissions, a significant precursor to ozone and PM"); McDuffie et al., *Source sector and fuel contributions to ambient PM2.5 and attributable mortality across multiple spatial scales*, 12 NATURE COMMC'NS 1 (2021), https://perma.cc/Z992-QR6W ("[T]he transportation sector was the largest PWM PM2.5 source in the U.S.").

[106] Karn Vohra et al., *Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem*, 195 ENV'T RSCH. 1 (Apr. 2021) (Researchers "estimate[d] a global total of 10.2…million premature deaths annually attributable to the fossil-fuel component of $PM_{2.5}$."; Calvin A. Arter, et al., *Mortality-based damages per ton due to the on-road mobile sector in the Northeastern and Mid-Atlantic U.S. by region, vehicle class and precursor*, 16 ENV'T RSCH. LETTERS 1–2, 5 (June 2021), https://perma.cc/YYF4-LZ3A ("The largest source of both $PM_{2.5}$ and O_3[ozone]-attributable premature mortalities are LDT [light-duty trucks] at 1234 and 1229 mortalities, respectively. LDT PPM emissions are responsible for 46% of $PM_{2.5}$ mortalities, and LDT NOx emissions are responsible for 80% of O_3 [ozone] mortalities."); *see also* Devin Henry, *Identifying sources of deadly air pollution in the U.S.*, STAN. U. DOERR SCH. OF SUSTAINABILITY (July 15, 2020), https://perma.cc/242W-5GN4 (air pollution responsible for 100,000 deaths annually in the United States, half of which come from fossil fuel combustion); Ekta Chaudhary et al., *Cumulative effect of PM2.5 components is larger than the effect of PM2.5 mass on child health in India*, 14 NATURE COMMC'NS 1 (2023),

consistently associated with asthma and chronic obstructive pulmonary disease exacerbation; and associated with negative birth outcomes, such as low birth weight and negative fetal growth outcomes.[107] Exposure to NO_x is causally related to asthma exacerbation; likely causally related to respiratory effects; and possibly causally related to cardiovascular effects, mortality, diabetes, cancer, and birth defects. 88 Fed. Reg. at 29,214. Exposure to ozone is causally related to respiratory effects, including lung function decrements, pulmonary inflammation, exacerbation of asthma, respiratory-related hospital admissions, and mortality; likely causally related to metabolic effects and complications due to diabetes; and possibly causally related to cardiovascular effects and central nervous system effects. *Id*. at 29,213–14.

Motor vehicles also emit air toxics like benzene and formaldehyde. For example, in the Northeast, mobile sources contribute 21% of benzene concentrations in the ambient air.[108] Benzene is a known carcinogen, with a particular link to leukemia, and accordingly poses a substantial danger to public health and wellbeing, given that "[e]xposure to benzene is highest in areas of heavy motor vehicle traffic."[109] Similarly, motor vehicles emit formaldehyde, a known carcinogen, that is also associated with chronic non-cancer and reproductive and developmental health effects.[110] EPA estimated that non-greenhouse gas emission reductions from the most recent greenhouse gas standards would result in public health benefits of between $8 and $19 billion for light- and medium-duty vehicles, and $300 million for heavy duty vehicles.[111]

As discussed in the Vehicles Comment, EPA's federal motor vehicles greenhouse gas program currently helps to reduce the emissions of these harmful precursors, criteria pollutants, and air toxics like acetaldehyde, benzene, and formaldehyde. Vehicles Comment Section II.A.2–3, IV.B.1.b.1. The Vehicles Comment also reaffirms the disproportionate burden already borne by low-income and communities of color from motor vehicle emissions and the particular necessity of the federal motor vehicles greenhouse gas program in addressing air quality concerns in those communities. *Id*. Discriminatory transportation, land use, and zoning practices, in combination with income inequality, have concentrated transportation infrastructure—and

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https://perma.cc/C4VV-KKFP (Using multiple logistic regression, we showed that for every 10 μg m−3 increase in PM2.5 exposure, anaemia, acute respiratory infection, and low birth weight prevalence increase by 10% (95% uncertainty interval, UI: 9–11), 11% (8–13), and 5% (4–6)).

[107] *See* CARB, Comment Letter on Proposed Reconsideration of the National Ambient Air Quality Standards for Particulate Matter (June 29, 2020), https://perma.cc/ET42-Z5GE.

[108] Cynthia H. Whaley, *How much does traffic contribute to benzene and polycyclic aromatic hydrocarbon air pollution? Results from a high-resolution North American air quality model centered on Toronto, Canada*, 20 ATMOSPHERIC CHEMISTRY & PHYSICS 2911 (2020), https://perma.cc/S6C2-JX72.

[109] DEP'T OF HEALTH & HUMAN SERVS., REPORT ON CARCINOGENS, FIFTEENTH EDITION, BENZENE (2021), https://perma.cc/H5ZD-6C2J.

[110] Ricardo Suarez-Bertoa et al., *Real-Time Measurements of Formaldehyde Emissions from Modern Vehicles*, 15 ENERGIES 1 (2022), https://perma.cc/TF75-SL9J.

[111] EPA, *Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards: Regulatory Update* at 4 (Dec. 2021), https://perma.cc/2MUA-2AEF; 89 Fed. Reg. at 29,440, 29,713.

motor vehicle pollution—in low income communities and communities of color.[112] Now, three-quarters of exposure to $PM_{2.5}$ affects people of color and, while this "phenomenon is systemic, holding for nearly all major sectors" light-duty gasoline vehicles and heavy-duty diesel vehicles "are often among the largest sources of disparity[.]"[113] Similarly, low income neighborhoods and communities of color are disproportionately exposed to NO_2, a "disparity . . . driven primarily by proximity to trucking routes on major roadways[.]"[114] The result for communities closest to motor vehicle emissions is a "higher risk of respiratory diseases, such as asthma and lung disease; heart disease; 'adverse reproductive outcomes;' and death."[115]

Motor vehicle pollution imposes similar disproportionate health burdens on sensitive populations. The pollutants emitted by motor vehicles have been shown to harm fetal development,[116] increase the risk of asthma and wheezing among children,[117] and in older adults have been linked to increased risk of neurodegenerative diseases and higher mortality rates from respiratory illnesses.[118] People with disabilities also face particular harms from motor vehicle emissions due to both higher exposure rates to air pollutants like $PM_{2.5}$ and heightened health risks and mortality from the interaction of climate change and air pollution.[119] These sensitive populations, therefore, stand to bear the brunt of the harms from the co-pollutants that this misguided proposal threatens to unleash.

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[112] Deborah N. Archer, *Transportation Policy and the Underdevelopment of Black Communities*, 106 IOWA L. REV. 2125, 2133 (2021) ("[T]he country's transportation system was planned, funded—and is operated—to provide unequal access along race and class lines, limit access to jobs, health, and opportunity, and force Black communities to bear a disproportionate share of environmental harms." (cleaned up)).

[113] Christopher W. Tessum et al., *$PM_{2.5}$ Polluters Disproportionately and Systemically Affect People of Color in the United States*, 7 SCI. ADVANCES 3 (2021), https://perma.cc/8VUX-FV33; *see also* Maria Cecilia Pinto de Moura and David Reichmuth, Union of Concerned Scientists, *Fact Sheet: Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic* (2019), https://perma.cc/YM7E-U4NQ; David Reichmuth, Union of Concerned Scientists, *Fact Sheet: Inequitable Exposure to Air Pollution from Vehicles in California* (2019), https://perma.cc/UA8V-3N7A.

[114] Am. Geophysical Union, *Pollution from freight traffic disproportionately impacts communities of color across 52 US cities*, SCIENCEDAILY (Oct. 7, 2021), https://perma.cc/V6W7-L3KC.

[115] Archer, *supra* note 112, at 2140–41 (citing COURTNEE MELTON, THE SYCAMORE INST., HOW TRANSPORTATION IMPACTS PUBLIC HEALTH 2 (2017), https://perma.cc/K4UQ-RKQB); *see also* Maria Cecilia Pinto de Moura and David Reichmuth, *supra* note 113, at 2.

[116] Mary D. Willis et al., *A population-based cohort study of traffic congestion and infant growth using connected vehicle data*, 8 SCI. ADVANCES 1 (2022), https://perma.cc/4KJ6-PMBW.

[117] Janvier Gasana et al., *Motor vehicle air pollution and asthma in children: A meta-analysis*, 117 ENV'T RSCH. 36 (2012).

[118] Rachel Thama and Tamara Schikowski, *The Role of Traffic-Related Air Pollution on Neurodegenerative Diseases in Older People: An Epidemiological Perspective*, 79 J. OF ALZHEIMER'S DISEASE 949 (2021); Marzia Simoni et al., *Adverse effects of outdoor pollution in the elderly*, 7 J. OF THORACIC DISEASE 34 (2015).

[119] Chakraborty, *supra* note 64; Rhim et al., *supra* note 84.

B. Regulation of Motor Vehicle Greenhouse Gas Emissions

1. States and Local Governments' advocacy for federal standards to limit motor vehicle greenhouse gas emissions.

In light of the significant harms wrought by climate change nationwide and across our jurisdictions, many of the States and Local Governments have long advocated for EPA to rigorously control greenhouse gas emissions. As relevant here, because the transportation sector is the leading source of domestic greenhouse gas emissions, many of the States and Local Governments for decades have pressed for regulation of greenhouse gas emissions from new motor vehicles under Section 202 of the Clean Air Act, which requires EPA to prescribe "standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in [the Administrator's] judgment cause or contribute to air pollution which may reasonably be anticipated to endanger public health and welfare." 42 U.S.C. § 7521(a)(1).

In the early 2000s, a group of States, including many of the undersigned States, petitioned for review of EPA's denial of a petition for rulemaking to regulate greenhouse gases under section 202(a)(1). *See Massachusetts v. EPA*, 415 F.3d 50 (D.C. Cir. 2005), *rev'd* 549 U.S. 497 (2007). In the landmark decision that followed, *Massachusetts v. EPA*, the Supreme Court unequivocally held that greenhouse gases are air pollutants within the meaning of the Clean Air Act. 549 U.S. 497, 532 (2007); *see also Connecticut v. Am. Elec. Power* (*AEP*), 564 U.S. 410, 424 (2011) ("*Massachusetts* made plain that emissions of carbon dioxide qualify as air pollution subject to regulation under the Act. And we think it equally plain that the Act 'speaks directly' to emissions of carbon dioxide from defendants' plants."). The *Massachusetts* Court thus directed the Administrator to make the endangerment finding—whether positive or negative—called for in section 202(a)(1). 549 U.S. at 532–33. EPA could not evade that obligation, the Court explained, "by noting the uncertainty surrounding various features of climate change and concluding that it would therefore be better not to regulate at this time." *Id.* at 534. "EPA can avoid taking further action only if it determines that greenhouse gases [from motor vehicles] do not contribute to climate change." *Id.* at 533.

Following *Massachusetts*, EPA spent nearly two years reviewing the science of climate change and engaging with the public. EPA published an Advanced Notice of Proposed Rule Making regarding a section 202(a) endangerment determination in July 2008, with a 120-day period for public comment. 73 Fed. Reg. 44,354 (July 30, 2008). Many of our States commented on the Advanced Notice urging a positive endangerment finding.[120] EPA reviewed extensive comments and a robust scientific record and in April 2009 published proposed endangerment and cause or contribute findings for six well-mixed greenhouse gases—CO_2, methane, nitrous oxide,

[120] *See* Att'y Gen. of Mass., Comment Letter on the Advance Notice of Proposed Rulemaking Regulating Greenhouse Gases Under the Clean Air Act (Nov. 25, 2008), https://perma.cc/E923-8QKE; N.Y. Att'y Gen.'s Off. et al., Comment Letter on Advance Notice of Proposed Rulemaking Regulating Greenhouse Gases Under the Clean Air Act (Nov. 26, 2008), https://perma.cc/U465-K9PA; Atty's Gen. of Cal. and Conn., Comment Letter on Advance Notice of Proposed Rulemaking Regulating Greenhouse Gases Under the Clean Air Act (Nov. 26, 2008), https://perma.cc/74K7-BRLG; Att'y Gen. of Cal. et al., Comment Letter on Advance Notice of Proposed Rulemaking Regulating Greenhouse Gases Under the Clean Air Act (Nov. 26, 2008), https://perma.cc/6YD8-YRCE.

hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride (SF_6)—under section 202(a)(1). 74 Fed. Reg. 18,886 (Apr. 24, 2009). EPA held a 60-day public comment period, and received over 380,000 public comments, 74 Fed. Reg. 66,496, 66,500 (Dec. 15, 2009), including detailed comments from many of our States.[121] After careful review and consideration of those comments, EPA published the final Endangerment and Cause or Contribute Findings under section 202(a) of the Clean Air Act on December 15, 2009, alongside an eleven-volume Response to Comments document. 74 Fed. Reg. at 66,496.

In the 2009 Endangerment Finding, the EPA Administrator found that the then-current and projected concentrations of the combined mix in the atmosphere of the six well-mixed greenhouse gases endanger the public health and welfare of current and future generations. 74 Fed. Reg. at 66,497. In particular, EPA explained in detail, with robust record support, its findings that greenhouse gas emissions endanger public health and welfare by causing more intense, frequent, and long-lasting heat waves; worse smog in cities; longer and more severe droughts; more intense storms, hurricanes, and floods; the spread of disease; and a dramatic rise in sea levels. *Id.* at 66,496, 66,497, 66,524–25, 66,532–33. "[T]he body of the scientific evidence compellingly supports this finding," the Administrator explained, citing to, primarily, the major assessments of the U.S. Global Climate Research Program (USGCRP), the Intergovernmental Panel on Climate Change (IPCC), and the National Research Council (NRC). *Id.* at 66,497. The Administrator also found that the combined emissions of the six well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare. *Id.* at 66,499.

The D.C. Circuit upheld the 2009 Endangerment Finding, and the Supreme Court declined review. *Coal. for Responsible Regul., Inc. v. EPA*, 684 F.3d 102, 120–21 (D.C. Cir. 2012) (per curiam), *cert. granted in part on other grounds*, 134 S. Ct. 418 (2013), *aff'd in part, rev'd in part*, *Util. Air Reg. Grp. v. EPA*, 134 S. Ct. 2427 (2014). EPA denied subsequent petitions for reconsideration of the 2009 Endangerment Finding.[122]

The 2009 Endangerment Finding and the accompanying determination that motor vehicle greenhouse gas emissions contribute to endangerment in turn triggered a duty for EPA to set standards for greenhouse gas emissions from new motor vehicles. *See* 42 U.S.C. § 7521(a); *Coal.*

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[121] Massachusetts et. al., Comment Letter on Proposed Endangerment and Cause of Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (June 22, 2009), https://perma.cc/K5TH-WJPD; Att'y Gen. of Cal., Comment Letter on Proposed Endangerment and Cause of Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (June 23, 2009), https://perma.cc/X24S-3AUH; *see also* Governor of the State of Wash., Comment Letter on Proposed Endangerment and Cause of Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (May 21, 2009), https://perma.cc/JR7G-RN3A; N.Y. Off. of the Governor, Comment Letter on Proposed Endangerment and Cause of Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (June 22, 2009), https://perma.cc/4F2U-PEU8.

[122] EPA's Denial of the Petitions To Reconsider the Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 75 Fed. Reg. 49,556, 49,562 (Aug. 13, 2010); EPA's Denial of Petitions Relating to the Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (Apr. 21, 2022), at 3 [hereinafter April 12 Denial of Petitions Relating to the Endangerment and Cause or Contribute Findings], https://perma.cc/JN7F-RTU8.

for Responsible Regul., 684 F.3d at 126. Accordingly, EPA thereafter promulgated greenhouses gas emissions standards for light-duty vehicles for model years 2012 through 2016, 75 Fed. Reg. 25,324 (May 7, 2010), followed by additional new and amended greenhouse gas standards for light-, medium-, and heavy-duty vehicles as time went on, *see* 76 Fed. Reg. 57,106 (Sept. 15, 2011); 77 Fed. Reg. 62,624 (Oct. 15, 2012); 81 Fed. Reg. 73,478 (Oct. 25, 2016); 85 Fed. Reg. 24,174 (Apr. 30, 2020); 86 Fed. Reg. 74,434 (Dec. 30, 2021); 89 Fed. Reg. 27,842 (Apr. 18, 2024); 89 Fed. Reg. 29,440 (Apr. 22, 2024).

These rules each estimated significant greenhouse gas emission reductions, as well as co-pollutant reductions. *See* Vehicles Comment Section II.A.2–3. For example, last year, EPA projected that the MY2027 standards for light-, medium-, and heavy-duty vehicles would prevent over 8.225 billion net metric tons of CO_2-equivalent emissions over the next thirty years. 89 Fed. Reg. at 27,858 (Table 5); 89 Fed. Reg. at 29,454 (Table ES-5). EPA previously monetized the avoided climate harms from those avoided emissions at a total $1.82 trillion dollars. 89 Fed. Reg. at 27,860 (Table 8); 89 Fed. Reg. at 29,457 (Table ES-8). The standards also are projected to reduce criteria pollutants like NO_x, VOCs, and particulate matter (PM), over and above the emission reductions attributable to EPA's criteria standards. *E.g.*, 89 Fed. Reg. at 28,103–04; 89 Fed. Reg. at 29,669.

On September 17, 2025, just five days before the close of the comment period on the Proposal, the National Academies of Sciences, Engineering, and Medicine (NAS) released a pre-publication Consensus Study Report concluding that "EPA's 2009 finding that the human-caused emissions of greenhouse gases threaten human health and welfare was accurate, has stood the test of time, and is now reinforced by even stronger evidence."[123] NAS explained that "[t]oday, many of EPA's conclusions are further supported by longer observational records and multiple new lines of evidence" and that "research has uncovered additional risks that were not apparent in 2009."[124] The report made five central findings related to this overarching conclusion:

> **(1) Emissions of greenhouse gases from human activities are increasing the concentration of these gases in the atmosphere**. . . .
> **(2) Improved observations confirm unequivocally that greenhouse gas emissions are warming Earth's surface and changing Earth's climate**. . . .
> **(3) Human-caused emissions of greenhouse gases and resulting climate change harm the health of people in the United States**. . . .
> **(4) Changes in climate resulting from human-caused emissions of greenhouse gases harm the welfare of people in the United States**. . . .
> **(5) Continued emissions of greenhouse gases from human activities will lead to more climate changes in the United States, with the severity of expected change increasing with every ton of greenhouse gases emitted**.[125]

[123] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 1.

[124] *Id.*

[125] *Id.* at 2 (emphasis in original).

The "evidence for current and future harm to human health and welfare created by human-caused GHGs," the NAS concluded, "is beyond scientific dispute."[126]

2. EPA's proposal to reverse course on its finding that motor vehicle greenhouse gases endanger public health and welfare and to rescind all federal motor vehicle greenhouse gas emission standards.

Despite the Clean Air Act's pollution-reduction mandate and the scientific consensus on climate change, EPA now proposes to rescind the 2009 Endangerment Finding and with it all light-, medium-, and heavy-duty greenhouse gas standards for all model years. This effort began on day one of this Administration, when, in the *Unleashing* EO, President Trump ordered the EPA Administrator to, within thirty days, "submit joint recommendations to the Director of [the Office of Management and Budget (OMB)] on the legality and continuing applicability of the" 2009 Endangerment Finding. Exec. Order No. 14154, *Unleashing American Energy*, 90 Fed. Reg. 8353, 8357 (Jan. 29, 2025) (*Unleashing* EO). Thirty days later, on February 19, 2025, Administrator Zeldin sent a memorandum to OMB—not released to the public until release of this Proposal[127]—recommending that EPA "[r]econsider the 2009 Endangerment Finding and, subsequently, any EPA regulation or action that relies on it."[128] In the memorandum, Zeldin claimed that, "[s]ince EPA published the 2009 Endangerment Finding, there have been developments in innovation, science, economics, and mitigation, as well as significant Supreme Court decisions that provide new guidance on how EPA should interpret the statutory provisions that Congress has tasked it with administering."[129]

Just five months later, EPA issued the Proposal, again pointing to "underlying actions and intervening legal and scientific developments, including recent decisions by the U.S. Supreme Court and [] scientific information" to claim that "EPA no longer believes that [it] ha[s] the statutory authority and record basis required to maintain this novel and transformative regulatory program." 90 Fed. Reg. at 36,289. In the preamble to the Proposal, EPA provides three purportedly independent (yet at times apparently overlapping) alternative rationales for rescission—two of which (with a host of subarguments) turn on EPA's novel interpretations of its authority under section 202(a) to rescind the 2009 Endangerment Finding and one of which

[126] *Id.* ("The United States faces a future in which climate-induced harm continues to worsen and today's extremes become tomorrow's norms.").

[127] In May and June 2025, Massachusetts, Connecticut, and New York each submitted separate Freedom of Information Act (FOIA) requests to EPA, the Department of Energy, the Department of the Interior, the Department of Justice, and the Office of Management and Budget, attached as Appendices. The FOIA requests sought records regarding the possible reconsideration of the Endangerment Finding pursuant to the *Unleashing* EO, including memos, briefing materials, and correspondence among specified employees, including Administrator Zeldin. To date, the Agencies have failed to produce any responsive records or issue timely determinations in response to the States' FOIA requests, depriving the public of access to vital records of clear and immediate public interest and impeding the States' ability to comment on this Proposal.

[128] Memorandum from Lee Zeldin, Adm'r, EPA, to Russ Vought, Dir., White House Off. of Mgmt. & Budget, Recommendations in Response to Section 6(f) of Executive Order 14154, "Unleashing American Energy" (Feb. 19, 2025) (EPA-HQ-OAR-2025-0194-0059), https://perma.cc/3C2D-KQFV.

[129] *Id.*

(again, with a host of subarguments) turns on EPA's novel interpretation of section 202(a) to rescind the standards alone.

First, in Section IV.A. of the Proposal, EPA proposes to interpret section 202(a) as not authorizing regulation of motor vehicle greenhouse gas emissions, testing out two alternative legal interpretations that twist *Massachusetts* and intervening case law beyond recognition. In particular, EPA claims that "section 202(a) does not authorize the EPA to prescribe standards for GHG emissions based on global climate change concerns or to issue standalone findings that do not apply the statutory standard for regulation as a cohesive whole." *Id.* at 36,298. EPA then invokes the major questions doctrine, again contorting relevant case law, claiming that "the Nation's response to global climate change concerns generally, and specifically whether that response should include regulating GHG emissions from new motor vehicles and engines, is an economically and politically significant issue" and that "Congress did not clearly authorize the EPA to decide it" in section 202(a). *Id.* at 36,298–99.

As to its "global climate change concerns" rationale, EPA claims that "[r]egardless whether GHGs are properly considered 'agents of air pollution' under the general, Act-wide definition of 'air pollutant' at CAA section 302(g)"—a nervous nod at *Massachusetts*— "the text, structure, and history of CAA section 202(a) and related provisions demonstrate that this language targets air pollution that threatens public health or welfare through local or regional exposure," and that "'air pollution' defined as six 'well-mixed' GHGs raising global climate change concerns that adversely impact a subset of regions globally cannot satisfy this standard." *Id.* at 36,299. According to the Proposal, the "air pollution itself" must directly harm public health and welfare and greenhouse gases do not. *Id.* at 36,300. The 2009 Endangerment Finding, EPA claims, asserted that greenhouse gases "would *lead to* increases in global temperature and change to ocean pH that, in turn, would *lead to* environmental phenomena" that harm public health and welfare—which EPA claims adds a second extra-statutory causal link. *Id.* at 36,301. EPA then takes aim at contribution, proposing to find that emissions from new motor vehicles "do not have a sufficiently close connection" to the public health and welfare harms "to fit within the meaning of 'cause' or 'contribute'" in section 202(a). *Id.* Throwing yet another rationale at the wall, EPA claims this "limiting construction is necessary to avoid absurd results and potential conflict with the nondelegation doctrine," suggesting water vapor would—"absurd[ly]"—qualify for regulation under EPA's 2009 interpretation. *Id.* at 36,301, 36,304. EPA contends that this interpretation is somehow consistent with *Massachusetts* because as a matter of *stare decisis* that decision must be read "in harmony" with subsequent decisions in *West Virginia v. EPA*, 597 U.S. 697 (2022), *Utility Air Regulatory Group v. EPA* (*UARG*), 573 U.S. 302 (2014), and *Loper Bright Enterprises v. Raimondo*, 603 U.S. 369 (2024). 90 Fed. Reg. at 36,300, 36,302.

Taking yet another tack, EPA then claims that section 202(a) findings and standards must be "integrated," i.e., that Section 202(a) "requires issuing emission standards together with the findings necessary to invoke our regulatory authority, rather than severing the regulatory action into separate endangerment and standards-setting proceedings." *Id.* at 36,302. EPA asserts that the 2009 Endangerment Finding improperly found endangerment and contribution "in the abstract for all potential CAA section 202(a) sources" of greenhouse gas emissions. *Id.* EPA claims that its new interpretation would return to "historical practice" under section 202(a) and asserts that a number of alleged flaws in the 2009 Endangerment Finding stem from EPA's "severance," including its consideration of motor vehicle impacts in a separate contribution

finding, its decision to treat adaptation and non-section 202(a) mitigation measures as outside the scope, and its decision not to consider costs of regulation or benefits of climate change in the 2009 Endangerment Finding. *Id.* at 36,303. EPA also claims this supposed error impugned subsequent standards. *Id.* From this, EPA reaches the stunning conclusion that "EPA has never meaningfully considered or invited public comment on the cost, effectiveness, and continued propriety of its GHG regulatory program." *Id.*

As an offshoot of this argument, EPA also proposes an interpretation that to trigger endangerment, an "emission must cause or contribute to the danger posed by the air pollution to a sufficient extent to satisfy the standard for regulation"—though EPA nowhere states what that supposed standard is. *Id.* at 36,304. EPA explains that in 2009 EPA did not "consider the extent to which emissions from CAA section 202(a) sources" or "any particular class or classes of sources" "have more than *de minimis* effect on the *danger* identified." *Id.* at 36,304. EPA also attacks the 2009 Endangerment Finding for not limiting its contribution analysis to "*new* motor vehicles," instead considering the entire fleet. *Id.* EPA then makes the astounding claim that motor vehicle greenhouse gas emissions are *de minimis*: "reducing GHG emissions from all vehicles and engines in the United States to zero would not have a scientifically measurable impact on GHG emission concentrations or global warming potential." *Id.* And continuing its kitchen-sink approach, EPA then claims the 2009 Endangerment Finding arbitrarily did not consider leakage of carbon-emitting industry (and emissions) from the United States to other countries where it is not regulated, and that the term "endanger" in section 202(a) "cannot mean merely any predicted negative impact." *Id.*

EPA then repeats, in an entirely separate section, its claim that it "lack[s] the 'clear congressional authorization' required under the major questions doctrine to decide the Nation's response to global climate change concerns." *Id.* at 36,305. The major questions doctrine applies, EPA asserts, because "global climate change concerns" are a "major question of undeniable political and economic significance." *Id.* EPA purports to find support for this theory in subsequent legislative action, *id.* at 36,306, and proposes to find no clear authorization in section 202(a) for the "novel approach" in the 2009 Endangerment Finding and resulting standards, doing gymnastics to attempt to analogize *West Virginia*'s generation shifting to supposed fleet-shifting allegedly resulting from vehicles greenhouse gas standards, *id.* at 36,307.

In Section IV.B. of the Proposal, EPA's "alternative rationale," the agency proposes to rescind the 2009 Endangerment Finding (and all greenhouse gas standards) based on supposed scientific uncertainty. EPA contends that it had previously exercised its own discretion unreasonably "by adopting an approach that papered over substantial uncertainties in the scientific record and failed to draw the required connection between GHG emissions from a class or classes of new motor vehicles and global climate change concerns." *Id.* at 36,299; *id.* at 36,307. EPA then also proposes to find that supposed developments since 2009 "demonstrate the uncertainties acknowledged in the Endangerment Finding are more significant than previously believed," taking issue with its "ranges of assumptions" as "largely fail[ing] to satisfy the statutory standard for regulation" and noting that its more pessimistic assumptions have not come to pass. *Id.* at 36,299. As a good summary of its noncommittal refrain, EPA:

> proposes several reasons that the Administrator would exercise his discretionary judgment differently today in light of intervening legal and scientific developments

> that appear to undermine the assumptions, methodologies, and conclusions of the Endangerment Finding.

Id. at 36,306. But the Administrator does not say *how* he would exercise his discretionary judgment differently; he simply declines to do so at all.

Then, in a mere two-and-a half-page "Climate Science Discussion," EPA feebly discards the extensive evidence amassed in the 2009 Endangerment Finding and the enormous and growing body of evidence supporting those findings since. *Id.* at 36,307–10. To do so, EPA relies primarily (along with a smattering of random footnoted "see also's") on an early draft of a report prepared in less than two months, with no peer review, by the unlawfully convened CWG commissioned by the DOE. *Id.* at 36,292 n.10, 36,308 n.87. EPA proposes to cast doubt on the scientific consensus with the "CWG Draft Report," even though the Report makes clear that "[t]he short timeline and the technical nature of the material meant that we could not comprehensively review all topics."[130] EPA holds up scientific uncertainty as its guiding theme, briefly outlining a handful of alleged uncertainties surrounding the 2009 Endangerment Finding. *Id.* at 36,309. EPA then attempts a short-form rebuttal of the scientific consensus, spending about *a mere paragraph* on each of the following topics: increases in greenhouse gas concentrations and global temperatures; heat waves; extreme weather events including hurricanes, floodings, and wildfires; sea-level rise; attribution of climate change and its adverse impacts to human action; and "potential benefits" of greenhouse gas emissions. *Id.* at 36,309–10. And as an afterthought, EPA "questions" its prior decision to consider together all six "well-mixed" greenhouse gases, rather than assessing them individually. *Id.* at 36,311. EPA also invokes, but does not identify, alleged "critiques" that the NCAs prepared by the USGCRP, and the NCA5 in particular, may not be consistent with OMB's information quality guidelines and the transparency and reliability requirements of Executive Order 14303. *Id.* at 36,308, 36,310.

Finally, in section V of the Proposal, EPA proposes to rescind the motor vehicle greenhouse gas standards, for reasons "unrelated" (but at times overlapping with) its reasons for rescinding the 2009 Endangerment Finding. *Id.* at 36,311. First, EPA claims there is no "requisite technology" for emission control for light- and medium-duty vehicles because reducing all such vehicles' emissions to zero "would not measurably impact" atmospheric greenhouse gas concentrations or the rate of global climate change. *Id.* Specifically, EPA proposes to find, in reliance on the CWG Report, that reducing all such emissions to zero would decrease global emissions by 1.8%, resulting in a 3% reduction in predicted warming trends. *Id.* EPA also proposes to conclude that there is no "requisite technology" control for heavy-duty vehicles, even if considered alongside light- and medium-duty vehicles, because zeroing out heavy-duty emissions would only reduce global emissions by 0.7%, with impact on warming purportedly below the measurability threshold. *Id.* at 36,312. Eliminating greenhouse gas emissions from all motor vehicles would be "futile," EPA claims. *Id.* Second, EPA proposes to find that greenhouse gas emission standards "harm public health and welfare by increasing prices, decreasing consumer choice, and slowing the replacement of older vehicles." *Id.* at 36,291; *see also id.* at 36,312–13.

[130] CWG REPORT, *supra* note 4, at ix.

EPA in various places makes vague statements about the purported preemptive effect of the Proposal, including that the Proposal "would not impact Federal preemption under EPCA" and "would not impact Federal preemption of emission standards for new motor vehicle and engine emission standards." *Id.* at 36,314–15. EPA also obliquely requests comment on "whether any reliance interests in national uniformity and preemption would support adopting certain rationales and not finalizing other rationales," *id.* at 36,324, and "the continued preemptive effect of the CAA in the event that the EPA finalizes the proposed rescission or otherwise concludes that it lacks authority to regulate GHG emissions under CAA section 202(a) or any other specific regulatory provision of the CAA." *Id.* at 36,325; *see also id.* at 36,297.

Finally, EPA also produces a draft Regulatory Impact Analysis (RIA) that cannot be considered justification for the Proposal, as EPA itself makes clear that it does not rely on the draft RIA. *See, e.g.*, 90 Fed. Reg. at 36,326. The draft RIA contains two unsupported and arbitrary analyses of the benefits of the Proposal. The first uses cost-benefit analyses from the 2024 standards, but omits all criteria relevant to the pollution impacts of the Proposal; the second is based solely on consumer preference, which EPA employs without explaining why consumer preference is a proper basis to evaluate the Proposal. The draft RIA's cost-benefit analysis does not even attempt to consider the greenhouse gas pollution impacts of the Proposal.[131] Although EPA's own modeling concluded that the Proposal would add 7.7 billion metric tons of CO_2-equivalent through 2055, the draft RIA does not acknowledge or monetize this conclusion.[132] Even without considering any air pollution impacts, however, the RIA calculates a net negative impact from the Proposal, which it can only rescue by making significant (and arbitrary) changes to consumers' fuel price savings.[133] In addition to greenhouse gases, EPA's own modeling, taken at face value, shows enormous criteria pollutant and air toxics emissions increases associated with the Proposal,[134] which the draft RIA neither acknowledges nor addresses. Instead, the draft RIA offers a brief and perfunctory attempt to monetize the particulate emission impact of the proposal, the conclusion of which is inconsistent with the results of EPA's own modeling.[135] The draft RIA makes no attempt to otherwise consider the environmental impact of the Proposal, in stark contrast to the Regulatory Impact Analyses for previous EPA rules.[136] The draft RIA's analysis further departs from EPA's own precedent by failing to consider the cumulative impacts of its many near-in-time rollbacks, like the Carbon Pollution standards, 90 Fed. Reg. 25,752 (June 17, 2025), instead adopting as its baseline the analysis provided with the 2024 standards.[137]

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[131] *See* EPA, EPA-420-D-25-003, Draft Regulatory Impact Analysis, Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards at 37–44 (July 2025) [hereinafter Draft RIA], https://perma.cc/6PFW-J32D.

[132] EPA Physical Effects, *supra* note 103, at 7; Draft RIA, *supra* note 131, at 42.

[133] Draft RIA, *supra* note 131, at 22.

[134] EPA Physical Effects, *supra* note 103, at 2–13.

[135] Draft RIA, *supra* note 131, at 42.

[136] *See, e.g.*, EPA-420-R-24-004, Regulatory Impact Analysis, Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles at 12–52 (Mar. 2024) [hereinafter Multi-Pollutant Rule RIA] https://perma.cc/P9LB-GTAV.

[137] *see* Draft RIA, *supra* note 131, at 26.

III. LEGAL STANDARD

The Clean Air Act provides that the court may reverse any EPA action found to be, *inter alia*, "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law," "in excess of statutory jurisdiction, authority, or limitations, or short of statutory right," or "without observance of procedure required by law." 42 U.S.C. § 7607(d)(9); *see Utility Air Regulatory Group v. EPA*, 744 F.3d 741, 747 (D.C. Cir. 2014).

Under *Loper Bright Enterprises v. Raimondo*, an agency normally does not receive deference to adopt merely "permissible" interpretations of statutory terms: "In the business of statutory interpretation, if it is not the best, it is not permissible." 603 U.S. at 400. Here, section 202(a)(1) of the Clean Air Act does not "expressly delegate to [EPA] the authority to give meaning to a particular statutory term," *id.* at 394 (internal punctuation omitted), or the paragraph as a whole. While EPA has explicit discretion to exercise "judgment" in weighing the facts to determine whether vehicular emissions "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare," 42 U.S.C. § 7521(a)(1), the agency gets no deference on its interpretation of the meaning of relevant statutory terms or phrases. EPA has no discretion but to implement the "best reading" of section 202(a)(1) as discerned from traditional tools of statutory interpretation, without any consideration of the agency's "policy preferences." *Loper Bright*, 603 U.S. at 403–04; *see also AEP*, 564 U.S. at 427 ("The use of the word 'judgment' . . . is not a roving license to ignore the statutory text. It is but a direction to exercise discretion within defined statutory limits." (quoting *Massachusetts*, 549 U.S. at 533)).

Under the arbitrary and capricious standard, agencies may not "rel[y] on factors which Congress has not intended it to consider, entirely fail[] to consider an important aspect of the problem, offer[] an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (*State Farm*). An agency action is arbitrary or capricious where it is not "reasonable and reasonably explained." *FCC v. Prometheus Radio Project*, 592 U.S. 414, 423 (2021); *Encino Motorcars, LLC v. Navarro*, 579 U.S. 211, 221 (2016); *Amerijet Int'l, Inc. v. Pistole*, 753 F.3d 1343, 1350 (D.C. Cir. 2014). An agency must provide "a satisfactory explanation for its action, including a rational connection between the facts found and the choice made," such that the agency's "'path may reasonably be discerned.'" *State Farm*, 463 U.S. at 43 (citing *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc.*, 419 U.S. 281, 286 (1974)). "[W]here the agency has failed to provide even that minimal level of analysis, its action is arbitrary and capricious and so cannot carry the force of law." *Encino Motorcars*, 579 U.S. at 221. Further, agencies must offer "genuine justifications . . . that can be scrutinized by courts and the interested public." *Dep't of Commerce v. New York*, 588 U.S. 752, 785 (2019). They may not present "contrived" explanations that are "incongruent with . . . the agency's priorities and decisionmaking process." *Id.* at 784–85.

Agencies also must provide a reasoned explanation for changes in existing policies. *See Encino Motorcars*, 579 U.S. at 221. An agency seeking to change existing policy "must at least display awareness that it is changing position and show that there are good reasons for the new policy." *Id.* (internal quotation marks and citation omitted). "An agency may not . . . depart from

a prior policy *sub silentio* or simply disregard rules that are still on the books." *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009). Further, where a new policy rests on factual or legal determinations that contradict those underlying the agency's prior policy, the agency must provide a more detailed explanation. *Id.* at 515–16. "Unexplained inconsistency" in agency policy is "a reason for holding an interpretation to be an arbitrary and capricious change from agency practice." *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005); *see also Encino Motorcars*, 579 U.S. at 222. An arbitrary and capricious regulation of this sort is itself unlawful and receives no deference. *Encino Motorcars*, 579 U.S. at 222.

Moreover, "[w]hen an agency changes course, . . . it must be cognizant that longstanding policies may have engendered serious reliance interests that must be taken into account." *Dep't of Homeland Sec. v. Regents of Univ. of Cal*., 591 U.S. 1, 30 (2020) (internal quotation marks omitted). In these circumstances, too, agencies must provide a more detailed justification." *Fox Television Stations*, 556 U.S. at 515; *accord Smiley v. Citibank (South Dakota), N.A*., 517 U.S. 735, 742 (1996). In particular, the agency is "required to assess whether there were reliance interests, determine whether they were significant, and weigh any such interests against competing policy concerns." *Regents*, 591 U.S. at 33.

Finally, EPA also must strictly satisfy the procedural requirements of the Clean Air Act. For example, the Clean Air Act requires that EPA provide a meaningful opportunity for comment on the Proposal. 42 U.S.C. § 7607(d)(3); *N.C. Growers' Ass'n v. United Farm Workers*, 702 F.3d 755, 770 (4th Cir. 2012) ("opportunity to comment 'must be a meaningful opportunity'" (quoting *Prometheus Radio Project v. FCC*, 652 F.3d 431, 450 (3d Cir. 2011))). Under section 307(d)(3), 42 U.S.C. § 7607(d)(3), EPA also must "identify and make available technical studies and data that it has employed in reaching the decisions to propose particular rules," and failure to "reveal portions of the technical basis for a Proposal in time to allow for meaningful commentary" constitutes "serious procedural error." *Conn. Light & Power v. Nuclear Regul. Comm'n*, 673 F.2d 525, 530–31 (D.C. Cir. 1982); *accord Am. Radio Relay League, Inc. v. FCC*, 524 F.3d 227, 236 (D.C. Cir. 2008); *Home Box Office, Inc. v. FCC*, 567 F.2d 9, 35–36 (D.C. Cir. 1977).

"In reviewing alleged procedural errors" for rules of this kind, "the court may invalidate the rule only if the errors were so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made." 42 U.S.C. § 7607(d)(8), (9)(D). A procedural error that does not itself meet this statutory threshold for invalidation may nonetheless, by itself or in combination with other errors, "deprive" EPA's decision "of any presumption of correctness to which it otherwise might be entitled." *St. John's Hickey Mem'l Hosp., Inc. v. Califano*, 599 F.2d 803, 814 (7th Cir. 1979). And "more exacting review" of an agency's rulemaking under the arbitrary-and-capricious standard is warranted "when the presumption of regularity is rebutted, as may occur . . . under circumstances that throw into question the regularity of its proceedings." *Chamber of Com. of the United States v. SEC*, 443 F.3d 890, 899 (D.C. Cir. 2006).

IV. EPA'S PRIMARY PROPOSAL IS UNLAWFUL

The best and only permissible reading of section 202(a) is that it broadly directs regulation of air pollution that endangers public health and welfare, including greenhouse gas emissions causing global climate change. Congress has made that clear. The Supreme Court has made that clear. The Executive Branch cannot re-write Congress's work or overrule the Supreme Court because it would prefer to prioritize its own policy preferences over the law.

A. The Clean Air Act clearly directs that greenhouse gases are pollutants under section 202 that must be controlled to address global climate change, and the Supreme Court has definitively interpreted section 202 to effectuate the statute's clear language.

Section 202 of the Clean Air Act states:

> The Administrator shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.

42 U.S.C. § 7521(a)(1). The Clean Air Act, in turn, defines "air pollutant" as "any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive … substance or matter which is emitted into or otherwise enters the ambient air." *Id.* § 7602(g). And the statute specifies that:

> All language referring to effects on welfare includes, but is not limited to, effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants.

Id. § 7602(h). The best (and only reasonable) reading of all of this statutory language together is that greenhouse gas emissions are "air pollutant[s]" that EPA must regulate under section 202(a) should the agency determine (as it did, in 2009) that they "cause, or contribute to air pollution which may reasonably be anticipated to endanger public health and welfare," including through "effects on . . . climate." *Id.*

To begin, the statutory definition of "air pollutant" is expansive: "*any* air pollution agent or combination of such agents, *including any* physical, chemical, biological, radioactive *substance or matter* which is emitted into or otherwise enters the ambient air." *Id.* § 7602(g) (emphases added). There can be no question that greenhouse gases are physical and chemical substances that are emitted into the ambient air by motor vehicles. And by defining "welfare" as it did, Congress clearly contemplated that air pollutants with "effects . . . on climate" were covered by the provision. *Id.* § 7602(h). Nor was Congress unaware of the potential risk that

greenhouse gas emissions posed to the climate; on the contrary, Congress, and the President, specifically acknowledged them at the time.[138]

The Supreme Court has definitively interpreted the statute consistent with its plain text, confirming that the best (and only permissible) reading of section 202(a) is that it broadly authorizes regulation of air pollution that endangers public health and welfare, including greenhouse gas emissions causing global climate change. In *Massachusetts*, the Court could not have been clearer: "[b]ecause greenhouse gases fit well within the Clean Air Act's capacious definition of 'air pollutant,' . . . EPA has the statutory authority to regulate the emission of such gases from new motor vehicles." 549 U.S. at 532 (emphases added). And in *UARG*, the Court reiterated that interpretation, further explaining that "nothing in the Act suggested that regulating greenhouse gases under [Title II] would conflict with the statutory design." 573 U.S. at 318. Under *Loper Bright*, that ends the matter. 603 U.S. at 400.

Disregarding that precedent, EPA now proposes to interpret the Clean Air Act to mean that "section 202(a) does not authorize the EPA to prescribe emissions standards to address global climate change concerns." 90 Fed. Reg. at 36,288. But that is the exact interpretation that the Court rejected in *Massachusetts*, over many similar objections. At the outset of its merits discussion, the Court began by explaining the question before them:

> On the merits, the first question is *whether § 202(a)(1) of the Clean Air Act authorizes EPA to regulate greenhouse gas emissions from new motor vehicles* in the event that it forms a 'judgment' that such emissions contribute to climate change.

Massachusetts, 549 U.S. at 528 (emphasis added).[139] In the very next sentence, the Court concluded: "*We have little trouble concluding that it does*." *Id.* (emphasis added). Moreover, the rationale EPA had put forward, and which the Court rejected, in *Massachusetts* is almost identical to the one EPA has again put forward in the Proposal. The Court explained EPA's argument in the 2003 Denial Action as follows: "Because EPA believes that Congress *did not intend it to regulate substances that contribute to climate change*, the agency maintains that carbon dioxide is not an 'air pollutant' within the meaning of the provision." *Id.* (emphasis

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[138] H.R. REP. NO. 95-294, at 138 (1977) (citing (1) a NAS Report entitled "Understanding Climate Change," and expressing concern about "persistent changes of the temperature and rainfall in areas committed to agriculture use"; and (2) a NOAA study warning that "[i]f we consider that the energy demand has increased with time drastically in the past with no limit in sight, then there can be little doubt that inadvertent weather modification on a scale large enough to affect man's well-being might soon become a reality"); President Lyndon Johnson, Special Message to the Congress on Conservation and Restoration of Natural Beauty (Feb. 8, 1965), https://perma.cc/DMC3-MD93 (President Johnson gave a special message to Congress, six months before section 202 was enacted, decrying "a steady increase in carbon dioxide from the burning of fossil fuels," which "[a]ir pollution . . . has altered the composition of the atmosphere on a global scale").

[139] This explanation echoed the Court's explanation of the question presented in the first paragraph of the opinion: "[P]etitioners asked us to answer two questions *concerning the meaning of § 202(a)(1) of the Act*: whether EPA has the statutory authority to regulate greenhouse gas emissions from new motor vehicles; and if so, whether its stated reasons for refusing to do so are consistent with the statute." 549 U.S. at 505 (emphasis added).

added). And the Court definitively stated: "*The statutory text forecloses EPA's reading.*" *Id.* (emphasis added).

In reaching these conclusions, the Court began with the Act's expansive definition of "air pollutant" as "*any* air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air . . . ." *Id.* at 528–29 (quoting 42 U.S.C. § 7602(g)) (emphasis in original; internal quotation marks omitted). "On its face," the Court concluded, that statutory definition "embraces all airborne compounds of whatever stripe," including greenhouse gases. The Court underscored: "*The statute is unambiguous*." *Id.* at 529 (emphasis added). And EPA's interpretation was "a plainly unreasonable" reading of the statute, *id.* at 529 n.26. With respect to the statutory interpretation, the Court concluded:

> While the Congresses that drafted § 202(a)(1) might not have appreciated the possibility that burning fossil fuels could lead to global warming, they did understand that without regulatory flexibility, changing circumstances and scientific developments would soon render the Clean Air Act obsolete. *The broad language of § 202(a)(1)* reflects an intentional effort to confer the flexibility necessary to forestall such obsolescence. *See Pennsylvania Dept. of Corrections v. Yeskey*, 524 U.S. 206, 212 [] (1998) ("[T]he fact that a statute can be applied in situations not expressly anticipated by Congress does not demonstrate ambiguity. It demonstrates breadth" (internal quotation marks omitted)). Because greenhouse gases fit well within the Clean Air Act's capacious definition of "air pollutant," *we hold that EPA has the statutory authority to regulate the emission of such gases from new motor vehicles*.

549 U.S. at 532 (emphases added).

The Court in *Massachusetts* thus definitively answered the statutory interpretation question posited by the Proposal: "EPA has the statutory authority to regulate [the greenhouse gases driving climate change] from new motor vehicles." *Id.* And "[i]f EPA makes a finding of endangerment, the Clean Air Act *requires* the agency to regulate emissions of the deleterious pollutant from new motor vehicles." *Id.* at 533. The only way that EPA could avoid taking that action, the Court held, was "if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do." *Id.* "To the extent this constrains agency discretion to pursue other priorities of the Administrator or the President," the Court continued, "*this is the congressional design*." *Id.* There thus is simply no principled way to read *Massachusetts* as not squarely addressing, and foreclosing, the Proposal's interpretation.

Since *Massachusetts*, the Court has reiterated its holding, and the implications for EPA's regulatory authority of greenhouse gases, several times. In 2011, in *AEP*, the Court reiterated its holding in *Massachusetts*: "In *Massachusetts v. EPA*, this Court held that the Clean Air Act, as amended, authorizes federal regulation of emissions of carbon dioxide and other greenhouse gases." 564 U.S. 410, 416 (2011) (internal citations omitted); *id.* at 424. The Court's holding in *AEP* was based upon, and fully consistent with, this understanding:

> We hold that the Clean Air Act and the EPA actions it authorizes displace any federal common-law right to seek abatement of carbon-dioxide emissions from

> fossil-fuel fired powerplants. *Massachusetts* made plain that emissions of carbon dioxide qualify as air pollution subject to regulation under the Act. And we think it equally plain that the Act "*speaks directly*" to emissions of carbon dioxide from the defendants' plants.

Id. at 424 (internal citations omitted) (emphasis added); *see also id.* at 425 ("The Act itself thus provides a means to seek limits on emissions of carbon dioxide from domestic powerplants."); *id.* at 428 ("Congress designated an expert agency, here, EPA, as best suited to serve as *primary regulator of greenhouse gas emissions*." (emphasis added)). None of these statements is compatible with the Proposal's asserted statutory interpretation to disclaim authority to regulate greenhouse gas emissions under section 202. *See, e.g*., 90 Fed. Reg. at 36,300 ("[W]e propose that the air pollutants identified in CAA section 202 and throughout relevant provisions of the CAA" exclude greenhouse gases). Indeed, in *AEP* regulated industry groups likewise made clear their understanding that EPA has authority under the Clean Air Act to regulate greenhouse gases, including from vehicles. *See, e.g*., Br. for the Ass'n of Glob. Automakers et al. as Amici Curiae Supporting Petrs. at 6, 15–17, 23, 28, *AEP*, 564 U.S. 410 (No. 10-174) ("[T]he elected branches have already spoken on the question of greenhouse gas emissions by enacting the comprehensive regulatory program found in the Clean Air Act. . . . [T]he Clean Air Act authorizes and provides for a comprehensive program to control air pollution in the nation, and . . . greenhouse gas emissions are subject to that program . . . .").[140]

In 2012, the D.C. Circuit likewise affirmed that EPA's interpretation here is foreclosed when it heard challenges to EPA's 2009 Endangerment Finding and subsequent Tailpipe Rule, which set emissions standards for greenhouse gas emissions from new motor vehicles. *Coal. for Responsible Regul.*, 684 F.3d 102. In the Court's *per curiam* opinion, it held that "EPA's interpretation of the governing CAA provisions is unambiguously correct." *Id.* at 113. Specifically, the Court highlighted that the "Supreme Court's decision in *Massachusetts v. EPA* compels" an interpretation of section 202 that if EPA makes the endangerment finding it is required to regulate greenhouse gas emissions from new motor vehicles. *Id*. at 126. That court stated: "Given the non-discretionary duty in Section 202(a)(1) and the limited flexibility available under Section 202(a)(2) . . . EPA had no statutory basis on which it could ground any reasons for further inaction." *Id.* at 127 (cleaned up).

In 2014, the Supreme Court again reiterated this same understanding of the holding in *Massachusetts* in *UARG*: "In 2007, the Court held that Title II of the Act 'authorize[d] EPA to regulate greenhouse gas emissions from new motor vehicles . . . ." 573 U.S. at 310. And the Court went further, almost as if speaking to the Proposal, explaining that "nothing in the Act suggested that regulating greenhouse gases under [Title II] would conflict with the statutory design. Title II would not compel EPA to regulate in any way that would be 'extreme,'

[140] *See also, e.g*., Br. for the Edison Elec. Inst. et al. as Amici Curiae Supporting Petrs. at 3–4, 6–7, 9, 23–25, *AEP*, 564 U.S. 410 (No. 10-174) ("First among these regulatory authorities is the federal government, which has the authority to regulate GHGs under the Clean Air Act and is exercising that authority. . . . It is clear that the EPA has the statutory power to regulate GHGs, and it is doing so."); Br. for the Am. Petroleum Inst. and the Nat'l Petrochem. and Refiners Ass'n as Amici Curiae Supporting Petrs. at 19–21, *AEP*, 564 U.S. 410 (No. 10-174) ("[T]he Court[] conclu[ded] in *Massachusetts v. EPA* that Congress provided a statutory text in the Clean Air Act conferring authority upon EPA on whether to regulate GHGs . . . .").

'counterintuitive,' or contrary to 'common sense.' At most, it would require EPA to take the modest step of adding greenhouse-gas standards to the roster of new-motor-vehicle emission regulations." *Id.* at 318–19. *Contra, e.g.*, 90 Fed. Reg. at 36,305–07 (arguing that regulating greenhouse gases under Title II would conflict with the statutory design and present a major question).

The *UARG* Court's reasoning for rejecting application of the Act-wide definition in the Prevention of Significant Deterioration (PSD) program had nothing to do with any concerns that the Clean Air Act's regulatory provisions could not encompass pollutants driving global climate change. Rather, the Court's reasoning concerned the particular numerical thresholds in the PSD program, which were incompatible with greenhouse gases. 573 U.S. at 325–28. Indeed, the Court concluded that "EPA reasonably interpreted the Act to require [sources that would need permits based on their emission of more conventional pollutants] to comply with 'best available control technology' emissions standards for greenhouse gases." *Id.* at 329. And the Court read the Best Available Control Technology (BACT) provision at issue in *UARG*—which requires BACT "for each such pollutant subject to regulation under this chapter," 42 U.S.C. § 7475(a)(4)—as "far less open-ended" than the phrase at issue in the PSD program. 573 U.S. at 331. Looking at the plain language of the BACT provision, the Court concluded: "There is no indication that the Act elsewhere uses, or that EPA has interpreted, 'each pollutant subject to regulation under this chapter' to mean anything other than what it says." *Id.* at 332; *see also id.* (describing the text as "clear"). The Court thus described its holding as follows: "nothing in the statute categorically prohibits EPA from interpreting the BACT provision to apply to greenhouse gases emitted by" sources that already required permits. *Id.* That salient aspect of *UARG*'s holding is completely dependent upon the section 202 authority to regulate greenhouse gases recognized in *Massachusetts*; without such authority, EPA would have no legal basis for regulating these sources. Thus, the Court's decision in *UARG* is also wholly incompatible with the Proposal's asserted statutory interpretation.

Finally, *West Virginia* likewise confirms EPA's current proposed interpretation is impermissible. Though the Court rejected the Best System of Emission Reduction EPA had chosen in the Clean Power Plan, it nowhere questioned EPA's authority to regulate greenhouse gas emissions under the Act. 597 U.S. at 730–31. To the contrary, it accepted as a premise that EPA *has* authority to regulate greenhouse gases—otherwise, there would not have been any need for the Court to reach the validity of EPA's approach to regulation. Indeed, industry amici "urge[d] the Court to proceed with caution in entertaining application of the nondelegation or major questions doctrines in ways that could strip EPA of all authority to regulate [greenhouse gases] under [the Clean Air Act] or otherwise call into question this Court's holdings in *Massachusetts* and *AEP*."[141]

Loper Bright thus prevents EPA from adopting the interpretation it proposes here: the Court has definitively opined on the best meaning of section 202(a) and has squarely rejected the interpretation EPA proposes here. Under *Loper Bright*, "statutes, no matter how impenetrable, do—in fact, must—have a single, best meaning . . . fixed at the time of enactment." 603 U.S. at 400. And it is the job of courts "us[ing] every tool at their disposal to determine the best reading

[141] Br. for the Edison Elec. Inst. and the Nat'l Ass'n of Clean Water Agencies as Amici Curiae Supporting Resps. at 19–20, *West Virginia*, 597 U.S. 697 (Nos. 20-1530, 20-1531, 20-1778, 20-1780).

of the statute." *Id.* "In the business of statutory interpretation," the Court held, "if it is not the best, it is not permissible." *Id.*

EPA cannot save its already-rejected interpretation with the oblique claim that *Massachusetts* "straddled a transitional period regarding the standards for statutory interpretation and understandings of agency authority." 90 Fed. Reg. at 36,299. *Massachusetts* was not decided by according *Chevron* deference to EPA. Far from it, the Court specifically *rejected* such deference to EPA. 549 U.S. at 529 n.26 (rejecting Justice Scalia's argument in dissent that "EPA's exclusion of greenhouse gases from the category of air pollution 'agent[s]' is entitled to deference under *Chevron*" because EPA's reading "finds no support in the text of the statute").[142] *Massachusetts* was decided based on the plain text "best reading" of the statute. The Court said that the statutory language is "*unambiguous*," *id.* at 529 (emphasis added); that "the statutory text forecloses EPA's [2003] reading" that Congress under section 202 did not intend it to regulate substances that contribute to climate change, *id.* at 528; and that "EPA has the statutory authority to regulate [the greenhouse gases driving climate change] from new motor vehicles," *id.* at 532; *accord UARG*, 573 U.S. at 332. In short, statutes must only have a "single, best" meaning, and the Supreme Court has already recognized that "single, best" meaning granting EPA authority to regulate greenhouse gases under section 202, foreclosing EPA's interpretation here.

It would be incredibly destabilizing to the Court's opinion in *Loper Bright* if courts (including the Supreme Court) could revisit the Supreme Court's conclusions regarding the "single, best" meaning of statutory language. *See CBOCS West, Inc. v. Humphries*, 553 U.S. 442, 457 (2008) (even changes in interpretive approach do not justify reexamination of prior interpretations under principles of stare decisis; otherwise "those principles would fail to achieve the legal stability that they seek and upon which the rule of law depends."). Indeed, it would call into question the stability of all the Supreme Court's prior and future statutory interpretations.

B. Subsequent Congressional enactments further demonstrate Congress's clear command to regulate greenhouse gases under section 202.

Since passage of the Clean Air Act and amendments thereto, Congress has taken actions that have repeated its understanding that greenhouse gas emissions are air pollutants under section 202 of the Act—actions that would be inconsistent with a conclusion that they are not.

For example, Congress unambiguously recognized EPA's authority to establish greenhouse gas emission standards for new motor vehicles in section 141 of the Energy Independence and Security Act (EISA), Pub. L. No. 110-140, 121 Stat. 1492 (codified at 42 U.S.C. § 13212(f)). EISA section 141 instructs EPA to identify models of "low greenhouse gas emitting vehicles" to prioritize for federal procurement after "tak[ing] into account the most stringent standards for vehicle greenhouse gas emissions applicable to and enforceable against motor vehicle manufacturers for vehicles sold anywhere in the United States." 42 U.S.C. § 13212(f)(2)(A), (3)(B). The reference to the "most stringent standards" would be meaningless if EPA could not prescribe such standards. At the time EISA was passed, the only standards in

[142] Indeed, even if *Massachusetts* had been decided by affording *Chevron* deference (as explained, it was not), *Loper Bright* confirms that prior interpretive judgments of the Supreme Court remain binding notwithstanding their resolution under the *Chevron* doctrine. 603 U.S. at 412. The fact that *Massachusetts* was *not* decided under *Chevron* only increases the power of statutory stare decisis on this question.

place for vehicle greenhouse gas emissions were California's standards, and so Congress must have contemplated that, at least until federal standards were promulgated, California's standards would be the most stringent standards governing this procurement provision. The Clean Air Act contemplates both EPA and California standards for emissions from new motor vehicles, but it specifically rules out a "third vehicle." *Id*. § 7507. Thus, the best (and only permissible) way to interpret this EISA provision—which contemplates more than one suite of vehicle greenhouse gas emission standards—is to conclude that Congress expected EPA to choose the more stringent between California's vehicle greenhouse gas emission standards, and (once they came into existence) EPA's own vehicle greenhouse gas emission standards.

In accordance with that best reading, prior to issuing the Proposal, EPA has consistently understood this provision of federal law to presuppose EPA's own motor vehicle greenhouse gas emission standards. *E.g*., 87 Fed. Reg. 14,332, 14,360 (Mar. 14, 2022). Indeed, if EPA does not have authority to set standards for vehicle greenhouse gas emissions, then the reference to multiple sets of standards would make little sense. *See, e.g*., *Lindh v. Murphy*, 521 U.S. 320, 336 (1997) (favoring reading that "accords more coherence" to statutory provisions); *Nat. Res. Def. Council, Inc. v. EPA*, 822 F.2d 104, 113 (D.C. Cir. 1987) ("[t]o read out of a statutory provision a clause" is "an entirely unacceptable method of construing statutes").

More recently, Congress also recognized the EPA's authority to regulate greenhouse gases in several provisions of the Inflation Reduction Act (IRA). These provisions simply cannot be reconciled with EPA's proposed interpretation that it has no authority to regulate greenhouse gases under Clean Air Act section 202. *See Epic Sys. Corp. v. Lewis*, 584 U.S. 497, 502 (2018) (statutes must be interpreted "as a harmonious whole rather than at war with one another").

First, throughout the IRA, Congress amended the Clean Air Act to add a definition of greenhouse gases. Specifically, the Clean Air Act states that "[t]he term 'greenhouse gas' means the air pollutants carbon dioxide, hydrofluorocarbons, methane, nitrous oxide perfluorocarbons, and sulfur hexafluoride." *E.g*., 42 U.S.C. §§ 7432(d)(4), 7433(d)(2), 7435(c). In each of these provisions, Congress made clear that it considers greenhouse gases, including CO_2, to be "air pollutants" under the Act. It would defy credulity to contend that Congress was unaware of the Act-wide definition of "air pollutant" when it specifically used the same term "air pollutant" to describe greenhouse gases in the IRA. Congress is assumed to be aware of the legal landscape against which it regulates—and particularly the provisions of the statute it is amending. *See Miles v. Apex Marine Corp.*, 498 U.S. 19, 32 (1990) ("[w]e assume that Congress is aware of existing law when it passes legislation").

Second, Congress enacted IRA section 60105, related to "Funding to Address Air Pollution," in which it authorized $5 million "to provide grants to States to adopt and implement greenhouse gas" vehicles standards under section 177 of the Clean Air Act. Pub. L. No. 117-169, § 60105(g), 136 Stat. 1818, 2068–69 (2022). Thus, Congress was well aware that States had greenhouse gas emission standards for new motor vehicles—and encouraged them. It makes little sense to assume that Congress simultaneously thought the Clean Air Act foreclosed federal standards for the same pollutants from the same sources. *See Epic Sys. Corp*., 584 U.S. at 502.[143]

[143] President Trump has suggested that more recent legislation purporting to "disapprove" EPA's waiver of Clean Air Act preemption for California's Advanced Clean Cars II program, *see* H.J. Res. 88,

Third, Congress added new section 135 to the Clean Air Act, the Low Emissions Electricity Program. 42 U.S.C. § 7435. Among other things, this provision appropriated $18 million to EPA "to ensure that reductions in greenhouse gas emissions are achieved through use of the existing authorities of [the Clean Air] Act." *Id.* § 7435(a)(6). This provision would have no meaning if EPA were not already authorized, through existing authorities in the Clean Air Act, to regulate to reduce greenhouse gas emissions. This $18 million appropriation comes in a section of the Act titled "Low emissions electricity program," and after a series of appropriations related to "reductions in greenhouse gas emissions that result from domestic electricity generation and use." *Id.* § 7435(a)(1), (a)(2), (a)(3), (a)(4). And it specifically references an "assess[ment]" of "the reductions in greenhouse gas emissions that result from changes in domestic electricity generation and use that are anticipated to occur . . . ." *Id.* § 7435(a)(5). Thus, the $18 million appropriation is plainly aimed at using existing authorities related to greenhouse gas reductions from domestic energy generation and use—i.e., Congress presumed EPA's ability to use its regulatory authority to reduce greenhouse gases. *See Gustafson v. Alloyd Co.*, 513 U.S. 561, 575 (1995) ("[A] word is known by the company it keeps.").

Fourth, Congress directed EPA to impose a "waste emissions charge" on methane pollution from the oil and gas sector, subject to three exemptions. 42 U.S.C. § 7436. One exemption allows facilities to avoid the charge if they are "subject to and in compliance with methane emissions requirements pursuant to subsections (b) and (d) of section 7411 of this title." *Id*. § 7436(f)(6). And compliance with those methane emission requirements must "result in equivalent or greater emission reductions as would be achieved by" a proposed EPA regulation setting out methane emissions standards for oil and gas sources under Clean Air Act section 111. That provision not only recognizes EPA's authority to regulate greenhouse gases under the regulatory provisions of the Clean Air Act (there, under section 111), but specifically incorporates a proposed rule setting out such standards (and explaining the legal authority for those standards) into its regulatory scheme. *See* Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 Fed. Reg. 63,110 (Nov. 15, 2021).

All these statutory provisions—from EISA to the IRA—are irreconcilable with EPA's proposed interpretation that it lacks authority to regulate greenhouse gas emissions from new motor vehicles.[144] And as to the latter, Congress can confirm or ratify an executive authority through an appropriation if, as is true here, "the appropriation . . . plainly show[s] a purpose to bestow the precise authority which is claimed." *Ex parte Endo*, 323 U.S. 283, 303 n.24 (1944); *see Brooks v. Dewar*, 313 U.S. 354 (1941) (holding that Congress had ratified the Secretary of the Interior's construction of the Taylor Grazing Act by appropriating funds collected pursuant to

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119th Cong, means that Section 209 of the Act will "never again" allow California to regulate vehicle greenhouse gas emissions. Statement by the President on H.J. Res. 88 (June 12, 2025), https://perma.cc/7XLF-ET9H. The President is wrong, for numerous reasons, but even accepting *arguendo* his construction of the 2025 legislation, it would not change the best reading of the IRA.

[144] While Congress subsequently rescinded unobligated funds from some (but not all) of the provisions just discussed, it did not repeal any of these provisions; they remain part of the Clean Air Act, and the obligated funds remain subject to them. *See* Pub. L. No. 119-21, Title VI, §§ 60001–60016, 139 Stat. 72, 154–56 (2025). In particular, Congress did not repeal the waste emissions charge or its regulatory exemption, but rather only delayed the initiation of the charge. *Id.* § 60012.

the Secretary's interpretation); *Fleming v. Mohawk Wrecking & Lumber Co*., 331 U.S. 111 (1947) (finding Congress had ratified a presidentially created temporary controls administrator by recognizing the office in an appropriations bill).[145]

C. The Executive Branch cannot re-write the Clean Air Act or overrule the Supreme Court, and EPA's arguments for doing so all fail.

Against this evidence of the definitive meaning of Clean Air Act section 202, the Proposal's arguments are weak and flawed, and have already been rejected. Notably, the Proposal's new statutory interpretation is not due any deference, or even the respect that an agency interpretation that was "issued roughly contemporaneously with the enactment of the statute and remained consistent over time" would get under *Skidmore v. Swift & Co.*, 323 U.S. 134, 140 (1944). *Loper Bright*, 603 U.S. at 386. EPA's proposed interpretation is not in line with "the longstanding practice of the government[.]" *Id.* (internal quotation marks omitted). And while there are circumstances where a court may resort to the interpretations of an agency for guidance, those "depend upon the thoroughness evident in [the agency's] consideration, the validity of its reasoning, [and] its consistency with earlier and later pronouncements." *Id.* at 388 (quoting *Skidmore*, 323 U.S. at 140). All of the hallmarks that might lead a court to give respect to an agency interpretation are conspicuously absent here. The Proposal's interpretation is being issued a half century after the enactment of the statute and is *inconsistent* with well over a decade of agency interpretation. Nor is there any "thoroughness evident in [EPA's] consideration"—to the contrary, the new Administration rushed out the Proposal with little analysis and significantly circumscribed public comment by allowing an unusually short comment period. *See infra* Section VII.A. Nor, as explained in detail above, is the Proposal's reasoning valid in any sense of that term; instead, it directly conflicts with abundant Supreme Court and D.C. Circuit precedent.

1. The Proposal's argument that section 202 only regulates air pollution that endangers public health and welfare through local or regional exposure is wrong.

The Proposal attempts to disclaim its authority to regulate greenhouse gases under section 202 by claiming that the best reading of Clean Air Act section 202 is that it only reaches air pollution that endangers public health and welfare through local or regional exposure, which the Proposal defines as "inhalation and dermal contact." 90 Fed. Reg. at 36,300. The Proposal explains that it "use[s] the phrase local or regional exposure to distinguish air pollution that . . . impacts public health and welfare only indirectly and not by its mere presence in the ambient air." *Id*. The Proposal's interpretation has already been rejected by the Supreme Court, is contrary to the plain statutory text, and does not actually distinguish the pollutants it purports to distinguish.

First, this is not the first time EPA has put forward the local/regional distinction that the Proposal adopts; the last time EPA did so, the Supreme Court squarely rejected it. In 2003, when EPA denied a petition from many of the States and Local Governments to regulate greenhouse gas emission from motor vehicles, EPA relied on a similar theory:

[145] *See also* U.S. GOV'T ACCOUNTABILITY OFF., GAO-16-464SP, PRINCIPLES OF FEDERAL APPROPRIATIONS LAW 2-57 – 2-60, 2-72 – 2-76 (2016), https://perma.cc/LJ56-FMWN.

> EPA's prior use of the CAA's general regulatory provisions provides an important context. Since the inception of the Act, EPA has used these provisions to address air pollution problems that occur primarily at ground level or near the surface of the earth. For example, national ambient air quality standards (NAAQS) established under CAA section 109 address concentrations of substances in the ambient air and the related public health and welfare problems. This has meant setting NAAQS for concentrations of ozone, carbon monoxide, particulate matter and other substances in the air near the surface of the earth, not higher in the atmosphere. Concentrations of these substances generally vary from place to place as a result of differences in local or regional emissions and other factors (e.g., topography), although long range transport may also contribute to local concentrations in some cases. CO_2, by contrast, is fairly consistent in concentration throughout the world's atmosphere up to approximately the lower stratosphere. Problems associated with atmospheric concentrations of CO_2 are much more like the kind of global problem Congress addressed through adoption of the specific provisions of Title VI.

68 Fed. Reg. 52,922, 52,926–27 (Sept. 8, 2003).

The Supreme Court then explicitly rejected that interpretation in *Massachusetts*. In doing so, the Court made clear that EPA's 2003 denial rested on an interpretation that "Congress designed the original Clean Air Act to address *local* air pollutants rather than a substance that 'is fairly consistent in its concentration throughout the *world's* atmosphere." *Id.* at 512 (quoting 68 Fed. Reg. at 52,927). In *rejecting* that interpretation, the Supreme Court explained that notwithstanding any differences between criteria pollutants and greenhouse gas pollutants, *both* were air pollutants that EPA must regulate under section 202 following a positive endangerment finding. *See supra* Section IV.A. Indeed, the Court explained that EPA's distinction between greenhouse gases that permeate the world's atmosphere rather than a limited area near the earth's surface "finds no support in the text of the statute, which uses the phrase 'the ambient air' without distinguishing between atmospheric layers." 549 U.S. at 529 n.26. The Court explained that EPA's claim otherwise "is a plainly unreasonable reading of a sweeping statutory provision designed to capture '*any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air.'" *Id.* (quoting 42 U.S.C. § 7602(g)). EPA cannot "narrow that definition whenever expedient," as it proposes to do here. *Id.*[146]

[146] The local/global distinction featured prominently in the briefing before the Supreme Court. *See, e.g.*, Br. for Resps. All. for Auto. Mfrs. et al. at 24–28, *Massachusetts*, 549 U.S. 497 (2005) (No. 05-1120) ("All of the substances that Congress (and in one instance EPA) has listed as criteria pollutants—lead, sulfur dioxide, oxides of nitrogen, carbon monoxide, particulate matter, and ozone present local ambient air pollution problems that can reasonably be addressed on a *local* or *state* level, or at most a regional level."); Br. of Resp. CO_2 Litig. Grp. at 38, *Massachusetts*, 549 U.S. 497 (2007) (No. 05-1120) ("There is no indication that Congress expected EPA to address global climate change using an ill-matched set of regulatory programs intended to deal with local and regional impacts of air pollutant emissions on ambient air quality."); Br. for Ernest L. Daman et al. as Amici Curiae Supporting Resps. at 18, *Massachusetts*, 549 U.S. 497 (No. 05-1120) ("The toxic pollutants presently regulated under the Clean Air Act create a *local*, or in a few cases *regional*, hazard. In contrast emissions of CO_2 add to the *global* average CO_2 concentrations."); Br. for the Cato Inst. et al. as Amici Curiae Supporting Resps. at 22–23, *Massachusetts*, 549 U.S. 497 (No. 05-1120) ("The clear intent of the Act . . . is to control local

It is also not true, as the Proposal suggests, 90 Fed. Reg. at 36,301, that EPA's longstanding view prior to 2009 was that section 202 did not apply to greenhouse gases. Indeed, in 1998, EPA's General Counsel Jonathan Cannon prepared a legal opinion concluding that "CO_2 emissions are within the scope of EPA's authority to regulate," and Cannon's successor, Gary Guzy, later confirmed that interpretation in remarks to Congress. *Massachusetts*, 549 U.S. at 510–11. It should also not be surprising that EPA would regulate a new pollutant that it had not regulated before—after all, "[t]he broad language of § 202(a)(1) reflects an intentional effort to confer flexibility necessary" to accommodate "changing circumstances and scientific developments" to "forestall [the Act's] obsolescence." *Id.* at 532.

Second, the Proposal's current interpretation is contrary to the plain text of section 202, and EPA's textual arguments all fail. Section 202(a)(1) broadly authorizes "standards applicable to the emission of *any* air pollutant." 42 U.S.C. § 7521(a)(1) (emphasis added); *see Dep't of Hous. & Urb. Dev. v. Rucker*, 535 U.S. 125, 131 (2002) (the word "any" has an "expansive meaning, that is, one or some indiscriminately of whatever kind" (cleaned up)). The Proposal attempts to insert words into the statute that Congress did not write, adding "through local or regional exposure" to the end of the first sentence of section 202(a)(1). *See Biden v. Texas*, 597 U.S. 785, 803 (2022) ("We do not lightly assume that Congress has omitted from its adopted text requirements that it nonetheless intends to apply." (quoting *Jama v. Immigr. & Customs Enf't*, 543 U.S. 335, 341 (2005))). Moreover, had Congress wanted to restrict section 202 to the pollutants it specifically listed in other subsections, it would have done so. That other subsections list specific pollutants suggests that at a minimum the Administrator must conclude that *those* pollutants contribute to air pollution that endangers public health or welfare, *see* 42 U.S.C. § 7521(b)(1) (requiring minimum standards for these pollutants in certain model years) & § 7521(g) (similar), but it does not limit the Administrator from concluding that *other* pollutants do so as well. If anything, it suggests that Congress *did not* intend for section 202(a)(1) to apply only to specific listed pollutants. *See Russello v. United States*, 464 U.S. 16, 23 (1983) ("Where Congress includes particular language in one section of a statute but omits it in another . . . Congress acts intentionally and purposely in the disparate inclusion or exclusion." (internal citation omitted)).

Nor does Congress's specific mention of hydrocarbons, carbon monoxide, NO_x, and PM in certain subsections of section 202 mean that the legislators who passed the Clean Air Act, despite not including any such limitation in the text, had only local or regional pollution in mind.[147] Indeed, section 202(a)(3) requires, for heavy-duty vehicles or engines manufactured

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and regional air pollution, such as soot and smog, not emissions such as carbon dioxide that disperse throughout the global atmosphere.").

[147] The Proposal states: "CAA section 202 specifically addresses hydrocarbons (HCs), carbon monoxide (CO), oxides of nitrogen (NO_X), and particulate matter (PM), all of which harm health and the environment through exposure (*e.g.*, inhalation and dermal contact) or by causing or contributing to air pollution that harms health and the environment through exposure (*e.g.*, smog and acid rain). That pattern holds for the criteria pollutants identified in the CAA—CO, lead, ground-level ozone (O_3), nitrogen dioxide (NO_2), PM, and sulfur dioxide (SO_2)—as well as the initial list of hazardous air pollutants in CAA section 112(b)(1)." 90 Fed. Reg. at 36,300 (footnotes omitted). This language is confusing because the first example (inhalation or dermal contact) regards the mode of exposure while the second example

after 1983, that EPA set standards "reflect[ing] the greatest degree of emission reduction achievable" for hydrocarbons, carbon monoxide, NO_x, and PM. 42 U.S.C. § 7521(a)(3)(i). But specifying those four pollutants would not have been necessary had section 202(a)(1) only covered these pollutants. Congress also specifically addressed regulation of toxic air pollutants under section 202(*l*), including requiring the Administrator to promulgate regulations under subsection 112(a)(1) for these pollutants. *Id.* § 7521(l). If Congress had only intended EPA to regulate the listed criteria pollutants and toxic air pollutants as the Proposal claims, section 202(a)(1)'s use of "any air pollutant" would not have any work to do—as all the pollutants the Proposal asserts can be regulated under section 202 are already covered in other subsections. *TRW Inc. v. Andrews*, 534 U.S. 19, 31 (2001) (it is a "cardinal principle of statutory construction that a statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word shall be superfluous, void, or insignificant" (cleaned up)).

The distinction the Proposal advances is also in conflict with the Clean Air Act's express definition of the term "welfare." To regulate, EPA must conclude that the air pollutants cause or contribute to "air pollution which may reasonably be anticipated to endanger public health *or* welfare." 42 U.S.C. § 7521(a)(1). And Congress made clear that welfare includes effects that go well beyond health harms or environmental damage from direct exposure to pollution. "Welfare" includes effects on weather, on climate, on economic values, and on personal comfort and well-being. 42 U.S.C. § 7602(h); *see Motor & Equip. Mfrs. Ass'n, Inc. v. EPA*, 627 F.2d 1095, 1117–18 & n.47 (D.C. Cir. 1979) (recognizing the breadth of the term "welfare" to include economic costs of air pollution like lost tax revenue). The Proposal itself recognizes that "welfare" is "defined broadly" in the Clean Air Act, but conspicuously omits mention of the inclusion of "climate" impacts. 90 Fed. Reg. at 36,300, 36,313. These are not harms typically caused by direct exposure, but rather through other pathways with multiple links. Indeed, it is difficult to conceive of how an air pollutant could harm welfare through effects on climate and still satisfy EPA's new proposed statutory interpretation requiring harm from local or regional exposure via inhalation or dermal contact. Congress specified that it meant to encompass a broad range of effects "whether caused by transformation, conversion, or combination with other air pollutants." 42 U.S.C. § 7602(h). Context further undermines the Proposal's interpretation. The purpose of the Clean Air Act is to "promote the public health and welfare and the productive capacity of its population." 42 U.S.C. § 7401(b)(1). Reading the Act, which specifically references climate effects, to preclude addressing climate change—the most urgent environmental threat of our time—thwarts this purpose. *See, e.g.*, *Cnty. of Maui v. Haw. Wildlife Fund*, 590 U.S. 165, 184 (2020) ("The object in a given scenario will be to advance, in a manner consistent with the statute's language, the statutory purposes that Congress sought to achieve.").

Moreover, the Proposal is inconsistent in, on the one hand, arguing that Congress intended to narrowly constrain the pathways through which pollutants might affect public health or welfare to be regulable, and, on the other, arguing that Congress allowed the agency to very broadly consider welfare when setting standards, even welfare effects not driven by pollution. *See Motor & Equip. Mfrs. Ass'n, Inc.*, 627 F.2d at 1118 ("The terms 'public health and welfare' thus encompass economic values, but only to reflect the economic costs of pollution, not the

(smog and acid rain) regards particular kinds of air pollution. These Comments assume the mode of exposure for each pathway is akin to inhalation or dermal exposure.

social costs of pollution control."); *see also infra* Section VI.A (discussing the ways in which this inconsistency renders the Proposal arbitrary and capricious).

The Proposal also points to modern dictionary definitions of "pollutant" and "pollution" in an attempt to smuggle its limitation into the text of section 202. 90 Fed. Reg. at 36,300 (emphasizing a meaning tied to impurity or contamination). But these definitions are irrelevant. It is black letter law that when a statute includes an explicit definition, courts must follow that definition, even if it varies from that term's ordinary meaning. *E.g.*, *Meese v. Keene*, 481 U.S. 465, 484 (1987) ("It is axiomatic that the statutory definition of the term excludes unstated meanings of that term."); *Colautti v. Franklin*, 439 U.S. 379, 392 n.10, 393 (1979) ("As a rule, a definition which declares what a term 'means' . . . excludes any meaning that is not stated." (internal quotations omitted)). Moreover, even accepting for the sake of this sentence that EPA may look to modern dictionaries to inform its understanding of the Act, it does not follow from them that air pollution which endangers public health or welfare must be "through local or regional exposure"—a limitation nowhere found in the definitions the Proposal cites. 90 Fed. Reg. at 36,300. As explained *infra* Section V.A, air pollutants (including, but not limited to, greenhouse gases) endanger through a range of pathways.[148]

The Proposal further errs in asserting that regulating greenhouse gas emissions based on global climate change concerns would require revising section 202(a)(1) to include the phrase "cause or contribute" twice. *See* 90 Fed. Reg. at 36,301. The language that Congress enacted in section 202 plainly provides the requisite authorization to regulate greenhouse gases based on their climate change effects; the second "cause or contribute" is unnecessary where Congress employed the precautionary term "endanger" and, as described above, the broad term "welfare." *See infra* Section IV.C.2 (quoting dictionary definitions of "endanger"). Indeed, the Supreme Court has already made this clear repeatedly. *See, e.g.*, *Massachusetts*, 549 U.S. at 532 ("we hold that EPA has the statutory authority to regulate the emission of [greenhouse gases] from new motor vehicles" based on global warming concerns); *AEP*, 564 U.S. at 524 ("*Massachusetts* made plain that emissions of [greenhouse gases] qualify as air pollution subject to regulation under the Act"). Moreover, EPA offers no valid reason for second-guessing its longstanding judgment that greenhouse gases "may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). That correct judgment continues to be supported by overwhelming scientific evidence. Finally, it is unclear why EPA's assertion would apply any differently to any other pollutant. Take, for example, emissions of NO_x, explicitly referenced in section 202, which "cause, or contribute to" endangerment through multiple channels, in interaction with multiple pollutants, substances, and atmospheric conditions described below.

Third, the distinction the Proposal attempts to put forward—that section 202 only covers pollutants that cause harm through local or regional exposure, defined as inhalation or dermal contact—is incoherent and incorrect. Greenhouse gases do cause harm to public health and welfare through direct exposure. Elevated carbon dioxide levels directly cause acidification of

[148] Almost this exact same argument was made by the parties in *Massachusetts*, and the Court did not accept it. *See* Br. for Resps. All. for Auto. Mfrs. et al. at 20–21, *Massachusetts v. EPA*, 549 U.S. 497 (Oct. 24, 2006) (No. 05-1120) ("Unlike other substances EPA has been regulating for over 30 years, carbon dioxide is not an 'air pollutant' in any sense of the word. . . . [I]t cannot be understood to 'contaminate' the air." (citing dictionary definition of "contaminate" as "make something impure by exposure to or addition of a poisonous or polluting substance")).

water, including oceans, one of the listed "welfare" effects in the Clean Air Act. "Increasing CO_2 uptake by the ocean leads to a suite of changes that are altering the chemistry of the ocean and increasing its acidity."[149] Ocean acidification results "from carbon dioxide in the atmosphere."[150] "Once carbon dioxide dissolves in water, it reacts with water molecules to form carbonic acid."[151] And it "can harm plants and animals."[152] The mechanism by which the ocean acidifies is through direct exposure to carbon dioxide in the ambient air. And this effect can be felt locally. *See* 87 Fed. Reg. at 14,365–66 & n.317 (citing studies and noting that "waters . . . off the coast of Southern California[] have already acidified more than twice as much as the global average"). Further, methane, like NOx and VOCs, is an ozone precursor, causing harmful effects to human health through direct exposure to ozone. *See* Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 89 Fed. Reg. 16,820, 16,840–41 (Mar. 8, 2024).

These chains of causation are more direct, and align more closely with, the Proposal's purported "exposure" test than does the case of acid rain—which the Proposal points to as an example of harming human health and the environment through direct exposure. *See* 90 Fed. Reg. at 36,300. As EPA's website explains, "[a]cid rain results when sulfur dioxide (SO_2) and nitrogen oxides (NO_x) are emitted into the atmosphere and transported by wind and air currents. The SO_2 and NO_x react with water, oxygen and other chemicals to form sulfuric and nitric acids. These then mix with water and other materials before falling on the ground."[153] "As it flows through the soil, acidic rain water can leach aluminum from soil clay particles and then flow into streams and lakes."[154] Acid rain, to be sure, is a significant environmental problem that falls well within the Clean Air Act's regulatory scope. But its mechanism of harm is more indirect, and no more through direct exposure to the air pollutant emitted than CO_2's mechanism of ocean acidification, exposing the flaws in EPA's proposed distinction.

Other criteria and hazardous pollutants cause harm through causal chains akin to some of the harms caused by greenhouse gases. For example, consider the human health and welfare impacts of NO_x.[155] NO_x includes seven compounds. The most prevalent form in the atmosphere, nitrogen dioxide (NO_2), reacts in the presence of air and ultraviolet light to form ozone (smog) and nitric oxide (NO). The NO then reacts with free radicals in the atmosphere (created by the ultraviolet light acting on VOCs) to become NO_2, which will then again form ozone. Both NO_x and SO_2 are precursors of $PM_{2.5}$, which is also a harmful air pollutant. In addition, NO_x and sulfur oxides (SO_x) are captured by moisture in the atmosphere to form acid rain. Nitrogen

[149] EPA, *An Introduction to Ocean and Coastal Acidification* (last updated June 2, 2025), https://perma.cc/K2L2-CCYT.

[150] *Id.*

[151] EPA, *Understanding the Science of Ocean and Coastal Acidification* (last updated Apr. 22, 2025), https://perma.cc/R96A-DYF4.

[152] EPA, *An Introduction to Ocean and Coastal Acidification*, *supra* note 149.

[153] EPA, *What is Acid Rain?* (last updated Mar. 4, 2025), https://perma.cc/KEZ4-K3SP.

[154] EPA, *Effects of Acid Rain* (last updated Mar. 19, 2025), https://perma.cc/NR5T-36WB.

[155] *See generally* CLEAN AIR TECH. CTR., EPA-456/F-99-006R, NITROGEN OXIDES (NOX), WHY AND HOW THEY ARE CONTROLLED (Nov. 1999), https://perma.cc/F7NX-SGNX.

deposition also harms ecosystems by overloading nutrients, leading to toxic algal blooms and oxygen dead zones that kill fish.[156] Like CO_2, a certain amount of nitrogen is necessary for plant growth, but too much endangers public health and welfare. Thus NO_x, in their various formulations, harm human health and welfare through a variety of channels, in interaction with a variety of other pollutants, substances, and atmospheric conditions. Their effects depend on weather conditions and movement through the atmosphere. The endangerment of human health and welfare they cause, as determined by EPA over thirty years ago, goes far beyond inhalation and dermal contact effects of the NO_x emissions themselves. Similarly, ozone, another criteria pollutant, is also formed through a variety of precursors and depends on atmospheric conditions for its creation and harm: "Major contributors to [U.S. background] ozone concentrations are stratospheric exchange, international transport, wildfires, lightning, global methane emissions, and natural biogenic and geogenic precursor emissions."[157]

Criteria and hazardous air pollution can also cause their harm far from where they are emitted, and thus do not align with the local/regional and direct exposure limitations EPA now proposes. Both NO_x emissions and ozone can travel several hundred miles, causing harm in distant locales, including foreign nations.[158] As EPA's website explains, "[w]inds can blow SO_2 and NO_x over long distances and across borders making acid rain a problem for everyone and not just those who live close to the[] sources."[159] So too with the toxic pollutant mercury. Depending on factors including the form of mercury emitted, the location of the emission, and the weather, "mercury in the atmosphere can be transported over a range of distances—anywhere from a few feet from its source, to halfway around the globe—before it is deposited into soil or water. Mercury that remains in the air for prolonged periods of time and travels across continents is said to be in the 'global cycle.'"[160] And the main way that "people are exposed to mercury" is not through direct exposure to the pollutant in the air, but "by eating fish and shellfish" (often transported to consumers around the globe) "that have high levels of methylmercury . . . in their tissues."[161] Although inhalation of VOCs can cause a variety of harmful health effects, depending upon the chemical composition and toxicity of the molecular chemical components, EPA regulates VOCs *only* as a precursor to the formation of tropospheric ozone (because EPA lacks regulatory authority to address indoor air quality).[162] In other words, EPA does not regulate

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[156] EPA, *The Effects: Dead Zones and Harmful Algal Blooms* (last updated Feb. 5, 2025), https://perma.cc/4F37-6BFL; *see also* 79 Fed. Reg. 23,414, 23,440 (Apr. 28, 2014) (discussing effects of nitrogen deposition).

[157] EPA, EPA/600/R-20/012, INTEGRATED SCIENCE ASSESSMENT FOR OZONE AND RELATED PHOTOCHEMICAL OXIDANTS at ES-3 (Apr. 2020), https://perma.cc/6XA8-ZZCM.

[158] *Id.* at lxiv; *see also* EPA, EPA/600/R-15/068, INTEGRATED SCIENCE ASSESSMENT FOR OXIDES OF NITROGEN—HEALTH CRITERIA at 2-87 (Jan. 2016), https://perma.cc/YY23-GWUB (discussing the role of anthropogenic emissions from other countries, including from other continents).

[159] EPA, *What is acid rain?*, *supra* note 153.

[160] EPA, *Basic Information about Mercury* (last updated Dec. 5, 2024), https://perma.cc/AV4S-45W2.

[161] *Id.*

[162] EPA, *Volatile Organic Compounds' Impact on Indoor Air Quality* (last updated July 24, 2025), https://perma.cc/9TRE-W928; EPA, *Does EPA regulate volatile organic compounds (VOCs) in household products?* (last updated Feb. 24, 2025), https://perma.cc/9W6N-2EDR.

VOCs or base its endangerment assessment of VOCs on direct inhalation or dermal contact harm, but on VOCs' contribution to atmospheric dynamics that lead to impacts that endanger health and welfare—as is true for global warming impacts caused by greenhouse gas emissions.

Even the Proposal's preferred stalking horse—water vapor—does not conform to the distinction the Proposal attempts to draw. If there were a source releasing significant quantities of steam into the ambient air and that steam were burning nearby persons or wildlife or destroying nearby habitat or crops, that would be an example of direct, local exposure that the Proposal would suggest *could* be regulated under section 202. It is not at all unusual that a substance can be both necessary and, when emitted in large quantities anthropogenically, a dangerous pollutant that should be regulated. For example, nitrogen makes up 78% of the atmosphere surrounding the earth,[163] but excess, human-created forms of nitrogen like ammonia, NOx, and nitrous oxide are pollutants that harm public health. And the Proposal gets it wrong when it suggests equivalency between CO_2 emissions and water vapor emissions in driving climate change. As NASA explains: "Some people mistakenly believe water vapor is the main driver of Earth's current warming. But increased water vapor doesn't *cause* global warming. Instead, it's a consequence of it."[164] Specifically, as "greenhouse gases like carbon dioxide and methane increase, Earth's temperature rises in response. This increases evaporation from both water and land areas. Because warmer air holds more moisture, its concentration of water vapor increases."[165] This has the effect of exacerbating the warming caused by greenhouse gases, but it is a symptom, not a cause.[166]

The water vapor hypothetical is also not new: it was raised in *Massachusetts*. *See* Br. of Resp. CO_2 Litig. Grp., *supra* note 146 at 9 & n.7 ("If *anything* entering the ambient air is considered an air pollutant, then even a substance that is beneficial to humans, like oxygen or

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[163] NOAA, *The Atmosphere* (last updated July 2, 2024), https://perma.cc/Y63Y-WPX8.

[164] NASA, *Steamy Relationships: How Atmospheric Water Vapor Amplifies Earth's Greenhouse Effect* (last updated Feb. 8, 2022), https://perma.cc/G9L5-2PGH; *see also* IPCC, IPCC FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007, FAQ 2.1 HOW HUMAN ACTIVITIES CONTRIBUTE TO CLIMATE CHANGE AND HOW DO THEY COMPARE WITH NATURAL INFLUENCES? (2007), https://perma.cc/SY9V-V495.

[165] *Id.*

[166] EPA has previously declined to regulate aircraft contrails, which are composed of water vapor, carbon dioxide, and other emissions, concluding that, unlike with respect to the six well-mixed greenhouse gases, which have materially different properties from water vapor, there was too much uncertainty about the net effect of clouds formed by aircraft contrails, and that the magnitude and direction of the climate impact "will differ depending on the location of the emission due to the local atmospheric conditions." 81 Fed. Reg. 54,422, 54,447 (Aug. 15, 2016). But EPA in the past has indicated contrails warrant further evaluation, 74 Fed. Reg. at 66,520, and EPA's current website states that "[c]urrent models indicate that persistent contrail clouds could have a small net warming effect," but "more research is needed." EPA, *Information on Contrails from Aircraft* (last updated July 22, 2025), https://perma.cc/SP83-8YU9. If the EPA Administrator concluded that aircraft contrails were contributing to air pollution that may be reasonably anticipated to endanger public health and welfare, there would not be anything absurd about regulating them. *See* EPA, *Administrator Zeldin Announces New Online Resources on Contrails and Geoengineering*, YOUTUBE (last updated July 10, 2025), https://www.youtube.com/watch?v=QPIP_TdBeOY.

water vapor, is treated as if it were contaminating the air.") (emphasis in original).[167] And EPA squarely addressed it in the 2009 Endangerment Finding, but the Proposal does not acknowledge, much less refute, EPA's prior conclusions. 74 Fed. Reg. at 66,520 ("Direct anthropogenic emissions of water vapor, in general, have a negligible effect and are thus not considered a primary driver of human-induced climate change.").[168]

Finally, EPA's "local or regional exposure" position cannot be squared with arguments recently advanced by the U.S. Department of Justice in an uninvited amicus brief in *Suncor Energy (U.S.A.) Inc. v. County Commissioners of Boulder County*, S. Ct. No. 25-170. There, the Department maintains that the Clean Air Act prevents state and local governments from pursuing state-law causes of action against emitters of greenhouse gases (and their suppliers) where the emissions do not occur within the State. Br. for the U.S. as Amicus Curiae Supporting Resps. at 16–19, *Suncor Energy*, No. 25-170 (Sept. 11, 2025). Per the Department, "the Clean Air Act's decisionmaking scheme . . . reserves to EPA and the source States the authority to determine the extent of appropriate regulation" of these emissions. *Id.* at 17. Neither the Department nor EPA reconciles the brief's assertion that EPA is assigned the "judgment about the degree of acceptable out-of-state greenhouse-gas emissions" from new vehicles, *id.* at 18, with the Proposal's claim that EPA lacks authority to make that judgment.

2. The Proposal's attempted re-definition of the statutory term "contribute" fails.

Invoking principles of proximate causation, the Proposal advances the astonishing position that no matter how large the volume of greenhouse gas emissions from motor vehicles, and no matter how overwhelming the evidence showing that such pollution threatens public health and welfare, EPA does not believe it can legally maintain its longstanding scientific judgment that such emissions "contribute" to greenhouse gas pollution that threatens public health and welfare. *See* 90 Fed. Reg. at 36,301. EPA postulates that as an interpretive matter, such emissions cannot be deemed to have a sufficiently close connection to adverse climate change effects to "fit within the legal meaning" of "cause" or "contribute." *Id.* EPA explains that this proposed interpretation "follows from" EPA's belief that it has authority to regulate only "air pollution with harmful impacts from local or regional exposure." *Id.*

EPA's proposed reinterpretation of "cause or contribute" is nonsensical and erroneous, failing for many of the same reasons as the Agency's other proposed reinterpretations. To start, EPA's underlying premise—that section 202 was not intended to address greenhouse gases or

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[167] *See also* Br. for Resps. All. of Auto. Mfrs. et al., at 21–22, 31, 43, 47, *Massachusetts*, 549 U.S. 497 (Oct. 24, 2006) (No. 05-1120), 2006 WL 3023028 ("Greenhouse gases such as carbon dioxide and water vapor do not contaminate the air we breathe.").

[168] *See also* Steven C. Sherwood et al., *The Global Warming Potential of Near-Surface Emitted Water Vapour*, 13 ENV'T RSCH. LETTERS 1 (2018), https://perma.cc/5PD3-TPFH ("Increases in water vapour greenhouse effect are small because additional vapour cannot reach the upper troposphere, and greenhouse-gas warming is outweighed by increases in reflectance from humidity-induced low cloud cover, leading to a near-zero or small cooling effect. Near-surface temperature decreases over land are implied even without evaporative cooling at the surface, due to cooling by low clouds and vapour-induced changes to the moist lapse rate. These results indicate that even large increases in anthropogenic water vapour emissions would have negligible warming effects on climate, but that possible negative RF may deserve more attention.").

climate change impacts—has already been definitively rejected. *See supra* Section IV.A. Indeed, in *Massachusetts*, the Court had "little trouble concluding" that EPA has the legal authority to regulate motor vehicle greenhouse gas emissions in the event that it forms a judgment, as it did in 2009, that greenhouse gas emissions contribute to climate change. 549 U.S. at 528.

The *Massachusetts* Court's commentary on the States' standing further reflects the Court's expectation that the "contribution" prong of the endangerment inquiry would not be at all difficult for EPA to resolve by exercising scientific judgment. As the Court explained: "Judged by any standard, U.S. motor-vehicle emissions make a meaningful *contribution* to greenhouse gas concentrations." 549 U.S. at 525 (emphasis added). Further, EPA's subsequent 2009 Endangerment Finding was closely examined and upheld on judicial review in view of the overwhelming strength of the record evidence supporting it. *See Coal. for Responsible Regulation*, 684. F.3d at 123 ("ocean of evidence" supports EPA's finding).

In essence, EPA now employs—16 years after its exhaustively reviewed and judicially upheld 2009 Endangerment Finding—an incorrect and foreclosed statutory interpretation as a pretext for failing to meaningfully engage with the "ocean" of evidence supporting its prior *scientific* judgments. *See infra* Section VI.A (discussing the ways in which this flaw renders the Proposal arbitrary and capricious). Even now, EPA concedes that to address global climate change, we need "dramatic reduction in foreign emissions, *as well as reductions from domestic sources regulated under other provisions of the CAA*." 90 Fed. Reg. at 36,312 (emphasis added).

Massachusetts and *Coalition for Responsible Regulation* foreclose EPA's proposed statutory interpretation, but, even if they did not, it would still not qualify as the "best" reading of the statute, as required by *Loper Bright*. Statutory interpretation starts with the "assumption that the legislative purpose is expressed by the ordinary meaning of the words used." *Sec. Indus. Ass'n v. Bd. of Governors*, 468 U.S. 137, 149 (1984) (cleaned up). EPA, however, declines to even consider, much less apply, the ordinary meaning of the word "contribute."

"'Contribute' means simply to 'have a share in any act or effect,' . . . or 'to have a part of share in producing.'" *Bluewater Network v. EPA*, 370 F.3d 1, 13 (D.C. Cir. 2004) (citing WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 496 (1993) and 3 OXFORD ENGLISH DICTIONARY 849 (2d ed. 1989)). The term has no inherent connotation to proximate causation principles. Nor does it have any "inherent connotation as to the magnitude or importance of the relevant 'share' in the effect." *Id.* Applying that plain meaning, it is beyond dispute that the "enormous" quantity of greenhouse gas emissions from motor vehicles is contributing to driving destructive changes in our climate that pose grave threats to public health and welfare. *Massachusetts*, 549 U.S. at 524; *see infra* Sections IV.D.3, V.A.

The Clean Air Act's legislative history underscores that conclusion. "By its use of the words 'cause *or contribute* to air pollution,'" Congress "intend[ed] to require the Administrator to consider all sources of the contaminant which contribute to air pollution." H.R. Rep. No. 95-294, at 51 (1977) (emphasis added). And when amending the Clean Air Act in 1977, Congress addressed this issue directly, explaining that it sought to "assure consideration of the cumulative impact of all sources of a pollutant in setting ambient and emission standards, not just the extent of the risk from the emissions from a single source or class of sources of the pollutant." *Id.* at 49–50. This intent is reflected in the text. As EPA explained in the 2009 Endangerment Finding: "While the endangerment test looks at the *entire air pollution problem and the risks it poses*, the cause or contribute test is designed to authorize EPA to identify and then address what may well

be many different sectors or groups of sources that are each part of—and thus contributing to—the problem." 74 Fed. Reg. at 66,506.

EPA's proposed reinterpretation of "contribute" fails for an additional reason: it does not give any independent meaning to the two separate statutory triggers—"cause *or* contribute," 42 U.S.C. § 7521(a)(1) (emphasis added). Instead, EPA proposes to imbue both with the same gloss of proximate causation that is absent from the statutory text. "Cause, or contribute to," is not a redundant doublet; by setting off the second verb phrase with commas, Congress made clear that "contribute to" and "cause" mean different things. *See United States v. Atilla*, 966 F.3d 118, 126 (2d Cir. 2020). Thus, it cannot be that *both* of these separate and disjunctive triggers embody the same proximate causality standard. *Cf. Catawba Cnty. v. EPA*, 571 F.3d 20, 39 (D.C. Cir. 2009) (noting, in the context of applying a different Clean Air Act provision, that where the word "contribute" is used, then "contribution may simply exacerbate a problem rather than cause it").

The proposed reinterpretation of "cause or contribute" also entirely ignores legislative context. At their heart, principles of proximate causation are equitable legal limitations applied in *tort* (and sometimes criminal) cases to confine liability for an individual's conduct when the consequences are too remote or attenuated for that individual to be fairly assigned legal liability. *See, e.g.*, *CSX Trans. v. McBride*, 564 U.S. 685, 692 (2011). Thus, in the tort context, a limiting test of some sort might be applied to determine who is legally responsible for an injury to achieve a "rough sense of justice." *Id.* (citing *Palsgraf v. Long Island R.R. Co*., 162 N.E. 99, 103 (N.Y. 1928) (Andrews, J., dissenting)). But EPA is not charged with apportioning tort liability, but determining whether and how the Clean Air Act requires public health and welfare threats to be regulated. The latter is an entirely different inquiry, rooted in precautionary principles.

In particular, precautionary principles undergird the Clean Air Act—including section 202(a)—and prioritize preventive measures to mitigate risks to the broad population even in the absence of definitive causation findings. *See United States v. Ameren*, 421 F. Supp. 3d 729, 818 (E.D. Mo. 2019), *aff'd in part*, 9 F.4th 989 (8th Cir. 2021) ("[T]he Clean Air Act curbs harm borne by a population, not a single person. By enacting the Clean Air Act, Congress sought 'to protect public health and welfare from any actual or potential adverse effects' from air pollution . . . Public health regulation evaluates and communicates risk, not diagnoses or proximate causes of any one individual's health problems or death."). Congress directed EPA to regulate where air pollution "may be reasonably anticipated to"—not "will"—cause or contribute to pollution that endangers public health or welfare. 42 U.S.C. § 7521(a)(1).[169] Congress's choice to use "endanger," as opposed to "harm," adds yet another layer of precaution. That term means only that someone or something is put in a position of danger, not that such danger be actually present or measurable. *See Endangerment*, BLACK'S LAW DICTIONARY (12th ed. 2024) (defining "endangerment" as "[t]he act or an instance of putting someone or something in danger; exposure to peril or harm"). Congress's use of the mandatory "shall," its double use of "any" and its threshold of "may reasonably be anticipated" further underscore that precautionary thrust. *See* 42 U.S.C. § 7521(a)(1). Congress wanted EPA to err on the side of protection, *not* to look for

[169] It is telling that the summary of EPA's action, on the very first page of the Proposal, paraphrases the statutory text to conspicuously omit this important phrase. 90 Fed. Reg. at 36,288 (proposing to "rescind the Administrator's prior findings in 2009 that GHG emissions from new motor vehicles and engines contribute to air pollution which may endanger public health or welfare.").

ways to avoid regulation. *See also infra* Section IV.E (describing precautionary approach in section 202(a)).

Consistent with that precautionary purpose, courts have routinely applied the plain meaning of "contribute" without applying or even considering the potential application of proximate causation principles. *See, e.g.*, *Massachusetts*, 549 U.S. at 528 (finding that the statutory text forecloses EPA's position that "Congress did not intend it to regulate substances that contribute to climate change"); *Am. Lung Ass'n v. EPA*, 985 F.3d 914, 976 (D.C. Cir. 2021) (holding that under any reasonable threshold or definition of endangerment, "carbon dioxide from fossil fuel-fired plants represents a 'significant contribution' to air pollution"). Even in the context of a provision requiring a finding that emissions "*will* endanger the public health or welfare," (emphasis added), the statute does not "demand rigorous step-by-step proof of cause and effect," which "may be impossible to obtain if the precautionary purpose of the statute is to be served." *Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C. Cir.), *cert. denied*, 426 U.S. 941 (1976).

Pertinent legislative history—ignored by the Proposal—confirms Congress's intent to adopt a precautionary regulatory framework in section 202. *See Massachusetts*, 549 U.S. at 506 n.7 (detailing this legislative history). Prior to 1977, section 202 directed EPA to promulgate standards for an air pollutant "which in his judgment causes or contributes to, or is likely to cause or contribute to, air pollution which endangers the public health or welfare." Clean Air Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1690 (1970). Reacting to the D.C. Circuit's decision in *Ethyl Corp*., Congress in 1977 amended section 202 and similar Act provisions to incorporate the "may be reasonably anticipated to endanger" phrase, thereby making clear that EPA need not wait for conclusive proof of harm before acting. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 401, 91 Stat. 685, 791 (1977). The House Committee Report explains the revised endangerment standard is intended, among other things, to "emphasize the preventive or precautionary nature of the act," to "reflect awareness of the uncertainties and limitations in the data which will be available to the Administrator in the foreseeable future," and to "assure consideration of the cumulative impact of all sources of a pollutant in setting ambient and emission standards, not just the extent of the risk from the emissions from a single source or class of sources of the pollutant." H.R. REP. NO. 95-294, at 49–50 (1977).

Nor, contrary to EPA's assertion, is its proposed new interpretation of the term "contribute" consistent with the Agency's "decades-long implementation of the statute prior to 2009." 90 Fed. Reg. at 36,300. EPA fails to identify any endangerment finding that was made prior to 2009 (much less a consistent practice) that was grounded in proximate causation principles as opposed to an application of the plain meaning of "contribute." As discussed *infra* Section IV.D.3, in the Clean Air Act section 111 context, EPA has repeatedly made *significant* contribution findings for far smaller contributions than those of new vehicles to greenhouse gases. And in the vehicle context, EPA had no concerns about promulgating (and the D.C. Circuit had no qualms about upholding) standards for PM from light-duty diesel vehicles in 1980, even though the contribution of heavy-duty diesel vehicles vastly exceeded their contribution. *See* Standard for Emission of Particulate Regulation for Diesel-Fueled Light-Duty Vehicles and Light-Duty Trucks, 45 Fed. Reg. 14,496 (Mar. 5, 1980); *Nat. Res. Def. Council v. EPA*, 655 F.2d 318, 324–27 (D.C. Cir. 1981). The agency believed (and the court agreed) that EPA was authorized to issue such standards under section 202(a)(1). *See* 655 F.2d at 326–27.

EPA's assertion that applying a plain meaning of the word "contribute" could lead to absurd results is also unfounded. 90 Fed. Reg. at 36,301. EPA has been regulating greenhouse gas emissions from motor vehicles for over fifteen years without any absurd or arbitrary consequences. The agency cannot reasonably claim that regulating voluminous greenhouse gas emissions from motor vehicles that are contributing to hugely destructive climate change impacts is absurd or arbitrary. *See Massachusetts*, 549 U.S. at 531 ("[T]here is nothing counterintuitive to the notion that EPA can curtail the emission of substances that are putting the global climate out of kilter."); *UARG*, 573 U.S. at 318 ("[N]othing in the Act suggested that regulating greenhouse gases under [Title II] would conflict with the statutory design.").

Congress also has acted to reduce emissions from far smaller contributors to climate change than vehicles—again with no "absurd" results. The American Innovation and Manufacturing Act (AIM Act), for example, creates a program to phase out the domestic use of HFCs in numerous small-scale applications such as air conditioning, refrigeration, fire suppression, foam blowing agents, and aerosols. Notably, the volume of carbon dioxide emissions from motor vehicles far outpaces the entire collective carbon dioxide equivalent volume of HFCs emitted in the United States from all uses. In 2019, prior to implementation of the AIM Act phase out, EPA estimated there were approximately 174 million metric tons of carbon dioxide equivalent HFC emissions in the United States.[170] In contrast, as further described *infra* Section IV.D.3, U.S. onroad motor vehicles emitted at that time approximately 1.5 billion tons of CO_2 emissions—or approximately nine times the volume of HFC emissions subject to the AIM Act phaseout.[171]

The Renewable Fuel Standards (RFS) program promulgated at 42 U.S.C. § 7545(o) further undermines EPA's untenable construction of Section 202. The RFS program as amended reflects that Congress has already reached a legislative judgment that greenhouse gas emissions from the transportation sector "contribute" to climate change, are problematic, and should be reduced. This part of the Clean Air Act defines "greenhouse gas" as "carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons, [and] sulfur hexafluoride." *Id.* at 7545(o)(1)(G). It then goes on to allow the Administrator to "include any other anthropogenically emitted gas that is determined by the Administrator, after notice and comment, to contribute to global warming," *id*., meaning that Congress has already concluded that the listed greenhouse gas pollutants, emitted by the use of transportation fuels, make such a contribution. Congress then structured the entire RFS program around reducing that contribution—with Congress tying the eligibility of renewable fuels for compliance credits to their lifecycle greenhouse gas emissions performance. *See Id.* § 7545(o)(1)(B)(i), (1)(D), (1)(E), (2)(B)(i). Not only has Congress in this manner made clear its judgment that vehicles contribute enough greenhouse gas emissions through their use of fuels that those emissions should be reduced, but EPA—just a few weeks before issuing this Proposal—itself concluded it was "appropriate" to propose increased required volumes of non-cellulosic advanced biofuels in the RFS program based in part on the potential of these fuels to provide, in EPA's words, "*significant* GHG reductions." 90 Fed. Reg. 25,784, 25,821 (June 17, 2025) (emphasis added); *see also id*. at 25,819 (additionally observing that "[c]ellulosic biofuels . . . have the potential to

[170] *See* EPA, EPA 430-R-21-005, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2019, ANNEX TABLE A-1 (Apr. 2021), https://perma.cc/EXU3-E255.

[171] *Id.*

significantly reduce GHG emissions from the transportation sector" (emphasis added)). The Proposal does not begin to explain why Congress would have in one section of the Act directed EPA to alter the content of liquid transportation fuels to reduce greenhouse gas emissions but have simultaneously (and silently) precluded EPA from securing additional greenhouse gas emission reductions via regulation of vehicle manufacturers.

In short, EPA's attempt to incorporate proximate causation principles into section 202 is foreclosed by precedent and fails to reflect the best reading of the statute.

3. The Proposal's attempt to distinguish or narrow the Supreme Court's holding in *Massachusetts* fails.

The Proposal contends that EPA in the 2009 Endangerment Finding misconstrued *Massachusetts*, characterizing that opinion as holding only that greenhouse gases fit the definition of "air pollutant" under section 302(g), but not that they must be regulated under section 202. 90 Fed. Reg. at 36,294, 36,299, 36,302. As explained at length, *supra* Section IV.A, the Court's holding in *Massachusetts* explicitly construed section 202 of the Act, *not* just the Act-wide definition. *E.g.*, 549 U.S. at 532 ("[W]e hold that EPA has the statutory authority to regulate the emission of [greenhouse] gases from new motor vehicles."). EPA in 2006 understood what was at stake in the case, and it was much broader than EPA now asserts. *See* Br. for the Fed. Resp. at I, *Massachusetts*, 549 U.S. 497 (No. 05-1120) (describing the second question presented as: "Whether the Environmental Protection Agency reasonably determined that it lacks authority under the Clean Air Act to regulate greenhouse gas emissions for the purpose of addressing global climate change."). Indeed, EPA understood this as recently as February 19, 2025, when EPA Administrator Lee Zeldin penned a memo to Russ Vought explaining that the Court in *Massachusetts* "held that the CAA-wide definition of 'air pollutant' at Section 302(g) is broad enough to encompass these emissions, *that nothing in CAA 202(a) contradicted this first holding*, and that the non-statutory reasons EPA gave in the 2003 denial were policy considerations not relevant to EPA's determination whether to issue an endangerment finding under 202(a)."[172] And in a recent court filing, the Department of Justice too understood the import of *Massachusetts* for EPA's authority to *regulate* greenhouse gases: "[T]he proposed rules do not—and could not—alter *Massachusetts v. EPA*'s holding that four greenhouse gases, including carbon dioxide and methane, are 'air pollutant[s]' under the Clean Air Act, which puts 'the decision whether and how to regulate' greenhouse gas emissions 'within EPA's regulatory ken.'"). [173] The agency cannot credibly diminish the stakes of *Massachusetts* eighteen years later.

To attempt this gambit, the Proposal observes that the Court in *Massachusetts* stated that it "need not and do[es] not reach the question whether on remand EPA must make an endangerment finding." 90 Fed. Reg. at 36,302 (quoting *Massachusetts*, 549 U.S. at 534). True, but irrelevant. The question whether EPA must make an endangerment finding is distinct from the question whether EPA has the authority to regulate greenhouse gases from new motor

[172] Memorandum from Lee Zeldin, *supra* note 128 at 2 (emphasis added).

[173] Plfs.' Consolidated Response in Opp. to Mots. to Dismiss and Memo. in Support of Mot. for Summary Judgment at 39, *United States v. Vermont*, No. 2:25-cv-00463-mkl (filed D. Vt. Sept. 15, 2025) (quoting *Massachusetts*, 549 U.S. at 528–29, and *AEP*, 564 U.S. at 416, 426) (internal citation omitted).

vehicles under section 202 in the first place. The *Massachusetts* Court directly addressed the latter authority question, which forecloses EPA's primary proposal here. EPA's primary proposal does not actually rest on resolution of the former question, as the primary proposal does not claim that greenhouse gases do not contribute to endangering air pollution.

The Proposal also cites *UARG* in support of this argument, but *UARG* only undermines the Proposal's attempt to narrow *Massachusetts*. As also explained at length, *supra* Section IV.A, *UARG* explained that "nothing in the Act suggested that regulating greenhouse gases under [Title II] would conflict with the statutory design," and, "[a]t most, it would require EPA to take the modest step of adding greenhouse-gas standards to the roster of new-motor-vehicle emission regulations." 573 U.S. at 318–19. And *UARG* itself upheld EPA regulation of greenhouse gases under the BACT program that was triggered by EPA regulation of greenhouse gases under section 202. *Id.* at 331–32.

Moreover, although the Proposal purports to be limited to an interpretation of section 202 ("the particular statutory provision that confers authority to regulate," 90 Fed. Reg. at 36,302), its reasoning is not so cabined, as the Proposal concedes. In supporting its interpretation, the Proposal contends that "[t]he definition of 'air pollutant' in CAA section 302(g)"—the Act-wide interpretation it admits was directly at issue in *Massachusetts*, *id.* at 36,300[174]— "and the meaning of the undefined terms "pollutant, pollution, and air pollution support [its] reading." *Id*. As explained, *supra* Section IV.A, the statutory definition is broader than the modern dictionary definitions EPA purports to rely on now. At any rate, this reasoning would not be limited to section 202 of the Act, but would affect the Act-wide definition and every provision that cites it. Moreover, the Proposal states: "Put another way, we propose that the air pollutants identified in CAA section 202 and *throughout relevant provisions of the CAA* are those that cause or contribute to air pollution for which the air pollution *itself*, through local or regional exposure to humans and the environment, endangers public health or welfare." 90 Fed. Reg. at 36,300 (some emphasis added; footnote omitted). So even though it strains to leave in place the statutory interpretation laid out in *Massachusetts*, the Proposal would give that interpretation no meaning.

Finally, perhaps recognizing that there is no way to harmonize the Proposal's statutory interpretation with the Court's decision in *Massachusetts*, EPA asserts that "the Supreme Court's decision in *Massachusetts* straddled a transitional period regarding the standards for statutory interpretation and understandings of agency authority," citing *Loper Bright* and *West Virginia*. 90 Fed. Reg. at 36,299. This, too, gets it dead wrong. As described *supra* Section IV.A, with respect to statutory interpretation, the *Massachusetts* Court did not accord *Chevron* deference and rather played the role that *Loper Bright* later instructed courts to play in statutory interpretation, using the traditional tools of statutory interpretation that *Loper Bright* affirms.[175]

[174] 90 Fed. Reg. at 36,302 ("In *Massachusetts*, the Supreme Court rejected the argument that GHGs are not 'air pollutants' under the Act-wide definition, reasoning that CAA section 302(g)'s use of the word 'any' in connection with 'air pollutant agent or combination of such agents, including any physical or chemical . . . substance' was sufficiently broad to encapsulate the combination of GHGs at issue." (quoting 549 U.S. at 530)).

[175] While the Proposal seeks to argue that EPA's 2009 Endangerment Finding relied on deference under *Chevron*, the 2009 Endangerment Finding does not cite *Chevron* at all. 74 Fed. Reg. at 66,496–546.

And with regard to the major questions doctrine, as explained *infra* Section IV.D.4, *Massachusetts* directly addressed arguments that this doctrine applied, and rejected them.

4. The major questions doctrine does not apply.

The major questions doctrine provides that an "[e]xtraordinary grant[] of regulatory authority" must be supported by "'clear congressional authorization.'" *West Virginia*, 597 U.S. at 723 (quoting *UARG*, 573 U.S. at 324). The doctrine is reserved for those "extraordinary cases" where the anomalousness, scope, and significance of the authority asserted by the agency "provide a 'reason to hesitate before concluding that Congress' meant to confer" that authority. *Id.* at 721 (quoting *FDA v. Brown & Williamson Tobacco Corp*., 529 U.S. 120, 159 (2000)). Once a court concludes that an agency's asserted authority does implicate the major questions doctrine, the court determines whether there is "clear congressional authorization" for that authority. *Id*. at 724.

The 2009 Endangerment Finding and vehicles greenhouse gas standards do not implicate the major questions doctrine. EPA's claim otherwise is foreclosed by the Supreme Court's decision in *Massachusetts*, and neither the 2009 Endangerment Finding nor the vehicles greenhouse gas standards resemble an extraordinary exercise of regulatory authority under the major questions doctrine. Contrary to the Proposal's claims, the Court's decisions in *UARG* and *West Virginia* do not undermine the *Massachusetts* holding, but rather lend it additional support. Moreover, even if EPA's section 202(a) authority to regulate greenhouse gases did implicate the major questions doctrine, as discussed *supra* Section IV.A & B, there is clear congressional authorization for such authority.

a. *Massachusetts* forecloses EPA's application of the major questions doctrine.

The Supreme Court's decision in *Massachusetts*, 549 U.S. 497, plainly forecloses EPA's proposed conclusion. The Court in *Massachusetts* expressly concluded that its decision in *Brown & Williamson*, a foundational case underlying the major questions doctrine, did not undermine EPA's authority to regulate greenhouse gases under section 202(a) of the Clean Air Act. 549 U.S. at 530–31. And the Court reached that conclusion based on key major-question indicators including (1) the scope of the jurisdictional reach that such authority would afford the agency, and (2) subsequent congressional enactments. *See id*.

As to the first, the Court rejected the argument that Congress must "sp[eak] with exacting specificity" to authorize EPA "to address it." *Id.* at 512; *see id.* at 531. The Court reasoned that EPA's section 202(a) jurisdiction over greenhouse gas emissions entails "no . . . extreme measures," because that provision requires EPA merely to "*regulate* emissions, and even then, [the agency]" would have to delay any action 'to permit the development and application of requisite technology, giving appropriate consideration to the cost of compliance.'" *Id.* at 531 (quoting 42 U.S.C. § 7521(a)(2)) (emphasis in original).

As to the second, the Court emphasized that EPA had identified no "congressional action that conflicts in any way with the regulation of greenhouse gases from new motor vehicles." *Massachusetts*, 549 U.S. at 531. The Court also noted that any such action would not have been "against a regulatory 'backdrop' of disclaimers of regulatory authority," because prior to the present case, "EPA had never disavowed the authority to regulate greenhouse gases" and instead had previously "affirmed that it *had* such authority." *Id*. (emphasis in original).

The Court then reaffirmed that holding in *UARG*. In *UARG*, the Court concluded that greenhouse-gas-inclusive PSD/Title V permitting requirements "would bring about an enormous and transformative expansion in EPA's regulatory authority without clear congressional authorization." 573 U.S. at 316, 323–24. The Court explained that its holding was not inconsistent with *Massachusetts* because, as opposed to the greenhouse-gas-inclusive PSD/Title V permitting requirements, vehicles greenhouse gas standards could not be described as "'extreme,' 'counterintuitive,' or contrary to 'common sense.'" *Id.* at 318 (quoting *Massachusetts*, 549 U.S. at 531). At most, the Court reasoned, vehicles greenhouse gas standards would "require EPA to take the *modest* step of adding greenhouse-gas standards to the roster of new-motor-vehicle emission regulations." *Id.* at 318–19 (quoting *Massachusetts*, 549 U.S. at 531) (emphasis added). Accordingly, "nothing in the Act suggested that regulating GHG emissions under [section 202] would conflict with the statutory design." *Id.* at 318.

In *West Virginia*, the Court explained that the major questions doctrine is a "body of law that has developed over a series of significant cases" including *Brown & Williamson*. 597 U.S. at 721–24. The Court noted that its decision in *Brown & Williamson* had advanced the key principle underlying the major questions doctrine: "'In extraordinary cases . . . there may be reason to hesitate' before accepting a reading of a statute that would, under more 'ordinary' circumstances, be upheld." *Id.* at 723–24 (quoting *Brown & Williamson*, 529 U.S. at 159). The Court in *Massachusetts* considered that very principle when it characterized vehicles greenhouse gas standards as a "modest" regulatory step that would not require "'extreme'" measures. *UARG*, 573 U.S. at 318–19 (quoting *Massachusetts*, 549 U.S. at 531).[176] There is thus no question that the *Massachusetts* Court's consideration of *Brown & Willimson*—and the *UARG* Court's reaffirmation thereof—reflect a major questions analysis, even if that moniker had not yet been assigned to the doctrine.

b. Even if its application were not foreclosed by Supreme Court precedent, the major questions doctrine does not apply.

In any event, application of the major questions doctrine's analytical framework refutes EPA's proposed reliance on the doctrine.

First, EPA's authority to regulate greenhouse gas emissions from motor vehicles does not constitute a "power[] of vast economic and political significance." *Alabama Ass'n of Realtors v. Dep't of Health and Human Servs*., 594 U.S. 758, 764 (2021) (internal quotation marks and

[176] Even if *Massachusetts* did not apply the major questions doctrine (it did), that doctrine does not constitute the sort of "special justification" needed to overrule a "statutory precedent." *Loper Bright*, 603 U.S. at 412; *see Halliburton Co. v. Erica P. John Fund, Inc.*, 573 U.S. 258, 266 (2014). That is because the major questions doctrine is essentially an "interpretive methodology," and so cannot "justify overruling [the] statutory precedent" in *Massachusetts*. *Loper Bright*, 603 U.S. at 412. The D.C. Circuit has characterized the major questions doctrine as "a tool of statutory interpretation" whose "function . . . is simple—to help courts figure out what a statute means." *See Save Jobs USA v. Dep't of Homeland Sec.*, 111 F.4th 76, 80 (D.C. Cir. 2024). The Supreme Court similarly has indicated as much. *See West Virginia*, 597 U.S. at 721 (introducing a discussion of the major questions doctrine with: "It is a fundamental canon of statutory construction that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme" (quoting *Davis v. Mich. Dep't of Treasury*, 489 U.S. 803, 809 (1989)); *Biden v. Nebraska*, 600 U.S. 477, 511 (2023) (Barrett, J., concurring) (noting that the major questions doctrine is a tool of statutory interpretation).

citation omitted); *see Massachusetts*, 549 U.S. at 531 ("EPA would only *regulate* emissions" (emphasis in original)); *UARG*, 573 U.S. at 329–32. The vehicles greenhouse gas standards are not imposed on "previously unregulated entities," but rather "moderately increase[] the demands EPA . . . can make of entities already subject to its regulation." *UARG*, 573 U.S. at 332. And the scope of EPA's authority over greenhouse gas emissions is expressly constrained by the text of section 202, which requires EPA to consider factors such as existing technologies and the cost of compliance in setting standards. *See* 42 U.S.C. § 7521(a)(2), (4)(B); *West Virginia*, 597 U.S. at 728. Further, because vehicle standards under section 202(a) are merely performance standards that can be met through adoption of existing control technologies, they do not empower EPA to dictate "how Americans will get their energy." *West Virginia*, 597 U.S. at 729. Accordingly, EPA's vehicles greenhouse gas standards cannot be described as "assertions of 'extravagant statutory power over the national economy.'" *Id.* at 724 (quoting *UARG*, 573 U.S. at 324).[177]

Second, the vehicles greenhouse gas standards do not represent "an enormous and transformative expansion in EPA's regulatory authority," *UARG*, 573 U.S. at 324, nor do they involve the "discover[y] in a long-extant statute [of] an unheralded power," *West Virginia*, 597 U.S. at 724 (quoting *UARG*, 573 U.S. at 324); *see Biden v. Nebraska*, 600 U.S. 477, 496–99 (2023). Rather, they constitute a straightforward application of section 202(a)—employing the same regulatory approaches, and the same consideration of all available technologies, that EPA has exercised under that provision for decades. In particular, the vehicles greenhouse gas standards are imposed on the same class of entities as prior section 202(a) emission standards, *see UARG*, 573 U.S. at 324, 332; they involve the same sort of "policy judgment[s]" as previous standards under section 202(a), *West Virginia*, 597 U.S. at 725, 728; and they do not impose demands "of a significantly different character from those traditionally associated with" section 202(a) regulations, *UARG*, 573 U.S. at 332; *see Biden v. Missouri*, 595 U.S. 87, 94–95 (2022).

For example, since passage of the 1970 Clean Air Act Amendments, EPA has consistently imposed performance-based standards on motor vehicles under section 202(a), including for VOCs, NO_x, carbon monoxide, SO_x, and PM. *See* 36 Fed. Reg. 12,657 (July 2, 1971); 89 Fed. Reg. at 27,864–66. And those standards have involved substantial technological changes: the first section 202(a) standards, for model year 1968, required the complete elimination of crankcase emissions, effectively requiring crankcase emission control systems on all new light-duty vehicles. 31 Fed. Reg. 5170, 5171 (Mar. 30, 1966). Like those previous regulations, the vehicles greenhouse gas standards require vehicle fleets to adopt available technologies that allow them to meet achievable emission targets over a reasonable period of time. *See, e.g.*, 75 Fed. Reg. at 25,332, 25,373; 89 Fed. Reg. at 28,085–86.

Moreover, other air pollutants aside, the vehicles greenhouse gas standards are in no sense a "newfound power." *West Virginia*, 597 U.S. at 724. EPA has regulated greenhouse gas emissions under section 202(a) since 2010, 75 Fed. Reg. 25,324. Since 1994, EPA has considered the global warming potential of proposed substitutes for ozone-depleting substances when evaluating those substitutes under a provision of the Clean Air Act addressing

[177] Notably, in *West Virginia*, industry amici "urge[d] the Court to proceed with caution in entertaining application of the nondelegation or major questions doctrines in ways that could strip EPA of all authority to regulate [greenhouse gases] under [the Clean Air Act] or otherwise call into question this Court's holdings in *Massachusetts* and *AEP*." Br. for the Edison Elec. Inst. and the Nat'l Ass'n of Clean Water Agencies as Amici Curiae Supporting Resps., *supra* note 141 at 19–20.

"requirements for the control and abatement of air pollution." 42 U.S.C. § 7671q; *see* 59 Fed. Reg. 13,044, 13,049 (Mar. 18, 1994); *see also* 64 Fed. Reg. 10,374, 10,375 (Mar. 3, 1999); 64 Fed. Reg. 22,982, 22,984 (Apr. 28, 1999). Further, in 1996, EPA included methane within "the emissions of concern" emanating from landfills in part on the basis that methane emissions "contribute to global climate change." 61 Fed. Reg. 9905, 9905 (Mar. 12, 1996). And in 2004, EPA began requiring the monitoring of CO_2 emissions from nonroad equipment pursuant to section 103(a), 42 U.S.C. § 7403(a), which authorizes research into "air pollution." 69 Fed. Reg. 12,151 (Mar. 15, 2004).

Third, the vehicles greenhouse gas standards are not based in a "subtle device," *Brown & Williamson*, 529 U.S. at 160, that "had rarely been used in the preceding decades," *West Virginia*, 597 U.S. at 724 (citations omitted). Nor does EPA's authority depend upon a "strained understanding" of the statutory text. *Brown & Williamson*, 529 U.S. at 160. EPA's authority to promulgate greenhouse gas standards for motor vehicles is grounded in core provisions of the Clean Air Act that are "written in starkly broad terms," *Bostock v. Clayton Cnty*., 590 U.S. 644, 680 (2020), and that speak directly to the agency's mandate to regulate air pollutant emissions from new motor vehicles that endanger public health or welfare, including through effects on "climate." 42 U.S.C. §§ 7521(a), 7602(h); *see id*. at 683; *Missouri*, 595 U.S. at 89, 94–95.

Fourth, and relatedly, the regulation of greenhouse gas emissions from new motor vehicles and engines is squarely within EPA's expertise. "[T]here can be no doubt that addressing [environmental] problems" caused by the emission of airborne compounds is "what [EPA] does," *Missouri*, 595 U.S. at 95, and indeed what the *Environmental Protection* Agency "was built for," *Nat'l Fed'n of Indep. Bus. v. Dep't of Labor*, 595 U.S. 109, 119 (2022) (citation omitted). And, again, there is certainly "nothing counterintuitive to the notion that EPA can curtail the emission of substances that are putting the global climate out of kilter." *Massachusetts*, 549 U.S. at 531.

Fifth, there is no indication that Congress has "considered and rejected" EPA's authority to regulate greenhouse gas emissions under section 202(a). *West Virginia*, 597 U.S. at 731 (quoting *Brown & Williamson*, 529 U.S. at 144). Quite the contrary. *Supra* Section IV.A–B. And the Supreme Court in *Massachusetts* could point to no enactments that "conflict[] in any way with [EPA's] regulation of greenhouse gases from new motor vehicles." *Massachusetts*, 549 U.S. at 531; *see also id.* at 512. Hence, statutory enactments such as the AIM Act, 42 U.S.C. §§ 7675–7675k, and the IRA, Pub. L. No. 117-169, 136 Stat. 1818, which granted EPA authority to address climate change through non-emission-standard means, do not "indicate the [Agency] lacks authority to act under other (earlier enacted) statutory provisions." *Am. Fed'n of Gov't Emps., AFL-CIO v. Carmen*, 669 F.2d 815, 824 n.43 (D.C. Cir. 1981) (citation omitted). Further, those enactments postdate the 2009 Endangerment Finding, and therefore were not enacted against "a regulatory 'backdrop' of disclaimers of regulatory authority." *Massachusetts*, 549 U.S. at 531; *see Brown & Williamson*, 529 U.S. at 144.

In addition, neither the One Big Beautiful Bill Act, Pub. L. No. 119-21, 139 Stat. __ (2025), nor recent Congressional Review Act Resolutions[178] address EPA's authority to regulate greenhouse gas emissions under section 202(a). Attempts to revoke EPA's authority to regulate

[178] *See, e.g*., Pub. L. No. 119-15, 139 Stat. 65 (2025); Pub. L. No. 119-16, 139 Stat. 66 (2025); Pub. L. No. 119-17, 139 Stat. 67 (2025).

greenhouse gas emissions under the Clean Air Act have consistently failed,[179] and other statutory enactments since 2007 *confirm* Congress's understanding that greenhouse gases are pollutants under section 202(a). *See supra* Section IV.B.

Finally, even if the major questions doctrine undermined vehicles greenhouse gas standards in their current form (it does not), the 2009 Endangerment Finding itself certainly does not implicate the doctrine. Major questions analysis does not ask whether an assertion of authority—such as the Endangerment Finding—has the "potential . . . to lead to" other actions which are themselves extraordinary, but rather focuses on the asserted authority itself. *UARG*, 573 U.S. at 332; *see West Virginia*, 597 U.S. at 734–35. Thus, the 2009 Endangerment Finding is unlawful only if the major questions doctrine "categorically prohibits EPA" from regulating the greenhouse gas emissions of motor vehicles under section 202. *UARG*, 573 U.S. at 332 (refusing to extend major questions analysis to "potential" regulations that could result from the asserted authority, because the asserted authority would not necessarily "lead to an unreasonable and unanticipated degree of regulation"). For the reasons discussed, there is nothing inherently extraordinary about regulations that limit greenhouse gas emissions of motor vehicles.

c. *UARG* and *West Virginia* affirm that the vehicles greenhouse gas standards do not implicate the major questions doctrine.

EPA proposes that the vehicles greenhouse gas standards implicate the major questions doctrine because they are "similar in scope, approach, and economic impact" to policies that the Court overturned on major questions grounds in *West Virginia* and *UARG*. *See* 90 Fed. Reg. at 36,306. That view is irreconcilable with the Court's reasoning in those decisions, which instead confirms the limited and ordinary scope of the vehicles greenhouse gas standards.[180]

First, as discussed *supra* Section IV.A, the Court in *UARG* expressly described greenhouse gas regulations under 202(a) as "modest" relative to the "enormous and transformative expansion in EPA's regulatory authority" represented by greenhouse gas-inclusive PSD/Title V permitting requirements. *See* 573 U.S. at 318–19, 324. Accordingly, while those permitting requirements implicated the later-named major questions doctrine, the section 202(a) regulations did not. *See id.* A separate holding in the decision further undermines EPA's characterization of *UARG*. The Court held that the major questions doctrine does not apply to greenhouse gas regulations on stationary "anyway" sources because those regulations do not "extend[] EPA jurisdiction over millions of previously unregulated entities," and are not "of a significantly different character from [regulations] traditionally associated with [the relevant provision]." *Id.* at 332. That reasoning by the Court applies with equal force to the vehicles greenhouse gas standards.

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[179] *See, e.g.*, American Energy Renaissance Act of 2014, H.R. 4286 § 7002, S. 2170 § 7002, 113th Cong. (2014); S. Amend. 183 to S. 439, 112th Cong. (2011); Electricity Security and Affordability Act, H.R. 3826, 113th Cong. (2014); Stop the War on Coal Act of 2012, H.R. 3409 § 330(b), 112th Cong. (2012); Grow America Act of 2012, S. 2199 § 371, 112th Cong. (2012).

[180] EPA's proposal also suggests that, because the policies at issue in *UARG* and *West Virginia* were predicated on the 2009 Endangerment Finding, the Finding itself must implicate the major questions doctrine. But as discussed, major questions analysis does not ask whether an asserted authority has the "potential . . . to lead to an unreasonable and unanticipated degree of regulation." *UARG*, 573 U.S. at 332.

Second, as to *West Virginia*, although the Court did not directly address EPA's section 202(a) authority, it used reasoning that plainly distinguishes the Clean Power Plan—which the Court invalidated on major questions grounds—from the vehicles greenhouse gas standards. The Court concluded that the Clean Power Plan represented a "transformative expansion in [EPA's] regulatory authority" under section 111(d) of the Clean Air Act because the Plan adopted a "generation-shifting approach" whereby regulated coal-powered plants were required to either phase out energy production or shift production activity to cleaner sources such as unregulated wind farms or solar installations. *See West Virginia*, 573 U.S. at 713, 716, 724, 728. That approach "empower[ed] [EPA] to substantially restructure the American energy market." *Id.* at 724. The Court explained that, prior to the Clean Power Plan, section 111(d) was a "gap filler" provision that "had rarely been used," and that had merely authorized EPA to "set emissions limits . . . based on the application of measures that would reduce pollution by causing the regulated source to operate more cleanly." *Id.* at 724–25.

By contrast, section 202 is decidedly *not* a gap filler, but has, as Congress intended, driven substantial pollution reductions from motor vehicles for decades. And the vehicles greenhouse gas standards merely require regulated motor vehicles to "operate more cleanly" by adopting emission-control technologies. *Id.* at 725; *contra* 90 Fed. Reg. at 36,306–07, 36,314, 36,325.[181] The performance-based standards are structured so that manufacturers can produce and sell whatever motor vehicles with whatever technologies they choose, provided they achieve the reductions in emissions that EPA has determined are feasible across their entire fleet. *See, e.g.*, 89 Fed. Reg. at 28,057–89 (giving multiple examples of how automakers might comply with the standards using different control technologies). The record before the agency reflects that the very standards EPA proposes to repeal are projected to achieve deep reductions in greenhouse gas emissions without requiring any switch to electric vehicles.[182]

To be sure, powering vehicles with electricity is a particularly cost-effective compliance option—but fuel switching such as from gasoline to electricity was endorsed by the Court in *West Virginia*, which described favorably EPA's "consistent" historical approach of designing a "technology-based standard [which] is one that focuses on improving the emissions performance of individual sources," such as "fuel-switching." 597 U.S. at 726–27 (citation omitted); *see also* Vehicles Comment Section IV.A.1.d. Assessing the potential for abating dangerous emissions by fuel switching—as EPA did when requiring a shift from leaded to unleaded gasoline,[183] or requiring the use of ethanol to displace gasoline under the Renewable Fuels Standard[184]—is a

[181] To the extent that EPA *has* imposed an electric vehicle mandate (it has not), that mandate could be rescinded without disrupting the 2009 Endangerment Finding or other greenhouse gas emission standards.

[182] *See* Multi-Pollutant Rule RIA, *supra* note 136, at 12–52 ("No Additional BEVs Beyond the No Action Case"). In accounting for the environmental effectiveness of electric vehicles, EPA considers the power sector emissions associated with generating the electricity used for charging. In addition, electric vehicles have direct emissions of air conditioner refrigerants from leaks, some of which are greenhouse gases.

[183] Press Release, EPA, EPA Requires Phase-Out of Lead in All Grades of Gasoline (Nov. 28, 1973), https://perma.cc/6AMF-ZEPH.

[184] *See, e.g.*, Renewable Fuel Standard (RFS) Program: Standards for 2023-2025 and Other Changes, 88 Fed. Reg. 44,468 (July 12, 2023).

traditional regulatory approach.[185] The standards do not require the use of public transportation or bikes rather than motor vehicles, or less driving overall.

Further, adoption of electric vehicle technology is not required for compliance with existing emissions standards. EPA's standards merely require regulated motor vehicles to operate with less pollution, and manufacturers may comply by "prevent[ing] or control[ling] such pollution." *See* 42 U.S.C. § 7521(a)(1).[186] According to EPA's estimates, it is technologically feasible to meet existing emission standards by adding only plug-in hybrids to the fleet, 89 Fed. Reg. at 28,087, or with electric vehicles making up only 5% of automakers' fleets, which is half of current levels, 89 Fed. Reg. at 27,845, 28,082–84.[187] The standards "allow[] regulated entities to produce as much of a particular good as they desire provided that they do so through an appropriately clean (or low-emitting) process." *West Virginia*, 597 U.S. at 725 (citing 80 Fed. Reg. at 64,738 (describing EPA's traditional approach prior to the Clean Power Plan)).

Further, to whatever extent that automakers have chosen to adopt zero-emission technologies such as by selling cars powered by electricity to comply with vehicles greenhouse gas standards, there is nothing extraordinary about emission standards that induce regulated entities to adopt control technologies. *See* 42 U.S.C. § 7521(a) (instructing EPA to consider "the development and application of the requisite technology"). The text of section 202(a) does not distinguish between electric and non-electric motor vehicles, and so provides no basis to treat electric vehicle technology with special concern compared to other emission-control technologies.[188] *See* 42 U.S.C. § 7550(2). The Court decided that the Clean Power Plan, by comparison, would have required coal-powered plants to "cease making power" in favor of technologies that EPA had no authority to regulate under the relevant provision. *West Virginia*, 597 U.S. at 709, 712–14, 724–29.

Because the Court's reasoning in *UARG* and *West Virginia* plainly distinguishes the vehicles greenhouse gas standards from the Clean Power Plan and greenhouse gas-inclusive

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[185] At oral argument in the Supreme Court, the parties challenging the legality of the Clean Power Plan distinguished a permissible standard of performance from an impermissible one based on whether the plant itself become cleaner in its operations: Mr. Roth: "So the way I like to think about it is, is this a measure that would reduce the emissions rate from this source's operations? If it is, then it's within the scope of the statute. . . . So, Your Honor, there absolutely could be incidental effects of a regulation that is a valid regulation, right, that have the effect of causing some generation shifting. That's not what we're objecting to here. I mean, there always could be incidental effects of regulation." Transcript of Oral Argument at 41–42, *West Virginia*, 597 U.S. 697 (No. 20-1530), https://perma.cc/WV7U-MQD4.

[186] *See* Multi-Pollutant Rule RIA, *supra* note 136, at 4-56 ("EPA does not model tradeoffs between fuel economy and performance as a path to achieving the standards."), https://perma.cc/BQC3-ME6V.

[187] For further discussion on why the vehicles greenhouse gas standards do not constitute an "electric vehicle mandate," see the Vehicles Comment at Section IV.B.3.

[188] Indeed, Congress removed bill language that would have restricted EPA's authority to gasoline- and diesel-fueled propulsion systems, *see* 111 Cong. Rec. 25,071, 25,073 (1965), even though electric vehicles were a well-understood technology in 1965, *see* U.S. Dep't of Energy, *The History of the Electric Car* (Sept. 15, 2014), https://perma.cc/HGT3-3KGY. And where Congress intends to exclude electric vehicle technology, it does so expressly. *See* 49 U.S.C. §§ 32901(a)(8), 32902(h)(1).

PSD/Title V permitting requirements, those decisions do not support EPA's misguided proposal that the vehicle standards implicate the major questions doctrine.[189]

5. The nondelegation and constitutional avoidance doctrines are inapposite.

The Proposal is also off target in invoking the nondelegation and constitutional avoidance doctrines to support its proffered interpretation of section 202. 90 Fed. Reg. at 36,301, 36,305. If anything, it is the Proposal's interpretation that would raise nondelegation concerns.

For starters, the Clean Air Act is not susceptible to the Proposal's reading, *see supra* Section IV.A, so the avoidance doctrine cannot support its application. *See Clark v. Martinez*, 543 U.S. 371, 385 (2005) ("The canon of constitutional avoidance comes into play only when, after the application of ordinary textual analysis, the statute is found to be susceptible of more than one construction; and the canon functions as a means of choosing between them.").

In any event, the nondelegation doctrine does not assist EPA. The Supreme Court "set out the 'intelligible principle' standard as the universal method for assessing [statutory] delegations" to the Executive Branch of Congress's Article I powers to make law. *FCC v. Consumers' Rsch.*, 145 S. Ct. 2482, 2498 (2025) (quoting *J.W. Hampton, Jr. & Co. v. United States*, 276 U.S. 394, 409 (1928)). That forgiving standard requires only that a statute "impose[] ascertainable and meaningful guideposts for the [agency] to follow when carrying out its delegated function." *Id.* at 2501. The guideposts need only include "the 'general policy' the [agency] must pursue" and "the 'boundaries' it cannot cross." *Id.* (quoting *Am. Power & Light Co. v. Secs. & Exch. Comm'n*, 329 U.S. 90, 105 (1946)). To find an intelligible principle, courts "d[o] not examine . . . statutory phrases in isolation but instead look[] to the broader statutory context[]." *Id.* at 2503.

The Proposal first asserts that section 202(a)(1) "potential[ly]" would lack an intelligible principle if it authorized standards for emissions of pollutants that may reasonably be anticipated to endanger public health and welfare by means other than "local or regional exposure." 90 Fed. Reg. at 36,301. The Proposal hypothesizes the regulation of water vapor as an "absurd result[]" that would convert section 202(a)(1) "into a roaming license to prescribe . . . standards." *Id.* (internal quotation marks omitted). But a "potential" rather than actual nondelegation problem would not warrant invocation of constitutional avoidance. *See Reno v. Flores*, 507 U.S. 292, 314 n.9 (1993). The Proposal's "need to rely on hypotheticals to make [its] point" only confirms that EPA's previous interpretation of section 202, reflected in the 2009 Endangerment Finding, "will not 'raise a multitude of constitutional problems'" that could inform the best reading of the statute. *Rita v. United States*, 551 U.S. 338, 354 (2007) (quoting *Clark*, 543 U.S. at 380–81).

Further, requiring EPA to regulate vehicular pollution mediated through other means than "local or regional exposure" does not leave section 202(a)(1) bereft of an intelligible principle. It just means the statute supplies a principle—regulate all types of air pollution that meet the other "guideposts" and "boundaries" explicitly set out in section 202(a)(1) and informed by the Clean Air Act's health-protective purpose—that current Executive Branch leadership would prefer to ignore. The myriad problems with the Proposal's water-vapor hypothetical are discussed

[189] Even if EPA's authority to promulgate vehicles greenhouse gas standards under section 202(a) did implicate the major questions doctrine (it does not), there is "clear congressional authorization" for such authority. *West Virginia*, 597 U.S. at 723 (quoting *UARG*, 573 U.S. at 324); *see supra* Section IV.A.

elsewhere, *see supra* Section IV.C.1; *infra* Section VI.A, but using it as an excuse to inject the Constitution into the interpretive mix is fanciful.

Second, the Proposal warns of purported "nondelegation concerns" if the word "endanger" were to "mean merely any predicted negative impact to any public health or welfare value, as that interpretation would render the constraint placed on the EPA's authority to prescribe standards essentially meaningless." 90 Fed. Reg. at 36,305. Aside from the many problems with this line of reasoning, *see supra* Section IV.A; *infra* Sections IV.C.3., IV.D.3, IV.E, V.A, it would not deprive section 202(a)(1) of an intelligible principle to substitute "have a predicted negative impact on" for "endanger." The U.S. Code is rife with examples of Congress delegating authority to Executive Branch agencies to regulate based on predictions of negative effects on particular subjects. In any case, the Proposal does not (and could not reasonably) suggest that the objects of "endanger"—"public health" and the statutorily defined term "welfare"—are too indeterminate to meet the intelligible-principle test. What would make "welfare" so broad as to border on indeterminate, on the other hand, is the Proposal's invocation of the term to mean essentially anything EPA wants to consider—including policy preferences irrelevant to the scientific endangerment inquiry—as part of the rulemaking process. *See, e.g*., 90 Fed. Reg. at 36,313; *see also* Vehicles Comment Section IV.B.3.

In short, neither constitutional avoidance principles nor the nondelegation doctrine support the Proposal.

D. The best reading of Section 202(a) authorizes EPA to separately issue endangerment finding and standards.

As a secondary legal authority argument, EPA proposes to conclude that "section 202(a) requires issuing emission standards together with the findings necessary to invoke [its] regulatory authority, rather than severing the regulatory action into separate endangerment and standards-setting proceedings"—i.e., its "integrated 202" interpretation. 90 Fed. Reg. at 36,302. EPA also claims that the agency unlawfully made a collective endangerment finding as to six greenhouse gases. *Id.* at 36,304, 36,310. With both these claims in hand, EPA contends it lacks authority to make an endangerment finding because each greenhouse gas on its own from each class of new motor vehicles does not sufficiently contribute and greenhouse gas emissions from light-, medium-, and heavy-duty vehicle sources, even if completely eliminated, "would not reliably and meaningfully reduce elevated global concentrations of greenhouse gases and, therefore, not reliably and meaningfully reduce the risks of climate change asserted in the Endangerment Finding." 90 Fed. Reg. at 36,312. EPA is wrong on each point.

As an initial matter, EPA does not explain why any alleged error in separately issuing the 2009 Endangerment Finding and its first set of greenhouse gas emission standard supports its decision to rescind *all* vehicle greenhouse gas standards. The 2024 Multipollutant Rule discussed at length (in over 20 Federal Register pages) the "Public Health and Welfare Need for Emissions Reductions." 89 Fed. Reg. at 27,861–81. And it did so within the same preamble as it set out the emissions standards. While the discussion in the 2024 Multipollutant Rule expressly did not make any new scientific or factual findings, that was only because of the "well-documented impact of GHG emissions on public health and welfare," which EPA discussed in depth. *Id.* at 27,861. And the 2009 Endangerment Finding was only "[o]ne of th[e] documents" included in the "[e]xtensive information on climate change" that EPA pointed to in the preamble. *Id.* The

Proposal fails to explain why, if there were an "integrated 202" requirement, that lengthy discussion would not satisfy it. No magic words are required to denominate a regulatory analysis as an endangerment finding. And by proposing to repeal the greenhouse gas standards on this basis, but not repeal the standards for other pollutants for which EPA included similar information, EPA must have concluded that this discussion was sufficient to satisfy any required "integrated 202" interpretation for the criteria pollutant standards as well.

With these arguments—as elsewhere in the Proposal—EPA seems to be searching for a loophole, some way in which the statutory language, emission sources, pollution standards, or different greenhouse gases could be sliced and diced in a way that would justify EPA's proposed failure to address the endangerment to human health and welfare caused by greenhouse gas emissions. In other words, EPA hopes it can successfully segment its way out of regulation on the theory that the juice will not be worth the squeeze, and it will never be rational to conclude that there is contribution or endangerment or any reasonable regulation. But the purpose of the Clean Air Act is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." 42 U.S.C. § 7401(b)(1). It would be inconsistent with the Act's purpose—and arbitrary—to allow an agency bent on deregulation to evade its Congressionally mandated duties simply by carving sources or pollutants into narrower and narrower bits while endangerment to human health and welfare from air pollution continues unabated.

1. EPA's "integrated 202" interpretation is wrong.

EPA's "integrated 202" interpretation is not the best reading of the statute. EPA certainly may issue emission standards and make the findings necessary to invoke its regulatory authority at the same time and in the same action, but nothing in section 202(a) *requires* that EPA abstain from making any findings until it is ready to promulgate standards.

EPA's significant latitude on timing follows from the "very basic tenet of administrative law," *Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council*, 435 U.S. 519, 544 (1978), that agencies are "free to fashion their own rules of procedure and to pursue methods of inquiry capable of permitting them to discharge their multitudinous duties," *FCC v. Pottsville Broad. Co*., 309 U.S. 134, 143 (1940). Agencies' authority "to order their own proceedings and control their own dockets," *Ass'n of Bus. Advocating Tariff Equity v. Hanzlik*, 779 F.2d 697, 701 (D.C. Cir. 1985), need not be expressed; it is "fairly . . . implied" from the grant of substantive authority to act, *Ry. Labor Execs.' Ass'n v. Nat'l Mediation Bd.*, 29 F.3d 655, 666 n.6 (D.C. Cir. 1994) (en banc). Nothing in section 202(a)(1) or any other statute bars EPA from making the findings that compel it to set standards in a proceeding distinct from, and earlier in time than, the proceeding to set standards.

The Supreme Court's decision in *Massachusetts* acknowledged as much, foreclosing the Proposal's assertion "that it is impermissible for [EPA] to make an endangerment finding without prescribing the emission standards required in response to such a finding" at the same time. 90 Fed. Reg. at 36,302. The Court there allowed that, once "EPA makes a finding of endangerment," the agency "no doubt has significant latitude as to the . . . timing . . . of its regulations" under section 202(a)(1). 549 U.S. at 533. That latitude would be nonexistent if, as the Proposal posits, EPA had to promulgate standards concurrently with any and all requisite findings. The Court further observed that, when evaluating a petition for rulemaking under

section 202(a)(1), "[t]he statutory question is whether sufficient information exists to make an endangerment finding." *Id.* at 534; *see also id*. (characterizing effectiveness and appropriateness of greenhouse gas emission standards for motor vehicles as "irrelevant" to a finding of endangerment). Under the Proposal's strained interpretation, however, EPA necessarily could not answer that statutory question at the petition stage because at that point the question would be abstracted from the particular suite of emission standards to be promulgated. In the Proposal's conception, EPA is incapable of granting a petition for rulemaking and then proceeding to conduct the "further action" of rulemaking, 549 U.S. at 533; the agency would have to withhold a decision on the petition until it was ready to finalize emission standards. That peculiar course of proceedings cannot be squared with the majority and dissenting opinions in *Massachusetts*.[190]

If *Massachusetts* were not enough to dispose of the question (and it is), the D.C. Circuit's decision in *Coalition for Responsible Regulation*—a decision the Proposal entirely ignores—squarely rejected the Proposal's statutory interpretation. The D.C. Circuit confirmed that an endangerment evaluation requires EPA to "answer only two questions": whether particular air pollution "may 'reasonably be anticipated to endanger public health and welfare'" and "whether motor-vehicle emissions 'cause or contribute to' that endangerment." 684 F.3d at 117 (citations omitted). Thus, "gauging the effectiveness of whatever emission standards EPA would enact to limit greenhouse gases" is not part of the endangerment inquiry as it does "not inform" the "scientific judgment" that is required of EPA. *Id*. at 118. Likewise, other factors pertinent to standard-setting, such as "the cost of compliance with new emission standards and the availability of technology for meeting those standards," "are not part of the § 202(a)(1) endangerment inquiry." *Id.*; *see also id*. at 119 ("The plain language of § 202(a)(1) . . . does not leave room for EPA to consider as part of the endangerment inquiry the stationary-source regulation triggered by an endangerment finding . . . ."); *id.* at 128 (rejecting position "that EPA's authority to regulate was conditioned on evidence of a particular level of mitigation" because "only a showing of significant *contribution* was required"). That holding of the D.C. Circuit was not disturbed by *UARG*, the Supreme Court decision that features in the Proposal and that only partially reversed *Coalition for Responsible Regulation*. *See UARG*, 573 U.S. at 334 ("EPA may . . . continue to treat greenhouse gases as a 'pollutant subject to regulation under this chapter' for purposes of requiring BACT for 'anyway' sources."); *Chamber of Com. of the United States v. EPA*, 571 U.S. 951 (2013) (denying certiorari review in *UARG* of question "[w]hether EPA's determination [in the 2009 Endangerment Finding] that greenhouse gases 'may reasonably be anticipated to endanger public health or welfare' and otherwise are regulable under section 202(a)(1) of the Clean Air Act, was 'not in accordance with law' or was 'arbitrary, capricious, [and] an abuse of discretion,'" No. 12-1272 (citations omitted)). Particularly given that a finalized Proposal would be subject to judicial review in the D.C. Circuit alone, *see* 42 U.S.C. § 7607(b)(1), EPA cannot simply ignore *Coalition for Responsible Regulation*'s rejection of the agency's new interpretation of section 202(a)(1). *See* Section VI.A *infra* (discussing the ways in which this flaw renders the Proposal arbitrary and capricious).

The crux of the Proposal's objection to EPA making requisite findings before setting the standards is the Proposal's insistence that the endangerment and cause-or-contribute questions

[190] Notably, when it embarked on the process that led to the Proposal, EPA continued to conceive of the endangerment and cause-or-contribute findings "as a required preliminary step in any rulemaking to establish standards." Memorandum from Lee Zeldin, *supra* note 128 at 3.

are inseparable from the question whether particular emission standards are warranted. That is an obvious misreading of section 202(a)(1), whose antecedent "judgment" compelling EPA to prescribe emission standards relates, not to the efficacy of particular standards (or any possible standards), but rather "must relate to whether an air pollutant 'cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare.'" *Massachusetts*, 549 U.S. at 532–33 (quoting 42 U.S.C. § 7521(a)(1)).

Moreover, section 202(a) divides the criteria governing the endangerment and contribution findings from the factors governing EPA's establishment of emission standards. *See* 42 U.S.C. § 7521(a)(1) & (2). It is only once EPA makes a positive endangerment finding under section 202(a)(1) that—"in accordance with the provisions of" section 202(a)(2), *id.* § 7521(a)(1)—cost and availability of controls become relevant to the setting of emission standards. The listing of cost and technology as considerations in section 202(a)(2) bolsters the conclusion that those considerations cannot inform the Administrator's "judgment" referenced in section 202(a)(1). *Cf. Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 466–68 (2001).

The internal structure of section 202(a)(1) reinforces that interpretation. The first sentence's concluding restrictive clause, "which may reasonably be anticipated to endanger public health or welfare," modifies the term "air pollution"—not "standards," "emission," or "new motor vehicles or new motor vehicle engines." 42 U.S.C. § 7521(a)(1). Thus, the first inquiry for EPA is the so-called endangerment finding: whether a given type of air pollution may reasonably be anticipated to endanger public health or welfare. The *origin* of the subject air pollution is not relevant to the endangerment finding. Nor is the appropriateness of standards to respond to the endangerment.

Once EPA finds endangerment from air pollution, the origin of the air pollution comes into play, but the appropriateness of standards *still* does not. To regulate emissions under section 202(a)(1), EPA must then make a "cause or contribute" finding. Because "air pollution" is the direct object of the verb "cause, or contribute," the subject logically must be "emission." It is the emissions from vehicles, not vehicles themselves, that cause or contribute to pollution, *see Coal. for Responsible Regul.*, 684 F.3d at 117; that, of course, is why it is the "emission" to which EPA's standards "appl[y]," 42 U.S.C. § 7521(a)(1).

The fact that section 202(a)(1) pairs the singular noun "emission" with the plural verbs "cause, or contribute" reveals nothing of Congress's intent. The two verbs have flipped back and forth between singular and plural between amendments, with no evident change in meaning. *Compare* Pub. L. No. 91-604, § 6(a), 84 Stat. 1690 (1970) ("causes or contributes to"), *with* Pub. L. No. 95-95, § 401(d)(1), 91 Stat. 685, 791 (1977) ("cause, or contribute to"). The Clean Air Act likewise uses "emission" and "emissions" interchangeably. *Compare* 42 U.S.C. § 7521(a)(1) (standards "applicable to the emission of any air pollutant"), *with id.* § 7521(a)(3)(A)(i) (standards "applicable to emissions of hydrocarbons"); *compare also id.* § 7521(b)(2) ("emission standards"), *with id.* § 7521(c)(1) ("emissions standards"). Thus, EPA must determine whether there is a causal or contributory relationship between the *emissions* from the vehicles at issue and the *air pollution* already, and separately, found to endanger.

The link between "air pollutant" and "air pollution" in section 202(a)(1) further underscores that this is the best interpretation. The Clean Air Act does not define "air pollution," but it does define "air pollutant" as "any air pollution agent or combination of such agents." 42 U.S.C. § 7602(g). The best reading of section 202(a)(1) is thus that the "air pollutant" whose

emission by new motor vehicles or engines is regulable is an agent that contributes to the "air pollution" that is the subject of EPA's endangerment finding. Indeed, the Proposal does not seem to contend otherwise.

Thus, once EPA has made an endangerment and a cause-or-contribute determination, its threshold inquiries are complete, and section 202(a)(1) demands that the agency issue "standards applicable to the emission of any air pollutant from" the subject class or classes of vehicles or engines. 42 U.S.C. § 7521(a)(1). Only then, in "prescrib[ing]" or "revis[ing]" the standards, must EPA account (for the first time in the agency's rulemaking journey) for the considerations laid out in section 202(a)(2). *Id.* § 7521(a)(1)–(2).

The Proposal suggests that divvying up EPA's tasks in this manner and order is irrational, and that the only permissible approach is for the agency to conduct a single, super-inquiry as a "cohesive whole." 90 Fed. Reg. at 36,298. To make that argument, the Proposal reimagines section 202(a)(1) to read something like the following:

> **If in his judgment it is appropriate, t**he Administrator shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards **that address endangerment of public health or welfare from** ~~to~~ the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines**.**~~, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endangerment of public health or welfare.~~

Regardless whether such a statute reflects a rational policy that Congress could adopt, it is not the statute Congress drafted. Instead, Congress wrote section 202(a) to separate EPA's endangerment and cause-or-contribute inquiries from each other and from the agency's downstream prescription or revision of particular standards. Importantly, Congress structured section 202 so that the *scientific* inquiry into whether a particular source contributes to dangerous pollution is evaluated "upstream" of the more *policy-focused* inquiry of setting appropriate standards. *See Massachusetts*, 549 U.S. at 532–33 ("While the statute does condition the exercise of EPA's authority on its formation of a 'judgment,' that judgment must relate to whether an air pollutant 'causes, or contributes to, air pollution which may reasonably be anticipated to endanger public health or welfare." (internal citations omitted) (quoting 42 U.S.C. § 7521(a)(1))); *id.* at 552 (dissent agreeing with this interpretation); *see also* Vehicles Comment Section IV.A.1.d (describing legislative history limiting technological feasibility inquiry to section 202(a)'s lead-time provision).

The Proposal's related suggestion that the predicted efficacy of vehicular emission standards in mitigating endangerment is pertinent to the threshold findings that underlie (and compel) EPA's rulemaking conflicts with *Massachusetts*'s recognition that the effectiveness of both regulatory and non-regulatory measures in curbing greenhouse gas emissions was irrelevant to the scientific "judgment" that EPA must make at the outset. 549 U.S. at 533 (noting that the question whether regulation under section 202(a) would be "an inefficient . . . approach" had "nothing to do with" EPA's authority to regulate); *id*. at 534 (dismissing as irrelevant any consideration of the "effective[ness]" of prospective section 202(a) standards); *accord Coal. for Responsible Regul*., 684 F.3d at 119, 128.

For the same reasons, the Proposal's assertion, 90 Fed. Reg. at 36,303, that the 2009 Endangerment Finding erred by treating adaptation and mitigation as outside the scope fails. As just explained, the endangerment finding is concerned with whether the air pollution may be reasonably anticipated to endanger public health and welfare, *not* the policy consequences of regulation, including solutions that may be brought to mitigate or adapt to that endangerment. The Proposal's assertions regarding adaptation echo arguments made by industry in the context of regulating SO_2 in the 1990s. 61 Fed. Reg. 25,566, 25,569 (May 22, 1996). There, industry commenters argued that in deciding whether to set standards for short-term peak exposure to SO_2, EPA should consider the availability of medications, including inhalers: "[t]he ability of inhaled beta$_2$-agonists, the most commonly prescribed class of asthma medications, to prevent or ameliorate the effects of SO_2 exposure was frequently cited as one reason why most asthmatic individuals are unlikely to experience bronchoconstriction due to exposure to short term peaks of SO_2." *Id.* at 25,573. When EPA declined to set a standard, the D.C. Circuit vacated that decision, treating the need to use medication as a harmful effect of short-term SO_2 exposure, not a reason not to regulate. *See Am. Lung Ass'n v. EPA*, 134 F.3d 388, 392 (D.C. Cir. 1998) ("Why are disruptions of ongoing activities, use of medication, and hospitalization not 'adverse health effects' for asthmatics? Answers to these questions appear nowhere in the administrative record."). Steps taken to adapt to climate change are part of the harm (and the costs) caused by greenhouse gas emissions, not a reason to avoid regulation.

Even if mitigation and adaptation could or should be taken into account in making an endangerment finding (they cannot and should not), the Proposal does not reflect any attempt to grapple with how to do so, or to explain why taking those considerations into account eliminates the grave endangerment posed by greenhouse gases. If the Proposal were serious on this front, it would not have cast aside the social cost of greenhouse gases, the one measure that attempts to incorporate the costs and benefits of mitigation adaptation. *See infra* Section VIII.B. Specifically, the 2023 EPA values are informed, to the extent feasible based on the underlying research, by projections of adaptation and adaptation costs.[191] Indeed, "the modeled estimates employ optimistic assumptions about adaptation decisions in the estimation of coastal damages [assuming] perfect foresight about [sea level rise] conditions [and that decision makers] always choose the lowest-cost adaptation strategy and level of investment," even though "[r]ecent studies have also highlighted that observed levels of investment in adaptative measures are significantly lower than what is predicted under optimistic cost-minimizing assumptions. . . . [C]urrent [U.S.] adaptation policy tends to be implemented reactively, post-disaster."[192] The Proposal's complaint that the 2009 Endangerment Finding did not consider the ability to adapt paired with its ignorance of the way EPA has attempted to gauge the effects of adaptation only underscores the Proposal's profound deficiencies.

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[191] EPA, REPORT ON THE SOCIAL COST OF GREENHOUSE GASES: ESTIMATES INCORPORATING RECENT SCIENTIFIC ADVANCES, SUPPLEMENTARY MATERIAL FOR THE REGULATORY IMPACT ANALYSIS FOR THE FINAL RULEMAKING, "STANDARDS OF PERFORMANCE FOR NEW, RECONSTRUCTED, AND MODIFIED SOURCES AND EMISSIONS GUIDELINES FOR EXISTING SOURCES: OIL AND NATURAL GAS SECTOR CLIMATE REVIEW" (EPA-HQ-OAR-2021-0317) 48–50, 53–55 (Nov. 2023) [hereinafter 2023 EPA REPORT], https://perma.cc/DK5F-YYMQ.

[192] *Id.* at 84.

Finally, the Proposal's suggestion that its "integrated 202" interpretation comports with pre-2009 EPA practice is incorrect. 90 Fed. Reg. at 36,302. Under the logic of its interpretation, EPA would be required to explicitly revisit an endangerment determination each and every time it revises emission standards; in the Proposal's words, "section 202(a) requires issuing emission standards together with the findings necessary to invoke our regulatory authority." *Id.* Yet EPA frequently revised section 202(a)(1) standards before 2009 without explicitly revisiting the predicate endangerment finding. *E.g.*, 56 Fed. Reg. 25,724 (June 5, 1991) ("Tier 1" vehicle emission standards); 65 Fed. Reg. 6698 (Feb. 10, 2000) ("Tier 2" standards).

In sum, EPA's "integrated 202" interpretation is erroneous.

2. EPA's decision in 2009 to consider the six "well-mixed" greenhouse gases together was grounded in science and consistent with the statutory framework.

As part of its "integrated 202" rationale, 90 Fed. Reg. at 36,304, and repeated in its "science discussion," *id.* at 36,310, EPA proposes that it was problematic to consider six greenhouse gases that are well-mixed in the atmosphere collectively when making the 2009 Endangerment Finding because (1) the Act provides for different regulatory approaches for different types of sources; (2) each greenhouse gas has different chemical properties, different "interactions with the natural environment," and different emission profiles; and (3) EPA did not analyze whether different greenhouse gases "could be addressed separately in a manner that would impact the ultimate conclusions of endangerment and contribution," *id.* at 36,304; 36,310. EPA's claims fall short.

First, and fatally, the Supreme Court has already foreclosed EPA's strained argument. EPA does not, because it cannot, explain how the Act's capacious definition of "air pollutant"—"any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive (including source material, special nuclear material, and byproduct material) substance or matter which is emitted into or otherwise enters the ambient air"—which explicitly calls for consideration of a "combination of such agents"—permits EPA's statutory interpretation that a multi-pollutant endangerment finding is precluded. 42 U.S.C. § 7602(g). The Supreme Court has already held as much: "On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word 'any.'" *Massachusetts*, 549 U.S. at 529. Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt "physical [and] chemical . . . substance[s] . . . which [are] emitted into . . . the ambient air." 42 U.S.C. § 7602(g). "The statute is unambiguous." *Massachusetts*, 549 U.S. at 529. The Court further noted that "EPA never identifies any action remotely suggesting that Congress meant to curtail its power *to treat greenhouse gases as air pollutants*." *Id.* (emphasis added). It went on to hold that "[b]ecause *greenhouse gases* fit well within the Clean Air Act's capacious definition of 'air pollutant,' we hold that EPA has the statutory authority to regulate the emission of *such gases* . . . ." *Id.* at 532 (emphases added).[193]

[193] The Court confirmed this holding in *AEP*. *See* 564 U.S. at 416 ("[T]his Court held that the Clean Air Act . . . authorizes federal regulation of emissions of carbon dioxide and other greenhouse gases. '[N]aturally present in the atmosphere and . . . also emitted by human activities,' greenhouse gases are so named because they 'trap . . . heat that would otherwise escape from the [Earth's] atmosphere, and thus

Second, mitigating emissions of any of these gases addresses the same endangerment via the same primary mechanism—thus the inescapable logic of the collective endangerment finding. No one disagrees that different greenhouse gases have different chemical properties, different interactions with other molecules in the atmosphere, and different average atmospheric lifetimes. But the fundamental facts remain that (1) atmospheric concentrations of each of the six well-mixed greenhouse gases are increasing due to human activities, and (2) each is a greenhouse gas—such that increasing atmospheric concentrations has the certain effect of trapping more energy in the Earth's system and causing global average temperatures to rise. *See infra* Section V.A. The rise in global average temperatures—caused by emissions of any and each of these gases—causes the harmful climate impacts discussed *supra* Section II and *infra* Section V.A. Therefore, (3) each and all of these gases—*whether considered separately or collectively*— "may reasonably be anticipated to endanger public health or welfare." Indeed, Congress itself has grouped these six greenhouse gases together in the Clean Air Act—in both the Renewable Fuels Program, 42 U.S.C. § 7545(o)(1)(G) (defining the term "greenhouse gas" to mean the same six pollutants included in the 2009 Endangerment Finding), and in several provisions added by the IRA, *e.g.*, *id.* § 7433(d)(2) (same). Further, mitigating emissions of any of these gases mitigates global warming, and the climate harms that result.

Third, EPA's approach in 2009 is entirely consistent with EPA's long-standing approach to assessing harm from other air pollutants. For example, EPA assesses the health and welfare harms of nitrogen oxides (nitric oxide, nitrogen dioxide, nitrous oxide, unsymmetrical nitrogen trioxide, symmetrical nitrogen trioxide, dinitrogen trioxide, dinitrogen tetroxide), nitrates, nitrites, nitrogen acids, ammonia, and n-nitroso compounds collectively—even though the pathways through which these various molecules cause harm are more diverse than greenhouse gases.[194] EPA similarly assesses the harm caused by sulfur oxides collectively.[195] Both PM[196] and

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form the greenhouse effect."). In describing EPA's 2009 Endangerment Finding, the Court made no suggestion that its collective evaluation of the six well-mixed gases was in any way untoward.

[194] EPA, EPA-600/8-82-026F, AIR QUALITY CRITERIA FOR OXIDES OF NITROGEN: FINAL REPORT at iii – 1-29 (Dec. 1982), https://perma.cc/Q3B2-XYV2 (discussing "atmospheric chemical processes which transform emissions of nitrogen oxides into related airborne compounds", including (like with greenhouse gases) the many and varied sources of natural and anthropogenic emissions, transport, removal from the atmosphere, atmospheric reactions, and effects on climate dynamics (e.g., acid rain) that cause harm; also discussing inhalation risks and sensory system effects from NO_2, contributions to haze from NO_2 and particulate nitrates, oxides of nitrogen as precursors to acid rain, crop damage caused by NO_x, and corrosion of metals and deterioration of electrical contracts due to nitrates and nitrogenous acids); *see also* EPA, INTEGRATED SCIENCE ASSESSMENT FOR OXIDES OF NITROGEN—HEALTH CRITERIA, *supra* note 158, at 2-87 (discussing the role of anthropogenic emissions from other countries, including from other continents).

[195] EPA, EPA/600/R-17/451, INTEGRATED SCIENCE ASSESSMENT FOR SULFUR OXIDES – HEALTH CRITERIA (Dec. 2017), https://perma.cc/3LHC-6BHE (evaluating SO_2, atmospheric reactions with OH, SO_3, and H_2SO_4 (which creates acid rain), bisulfate, sulfite, S-sulfonates, and sulfate).

[196] "Particulate matter (PM) is the generic term for a broad class of chemically and physically diverse substances that exist as discrete particles (liquid droplets or solids) over a wide range of sizes. Particles originate from a variety of anthropogenic stationary and mobile sources, as well as from natural sources. Particles may be emitted directly or formed in the atmosphere by transformations of gaseous emissions

VOCs[197] are by definition collections of various and diverse molecules, and their health effects are evaluated collectively. Similarly, the health effects of tropospheric ozone ("produced near the earth's surface due to chemical interactions involving solar radiation and specific ozone precursors, such as nitrogen oxides (NO_X), volatile organic compounds (VOCs), and carbon monoxide (CO), which can be emitted from both natural and anthropogenic sources") are evaluated collectively with "related photochemical oxidants."[198] And, like greenhouse gases, these collections of pollutants are emitted by natural and anthropogenic sources both domestically and internationally, have complex atmospheric dynamics and fates, and cause a variety of health and welfare harms through a variety of pathways—including pathways that do not involve the inhalation of the regulated pollutant.

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such as sulfur oxides (SO_X), oxides of nitrogen (NO_X), ammonia (NH_3) and volatile organic compounds (VOCs). Examples of secondary particle formation include: (1) the conversion of SO_2 to sulfuric acid (H_2SO4) vapor that nucleates new particles or condenses on existing particles and further reacts with NH_3 to form various inorganic salts (e.g., ammonium sulfate, $[NH_4]_2SO_4$, or ammonium bisulfate, NH_4HSO_4); (2) the conversion of nitrogen dioxide (NO_2) to nitric acid (HNO3) vapor that condenses onto existing particles and reacts further with ammonia to form ammonium nitrate (NH_4NO_3); and (3) reactions involving gaseous VOCs yielding organic compounds with low vapor pressures that nucleate or condense on existing particles to form secondary organic particulate matter [SOPM; U.S. EPA (2004)]. The chemical and physical properties of PM vary greatly with time, region, meteorology, and source category, thus complicating the assessment of health and welfare effects." EPA, EPA/600/R-19/188, INTEGRATED SCIENCE ASSESSMENT FOR PARTICULATE MATTER AT P-3 – P-4 (Dec. 2019), https://perma.cc/T9RP-8QMM. Particulate matter components include SO_4^{2-}, NO_3^-, NH_4^+, organic carbon, and elemental carbon. *Id.* at 2-35. Particulate matter effects are evaluated mostly by categorizing it via particle size (e.g., PM_{10}, $PM_{2.5}$, ultrafine particulates) rather than via molecular composition. *Id.* at 1-21 – 1-42. The pathways through which health effects occur are diverse, and include respiratory, cardiovascular, nervous system, cancer, and mortality. Welfare harms include visibility impairment, climate effects (cooling via cloud formation), and materials damage via soiling and corrosion. *Id.* 1-56 – 1-59.

[197] "Volatile organic compounds (VOC) means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions." 40 CFR § 51.100(s). EPA's regulatory definition also excludes multiple carbon compounds that have been determined to have negligible photochemical reactivity. *Id.* "VOCs typically are industrial solvents, such as trichloroethylene; fuel oxygenates, such as methyl tert-butyl ether (MTBE); or by-products produced by chlorination in water treatment, such as chloroform. . . .VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects." EPA, *What are volatile organic compounds (VOCs)?* (last updated Feb. 24, 2025), https://perma.cc/55E9-7NSV. Although inhalation of VOCs can cause a variety of harmful health effects, depending upon the chemical composition and toxicity of the molecular chemical components, EPA regulates VOCs only as a precursor the formation of tropospheric ozone (because EPA lacks regulatory authority to address indoor air quality). EPA, *Volatile Organic Compounds' Impact on Indoor Air Quality*, *supra* note 162; EPA, *Does EPA regulate volatile organic compounds (VOCs) in household products? supra* note 162.

[198] EPA, EPA/600/R-20/012, INTEGRATED SCIENCE ASSESSMENT FOR OZONE AND RELATED PHOTOCHEMICAL OXIDANTS, *supra* note 157, at lxiv. Note that "[m]ajor contributors [U.S. background] ozone concentrations are stratospheric exchange, international transport, wildfires, lightning, global methane emissions, and natural biogenic and geogenic precursor emissions." *Id.* at ES-3.

To be sure, a collective endangerment finding might not be sensible in a different context—where the danger posed by different gases only existed under specific and different conditions for the different gases, such as two carcinogens that had nothing else in common and where one was harmful if inhaled and the other harmful once it was deposited in waterbodies and digested by fish. Or if different gases caused entirely different types of endangerment—such as lumping a carcinogen with a precursor of acid rain. There might also be situations where a collective endangerment finding was the only appropriate approach—such as where two different pollutants were only harmful if emitted at the same time by the same source. But here, no such circumstances are present.

Fourth, making a single endangerment finding that captures the CO_2, methane, nitrous oxide, HFCs, perfluorocarbons, and SF_6 has not impaired EPA's ability to evaluate and act upon any relevant considerations. It would be rational and appropriate for EPA to consider the different properties of the different gases in setting regulatory priorities—focusing initially on the gas emitted in greatest quantities and causing the greatest amount of warming (CO_2), and the gases that have greater heat-trapping capacities (such as methane and HFCs). It would also be rational and appropriate to consider the largest scale and most cost-effective emission-reduction opportunities (as EPA has done in prioritizing emission standards for power plants, vehicles, and oil and gas production and transportation). Nor has the Proposal pointed to any way in which the collective nature of the endangerment finding has unlawfully altered the regulations that followed, or impaired EPA's ability to effectuate its Congressionally mandated mission of protecting communities from dangerous air pollution by requiring reductions in emissions. To the contrary, the regulation of both CO_2 and HFCs in the vehicles greenhouse gas emission standards (which could have occurred regardless of whether the original endangerment finding was collective or separate) allowed vehicle manufacturers greater flexibility to achieve greater reductions of HFCs and lower reductions of CO_2, or vice versa, to optimize their business strategies while still achieving compliance with the standards. Indeed, in the sixteen years since EPA began regulating greenhouse gases from different sources under different sections of the Clean Air Act, no problems have arisen with the consideration of the six well-mixed greenhouse gases in assessing endangerment, in designing emission standards, or in implementing them.

Fifth, EPA's suggestion that the outcome of the endangerment inquiry would change if the six gases were considered separately is particularly implausible in the context of vehicle emissions, where the sector is the largest source of domestic CO_2 emissions—28% per EPA's own data in 2022[199]—and where vehicles also emit HFCs, some of the most potent greenhouse gases.[200] CO_2 is of particular importance to climate change because rising CO_2 concentrations due to anthropogenic emissions have been the most important contributor to global warming.[201] Gases with high global warming potential like HFCs are of particular importance because they are so effective at trapping additional heat.

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[199] EPA, EPA 430-R-24-004, U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2022 at 2-30 (2024), https://perma.cc/RN84-CX7H.

[200] *Id.* at ES-3.

[201] *Id.* at 1-5.

Finally, EPA's conclusory claims otherwise are meritless. EPA fails to explain how the Act's different regulatory approaches are relevant to the pertinent question whether greenhouse gas emissions endanger public health and welfare in the first place. *See infra* Section IV.A. EPA similarly fails to explain how different statutory approaches for determining whether a source meets the standard for regulation—such as "cause, or contribute to" (section 202(a)(1)), versus "causes, or contributes significantly to" (section 111(b)(1)(A)), are relevant to the question whether air pollution "may reasonably be anticipated to endanger public health or welfare" (sections 202(a)(1) and 111(b)(1)(A)). Indeed, EPA made a separate endangerment finding for greenhouse gas emissions from aircraft, so that clearly cannot pose a problem.[202]

In sum, all six gases are emitted into the air, end up well-mixed in the atmosphere, capture more energy that would otherwise be lost to space, cause global warming, and thereby cause climate impacts that endanger human health and welfare. EPA's consideration of the six gases together was both lawful and basic common sense. Further, the outcome would not change if EPA considered the individual gases separately, because they all cause endangerment via the same mechanism, and mitigating emissions of any of them mitigates the endangerment.

3. Greenhouse gas emissions from motor vehicles contribute to dangerous air pollution under any interpretation of the statutory language.

As another offshoot of its "integrated 202" rationale, EPA in various places proposes to conclude that greenhouse gas emissions from light-, medium-, and heavy-duty vehicle sources, even if completely eliminated, "would not reliably and meaningfully reduce elevated global concentrations of GHGs and, therefore, not reliably and meaningfully reduce the risks of climate change asserted in the Endangerment Finding." 90 Fed. Reg. at 36,312. As just discussed, this "integrated 202" approach—whereby EPA merges endangerment, contribution, and standard-setting into a single insurmountable step—is not supported by the statute. In any event, EPA is wrong that motor vehicles, which constitute the preponderance (80%)[203] of U.S. transportation sector emissions and 3.8% of worldwide emissions,[204] do not "contribute" even under EPA's proposed "integrated 202" interpretation. Instead, past findings confirm that the term "contribution" comfortably covers emission contributions of the scale at issue here, section 202 does not require that the pollution problem be solvable by regulation of a source category (or multiple source categories) alone, and reducing U.S. motor vehicle emissions will have an

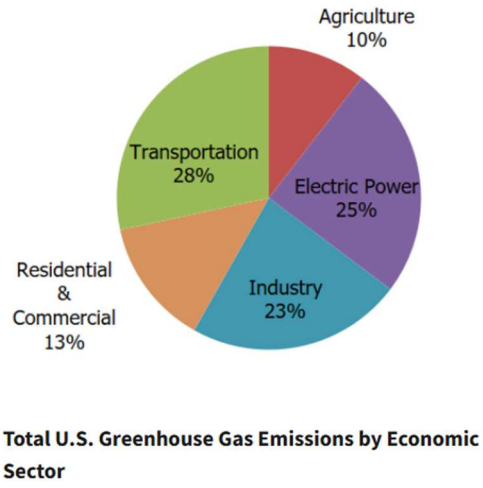
[202] Finding That Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution That May Reasonably Be Anticipated To Endanger Public Health and Welfare, 81 Fed. Reg. 54,422 (Aug. 15, 2016).

[203] Passenger cars, light-duty trucks, and medium- and heavy-duty trucks gasoline and diesel emissions in the United States were 1,405.5 million metric tons of CO_2 in 2022 compared to a total 1,757.4 million metric tons of CO_2 emissions for the whole U.S. transportation sector, or 80%. (1,405.5/1,757.4). *See* EPA, EPA 430-R-24-004, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS 1990-2022, *supra* note 199, at 3-27 (Table 3-13 CO_2 Emissions from Fossil Fuel Combustion in Transportation End-Use Sector (2024)).

[204] According to data from the International Energy Agency, global CO_2 emissions from energy combustion and industrial processes were 36.8 Gt in 2022, while total U.S. emissions for the year were 4.7 Gt. *See* INT'L ENERGY AGENCY, GLOBAL ENERGY REVIEW: CO_2 EMISSIONS (2025), https://perma.cc/5PCQ-JLQM.

impact on public health and welfare.[205] *See Massachusetts*, 549 U.S. at 524 ("Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop . . . . They instead whittle away at them over time.").

First, the term "contribution" comfortably covers emissions contributions of the amount at issue here, as EPA has long found. The transportation sector contributes 28% of U.S. greenhouse gas emissions from all sources, as reflected in the chart below.[206]



Sources of Greenhouse Gas Emissions, EPA (last updated Mar. 31, 2025), *infra* note 206.

If a finding of lack of contribution at that threshold were applied across the board—i.e., if 28% of U.S. emissions does not constitute a contribution to air pollution—EPA would be prevented

[205] The Proposal does not retread EPA's errant path in 2003 of relying on the President's authority over foreign affairs to support a decision not to regulate greenhouse gases, but it is peppered with suggestions that regulating vehicles is futile in light of the emissions of other countries. *See* 90 Fed. Reg. at 36,312. Section 202 leaves no room for foreign policy to influence the Administrator's judgment whether U.S. vehicular emissions cause or contribute to air pollution that may be reasonably anticipated to endanger public health or welfare. All nine Justices of the *Massachusetts* Court agreed on that much. The majority made clear that EPA's claim in 2003 that "climate change raises important foreign policy issues, and it is the President's prerogative to address them," 549 U.S. at 552 (Scalia, J., dissenting) (quoting 68 Fed. Reg. at 52,931), "rest[ed] on reasoning divorced from the statutory text" of Section 202(a), *Id.* at 532 (majority opinion). And the dissent retorted: "True but irrelevant," and noted that such considerations could be the basis for deferral of a finding, but not for a negative endangerment finding. *Id.* at 552 (Scalia, J., dissenting). The Clean Air Act was enacted under the Commerce Clause, which assigns Congress—not the President—authority to regulate interstate and foreign commerce. The Executive's role is then to faithfully execute Congress's "'considered judgment' concerning the regulation of air pollution," *AEP*, 564 U.S. at 426, even if that faithful execution frustrates a particular President's foreign-policy objectives.

[206] EPA, *Sources of Greenhouse Gas Emissions* (last updated Mar. 31, 2025), https://perma.cc/3WWP-A2RH.

from eliminating the kinds of endangerment that section 202 seeks to address, and its past standards for dangerous pollution could be called into question.

Indeed, U.S. vehicles' contributions to global greenhouse gas pollution are comparable to or even greater than other pollution inventories that EPA has found to "*significantly* contribute" to national pollution problems under other provisions of the statute. In the context of regulating emissions from stationary sources under Clean Air Act section 111, EPA has consistently found that even modest emission inventories not only contribute, but "significantly contribute," to dangerous air pollution and thus require regulatory action. For example, in 1973, EPA issued standards for emissions of hydrocarbons from petroleum liquid storage vessels, which represented approximately 3% of total national hydrocarbons. Standards of Performance for New Stationary Sources, Proposed Standards for Seven Source Categories, 38 Fed. Reg. 15,406 (June 11, 1973). In 1977, EPA issued standards for lime manufacturing plants, ranking them twenty-fifth on a list of 112 domestic stationary sources of PM. Standards of Performance for New Stationary Sources, Lime Manufacturing Plants, 42 Fed. Reg. 22,506, 22,507 (May 3, 1977). That same year, EPA issued standards for stationary gas turbines, which emitted approximately 2.5% of the total oxides of nitrogen emissions from stationary sources in 1972 and ranked sixteenth in stationary sources of controllable oxides of nitrogen. Stationary Gas Turbines, Standards of Performance for New Stationary Sources, 42 Fed. Reg. 53,782, 53,783 (Oct. 3, 1977). In 1979, EPA issued a priority list of categories of stationary sources and included organic solvent cleaners, which together represented approximately 5% of stationary source VOCs, while each individual facility typically emitted less than 100 tons per year of such compounds. Priority List and Additions to the List of Categories of Stationary Sources, 44 Fed. Reg. 49,222 49,223–24 (Aug. 21, 1979). In 1982, EPA issued standards for lead-acid battery manufacturing even though they emitted only 0.32% of industrial lead emissions, or 0.014% of total nationwide lead emissions, finding that although this accounted for a small share of total nationwide atmospheric lead emissions, the source category contributes significantly to already-high lead pollution in urban areas. Standards of Performance for New Stationary Sources; Lead-Acid Battery Manufacture, 47 Fed. Reg. 16,564, 16,570 (Apr. 16, 1982). In 1991, EPA promulgated standards of performance for municipal solid waste landfills, finding a significant contribution from approximately 1% of the non-methane organic compound emissions from stationary sources, totaling approximately 283,000 tons per year. Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills, 56 Fed. Reg. 24,468, 24,473 (May 30, 1991).

In each of those final rules, EPA found the pollution source contributed significantly to dangerous air pollution, even though that contribution represented a small percentage of the total amount of the relevant pollutant—thus demonstrating that even small contributions to air pollution may be reasonably anticipated to endanger public health or welfare. In the context of climate change, and as discussed further below, peer-reviewed and widely accepted climate science confirms that the continuous rise in global temperatures and resulting intensification of climate harms cannot be stopped until net anthropogenic emissions reach zero—which requires addressing emissions from source sectors that constitute a "small" percentage of global emissions. Consistent with that scientific consensus, the 2016 Endangerment Finding concluded that U.S. aircraft emissions, which in 2014 constituted 0.4% of global greenhouse gas emissions, "clearly contribute to endangering GHG pollution," whether compared to domestic or global greenhouse gas emissions. 81 Fed. Reg. at 54,461. In response to comments suggesting this share

of global greenhouse gas emissions was too small, EPA disagreed and found the contribution of U.S. aircraft was, in fact, "significant" because "their GHG emissions are larger than those from the great majority of emitting countries, they are larger than those of several major emitting countries, and they constitute one of the largest remaining unregulated contributing parts of the U.S. GHG emissions inventory." *Id.* at 54,473. Subsequently, EPA under the first Trump administration adopted standards for U.S. aircraft greenhouse gas emissions that had *no* associated greenhouse gas emission reductions *at all*. 86 Fed. Reg. 2136, 2139 (Jan. 11, 2021). Far from dismissing these standards as "futile," EPA concluded these standards would prevent backsliding, protect U.S. manufacturers' global competitiveness, and carry "substantial benefits for future international cooperation" on "worldwide emission reductions." *Id.* at 2158; *see also id.* at 2139, 2144–45. All these benefits obtain in the onroad vehicles context, yet EPA now does not even mention them. In the Proposal, EPA nowhere attempts to square its novel position that vehicles greenhouse gas emissions have no "meaningful impact on the identified dangers," 90 Fed. Reg. at 36,312, with its prior conclusions that smaller contributions still "significantly contribute" to dangerous pollution and that their reductions reduce endangerment. *See infra* Section VI.A (discussing ways in which this flaw renders the Proposal arbitrary and capricious).

Second, and relatedly, section 202 does not require that the pollution problem be solvable by regulation of a source category (or multiple source categories) alone. For some types of pollutants—greenhouse gases included, but also pollutants like lead and asbestos—endangerment is caused by emissions from many different types of sources, is abated by reducing emissions from any of those sources, and can only be addressed fully through reductions in emissions from a wide variety of sources. *See infra* Section V.A. The Proposal's proposition that dangerous pollution will only be addressed if there is some (undefined) "meaningful" impact on the endangerment or (also undefined) "measurable impact on trends," 90 Fed. Reg. at 36,312, would fundamentally undermine the goals of the Clean Air Act to mitigate contributions to dangerous air pollution. The fact that regulation of any one category of sources will not solve the entirety of the problem in "one fell regulatory swoop" cannot justify not taking regulatory action that is necessary (but not sufficient) to address the endangerment that may reasonably be anticipated. *See Massachusetts*, 549 U.S. at 524. Nor has EPA *ever* constrained its pollution standards by their ability to produce "measurable" or "meaningful" outcomes in terms of specific pollution harm endpoints—because the Act directs EPA to assess endangerment, to assess whether U.S. sources cause or contribute to air pollution that endangers, and then to develop standards to address the contribution subject to statutory guideposts. *See Coal. for Responsible Regul.*, 684 F.3d at 127–28 (rejecting argument "that EPA's authority to regulate was conditioned on evidence of a particular level of mitigation; only a showing of significant contribution was required."). Nowhere does the Act empower EPA to evade its statutory obligations to evaluate whether Congress's directives make sense to EPA. *See* Vehicles Comment Sections IV.A.1, IV.B.1.a.2.

Third, in any event, the danger greenhouse gases pose to public health and welfare cannot be fully addressed *without* regulating meaningful contributors of greenhouse gas emissions—including the U.S. transportation sector—and reducing emissions from *any* source of those emissions *reduces* the endangerment caused by climate change. Both climate change and ocean acidification are problems caused by increasing accumulation of greenhouse gases in the atmosphere (and then ocean). It is therefore both scientifically established and obvious that reducing emissions reduces endangerment. As the IPCC concluded, "[d]eep, rapid, and sustained

reductions in greenhouse gas emissions" are necessary to address climate harms, and every increase in emissions makes the harm worse:

> Every increment of global warming will intensify multiple and concurrent hazards . . . [C]ontinued emissions will further affect all major climate system components. With every additional increment of warming, changes in extremes continue to become larger. Continued global warming is projected to further intensify the global water cycle, including its variability, global monsoon precipitation, and very wet and very dry weather. . . . With further warming, every region is projected to increasingly experience concurrent and multiple changes in climatic impact-drivers. . . . High risks are now assessed to occur at lower global warming levels. . . . Some future changes are unavoidable and/or irreversible but can be limited by deep and sustained global greenhouse gas emissions reductions. The likelihood of abrupt and/or irreversible changes increases with higher global warming levels. Similarly, the probability of low-likelihood outcomes associated with potentially very large adverse impacts increases with higher global warming levels. . . . . Cumulative carbon emissions until the time of reaching net zero CO_2 emissions and the level of greenhouse gas emission reductions this decade largely determine whether warming can be limited to 1.5°C or 2°C.[207]

In addition, future emissions of greenhouse gases will have greater warming effects than prior emissions, because the climate becomes increasingly sensitive to additional emissions as the pre-existing concentration of CO_2 rises.[208] Mitigating emissions from the largest contributors is particularly important in reducing overall accumulation, which directly reduces overall harm. Further, decarbonizing sectors now—before the world reaches peak emissions—reduces the risk that the accumulation will trigger a tipping point in the climate system and catastrophic climate damages.[209]

Even setting aside the net zero CO_2 emissions target that is necessary to constrain global warming, as illustrated in Figure 7 below, to meet its still-in-force Paris Agreement target of a

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[207] 2023 IPCC SYNTHESIS REPORT, *supra* note 66, at 12–13, 17–19; *see also* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 38.

[208] The instantaneous radiative forcing for a doubling of CO_2 concentrations increases by ~25% with each doubling of the base-state CO_2 concentration. Haozhe He et al., *State Dependence of CO_2 Forcing and Its Implications for Climate Sensitivity*, 382 SCI. 1051–56 (2023), https://perma.cc/SP5J-BJVN.

[209] VALÉRIE MASSON-DELMOTTE ET AL., EDS., IPCC, CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS: CONTRIBUTION OF WORKING GROUP I TO THE SIXTH ASSESSMENT REPORT OF THE IPCC, at 106 (2021) [hereinafter IPCC PHYSICAL SCIENCE AR6], https://tinyurl.com/3dekew8v ("The probability of low-likelihood, high-impact outcomes increases with higher global warming levels (high confidence)."); *see also* 2023 IPCC SYNTHESIS REPORT, *supra* note 66, at 182 ("At sustained warming levels between 2°C and 3°C, the Greenland and West Antarctic ice sheets will be lost almost completely and irreversibly over multiple millenia, causing several metres of sea level rise. . . . Due to deep uncertainty linked to ice-sheet processes, global mean sea levels above the *likely* range – approaching 2 m by 2100 and in excess of 15 m under the very high GHG emissions scenario . . . cannot be excluded."); *see also* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 39.

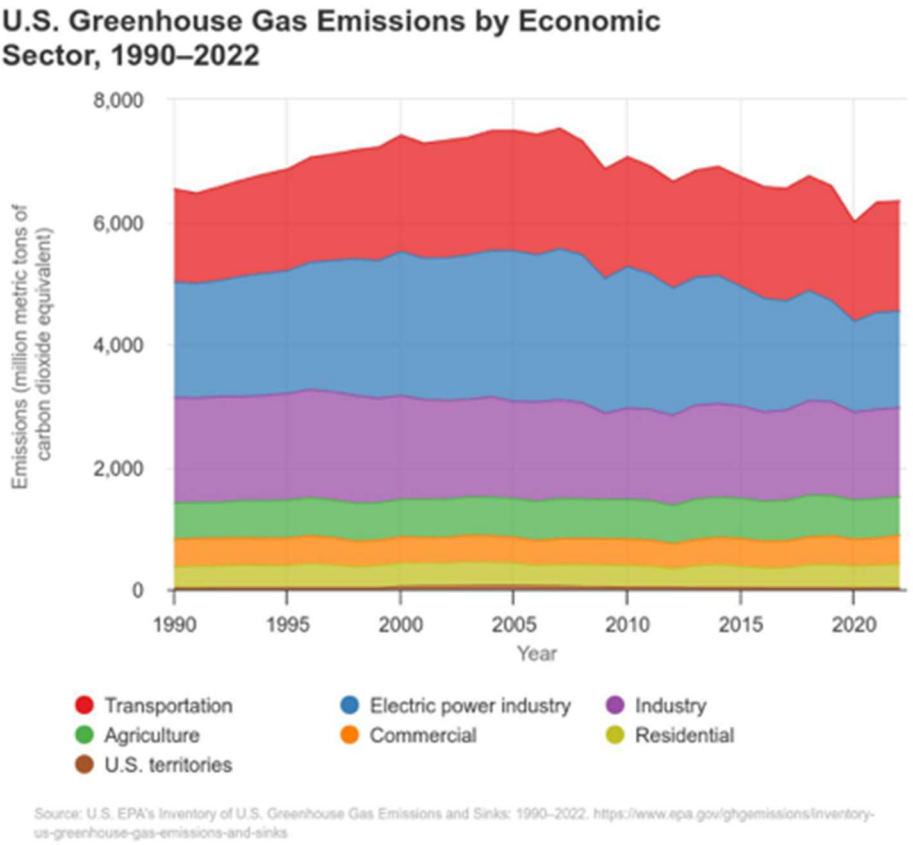
50–52% reduction in emissions by 2030, the United States must sustain a 7.6% annual reduction in emissions from 2025–2030.[210] Decarbonizing the transportation sector is critical by either metric.

MICHAEL GAFFNEY ET AL., RHODIUM GRP., PRELIMINARY US GREENHOUSE GAS ESTIMATES FOR 2024 1 (Jan. 9, 2025), *infra* note 210.

As noted above, U.S. transportation sector emissions have been one of the largest contributors to total U.S. emissions for many years (see figure below)—and that is expected to continue.[211] Indeed, the U.S. transportation sector emits massive amounts of carbon dioxide every year (1.848 billion metric tons in 2022), more than all but a handful of countries.

[210] MICHAEL GAFFNEY ET AL., RHODIUM GRP., PRELIMINARY US GREENHOUSE GAS ESTIMATES FOR 2024 1 (Jan. 9, 2025), https://perma.cc/KJQ8-LB9X.

[211] EPA, EPA 430-R-24-004, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS 1990–2022, *supra* note 199; *see also* EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks* (July 1, 2025), https://perma.cc/G482-HXG9.



EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, *supra* note 211.

U.S. transportation sector emissions increased from 1990 to 2022.[212] Nationally, the transportation sector was the largest emitter of CO_2 in 2022.[213] U.S. transportation sector CO_2 emissions constituted 1,848 million metric tons in 2024 (39% of total U.S. energy-related carbon dioxide), and are expected to remain at high levels going forward given recent policy changes, as discussed below.[214]

Several analyses attribute damages to greenhouse gas emissions from the transportation sector specifically (though this sort of attribution is not required to find significant contribution or endangerment). For example, a recent analysis of U.S. transportation sector emissions from 1973–2023 calculated climate damages to the United States that have already occurred from such emissions totaling $68.0 billion (in 2015 dollars 95% confidence interval of $36.5 billion –

[212] EPA, EPA 430-R-24-004, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS 1990–2022, *supra* note 199, at ES-9 – ES-10.

[213] *Id.*

[214] U.S. Energy Info. Admin., *U.S. Energy-Related Carbon Dioxide Emissions, 2024* (May 29, 2025), https://perma.cc/WQN8-86MX; Gaffney et al., *supra* note 210.

$113.9 billion).[215] A recent study extending this analysis to include projected transportation sector emissions from 2025–2035 with repeal of the 2024 Multipollutant and Phase 3 HD rules projects that the United States will experience $87.5 to $90.3 billion in climate damages from U.S. transportation sector emissions by 2035, with $12.2 to 14.9 billion (in 2024 dollars) in cumulative domestic damages just from the expected 2025–2035 U.S. transportation sector emissions. Extending the analysis out to 2050 results in $300.0 billion in damages with $96.4 billion attributable to future unabated U.S. transportation sector emissions.[216] And these estimates of future damages are conservative: they only include damages from U.S. transportation sector emissions predicted to occur by 2035 and 2050. They do not include future damages (beyond 2050) from those emissions (including those that would remain in the atmosphere for thousands to hundreds of thousands of years);[217] damages from U.S. transportation sector emissions beyond 2050 should they remain unabated; or costs of measures to adapt to climate change. Additionally, these damage estimates include only a subset of climate damages from such emissions, and exclude large sources of damages such as morbidity, deaths from hurricanes and wildfire smoke, smog exposure, and macroeconomic impacts.[218]

In short, U.S. transportation sector CO_2 emissions contribute to climate change and ocean acidification endangerment because they represent an enormous quantity of CO_2 emissions by both total quantity and as a percentage. The monetized estimates of the damage they are causing only serves to underscore their contribution. Greater accumulation of emissions in the atmosphere causes greater warming, greater damages, and greater risks of triggering tipping points in the climate system and catastrophic climate harms.[219] As the IPCC explained, "[r]eaching net zero CO_2 emissions globally is necessary for limiting global warming to any level."[220] In other words, to stop the rise in global average temperatures we must stop adding more greenhouse gases to the atmosphere than natural sinks can remove[221]—which means we must control emissions from the transportation sector (and other contributing sectors).

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[215] JUSTIN MANKIN ET AL., CLIMATE DAMAGES TO THE U.S. ECONOMY FROM U.S. TRANSPORTATION EMISSIONS (Sept. 8, 2025), https://perma.cc/22DS-62ZC.

[216] RICK DUKE, GIGATON STRATEGIES, CALCULATING NEAR-TERM AND LONG-TERM U.S. DAMAGES FROM U.S. GREENHOUSE GAS TRANSPORTATION SECTOR EMISSIONS (Sep. 16, 2025), https://perma.cc/TL3Q-KRPM.

[217] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 2237.

[218] Solomon Hsiang et al., *Estimating Economic Damage from Climate Change in the United States*, 365 SCI. 1362 (2017), https://perma.cc/LLC9-ES8B.

[219] *See also* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 2, 38–39. "Continued changes in the climate increase the likelihood of passing thresholds in Earth systems that could trigger tipping points or other high-impact climate surprises." *Id.* at 2.

[220] PRIYADARSHI R. SHUKLA, ET AL. (EDS.), IPCC, CLIMATE CHANGE 2022: MITIGATION OF CLIMATE CHANGE. WORKING GROUP III CONTRIBUTION TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 325 (2022), https://perma.cc/7DDP-LN3U.

[221] "Under scenarios with increasing CO_2 emissions, the ocean and land carbon sinks are projected to be less effective at slowing the accumulation of CO_2 in the atmosphere. . . . This is projected to result in a

Fourth, in making the contribution finding, EPA is not limited to considering emissions from new motor vehicles. *Contra* 90 Fed. Reg. at 36,304. As EPA explained in the 2009 Endangerment Finding, EPA reasonably considers emissions from the entire fleet "as a reasonable surrogate for a projection of the inventory from new motor vehicles over the upcoming years," because "[n]ew motor vehicles are produced year in and year out, and over time the fleet changes over to a fleet composed of such vehicles" such that "in a relatively short time frame" the entire fleet will be subject to the emission standards. 74 Fed. Reg. at 66,543. The Proposal does not explain why this is not a reasonable and sensible mode of analysis, particularly given that EPA vehicle emissions standards typically govern all future model years. *See, e.g.*, Final Rule: Multi-Pollutant Emissions Standards for Model Years 2027 *and Later* Light-Duty and Medium-Duty Vehicles, 89 Fed. Reg. 27,842 (emphasis in citation added). It is thus unclear which cohort of vehicles the Proposal believes should enter the contribution analysis. Without new standards, it is reasonable to assume that new vehicles will emit pollution to a degree similar to the current fleet, and to look at the endangerment from existing vehicles as a surrogate or proxy. At any rate, as discussed *supra*, EPA has found much smaller contributions than those from even a single model year of vehicles to significantly contribute in the past and cannot slice and dice its way out of addressing the endangerment posed by vehicles greenhouse gas pollution.

That emissions from other sources must also be abated to stop the rise in global average temperatures does not change the fact that U.S. transportation sector emissions are making the endangerment more severe or support altering the conclusion that EPA has repeatedly made—including under the first Trump Administration—that those emissions contribute to dangerous air pollution. *See Massachusetts*, 549 U.S. at 524–25 (1.7 billion metric tons of greenhouse gases from transportation sector in 1999 alone constitutes an "enormous" amount that made a "meaningful contribution" to greenhouse gas concentrations); *cf. Sw. Elec. Power Co. v. EPA*, 920 F.3d 999, 1032 (5th Cir. 2019) ("very small portion" of total water pollution can constitute a "gargantuan" source on its own terms). Indeed, *Massachusetts* rejected a similar argument that because other countries like China and India were poised to substantially increase greenhouse gas emissions, regulating greenhouse gases from the U.S. transportation sector would not redress plaintiffs' injuries. 549 U.S. at 525–26. Reducing the sector's emissions would slow the pace of global warming, the Court explained, no matter what happened in other countries. *See id*. at 526.

Finally, the greenhouse gas emission reductions that would be lost specifically as a result of the Proposal are critical, by any metric, to reducing endangerment. Analysts project that the pollution standard rollbacks the Trump Administration has announced and a rapid termination of the clean energy tax credits from the IRA would result in greenhouse gas emission levels that are 24–36% higher in 2035 than they would have been without these actions (along with a 6–15% increase in gas prices, increased reliance on imported crude oil, and an increase in average household energy costs of as much as $489 a year in 2035).[222] The transportation sector is projected to be responsible for 10–20% of this overall increase.[223] Last year, EPA projected that

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higher proportion of emitted CO_2 remaining in the atmosphere (high confidence)." IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 19–20.

[222] Ben King et al., *Trump 2.0: What's in Store for US Energy and Climate?*, RHODIUM GRP. (Dec. 17, 2024), https://perma.cc/C8WB-FC6T.

[223] *Id.*

the current standards for light-, medium-, and heavy-duty vehicles would prevent over 8.225 billion metric tons of CO_2-equivalent emissions over the next thirty years. 89 Fed. Reg. at 27,858 (Table 5); 89 Fed. Reg. at 29,454 (Table ES-5). That impact is roughly equivalent to stopping all international shipping across the world for eleven years.[224] If those emissions were attributed to a country, that country would rank No. 33 on a list of the world's top emitters, between Bangladesh and the United Arab Emirates.[225] EPA previously monetized the benefit from those reductions at a total $1.82 trillion dollars in avoided climate harms. 89 Fed. Reg. at 27,860 (Table 8); 89 Fed. Reg. at 29,457 (Table ES-8). An independent analysis projects that, with the Trump Administration's policies, U.S. transportation sector CO_2 emissions will be 60 million metric tons higher in 2035 than they otherwise would have been—with 1,140 million metric tons (1.18 Gt) of CO_2 emissions in 2035.[226] If U.S. light-, medium-, and heavy-duty-vehicle emissions continue unabated (as projected without the vehicles greenhouse gas standards), between 2025 and 2050, U.S. light-, medium-, and heavy-duty-vehicle emissions will constitute 19.1% of the total global carbon budget remaining to have a 50% likelihood of limiting global warming to 1.5°C. Across temperature rise limitation targets (1.5 to 2.0°C) and associated likelihoods of remaining below those targets (50% to 83%), projected U.S. light-, medium-, and heavy-duty-vehicle emissions from 2025–2050 would constitute 3.1% to 129% of the remaining carbon budget.[227]

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[224] *See* M. CRIPPA, ET AL., JOINT RSCH. CTR., GHG EMISSIONS OF ALL WORLD COUNTRIES (2024), https://perma.cc/E7RD-AUPM (2023 emissions from all international shipping were 746.943 Mt CO2-equivalent).

[225] Based on 2023 GHG emissions. *See id.* (Bangladesh emitted 281 Mt CO_2-e/year and United Arab Emirates, 268 Mt CO_2-e/year).

[226] JESSE JENKINS ET AL., PRINCETON UNIV. ZERO LAB, IMPACTS OF THE ONE BIG BEAUTIFUL BILL ON THE US ENERGY TRANSITION—SUMMARY REPORT, Exhibit O (July 3, 2025), https://perma.cc/2MC5-TMWX; *see also id.* at Slide 14.

[227] The total remaining carbon budget as of the start of 2023 to stabilize global average temperature increase at 1.5, 1.7, and 2.0 degrees Celsius are modeled as 250, 600, and 1,150 Gt CO_2 respectively at the 50% certainty level; 150, 500, and 950 Gt CO_2 at the 67% certainty level; and 100, 350, and 800 Gt CO_2 at the 83% certainty level. *See* P.M. Forster et al., *Indicators of Global Climate Change 2022: Annual Update of Large-Scale Indicators of the State of the Climate System and Human Influence*, 15 EARTH SYS. SCI. DATA 2295–2327 (2023), https://perma.cc/FD6L-8BHJ. Total global fossil fuel and industrial GHG emissions for 2023 and 2024 of 36.8 and 37.4 Gigatons (Gt) respectively are subtracted from these carbon budgets to calculate carbon budgets remaining as of the start of 2025. *See* Pierre Friedlingstein et al., *Global Carbon Budget 2024*, 17 EARTH SYS. SCI. DATA 965–1039 (2024), https://perma.cc/7RFQ-TJCA. Future projections of U.S. light-, medium-, and heavy-duty-vehicle emissions were calculated using the U.S. Energy Info. Admin. "Alternative Transportation" side case from the Annual Energy Outlook 2025. *See* U.S. Energy Info. Admin., *Ann. Energy Outlook 2025 Table 70. Energy Related Carbon Dioxide Emissions by End Use* (2025), https://perma.cc/E2JS-T94W. Annual emissions for "Light-Duty Vehicles", "Commercial Light Trucks", and "Freight Trucks" were summed to calculate annual light-, medium-, and heavy-duty-vehicle emissions. The sum of all emissions for all years 2025–2050 was 33.6 Gt CO_2. The projected cumulative U.S. light-, medium-, and heavy-duty-vehicle emissions are divided by the global carbon budgets remaining as of 2025 to calculate the fraction of total carbon budgets those sources are projected to consume. This is a significant underestimate of the scale of future U.S. light-, medium-, and heavy-duty-vehicle emissions in the absence of the vehicles

EPA is therefore wrong that greenhouse gas emissions from light-, medium-, and heavy-duty vehicle sources, even if completely eliminated, "would not reliably and meaningfully reduce elevated global concentrations of GHGs and, therefore, not reliably and meaningfully reduce the risks of climate change asserted in the Endangerment Finding." 90 Fed. Reg. at 36,312. On the contrary, "[u]nder the clear terms of the Clean Air Act, EPA can avoid taking further action only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do." *Massachusetts*, 549 U.S. at 533. Although the current Administration might prefer not to regulate greenhouse gas emissions from transportation sources, "[t]he agency's policy preferences cannot trump the words of the statute." *Nat'l Treasury Emps. Union v. Chertoff*, 452 F.3d 839, 865 (D.C. Cir. 2006).

E. EPA lacks authority to retroactively rescind the endangerment finding based on uncertainty.

EPA is also wrong that "nothing in the language of the statute prohibits or conditions [EPA's] general authority to rescind prior actions." 90 Fed. Reg. at 36,296. "EPA . . . has no inherent authority" to reconsider decisions. *Nat. Res. Def. Council v. Regan*, 67 F.4th 397, 401 (D.C. Cir. 2023). "It has only the authority given it by [statute]." *Id.* Here, the best reading of the Clean Air Act affords EPA no authority to reconsider the endangerment finding based on purported uncertainty, or to retroactively withdraw an endangerment finding rather than making a new prospective one. EPA's conclusory claims otherwise lack merit.

First, the best reading of the statute constrains EPA's authority to *rescind* an endangerment finding based on a lack of confidence, as the agency has proposed to do here. EPA has already made a positive endangerment finding, based on an "ocean of evidence," and affirmed just last week by the NAS's Consensus Study Report. *Coal. for Responsible Regul.*, 684 F.3d at 123. As discussed *supra* Sections IV.A, IV.C.1–2, the text, context, and legislative history of section 202 demonstrate that it is a precautionary provision. Section 202(a)(1) employs capacious language ("any air pollutant"), mandates action ("shall"), accommodates scientific uncertainty ("in his judgment," "cause, or contribute to," "may reasonably be anticipated to," and "endanger," i.e., expose to possible harm), and encompasses broad potential impacts ("endanger public health or welfare"). *See* 74 Fed. Reg. 66,506 ("A statute allowing for regulation in the face of danger is, necessarily, a precautionary statute."); *Lead Indus. Ass'n, Inc. v. EPA*, 647 F.2d 1130, 1153, 1154 (D.C. Cir. 1980) (recognizing Clean Air Act's "precautionary nature" requires the EPA to "err on the side of caution").

And that precautionary approach plainly and purposefully accommodates the range of uncertainty that is "endemic in the field of health and safety regulation." *Me. Lobstermen's Ass'n v. Nat'l Marine Fisheries Serv.*, 70 F.4th 582, 599 (D.C. Cir. 2023); *see Mississippi v. EPA*, 744 F.3d 1334, 1344, 1357 (D.C. Cir. 2013) (setting health-protective standards involves "inevitable scientific uncertainties," and "where EPA operates within the realm of uncertain science, its decisions about the appropriate NAAQS level must necessarily rest largely on policy judgments." (internal quotations and citations omitted)); *Am. Lung Ass'n v. EPA*, 134 F.3d at 389 (EPA must protect public health from "not just known adverse effects, but those of scientific

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greenhouse gas emission standards, as the modeled scenario still includes the 30D and 45W tax credits that were in effect on the April 15, 2025, date of publication of the *Annual Energy Outlook 2025*.

uncertainty or that research has not yet uncovered.") (internal quotation marks and citations omitted); *Lead Indus. Ass'n, Inc.*, 647 F.2d at 1153. In the field of health-protective regulation, a precautionary approach is especially important because uncertainty cuts both ways; outcomes may be better than our best predictions, but they may also be worse, and so it is wrong to infer that the uncertainty of a prediction weighs in favor of not regulating. Take the example of lead in automobile emissions. In 1973, EPA promulgated final regulations phasing out the use of lead as a gasoline additive under a provision of the Clean Air Act that was triggered by an endangerment finding. Control of Lead Additives in Gasoline, 38 Fed. Reg. 33,734 (Dec. 6, 1973). EPA promulgated those regulations notwithstanding the lack of scientific consensus on whether the target of EPA's regulation—airborne lead from motor vehicles—was correlated with elevated blood lead levels, and, if it was, whether airborne lead from burning leaded gasoline was a significant exposure pathway relative to other pathways like lead-based paint. *Id*. at 33,736. Those regulations were upheld by the D.C. Circuit in *Ethyl Corp.*, 541 F.2d 1, and are widely understood to be one of the agency's greatest successes.

The same principle applies here. Having made the endangerment finding, to avoid regulating under section 202(a)(1), EPA now cannot just point to uncertainty; it would need to show that its prior scientific judgment finding endangerment was *unreasonable*—a showing it has not even attempted here. As *Massachusetts* made clear, EPA cannot "avoid its statutory obligation by noting the uncertainty surrounding various features of climate change." 549 U.S. at 534; *see infra* Section V.C.4. The agency needs to fully grapple with all the science underlying its prior endangerment finding and explain why the science leads the agency to believe there is *no* endangerment. Otherwise, the precautionary nature of section 202 demands that EPA continue protecting the public from the potential (indeed, real and occurring) harms posed by greenhouse gas pollution.

Second, and relatedly, the best reading of the statute is that section 202(a)(1) endangerment findings operate prospectively only, except if reconsidered under section 307, *infra*, or in extraordinary circumstances like mistake or fraud. "[A] statutory grant of legislative rulemaking authority will not . . . be understood to encompass the power to promulgate retroactive rules unless that power is conveyed by Congress in express terms." *Bowen v. Georgetown Univ. Hosp.*, 488 U.S. 204, 208 (1988). Section 202(a)(1) is, by its terms, forward looking, asking whether endangerment "may reasonably be anticipated." 42 U.S.C. § 7521(a)(1). The present tense of "cause, or contribute to" (not "contributed" or "has contributed") likewise indicates that section 202 is concerned with evaluating ongoing and future impacts. *Id.* The standard-setting process is likewise prospective, keyed to classes of "new" motor vehicles and engines, *id.*, and subject to a feasible lead-time requirement, *id.* § 7521(a)(2), indicating that the Administrator's standard-setting analysis must focus on future model years' contribution to dangerous pollution, not past model years' contributions, *id.* EPA is therefore authorized to make a positive endangerment finding, or a negative endangerment finding, with prospective application, but it may not simply *withdraw* a past finding as it is proposing to do here. *See Bowen*, 488 U.S. at 208; *see also* Vehicles Comment Section III.A.1.

EPA's arguments otherwise all fail. EPA first claims authority to repeal the 2009 Endangerment Finding and all subsequent standards based on the claim that "section 202(a)(1) grants the Administrator discretion to 'revise' standards prescribed 'in accordance with the provisions of this section' and does not require retaining the same level of stringency when revising or rescinding existing standards." 90 Fed. Reg. at 36,296. But with this argument, EPA

highlights a central flaw in its logic. To be sure, under section 202(a)(1), EPA plainly may "revise" standards. *Coal. for Responsible Regul.*, 684 F.3d at 117. What it may not do, however, is withdraw the predicate finding and thereby pull the rug out from under those standards in order to repeal them altogether. The word "revise" means "[t]o change or modify,"[228] not to wholesale eliminate. As the Supreme Court explained in *Biden v. Nebraska*, "statutory permission to 'modify' does not authorize 'basic and fundamental changes in the scheme' designed by Congress. Instead, that term carries 'a connotation of increment or limitation,' and must be read to mean 'to change moderately or in minor fashion.'" 600 U.S. at 494–95 (quoting *MCI Telecommc'ns Corp. v. Am. Tel. & Tel. Co.*, 512 U.S. 218 (1994) (reciting dictionary definitions of term "modify")).

Moreover, had Congress wished to empower EPA with repeal authority, it knew how to do so. *Compare* 42 U.S.C. § 7521(a)(1) (authorizing Administrator only to "revise" standards), *with, e.g.*, *id.* § 7521(a)(6) (authorizing Administrator to "revise or waive the application" of vapor recovery requirements), *and id.* § 7572(b) (authorizing Administrator to "amend, modify, suspend, or revoke a certificate" after issuing initial aircraft engine emission standards). Section 202(a)(1)'s omission of repeal authority was intentional. *See Russello*, 464 U.S. at 23 ("Where Congress includes particular language in one section of a statute but omits it in another . . . Congress acts intentionally and purposely in the disparate inclusion or exclusion." (internal citation omitted)). EPA's reading would replace the statutory term "revise" with "repeal," flouting the Act's plain meaning and affording EPA sweeping power found nowhere in law. *UARG*, 573 U.S. at 328 (reaffirming "the core administrative-law principle that an agency may not rewrite clear statutory terms to suit its own sense of how the statute should operate"); *see also* Vehicles Comment Section III.A.2.

EPA next seeks to ground broad rescission authority in its "integrated section 202" interpretation that the statute does not "authorize[] the Administrator to issue standalone findings that trigger a duty to regulate." 90 Fed. Reg. at 36,296, 36,302. For the reasons previously explained, *supra* Section IV.D.1, that argument is meritless. Section 202 simply does not collapse the endangerment finding and standard-setting process. Nor, for the reason just discussed, would collapsing the inquiry allow full repeal.

EPA also claims that the agency has "consistently assumed that it has the statutory authority to rescind the Endangerment Finding." 90 Fed. Reg. at 36,296. Not so. In neither of the two denials of petitions for reconsideration that EPA cites, *id.* at 36,296 n.35, did the agency say or assume anything about the agency's authority under section 202(a) to undo the 2009 Endangerment Finding. In the 2010 denial, EPA found that many petitioners had not met the procedural requirements for administrative reconsideration under Clean Air Act section 307(d)(7)(B) and that none of the objections and arguments in terms of substance were "of central relevance" to the 2009 Endangerment Finding.[229] In the 2022 denial, EPA similarly found the petitions for reconsideration under section 307(d)(7)(B) "fail[ed] to meet the statutory criteria

[228] *Revise*, THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (1st ed. 1969); *see also Revise*, BLACK'S LAW DICTIONARY (4th ed. 1968) ("To review, re-examine for correction; to go over a thing for the purpose of amending, correcting, rearranging, or otherwise improving it; as, to revise statutes, or a judgment.").

[229] 75 Fed. Reg. at 49,562.

for such petitions," which are "strictly limit[ed] . . . both in time and scope."[230] And in addressing the petitions for rulemaking, EPA simply rejected the arguments the petitioners had presented, concluding that petitioners did "not provide any substantial support for the argument that the 2009 Endangerment Finding should be reconsidered, reopened, or revised."[231] In the Proposal, EPA wrongly contends not only that the statute's silence on rescission authority implied an affirmative interpretation that such authority exists, but also that the narrow, highly circumscribed reconsideration authority in section 307(d)(7)(B) gives EPA broad authority to retroactively rescind a section 202(a)(1) endangerment finding, based on uncertainty alone, nearly twenty years later. Neither argument persuades.

EPA is not in the same position it was in 2003 when it (unlawfully) denied a petition for rulemaking on the grounds that it could *defer* making an endangerment finding. *Cf. Massachusetts*, 549 U.S. 497. To the extent EPA had any power to reconsider its positive endangerment finding, its only options would be to affirm that finding, reverse it with a negative endangerment finding, or pretermit this proceeding altogether. In other words, EPA's tentative nods at uncertainty, *see infra* Section IV.C.5, and resulting refusal to make *any* finding would not justify abandonment of regulation altogether, as it proposes to do here.

V. EPA'S SECONDARY PROPOSAL (IV.B.) UNLAWFULLY DISREGARDS THE OVERWHELMING SCIENTIFIC CONSENSUS ON CLIMATE CHANGE AND ENDANGERMENT

EPA's secondary proposal is likewise unsupported and unsupportable—casting aside, based on a stunningly thin record, the scientific consensus that climate change is here and endangering us all. Indeed, the NAS confirmed just last week in its Consensus Study Report that "the evidence for current and future harm to human health and welfare created by human-caused GHGs is beyond scientific dispute" and affirmed that the 2009 Endangerment Finding "was accurate, has stood the test of time, and is now reinforced by even stronger evidence."[232] This Section first describes the body of scientific evidence documenting climate change and endangerment. It then explains why EPA's feeble attempt to undermine that enormous weight of science through a draft of a rushed and procedurally and substantively flawed report by five climate skeptics must fail. Finally this Section addresses why EPA's several other attempts to undercut the scientific consensus—like citation to a smattering of studies, or invocation of unspecified "critiques" of the NCAs—fall far short of the impossible task EPA assigns them.

A. It is clearer than ever that greenhouse gases contribute to climate change, and climate change endangers public health and welfare.

EPA proposes "that empirical data, peer-reviewed studies, and real-world developments since 2009 have cast significant doubt on many of the critical premises, assumptions, and conclusions in the Endangerment Finding such that it would be unreasonable to retain the decision and the resulting regulatory framework." 90 Fed. Reg. at 36,291. EPA baldly asserts

[230] April 12 Denial of Petitions Relating to the Endangerment and Cause or Contribute Findings, *supra* note 122, at 3.

[231] *Id.* at 4.

[232] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 1–2.

that in making that determination "[t]he Administrator also considered available assessments by the U.S. Government and relevant international bodies, including the Third, Fourth, and Fifth National Climate Assessments (NCAs) reported by the U.S. Global Change Research Program [USGCRP] and the Fifth Assessment Report (AR5) and Sixth Assessment Report (AR6) by the [IPCC]." *Id.* at 36,292 (footnote omitted). EPA's cursory claim to have considered these vast compilations of peer-reviewed climate science appears to be wholly inaccurate, as the Proposed Rule lacks *any* discussion of the mammoth quantities of research encompassed within those reports. And EPA likewise has not reconciled—and cannot reconcile—its Proposal with the findings and conclusions of the NAS Consensus Study Report issued last week, which soundly defeats the purported scientific basis of the Proposal and findings in the CWG Report.

The NCAs, published by the USGCRP, are a series of scientific assessments mandated by Congress via the Global Change Research Act of 1990 that provide authoritative information about climate change and its impacts on Americans.[233] Each assessment "integrates, evaluates, and interprets the findings of the [USGCRP] and discusses the scientific uncertainties associated with such findings; analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years."[234] NCA5, which was released in 2023, was produced by more than 750 authors, contributors, editors, and reviewers from inside and outside of government, representing all 50 U.S. states and several territories.[235] NCA5 was produced via a highly rigorous process that ensured objectivity, utility, credibility, and transparency, and therefore is an appropriate source for informing climate-related policies.[236]

The IPCC, for its part, was created by the World Meteorological Organization (WMO) and the United Nations to assess the science related to climate change. It is an organization of governments that are members of the United Nations or WMO. Hundreds of scientific experts volunteer their time over a multi-year period to evaluate the published literature to provide a comprehensive assessment of what is known about the drivers of climate change, its impacts and future risks, and how adaptation and mitigation can abate those risks. Authors are selected based on their expertise. Each report is transparently reviewed in multiple stages by additional experts and the member governments. In each report, the IPCC identifies the strength of scientific agreement in different areas and indicates where further research is needed.[237]

NAS—comprised of the National Academy of Science, the National Academy of Engineering, and the National Academy of Medicine, *see supra* note 1—is a nonprofit entity that

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[233] *See* ALLISON CRIMMINS ET AL., U.S. GLOB. CHANGE RSCH. PROGRAM, IMPLEMENTATION OF FEDERAL GUIDELINES AND BEST PRACTICES FOR HIGHLY INFLUENTIAL SCIENTIFIC ASSESSMENTS IN THE FIFTH NATIONAL CLIMATE ASSESSMENT 1 (ResearchGate.net MAR. 2024) [hereinafter NCA5 Report], https://perma.cc/8L6V-ERBM.

[234] *Id.*

[235] *See* NCA5, *supra* note 6, at A1-4 – A1-5.

[236] *See id* at A1-4 – A1-7.

[237] *See* IPCC, *What Is the IPCC? Fact Sheet* (rev. Jan. 2024), https://perma.cc/K2EC-VLX4.

"provide[s] independent, objective advice to inform policy with evidence, spark progress and innovation, and confront challenging issues for the benefit of society."[238] NAS reviews the NCAs, and EPA is required to explain any deviation from NAS findings in issuing Clean Air Act rules. *See infra* Section VII.C. As noted *supra* Section II.B.1, NAS issued the NAS Consensus Study Report on September 17, 2025. In preparing the report, "the committee asked whether new evidence since 2009 strengthened or weakened the primary conclusions in EPA (2009) and addressed uncertainties that remain in our understanding of the science of climate change. In addition, the committee identified new issues that were not evident or addressed in EPA (2009)."[239] The report's key finding is that "EPA's 2009 finding that the human-caused emissions of greenhouse gases threaten human health and welfare was accurate, has stood the test of time, and is now reinforced by even stronger evidence." [240]

EPA offers no particulars about its alleged "consideration of" the NCAs and IPCC reports and has refused to extend the comment period to consider and address the Proposal's stark differences from the findings of the NAS Consensus Study Report. And, indeed, were EPA to engage meaningfully with the IPCC, NCA, or NAS reports—or any of its own or other reputable assessments of the danger posed by greenhouse gas emissions to human health and welfare—it could not rationally or in good faith abandon the 2009 Endangerment Finding. *See Mississippi v. EPA*, 744 F.3d at 1355 ("In order to enable judicial review and to satisfy its statutory obligation to explain its reasons for departing from [the Clean Air Scientific Advisory Committee (CASAC)], EPA must be precise in describing the basis for its disagreement with CASAC. If EPA's quarrel is with CASAC's scientific analysis, then in order to preserve the integrity of CASAC's scientific role, EPA must give a sound scientific reason for its disagreement.").

1. Scientists have documented, through multiple, independent lines of evidence, that human-caused emission of greenhouse gases are rapidly warming the Earth, causing widespread changes in the atmosphere, ocean, cryosphere, and biosphere.

The physics of climate change are simple: greenhouse gases in the atmosphere trap outgoing radiation that would otherwise escape to space, thereby warming the Earth, like a blanket. We have understood this for more than one hundred and fifty years.[241] Humans—primarily by combusting fossil fuels—have added greenhouse gases to the atmosphere, and their increasing concentrations are readily measurable.[242] As atmospheric greenhouse gas

[238] NAS, *About Us*, https://perma.cc/NWP5-5GPF.

[239] NAS CONSENSUS STUDY REPORT, *supra* note 1, at xiii.

[240] *Id.* at 1.

[241] NASA, *Climate Change: Evidence* (last updated Oct. 23, 2024) [hereinafter NASA 2024], https://perma.cc/6KXQ-YSNF.

[242] *See Monthly Carbon Dioxide Concentration in the Atmosphere*, Met Off. Hadley Ctr.: Climate Dashboard, https://perma.cc/4HF9-M39U (showing three data sets measuring atmospheric concentrations); *see also* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 9–20.

concentrations rise, making the blanket thicker, less radiation escapes, and warming increases.[243] Satellite measurements confirm that, as expected, less energy is outgoing than incoming at the top of the atmosphere.[244] Based on a comprehensive review of available data and research, the IPCC has concluded that "[i]t is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred."[245] The NAS Consensus Study Report is in accord.[246]

Specifically, "[o]bserved increases in well-mixed greenhouse gas (GHG) concentrations since around 1750 are unequivocally caused by human activities,"[247] and the increases are staggering. "In 2019, atmospheric CO_2 concentrations were higher than at any time in at least 2 million years (*high confidence*), and concentrations of CH_4 and N_2O were higher than at any time in at least 800,000 years (*very high confidence*). Since 1750, increases in CO_2 (47%) and CH_4 (156%) concentrations far exceed – and increases in N_2O (23%) are similar to – the natural multi-millennial changes between glacial and interglacial periods over at least the past 800,000 years (*very high confidence*)."[248] In 2024, global average CO_2 levels reached a new record (422.8 parts per million), with the annual global temperature across land and ocean the highest in the observational record dating back to 1850 (approximately 1.55°C above pre-industrial levels).[249] Although during the past 60 million years, "there have been periods in Earth's history when CO_2 concentrations were significantly higher" than they are today, "multiple lines of evidence show that the rate at which CO_2 has increased in the atmosphere during 1900–2019 is at least 10 times faster than at any other time during the last 800,000 years (*high confidence*)."[250] The most recent average decadal increases in CO_2 concentration is more than 100 times faster than natural increases, such as those that occurred at the end of the last Ice Age 11,000–17,000 years ago.[251]

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[243] NOAA Global Monitoring Lab'y, *NOAA Education and Outreach: Carbon Toolkit: Basics of the Carbon Cycle and the Greenhouse Effect*, https://perma.cc/6D8A-ZWTF.

[244] Norman G. Loeb et al., *Observational Assessment of Changes in Earth's Energy Imbalance Since 2000*, 45 SURVS. IN GEOPHYSICS 1757 (May 7, 2024), https://perma.cc/PP97-55VQ.

[245] IPCC PHYSICAL SCIENCE AR6, *supra* note 209 at 4. The best summation of the science on anthropogenic climate change comes from IPCC Physical Science AR6, which reviewed and updated the science of global warming since the release of the AR5. The 2,391-page IPCC Physical Science AR6 was developed through a multi-year effort by hundreds of leading experts in the field of climate science and was peer-reviewed by governments and scientists. *See* IPCC PHYSICAL SCIENCE AR6, *supra* note 209.

[246] *See* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 9–20.

[247] *Id.* at 4.

[248] *Id.* at 8.

[249] J. Blunden et al., eds., *State of the Climate in 2024*, 106 (8) BULL. AM. METEOROLOGICAL. SOC'Y, at Siii (Aug. 2025); Press Release, World Meteorological Org., WMO Confirms 2024 as Warmest Year on Record at about 1.55°C above Pre-Industrial Level (Jan. 10, 2025), https://perma.cc/J8EQ-E7FB.

[250] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 676.

[251] NAS CONSENSUS STUDY REPORT, *supra* note 1 at 14; *see also* Figure 2.5, *Id.* at 15.

As shown in the figures below, the resulting warming is occurring rapidly and cannot be explained by natural climate dynamics alone.[252]

Specifically, "[o]bserved increases in well-mixed greenhouse gas (GHG) concentrations since around 1750 are unequivocally caused by human activities," and the increases are staggering. "In 2019, atmospheric CO_2 concentrations were higher than at any time in at least 2 million years (*high confidence*), and concentrations of CH_4 and N_2O were higher than at any time in at least 800,000 years (*very high confidence*). Since 1750, increases in CO_2 (47%) and CH_4 (156%) concentrations far exceed – and increases in N_2O (23%) are similar to – the natural multi-millennial changes between glacial and interglacial periods over at least the past 800,000 years (*very high confidence*)."[253] In 2024, global average CO_2 levels reached a new record (422.8 parts per million), with the annual global temperature across land and ocean the highest in the observational record dating back to 1850 (approximately 1.55°C above pre-industrial levels).[254] Although during the past 60 million years, "there have been periods in Earth's history when CO_2 concentrations were significantly higher" than they are today, "multiple lines of evidence show that the rate at which CO_2 has increased in the atmosphere during 1900–2019 is at least 10 times

[252] *See also* IPCC PHYSICAL SCIENCE AR6, *supra* note 209, Ch. 5, at 673–815 ("Multiple lines of evidence unequivocally establish the dominant role of human activities in the growth of atmospheric CO2. First, the systematic increase in the difference between the [Mauna Loa] and [South Pole CO2] records (Figure 5.6a) is caused primarily by the increase in emissions from fossil fuel combustion in industrialized regions that are situated predominantly in the Northern Hemisphere (Ciais et al., 2019). Second, measurements of the stable carbon isotope in the atmosphere (d13C–CO2) are more negative over time because CO2 from fossil fuels extracted from geological storage is depleted in 13C (Figure 5.6c; Rubino et al., 2013; Keeling et al., 2017). Third, measurements of the d(O2/N2) ratio show a declining trend because for every molecule of carbon burned, 1.17 to 1.98 molecules of oxygen (O2) is consumed (Figure 5.6d; Ishidoya et al., 2012; Keeling and Manning, 2014). These three lines of evidence confirm unambiguously that the atmospheric increase of CO2 is due to an oxidative process (i.e., combustion). Fourth, measurements of radiocarbon (14C–CO2) at sites around the world (Levin et al., 2010; Graven et al., 2017; Turnbull et al., 2017) show a continued long-term decrease in the 14C/12C ratio. Fossil fuels are devoid of 14C and therefore fossil fuel-derived CO2 additions decrease the atmospheric 14C/12C ratio (Suess, 1955)."); NCA5, *supra* note 6, at 3-5; *see also* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 17 ("The best estimate of solar forcing is roughly 300 times less than anthropogenic forcing. Even the high end of the range of solar forcing is equal to only a few percent of anthropogenic forcing over this period. . . . However, over the last approx. 45 years, during which satellite observations are available (leading to higher confidence in the observed trends), it is very likely that solar forcing has decreased (Amdur and Huybers, 2025; Matthes et al., 2017; Montillet et al., 2022). This likely decrease in solar forcing was observed at the same time that the Earth has been warming at its most rapid pace since the preindustrial period."); *id.* at 19 ("The observed vertical pattern of warming (lower atmospheric warming [Figure 2.7, middle], upper atmospheric cooling [Figure 2.7, bottom]) is consistent with the effect of increasing GHGs but is inconsistent with the effect of increased solar forcing (Casas et al., 2023; Santer et al., 2023). Thus, it is virtually certain that observed warming is due to human activities.").

[253] *Id.* at 8.

[254] J. Blunden et al., *supra* note 249, at Siii (Aug. 2025); Press Release, World Meteorological Org., WMO Confirms 2024 as Warmest Year on Record at about 1.55°C above Pre-Industrial Level (Jan. 10, 2025), https://perma.cc/J8EQ-E7FB.

faster than at any other time during the last 800,000 years (*high confidence*)."[255] The most recent average decadal increases in CO_2 concentration is more than 100 times faster than natural increases, such as those that occurred at the end of the last Ice Age 11,000–17,000 years ago.[256] As shown in the figures below, the resulting warming is occurring rapidly and cannot be explained by natural climate dynamics alone.[257]

(figure on following page)

[255] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 676.

[256] NAS CONSENSUS STUDY REPORT, *supra* note 1 at 14; *see also* Figure 2.5, *Id.* at 15.

[257] *See also* IPCC PHYSICAL SCIENCE AR6, *supra* note 209, Ch. 5, at 673–815 ("Multiple lines of evidence unequivocally establish the dominant role of human activities in the growth of atmospheric CO2. First, the systematic increase in the difference between the [Mauna Loa] and [South Pole CO2] records (Figure 5.6a) is caused primarily by the increase in emissions from fossil fuel combustion in industrialized regions that are situated predominantly in the Northern Hemisphere (Ciais et al., 2019). Second, measurements of the stable carbon isotope in the atmosphere (d13C–CO2) are more negative over time because CO2 from fossil fuels extracted from geological storage is depleted in 13C (Figure 5.6c; Rubino et al., 2013; Keeling et al., 2017). Third, measurements of the d(O2/N2) ratio show a declining trend because for every molecule of carbon burned, 1.17 to 1.98 molecules of oxygen (O2) is consumed (Figure 5.6d; Ishidoya et al., 2012; Keeling and Manning, 2014). These three lines of evidence confirm unambiguously that the atmospheric increase of CO2 is due to an oxidative process (i.e., combustion). Fourth, measurements of radiocarbon (14C–CO2) at sites around the world (Levin et al., 2010; Graven et al., 2017; Turnbull et al., 2017) show a continued long-term decrease in the 14C/12C ratio. Fossil fuels are devoid of 14C and therefore fossil fuel-derived CO2 additions decrease the atmospheric 14C/12C ratio (Suess, 1955)."); NCA5, *supra* note 6, at 3-5; *see also* NAS CONSENSUS STUDY REPORT, *supra* note 1. "The best estimate of solar forcing is roughly 300 times less than anthropogenic forcing. Even the high end of the range of solar forcing is equal to only a few percent of anthropogenic forcing over this period. . . . However, over the last approx. 45 years, during which satellite observations are available (leading to higher confidence in the observed trends), it is very likely that solar forcing has decreased (Amdur and Huybers, 2025; Matthes et al., 2017; Montillet et al., 2022). This likely decrease in solar forcing was observed at the same time that the Earth has been warming at its most rapid pace since the preindustrial period." *Id.* at 17. "The observed vertical pattern of warming (lower atmospheric warming [Figure 2.7, middle], upper atmospheric cooling [Figure 2.7, bottom]) is consistent with the effect of increasing GHGs but is inconsistent with the effect of increased solar forcing (Casas et al., 2023; Santer et al., 2023). Thus, it is virtually certain that observed warming is due to human activities." *Id.* at 19.

NASA 2024, *supra* note 241.[258]

Indeed, "[t]he *likely* range of total human-caused global surface temperature increase from 1850–1900 to 2010–2019 is 0.8°C to 1.3°C, with a best estimate of 1.07°C."[259] "Each of the last four decades has been successively warmer than any decade that preceded it since 1850."[260] As the NAS Consensus Study Report found, the temperature rise over the last decade is "approximately 60% greater than the warming reported in [the 2009 Endangerment Finding], reflecting the very rapid warming of the planet during the last two decades."[261]

[258] "This graph, based on the comparison of atmospheric samples contained in ice cores and more recent direct measurements, provides evidence that atmospheric CO_2 has increased since the Industrial Revolution." NASA 2024, *supra* note 241. Paleoclimate data (from ice cores, corals, marine and lake sediments, tree rings, borehole temperatures, and soils) "permit the reconstruction of climatic conditions before" the era of modern climate data collection. IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 158.

[259] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 5.

[260] *Id.*

[261] *See* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 22–23 & Figure 3.1.

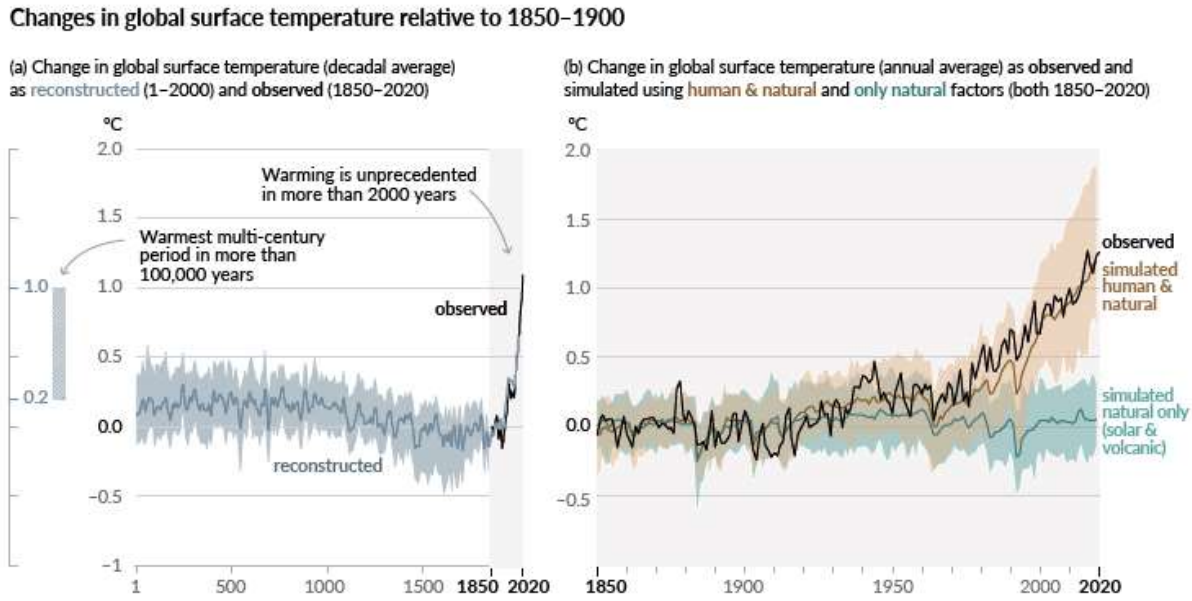

Figure SPM.1 | History of global temperature change and causes of recent warming

Panel (a) Changes in global surface temperature reconstructed from paleoclimate archives (solid grey line, years 1–2000) **and from direct observations** (solid black line, 1850–2020), both relative to 1850–1900 and decadally averaged. The vertical bar on the left shows the estimated temperature (*very likely* range) during the warmest multi-century period in at least the last 100,000 years, which occurred around 6500 years ago during the current interglacial period (Holocene). The Last Interglacial, around 125,000 years ago, is the next most recent candidate for a period of higher temperature. These past warm periods were caused by slow (multi-millennial) orbital variations. The grey shading with white diagonal lines shows the *very likely* ranges for the temperature reconstructions.

Panel (b) Changes in global surface temperature over the past 170 years (black line) relative to 1850–1900 and annually averaged, compared to Coupled Model Intercomparison Project Phase 6 (CMIP6) climate model simulations (see Box SPM.1) of the temperature response to both human and natural drivers (brown) and to only natural drivers (solar and volcanic activity, green). Solid coloured lines show the multi-model average, and coloured shades show the *very likely* range of simulations. (See Figure SPM.2 for the assessed contributions to warming).

{2.3.1; Cross-Chapter Box 2.3; 3.3; TS.2.2; Cross-Section Box TS.1, Figure 1a}

IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 6.

The warming is rapidly changing our planet with disastrous results. For example, the rate of ice-sheet loss is up four-fold from the period between 1992–1999 and the period of 2010–2019,[262] and "[g]lobal mean sea level has risen faster since 1900 than over any preceding century in at least the last 3000 years (*high confidence*)."[263] "Ocean warming accounted for 91% of the heating in the climate system, with land warming, ice loss and atmospheric warming accounting

[262] *Id.* at 11.

[263] *Id.* at 8.

for about 5%, 3% and 1%, respectively (*high confidence*)."[264] Ocean acidification[265] "is strengthening as a result of the ocean continuing to take up CO_2 from human-caused emissions (*very high confidence*)," and the CO_2 uptake is driving decreasing pH and associated reductions in the saturation state of calcium carbonate—a constituent of skeletons or shells of a variety of marine organisms.[266] As a result, aragonite (a form of calcium carbonate) saturation has declined by a fifth in 40% of the global surface ocean and 60% of the subsurface ocean to a depth of 200 meters, resulting in a 43% reduction in suitable habitat for tropical and subtropical coral reefs, up to 61% for polar pteropods (sea snails), and 13% for coastal bivalves.[267]

Human-induced climate change is also impacting many weather and climate extremes worldwide.[268] Climate model projections of human-induced warming have largely been borne out by climate change in recent decades.[269] As the IPCC found in AR6 (2021), "[e]vidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and, in particular, their attribution to human influence, has strengthened since AR5 [2014]."[270] As last week's NAS Consensus Study Report found, "the evidence supporting the EPA (2009) discussion of impacts on wildfires has strengthened greatly since 2009, as the occurrence of wildfires in the western United States has increased."[271] As a result, the world has already seen "widespread adverse impacts on food and water security, human health and on economies and society and related losses and damages to nature and people (*high confidence*)."[272]

2. Climate change impacts are already endangering human health and welfare throughout the United States.

As the NCA5 found just two years ago, in the United States "[o]bservations show an increase in the severity, extent, and/or frequency of multiple types of extreme events."[273] Last week's NAS Consensus Study Report is in accord, finding sweeping impacts on public health and welfare.[274] It is also noteworthy that metrics tracking overall natural disasters in the United States are showing record-breaking costs in recent years. In 2023, the United States saw the most billion-dollar (Consumer Price Index-adjusted) disasters since NOAA began keeping records in

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[264] *Id.* at 11.

[265] Average ocean pH has declined by 30% since the industrial revolution. *See* NOAA, *Ocean Acidification*, https://perma.cc/S8AX-342R (last updated Feb. 25, 2025).

[266] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 677.

[267] Helen Findlay et al., *Ocean Acidification: Another Planetary Boundary Crossed,* 31 GLOB. CHANGE BIOLOGY 1 (June 9, 2025), https://perma.cc/E28M-25PQ.

[268] *See generally* NAS CONSENSUS STUDY REPORT, *supra* note 1, Chs. 3–4.

[269] *See, e.g.*, Zeke Hausfather et al., *Evaluating the Performance of Past Climate Model Projections,* 47 GEOPHYSICAL RSCH. LETTERS 1 (Jan. 16, 2020).

[270] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 8.

[271] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 34.

[272] 2023 IPCC SYNTHESIS REPORT, *supra* note 66, at 42.

[273] NCA5, *supra* note 6, at 2-16.

[274] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 2, 40–71.

1980. Strikingly, before 2016, the United States experienced just one year with more than 16 separate billion-dollar disaster events. But in the nine years between 2016 and 2024, the United States witnessed seven such years. And 2023 and 2024 had the most billion-dollar weather events yet; in 2023, there were 28 billion-dollar events.[275] In 2024, the United States saw a record 11 million people suffer internal displacement as a result of natural disasters, while the year also broke a global record for disaster-related displacements.[276] As NCA5 found:

> Heatwaves have become more common and severe in the West since the 1980s (*high confidence*). Drought risk has been increasing in the Southwest over the past century (*very high confidence*), while at the same time rainfall has become more extreme in recent decades, especially east of the Rockies (*very high confidence*). Hurricanes have been intensifying more rapidly since the 1980s (*high confidence*) and causing heavier rainfall and higher storm surges (*high confidence*). More frequent and larger wildfires have been burning in the West in the past few decades due to a combination of climate factors, societal changes, and policies (*very high confidence*).[277]

Nighttime temperatures are increasing in almost every region of the United States, which "can have a significant impact on human health, crop yields, and more."[278] And "floods, droughts, wildfires, extreme temperatures, and storms" are all "expected to increase in frequency, intensity, and extent."[279] These changes are threatening our infrastructure and electricity grid. NCA5 found as virtually certain, with very high confidence, that climate change is risking energy supply and delivery, damaging infrastructure and operations, and affecting human lives and livelihoods.[280] Climate impacts also pose "increased risks for road and other infrastructure, agricultural production, forests, biodiversity, carbon sinks, and human health (*high confidence*)."[281] And NCA5 also found very likely, with high confidence, that "severity and risk of coastal hazards . . . are increasing, driven by accelerating sea level rise and changing storm patterns, resulting in increased flooding, erosion, and rising groundwater tables."[282] Indeed, between 2020 and 2050, contiguous U.S. coastal sea levels are expected to rise about eleven inches, with coastal flooding five to ten times more frequent by 2050 in most locations.[283]

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[275] NOAA Nat'l Ctrs. for Env't Info., *U.S. Billion-Dollar Weather and Climate Disasters, 1980–2024* (last updated May 12, 2025), https://perma.cc/RV3G-NQHT.

[276] Chelsea Harvey, *Disasters Displaced a Record Number of People Last Year*, E&E NEWS: CLIMATEWIRE (May 13, 2025, 6:22 AM EDT), https://perma.cc/NV9E-MYTK.

[277] NCA5, *supra* note 6, at 2-16.

[278] *Id.* at 2-18.

[279] *Id.* at 15-6.

[280] *Id.* at 5-4.

[281] *Id.* at 6-9.

[282] *Id.* at 9-5.

[283] *Id.*

Climate change also has "profound negative effects on human health" including higher rates of heat-related morbidity and mortality; increases in the geographic range of some infectious diseases; greater exposure to poor air quality; increases in adverse pregnancy outcomes; and higher rates of pulmonary, neurological, and cardiovascular diseases,[284] as EPA itself has recognized.[285] NCA5 projected with medium confidence that climate change will worsen air quality in many regions of the United States, and projected as very likely with high confidence that such changes will harm human health and increase premature death.[286] In its report issued last week, the NAS likewise found widespread and diverse harms to public health, and that those impacts will fall disproportionately on already vulnerable communities, noting: "[g]roups such as older adults, people with preexisting health conditions or multiple chronic diseases, and outdoor workers are disproportionately susceptible to climate associated health effects. New findings also point to elevated risks for pregnant people and children."[287]

Take wildfires as an example: the acute health risks posed solely through increasing exposure to wildfire smoke due to climate change are becoming increasingly apparent. Fine-particle pollution from wildfire smoke can be far more toxic than fine-particle pollution from

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[284] *Id.* at 15-6 (citing, *e.g.*, Bruce Bekkar et al., *Association of Air Pollution and Heat Exposure with Preterm Birth, Low Birth Weight, and Stillbirth in the US: A Systematic Review*, 3 JAMA NETWORK OPEN 1 (2020); Matthew Francis Chersich et al., *Associations Between High Temperatures in Pregnancy and Risk of Preterm Birth, Low Birth Weight, and Stillbirths: Systematic Review and Meta-Analysis*, 371 BRIT. MED. J. 1 (2020), https://perma.cc/K423-Z7KFhttps://perma.cc/K423-Z7KF; Christopher S. Malley et al., *Updated Global Estimates of Respiratory Mortality in Adults ≥ 30 Years of Age Attributable to Long-Term Ozone Exposure*, 125 ENV'T HEALTH PERSPS. 1 (2017), https://perma.cc/8W8M-FK8G; Annette Peters & A. Schneider, *Cardiovascular Risks of Climate Change*, 18 NATURE REVS. CARDIOLOGY 1 (Jan. 2021)).

[285] EPA, *Climate Change Impacts: Climate Change and Human Health* (last updated Aug. 13, 2025), https://perma.cc/44UF-8PYL; EPA, CLIMATE CHANGE AND CHILDREN'S HEALTH AND WELL-BEING IN THE UNITED STATES 4, 7, 8 (Apr. 2023) [hereinafter CLIMATE CHANGE AND CHILDREN'S HEALTH AND WELL-BEING IN THE UNITED STATES], https://perma.cc/KGQ9-G87C ("This report investigates five climate-related environmental hazards associated with children's health and well-being in the contiguous United States (U.S.): extreme heat, poor air quality, changes in seasonality, flooding, and different types of infectious diseases. . . . New diagnoses of asthma associated with PM2.5 and O3 exposure are estimated to increase by 34,500 (27,900 to 42,800) per year at 2°C of global warming up to 89,600 (74,100 to 108,000) at 4°C. . . . At 2°C of global warming, an additional 5,800 (4,800 to 8,000) asthma-related ED visits in children are anticipated annually from exposures to oak, birch, and grass pollen, increasing to approximately 10,000 (9,500 to 11,000) additional visits annually at 4°C of warming. . . . In 21 Eastern states and the District of Columbia, an additional 2,600 (-7,500 to 20,200) new Lyme disease cases per year are projected among children under 2°C of global warming. At 4°C of global warming, the increase is much more extreme: 23,400 (7,800 to 47,000) additional cases per year. These additional cases represent a 31% to 272% increase above baseline infection levels, respectively."); EPA, *Climate Change Indicators: Health and Society* (Jan. 17, 2025), https://perma.cc/5EAU-VHUT; CLIMATE CHANGE AND SOCIAL VULNERABILITY, *supra* note 67.

[286] NCA5, *supra* note 6, at 14-5; NAS CONSENSUS STUDY REPORT, *supra* note 1, at 44–54.

[287] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 40; *see generally Id.* at 2, 40–56.

other sources.[288] A newly published analysis found that 15,000 wildfire PM deaths in the United States between 2006 and 2020 were solely attributable to climate change.[289] Those 15,000 deaths also resulted in a cumulative economic burden of $160 billion.[290] And a recent analysis of wildfire smoke mortality in the United States projects that climate-driven increases in smoke $PM_{2.5}$, even under a high-greenhouse gas mitigation and low global warming scenario, will cause 8,000 additional annual excess deaths in the United States in the 2050s than occurred during the last decade, and 690,000–720,000 cumulative excess deaths over the 2025–2055 period across low to high global warming levels.[291] This translates into annual damages of up to $244 billion by mid-century, comparable to the total estimates of monetizable harms from other climate impact categories in the United States in prior analyses.[292]

Both methane emissions and ocean acidification are also causing public health and economic harms separately from rising global temperatures. Methane contributes to tropospheric

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[288] Rosana Aguilera et al., *Wildfire Smoke Impacts Respiratory Health More than Fine Particles from Other Sources: Observational Evidence from Southern California*, 12 (1493) NATURE COMMC'NS (Mar. 5, 2021), https://perma.cc/Q777-VLUZ.

[289] Beverly E. Law et al., *Anthropogenic Climate Change Contributes to Wildfire Particulate Matter and Related Mortality in the United States*, 6 (336) NATURE COMMC'NS. EARTH & ENV'T 1, 1–3 (May 2, 2025), https://perma.cc/99PZ-74H8 ("Climate change has driven the observed increase in frequency and intensity of wildfires, which produce substantial amounts of fine particulate matter (wildfire PM2.5). Exposure to PM2.5 is a known cause of mortality and cardiovascular disease and is linked to onset and worsening of respiratory conditions. Ongoing trends of increasing wildfire severity align with climate projections and underscore how climate change factors such as earlier snowmelt, intensified heat waves, and rising vapor pressure deficit, have already expanded forest fire extent, accelerated daily fire growth rates, and enabled more extreme fire events. As climate change exacerbates wildfire risk, PM2.5 emissions from wildfires have surged, contributing nearly half of the national annual average PM2.5 across the US in recent years and reversing air quality improvements in several regions. Economic and environmental impacts of wildfires on both natural ecosystems and human communities will continue to increase as climate warming intensifies and extreme events become more frequent. . . . Over the 2006-2020 period of overlap between the available datasets of BA and wildfire PM2.5, we estimate that climate change resulted in 39.0% more forest BA and 13.3% more nonforest BA than would have happened in its absence . . . ."). The excess, climate-caused mortality impacts in the most-impacted counties (9.8–17.1 per 100,000 people) rival those of cancer (17.5 (2021) and 18.5 (2022))—the second leading cause of death in the United States. *Id.* at 3. Independent analyses have found similar mortality and economic burden results. *Id.* at 2.

[290] *Id.* at 1–2, 5.

[291] Minghao Qiu et al., *Wildfire Smoke Exposure and Mortality Burden in the US Under Climate Change*, NATURE (2025), https://perma.cc/GEK9-694Q.

[292] *Id.*; *see also* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 34 ("Wildfires also release large amounts of CO_2, CH_4, and other GHGs, as well as black carbon particles into the atmosphere, which contribute to climate warming, leading to a positive feedback loop that could further increase wildfire risk (NASEM, 2024d). Black carbon, a potent short-lived climate forcer present in wildfire smoke, accelerates glacier and snow melt and amplifies atmospheric warming. Elevated emissions from recent wildfires have been measured at levels equivalent to the annual fossil fuel output of major industrialized nations (Byrne et al., 2024). Jones et al. (2024b) found that global CO_2 emissions from forest fires have surged by 60% since 2001 largely due to increasingly intense and wide-ranging wildfires.").

ozone formation, and exposure to ozone (smog) is associated in epidemiologic studies with increased hospital admissions and premature mortality (as well as agricultural crop losses).[293] The net present value of the increase in mortality from methane-ozone effects is estimated at $1800 per ton of methane (95% confidence interval: $760–2800/mt$CH_4$). Ocean acidification has been correlated with population decline in the southeast Bering Sea red king crab, caused a $110 million loss for shellfish industries in the Pacific Northwest in the late 2000s, and is impacting the shells and sensory organs of young Dungeness crabs in the Pacific Northwest.[294]

Climate change also harms agricultural production and food and nutritional security. As the IPCC found, "climate change has generally reduced agricultural productivity by 12.5% since 1961" across North America, "with progressively greater losses moving south from Canada to Mexico and in drought-prone rain-fed systems (*high confidence*) while favourable conditions increased yields of maize, soybeans in regions like the USA Great Plains."[295] The effects of climate change will "intensify production losses of key crops (*high confidence*), livestock (*medium confidence*), fisheries (*high confidence*) and aquaculture products (*medium confidence*)."[296] Climate change is also expected to reduce catch in all U.S. fisheries regions, and cause between $2 billion in economic losses (assuming aggressive greenhouse gas mitigation) and $4.2 billion (assuming low greenhouse gas mitigation) by 2100.[297]

Unsurprisingly given these findings, "estimates of nationwide impacts indicate a net loss in the economic well-being of American society."[298] "Climate-related hazards will continue to

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[293] Erin E. McDuffie et al., *The Social Cost of Ozone-Related Mortality Impacts from Methane Emissions*, 11 EARTH'S FUTURE 1 (Sept. 2023), https://perma.cc/7PX3-G53C.

[294] Theo Stein et al., *Study Finds Ocean Acidification Is More Pervasive than Previously Thought*, NOAA OCEAN ACIDIFICATION PROGRAM NEWS (June 11, 2025), https://perma.cc/9U5C-VFXT.

[295] HANS-OTTO PÖRTNER ET AL., EDS., IPCC, CLIMATE CHANGE 2022: IMPACTS, ADAPTATION, AND VULNERABILITY: WORKING GROUP II CONTRIBUTION TO THE SIXTH ASSESSMENT REPORT OF THE IPCC at 1931–32, 1956 [hereinafter IPCC IMPACTS AR6 WGII], https://tinyurl.com/3czkkmtj (citations omitted); *see also id.* at 1974 ("Economic models generally show economic losses in the agricultural sector across North America, especially at higher [global warming levels], although the effects in local economies, especially rural areas of the USA that are highly dependent on agriculture, will be substantial even at lower global warming levels." (citations omitted)).

[296] *Id.* at 1931–32.

[297] NCA5, *supra* note 6, at 10-12; Chris Moore et al., *Estimating the Economic Impacts of Climate Change on 16 Major US Fisheries*, 12 CLIMATE CHANGE ECONS. 1 (Feb. 2021), https://perma.cc/CM63-Y58Q.

[298] NCA5, *supra* note 6, at 19-6 (citing Solomon Hsiang et al., *Estimating Economic Damage from Climate Change in the United States*, 365 SCI. 1362–69 (2017); Ashwin Rode et al., *Estimating a Social Cost of Carbon for Global Energy Consumption*, 598 NATURE 308 (2021); ASHWIN RODE ET AL., CLIMATE IMPACT LAB, LABOR DISUTILITY IN A WARMER WORLD: THE IMPACT OF CLIMATE CHANGE ON THE GLOBAL WORKFORCE, 1–96 (2022), https://perma.cc/FZQ8-WEK2; ANDREW HULTGREN ET AL., ESTIMATING GLOBAL IMPACTS TO AGRICULTURE FROM CLIMATE CHANGE ACCOUNTING FOR ADAPTATION 1–112 (2025), https://perma.cc/RR7K-4ZBA; Tamma Carleton et al., *Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits*, 137 Q. J. ECON. 2037 (2022); Jeremy Martinich & Allison Crimmins, *Climate Damages and Adaptation Potential*

grow, increasing morbidity and mortality across all regions of the US (*very likely, very high confidence*)."[299] The economic and health effects of climate change compound each other, with disproportionate effects on under-resourced individuals and communities.[300]

B. EPA cannot upend scientific consensus with an early draft of the procedurally and substantively flawed CWG Report.

In seeking to call into question the "ocean of evidence" supporting EPA's 2009 Endangerment Finding, *Coal. for Responsible Regul.*, 684 F.3d at 123, the Proposal primarily relies upon siloed data from a draft of the CWG Report. 90 Fed. Reg. at 36,292. But in contrast to the expansive body of peer-reviewed literature spanning several decades—and affirmed by the NAS just last week—that firmly establishes that anthropogenic emissions of greenhouse gases are causing climate change, which endangers public health and welfare, the CWG Report was written in secret in less than two months by five handpicked climate skeptics and not subjected to peer review. The Report's feeble attempts to critique well-established climate science unsurprisingly fall short. And it would be arbitrary and capricious for EPA to rely on the facially flawed report of another agency, *see Ergon-West Va., Inc. v. EPA*, 896 F.3d 600, 610 (4th Cir. 2018), not to mention a non-final draft of such report. *See infra* Section VI.A. But that is exactly what happened here. EPA thus cannot reasonably rely on the CWG Report, let alone a draft of the Report, to uproot the overwhelming scientific evidence of endangerment.

As discussed below, and in more detail in the comments of the States and Local Governments on the July 23, 2025, CWG Report,[301] the CWG Report suffers from numerous procedural and substantive flaws. On procedure, as one court has already ruled, "the Climate Working Group was not assembled to 'exchange facts or information' in a manner that would bring it into the claimed exception," and the CWG Report "is no mere 'review' of the literature" such that the CWG can evade compliance with FACA.[302] "To suggest otherwise borders on sophistry."[303] And it is plain that the CWG violated FACA multiple times over. DOE created the CWG in secrecy, without following the required procedures under FACA. Indeed, DOE's decision to dissolve the CWG on the eve of its deadline to file a response to a lawsuit challenging its legality under FACA suggests that it agrees.[304] Next, DOE impermissibly

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Across Diverse Sectors of the United States, 9 NATURE CLIMATE CHANGE 397–404 (2019), https://perma.cc/BX7Y-ELJE; *see also id.* at 19–20 ("Most of the [cited] papers find an asymmetric relationship with regard to temperature, where being too hot is worse than being too cold. Hence, the effect of an increase in extreme heat is the dominant driver for most places in the US leading to a net [economic] loss.").

[299] NCA5, *supra* note 6, at 15-6.

[300] *Id.* at 15-6, 15-7, 15-12.

[301] *See* CWG Report Comment, *supra* note 2.

[302] *Env't Def. Fund*, 2025 WL 2663068, at *3.

[303] *Id.*

[304] *See* Defs.' Mem. in Opp'n to Pls.' Mot. for Prelim. Inj. at 1, *Env't Def. Fund v. Wright*, No. 1:25-cv-12249 (D. Mass. Sept. 4, 2025), ECF No. 43; Decl. of Jeff Novak, Ex. 1 at 1, *Env't Def. Fund v. Wright*, No. 1:25-cv-12249 (D. Mass Sept. 4, 2025), ECF No. 44-1.

prejudged and influenced the outcome of the rushed CWG Report, as shown by Secretary Wright's selection of five climate skeptics to write the Report, and by his and DOE's statements on the specific factual and policy issues addressed in the Report. And by failing to conduct a peer review of the Report and not publishing the data underlying the Report's analyses, DOE also violated scientific integrity policies under applicable federal law. On substance, the Report's scientific, economic, and policy-based conclusions, recommendations, and analyses are unfounded and contradicted by the overwhelming weight of peer-reviewed research, including much of the research cited in the Report. DOE's acknowledgement in the FACA litigation that it provided select DOE career staff with only two weeks to review the CWG Report[305] further underscores its flimsy evaluation of sixteen years of climate science. Indeed, both the draft CWG Report relied on by EPA and the version of the Report released by DOE are riddled with inaccuracies, selective data presentation, data taken out of context, and misrepresentations of the literature and scientific consensus. The CWG Report thus fails to provide EPA with any reasoned basis to justify rescinding the 2009 Endangerment Finding; indeed, EPA's reliance on it in a final rule would render that rule plainly arbitrary and capricious and unlawful. At a minimum, EPA's decision to rely on a draft of the Report is not entitled to any deference. Further, the smattering of other citations EPA provides with little to no explanation—a mere twenty-seven studies, twenty-six of which also appear in the CWG Report and some of which are not published in peer-reviewed journals—are certainly insufficient to cast any doubt on the 2009 Endangerment Finding, much less justify its recission.

1. The CWG Report is procedurally flawed.

In every possible way, the CWG Report and EPA's reliance on an early draft are procedurally irregular. The CWG was handpicked by Secretary Wright in secrecy. Although Secretary Wright assembled the group in late March 2025, DOE did not tell the public about the CWG or its work on the CWG Report until two months later, when EPA issued its proposed rule in reliance upon an early draft of the report. EPA did not even await the report that the CWG eventually made public for comment, much less a report that reflected those public comments. DOE has refused to release any records related to the formation of the group, the group's deliberations, or the relationship of the group to this rulemaking. And, when groups challenged the formation of the CWG as unlawful under FACA, which ensures transparency in government advisory committees, Secretary Wright abruptly disbanded the CWG. Indeed, just last week the court soundly rejected the CWG and federal defendants' claim that the CWG fell within an exception to FACA.[306] The facts available suggest that the group was handpicked with a charge to rush out a report to support this rulemaking effort and then disbanded as soon as there was a threat that it would have to operate transparently, with a fairly balanced membership and public accountability. As explained below, the CWG violated FACA in many ways, and those procedural flaws irreparably taint the rulemaking process and warrant withdrawal of the Proposal. At a minimum, EPA must not rely on this secretly and hastily developed "scientific"

[305] *See* Defs'. Mem. in Opp'n to Pls. Mot. for Prelim. Inj., *supra* note 304, at 4 (referencing "mid-July" circulation of the draft to DOE "scientists/administrators" (internal quotations and citation omitted)).

[306] *Env't Def. Fund*, No. 2025 WL 2663068, at *3.

report, assembled with the specific, prejudged policy aim of supporting EPA's repeal of the 2009 Endangerment Finding.

a. DOE failed to comply with the Federal Advisory Committee Act in establishing the CWG and preparing the CWG Report.

In creating and commissioning the CWG, Secretary Wright failed to comply with the requirements of FACA, the regulations promulgated thereunder, and the DOE's Advisory Committee Management Program Manual. Many FACA violations also constitute violations of the Administrative Procedure Act. *Ctr. for Biological Diversity v. Tidwell*, 239 F. Supp. 3d 213, 220 (D.D.C. 2017).

Because the head of a federal executive agency (DOE Secretary Wright) created the CWG, and its work has been utilized to provide advice and recommendations to at least one such agency (the EPA in formulating its Proposal), the CWG was a committee as defined by FACA and was subject to its requirements. *See* 5 U.S.C. § 1001(2)(A); *see also Env't Def. Fund*, 2025 WL 2663068, at *3 (CWG not exempt from FACA obligations). Because of the CWG's FACA violations, EPA cannot rely on its Report in this rulemaking.

i. FACA imposes substantial procedural requirements governing the formation and functioning of advisory committees.

FACA was enacted in 1972 following significant increases in the number of committees, boards, commissions, councils, and similar groups created to provide advice to the federal government.[307] The Act aims to ensure that all FACA committees are necessary, their number is kept to a minimum, they are terminated when no longer necessary, and uniform standards and procedures are used for their establishment, operation, administration, and duration. 5 U.S.C. § 1008; *see also Pub. Citizen v. U.S. Dep't of Just*., 491 U.S. 440, 446 (1989) (outlining purpose and importance of FACA).

In enacting FACA, Congress aimed to prevent the proliferation of committees "dominated by representatives of industry and other special interests seeking to advance their own agendas." *Cummock v. Gore*, 180 F.3d 282, 284 (D.C. Cir. 1999). Rather, Congress intended to require "the public accountability of advisory committees established by the Executive Branch." *Pub. Citizen*, 491 U.S. at 459. Key FACA requirements, therefore,

> promote transparency, accountability, and open public participation in executive branch decisions and prevent informal advisory committees from exerting improper or one-sided influence. Specifically, the statute seeks to "ensure that [advisory committees'] creation, operation, and duration be subject to uniform standards and procedures; that Congress and the public remain apprised of their existence, activities, and cost; and that their work be exclusively advisory in nature."

[307] *See* U.S. GEN. SERVS. ADMIN., *Federal Advisory Committee Act (FACA) Management Overview* https://perma.cc/3K96-ZZKN (last updated Mar. 4, 2025).

VoteVets Action Fund v. U.S. Dep't of Veterans Affs., 992 F.3d 1097, 1101 (D.C. Cir. 2021) (quoting *Pub. Citizen*, 491 U.S. at 446 (alteration in original)). In addition to FACA and its implementing regulations, 41 C.F.R. Part 102-3, DOE also utilizes an Advisory Committee Management Program Manual with which the Secretary and any committee must comply.[308] These statutory, regulatory, and internal guidelines provide a clear and highly developed framework for the creation, operations, and oversight of advisory committees.

FACA defines "advisory committee" as any "committee, board, commission, council, conference, panel, task force, or other similar group, or any subcommittee or other subgroup thereof" created by statute, the President, or any federal agency "that is established or utilized to obtain advice or recommendations for the President or one or more agencies or officers of the Federal Government." 5 U.S.C. § 1001(2)(A); *see also* 41 C.F.R. § 102-3.25. To establish an advisory committee, an agency head must consult with the General Services Administration's (GSA) Secretariat, providing an explanation stating why the advisory committee is essential to the conduct of agency business and in the public interest. 41 C.F.R. § 102-3.60(b)(1).[309] Secretary Wright, as DOE's agency head, is responsible for approving nominated members to the advisory committee.[310] He is also responsible for "compliance with FACA and other provisions ensuring that advisory committees not be unduly influenced by their appointing authority or special interests."[311]

Significantly, a "fairly balanced membership" is required. 41 C.F.R. § 102-3.60(b)(3). The advisory committee members' points of view must be diverse. *Id.* § 102-3.60(b)(3)(i).[312] In addition to formulating a group that is balanced in terms of point of view, DOE requires that "[c]onsideration will also be given to factors such as the geographic region of the country; minority groups; women's organizations; public and private academic institutions, including Black colleges and universities; physically challenged individuals and groups; and the public at large."[313] To that end, a required proposal package for the appointment of members must include a discussion of how a "fairly balanced membership" was achieved and the agency must create and submit a Membership Balance Plan. *Id.* § 102-3.60(b)(3).[314]

In addition to requiring a balanced membership, FACA also requires that "consideration [be given to] the groups and entities potentially affected or interested in [the advisory committee's] recommendations." *Id.* § 102-3.60(b)(3)(i); *see also* Federal Advisory Committee Management, 66 Fed. Reg. 37,728, 37,740 (July 19, 2001) (GSA guidance that "[t]he composition of an advisory committee's membership will depend on several factors

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[308] *See* DOE OFF. OF MGMT., DOE M 515.1-1, ADVISORY COMMITTEE MANAGEMENT PROGRAM MANUAL (2007) [hereinafter DOE ADVISORY COMMITTEE MANUAL], https://perma.cc/4LYC-8W3E.

[309] *See also id.* § I(5)(b), at I-2.

[310] *See id.* § I(6)(a)(1), at I-2.

[311] *See id.* § I(6)(a)(2)(a), at I-3.

[312] *See also id.* § I(6)(c)(7), at I-3.

[313] *See id.* § IV(3)(a)(2), at IV-2.

[314] *See also id.*§ IV(5)(a)(1)(b), at IV-4.

including . . . [t]he relevance of State, local, or tribal governments to the development of the advisory committee's recommendations"). Such consideration is not merely contemplative or discursive, but rather requires "broad outreach, using a variety of means and methods, to ensure that the call for nominees reaches the interested parties and stakeholder groups likely to possess those points of view[,]" including "underserved communities." 41 C.F.R. § 102-3.60(b)(3)(ii).

When, as here, advisory committee members serve as purported experts, they also must be appointed as "special government employees" and are subject to ethics and conflict of interest rules.[315] For example, advisory committee members are prohibited from participating in any committee matter that might have a direct and predictable impact on the companies, organizations, or agencies with which they are associated or in which they have a financial interest.[316] To identify potential conflicts, before joining the committee, each must file a public financial disclosure report that includes disclosure of "any financial or other interest that may be affected by the work of the committee or create the appearance of a conflict of interest."[317]

Before a federal advisory committee can meet, several more steps are required. Transparency and clarity are the primary objectives.[318] Accordingly, the agency must publish a "Notice of Intent to Establish" the advisory committee in the Federal Register. 41 C.F.R. § 102-3.65.[319] A "designated officer or employee of the Federal Government [must be chosen] to chair or attend each meeting." *NAACP Legal Def. & Educ. Fund, Inc. v. Barr*, 496 F. Supp. 3d 116, 123 (D.D.C. 2020) (internal punctuation omitted); *see also* 5 U.S.C. § 1009(e); 41 C.F.R. § 102-3.120(a). Additionally, a formal charter must be prepared and filed specifying the advisory committee's mission or charge, specific duties, and general operational characteristics. 5 U.S.C. § 1008(c)(1); 41 C.F.R. §§ 102-3.70, 102-3.75.[320]

Attendant to each of these requirements is the additional, overarching requirement that these records, and all committee-related records, must be maintained in a central location and available to the public. *See Food Chem. News v. Dep't of Health & Human Servs*., 980 F.2d 1468, 1472 (D.C. Cir. 1992); 5 U.S.C. § 1009(b).[321] The public right to access of committee-related records is broader than that of FOIA, in that (1) no FOIA request is required, *Food Chem. News*, 980 F.2d at 1472, (2) the documents are to be publicly accessible as soon as they are prepared or used, *id.*, and (3) FOIA's deliberative process exemption is not available to advisory committees, *Heartwood, Inc. v. U.S. Forest Serv*., 431 F. Supp. 2d 28, 36 (D.D.C. 2006).

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[315] *See id.* § I(8)(n), at I-11 & I-12, and § I(6)(g)(1)(d), at I-5.

[316] *See id.* § IV(6)(b), at IV-7; *see also* 18 U.S.C. § 208(a).

[317] *See* DOE ADVISORY COMMITTEE MANUAL, *supra* note 308, § IV(6)(a)(1), at IV-7.

[318] *See* U.S. GEN. SERVS. ADMIN., *Federal Advisory Committee Charters* (last updated Oct. 16, 2024), https://perma.cc/KF8Q-7LY8.

[319] *See also* DOE ADVISORY COMMITTEE MANUAL, *supra* note 308, § II(4)(c)(1), at II-4.

[320] *See also* Federal Advisory Committee Charters, *supra* note 318.

[321] *See also* DOE ADVISORY COMMITTEE MANUAL, *supra* note 308, § I(6)(i)(14), at I-9.

In addition to the requirement that all documents be publicly accessible, so too must "each advisory committee meeting [ ] be open to the public."[322] 5 U.S.C. § 1009(a)(1); *see also* 41 C.F.R. § 102-3.140(a). "Committee meeting" is defined as:

> any gathering of advisory committee members (whether in person or electronically, such as using telecommunications or through a virtual platform), held with the approval of an agency, and with a Designated Federal Officer in attendance, for the purpose of deliberating on the matters upon which the advisory committee provides advice or recommendations.

41 C.F.R. § 102-3.25.

Public notice of each meeting is to be published in the Federal Register at least fifteen days prior to a meeting and thirty days whenever possible. *Id.* § 102-3.150(a).[323] Each meeting must be "held at a reasonable time and in a manner or place accessible to the public[,] include[] consideration of affected communities," and be "accessible to . . . persons with disabilities." 41 C.F.R. § 102-3.140(a)(1). The regulations provide for high levels of participation, allowing for the submission of written statements and for "[a]ny member of the public [to] speak to or otherwise address the advisory committee if the agency's guidelines so permit." *Id.* § 102-3.140(a)(4). Indeed, the departmental guidelines governing public participation are even more inclusive, requiring that a minimum of fifteen minutes be allotted at the conclusion of each open meeting for oral statements, if not taken throughout the meeting.[324]

In keeping with the expansive transparency requirements related to committee documents, "[d]etailed minutes of each meeting of each advisory committee shall be kept and shall contain a record of the persons present, a complete and accurate description of matters discussed and conclusions reached, and copies of all reports received, issued, or approved by the advisory committee." 5 U.S.C. § 1009(c).[325] Minutes must be posted on the advisory committee website within fourteen days of being certified for accuracy. 41 C.F.R. § 102-3.165(c).

ii. DOE failed to comply with FACA's mandates.

It is difficult to overstate how far Secretary Wright strayed from the letter and spirit of the law in commissioning and overseeing the CWG. Whereas FACA, its implementing regulations, and the DOE's Advisory Committee Management Program Manual all require transparency and public accessibility and participation, Secretary Wright and the CWG operated in secrecy, with no accountability whatsoever.

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[322] The limited exceptions to the open meeting requirement are inapplicable here. 5 U.S.C. § 552b(c); *see also* DOE ADVISORY COMMITTEE MANUAL, *supra* note 308, § V(4), at V-4.

[323] *See also id.* at § V(3)(c)(1), at V-3.

[324] *See id.* at § V(3)(a)(2)(b)(1), at V-2.

[325] *See also* 41 C.F.R. § 102-3.165(b); DOE ADVISORY COMMITTEE MANUAL, *supra* note 308, § V(5), at V-5.

First, the CWG was an advisory committee as defined by FACA and was therefore subject to FACA's requirements. It was a "committee, board, commission, council, conference, panel, task force, or other similar group," with a fixed membership of five individuals, that was "established or utilized to obtain advice or recommendations for . . . one or more agencies or officers of the Federal Government." 5 U.S.C. § 1001(2)(A). As the U.S. District Court for the District of Massachusetts held just last week, the federal defendants' claimed exception—41 C.F.R. § 120-3.40(e)—does not apply: "[t]he conclusion of the report itself shows that it is no mere 'review' of the literature," and "[t]o suggest otherwise borders on sophistry."[326] In the CWG's words, the Report:

> supports a more nuanced and evidence-based approach for informing climate policy that explicitly acknowledges uncertainties. The risks and benefits of a climate changing under both natural and human influences must be weighed against the costs, efficacy, and collateral impacts of any "climate action", considering the nation's need for reliable and affordable energy with minimal local pollution. Beyond continuing precise, un-interrupted observations of the global climate system, it will be important to make realistic assumptions about future emissions, re-evaluate climate models to address biases and uncertainties, and clearly acknowledge the limitations of extreme event attribution studies. An approach that acknowledges both the potential risks and benefits of CO_2, rather than relying on flawed models and extreme scenarios, is essential for informed and effective decision-making.[327]

The court explained that "[n]o reasonable jury could find that these words, arranged as they are, do not constitute advice or recommendations for a renewed approach to climate policy."[328]

Observing that "misguided policies based on fear rather than facts could truly endanger human well-being," Secretary Wright's Foreword similarly notes that he established the CWG, "commissioned" the CWG Report, and selected the authors "to encourage a more thoughtful and science-based conversation about climate change and energy."[329] The Report's preface clearly explains the CWG's advisory purpose: "Secretary Wright assembled an independent group to write a report on issues in climate science relevant for energy policymaking."[330] Indeed, the CWG Report already has been utilized to provide advice and recommendations to at least one federal agency, as it is cited as a primary basis for EPA's Proposal, 90 Fed. Reg. at 36,292 n.10.

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[326] *Env't Def. Fund*, 2025 WL 2663068, at *3.

[327] CWG REPORT, *supra* note 4, at 130 (July 23, 2025).

[328] *Env't Def. Fund*, 2025 WL 2663068, at *3.

[329] CWG REPORT, *supra* note 4, at vii; *see also* Decl. of Jeff Novak, Ex. 1, *supra* note 304, at 1 ("I assembled this team to engage critically with existing climate research and to provide an overview of the state of the research – both its certainties and its uncertainties – as a means to catalyze scientific and public debate."); 41 C.F.R. § 102-3.50 ("FACA identifies four sources of authority for establishing an advisory committee," including "[b]y an agency under general authority in title 5 of the United States Code or under other agency-authorizing statutes (discretionary).").

[330] CWG REPORT, *supra* note 4, at ix.

Second, despite the CWG fitting squarely within the definition of an advisory committee, Secretary Wright failed to follow the requirements of FACA, its implementing regulations, or DOE's own FACA manual. To begin, Secretary Wright seemingly did not consult the GSA's Secretariat in forming the CWG or provide a Membership Balance Plan to the GSA, and no such plan was created or published. *See* 41 C.F.R. § 102-3.60. And it is unclear whether the committee members were made special government employees[331] and whether they submitted the requisite financial disclosure reports.[332]

The CWG's membership also was not fairly balanced in terms of points of view, 41 C.F.R. § 102-3.60(b)(3)(i): though 97% of climate scientists concur in the overwhelming scientific consensus that humans, via greenhouse gas emissions, are causing climate change and that the effects of climate change are harmful to public health and welfare,[333] the members of the CWG are all members of the ~3% who disagree.[334] The CWG also lacked balance in terms of geography, gender, and racial diversity, as is required by DOE's own policy.[335] Four of the five CWG members are male, all are white, and three reside and/or work in the southeastern United States. DOE did not conduct outreach to or consult with communities and stakeholders that are and will be affected by or interested in the CWG's conclusions. 41 C.F.R. § 102-3.60(b)(3)(ii). There were also no provisions in place to prevent inappropriate influence on the CWG's work, *id*. § 102-3.105(i), and in fact Secretary Wright inappropriately influenced the CWG by directing it to prepare a report with a predetermined goal and outcome, *see infra* Section V.B.1.b. As discussed below, Secretary Wright also influenced the CWG by providing a Foreword summarizing the Report's conclusions before he had even read a draft of the Report. *See id.*

Secretary Wright also failed to publish a notice of intent to establish the CWG, 41 C.F.R. § 102-3.65; failed to designate an officer to chair its meetings, *id*. § 102-3.120(a); and did not prepare and file a proposed charter, all in violation of FACA. *See id*. § 102-3.70. DOE also did not publish notice of committee meetings in the Federal Register or otherwise notify the public of meetings, *id*. § 102-3.150; did not make meetings open to the public, *id*. 102-3.140(a); and did not give members of the public the opportunity to address the advisory committee, *id.* § 102-3.140(a)(4). And despite FACA's purpose and its emphasis on transparency and accountability, DOE failed to make public the records and other documents that the CWG must make public under Section 10(b) of FACA, 5 U.S.C. § 1009(b), and likewise has not kept or made public minutes of the CWG's meetings, 41 C.F.R. § 102-3.165. Indeed, the CWG operated entirely in

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[331] *See* DOE ADVISORY COMMITTEE MANUAL, *supra* note 308, § I(8)(n), at I-11 and I-12, and § I(6)(g)(1)(d), at I-5. It has been reported that at least one of the five members of the CWG did not file the paperwork necessary to be a special government employee. *See* Roger Pielke, Jr., *DOE Climate Working Group RIP*, SUBSTACK: THE HONEST BROKER (Sept. 10, 2025), https://perma.cc/3QXB-HJRE; Doug Obey, *Disbanded DOE Climate Group Poses New Challenges for EPA, Critics Say*, INSIDEEPA (Sept. 10, 2025), https://insideepa.com/climate-news/disbanded-doe-climate-group-poses-new-challenges-epa-critics-say.

[332] *See* DOE ADVISORY COMMITTEE MANUAL § IV(6)(a)(1), at IV-7.

[333] NASA, *Do scientists agree on climate change?* (last updated Mar. 18, 2024), https://perma.cc/G73G-LD3H.

[334] CWG REPORT, *supra* note 4, at 135–36.

[335] *See* DOE ADVISORY COMMITTEE MANUAL, *supra* note 308, § IV(3)(a)(2), at IV-2.

secrecy and its existence was hidden from the public from its inception in early April 2025 until the Report's release on July 29, 2025.

Congress enacted FACA to prevent exactly what Secretary Wright has done. Indeed, as already noted, these blatant violations already resulted in litigation, and partial summary judgment in favor of the plaintiffs. *See Env't Def. Fund v. Wright*, No. 1:25-cv-12249 (D. Mass., filed Aug. 12, 2025). Moreover, as noted above, the decision by DOE to disband the CWG the day before the government defendants filed their response in the case suggests that DOE recognizes as much. The CWG's alleged dissolution does not, however, cure the underlying FACA violations regarding accountability and transparency because those violations fundamentally impugn the CWG Report and the EPA's Proposal. To address the FACA violations, DOE must withdraw the CWG Report, and EPA must withdraw the Proposal that relies on it.[336] *Cf. NAACP Legal Def. & Educ. Fund, Inc.*, 496 F. Supp. 3d at 145 ("order[ing] that Commission proceedings be halted and that defendants may not submit, publish, or rely on any report or recommendations produced by the Commission until the requirements of FACA are satisfied").

b. Secretary Wright prejudged the outcome of the CWG Report and EPA cannot, therefore, rely upon it.

Secretary Wright demonstrated an "unalterably closed mind on matters critical to the disposition of" the CWG Report and inappropriately influenced its content and findings, warranting withdrawal of the CWG Report. This infirmity provides a separate reason why EPA cannot rely on the CWG Report in this Proposal and must begin a new process that is uninfluenced by the Secretary's prejudgment. *See Ass'n of Nat'l Advertisers, Inc. v. FTC*, 627 F.2d 1151, 1170 (D.C. Cir. 1979); *Nehemiah Corp. of Am. v. Jackson*, 546 F. Supp. 2d 830, 847 (E.D. Cal. 2008).

"There is no doubt that the purpose of [the public comment period] would be frustrated if [agency officials] had reached an irrevocable decision . . . prior to . . . final action." *Ass'n of Nat'l Advertisers*, 627 F.2d at 1170. Several circumstances may indicate that an agency official is unable to meaningfully consider the public's comments, including: (1) a preexisting internal directive to reach a particular result, *id.* at 1172; and (2) a senior political official's patterns of behavior or statements, including an unequivocal announcement of a "dramatic change" in the agency's position, prior to the conclusion of an administrative proceeding, *Int'l Snowmobile Mfrs. Ass'n v. Norton*, 340 F. Supp. 2d 1249, 1260–61 (D. Wyo. 2004).

Secretary Wright's conduct, both before and after he opened a public comment period on the CWG Report (including, most recently, his decision to disband the CWG on the eve of a court deadline in FACA litigation in an attempt to avoid accountability [337]), exemplifies both disqualifying circumstances, showing that he is "unable to consider meaningfully" the evidence presented during the public comment period. *Ass'n of Nat'l Advertisers*, 627 F.2d at 1170. *First*, a preexisting internal directive to reach a particular result is strong evidence that that official is not "free, both in theory and in reality, to change his mind" following public comment. *Id.* at

[336] CWG Report Comment, *supra* note 2, at 29.

[337] *See* Decl. of Jeff Novak, Ex. 1, *supra* note 304, at 1.

1172; *see also Int'l Snowmobile Mfrs. Ass'n*, 340 F. Supp. 2d at 1260. The President's Executive Orders,[338] including the *Unleashing* EO, show that the President has directed DOE to pre-

[338] *See, e.g.*, Exec. Order No. 14261, *Reinvigorating American's Beautiful Clean Coal Industry and Amending Executive Order 14,241*, 90 Fed. Reg. 15,517 (Apr. 14, 2025) [hereinafter *Beautiful Clean Coal* EO] (declaring that "[i]t is a national priority to support the domestic coal industry by . . . *encouraging the utilization of coal to meet growing domestic energy demands*" and directing agency heads to support coal mining and coal-powered electricity generation); Exec. Order No. 14262, *Strengthening the Reliability and Security of the United States Electric Grid*, 90 Fed. Reg. 15,521–22 (Apr. 14, 2025) (directing the Secretary of Energy to prevent "critical" generation resources from retiring or converting to a different fuel type, in the context of ongoing coal plant retirements and conversions); *Unleashing* EO, 90 Fed. Reg. at 8353–59 (noting that it is policy of Trump Administration to rescind policies that "function to limit sales of gasoline-powered automobiles," and directing agencies "to identify those agency actions that impose an undue burden on the identification, development, or use of domestic energy resources—with particular attention to oil" and other fossil fuels and favored energy sources and to suspend, revise, or rescind all such actions, revoking prior executive orders addressing climate change mitigation and adaptation, protecting environmental quality, scientific integrity and evidence-based policymaking, and deploying clean energy; directing agencies to eliminate any environmental considerations beyond those required by statute; disbanding the Interagency Working Group on the Social Cost of Greenhouse Gases (and attacking legitimacy of federal social cost of carbon estimates); pausing disbursements of funds under IRA for consistency with policy of preferencing fossil energy); Exec. Order No. 14213, *Establishing the National Energy Dominance Council*, 90 Fed. Reg. 9945 (Feb. 14, 2025) (equating use of fossil fuels, including crude oil and refined petroleum products, with making America energy dominant); Exec. Order No. 14156, *Declaring a National Energy Emergency*, 90 Fed. Reg. 8433 (Jan. 29, 2025) (directing agencies to facilitate fossil fuel production, including crude oil and refined petroleum products), Exec. Order No. 14153, *Unleashing Alaska's Extraordinary Resource Potential*, 90 Fed. Reg. 8347 (Jan. 29, 2025) (directing the Secretary of the Interior to reverse and rescind various policies limiting exploration for and extraction of oil and gas in Alaska, and directing expedition and issuance of permits for exploration, development and production oil and gas from Alaska, including in Arctic National Wildlife Refuge); Exec. Order No. 14303, *Restoring Gold Standard Science*, 90 Fed. Reg. 22,601 (May 29, 2025); Presidential Proclamation No. 10914, *Regulatory Relief for Certain Stationary Sources to Promote American Energy*, 90 Fed. Reg. 16,777 (Apr. 21, 2025) (providing coal-fired plants two-year compliance exemption from Mercury and Air Toxics Standards, claiming standards "place severe burdens" on plants and "through [their] indirect effects, on the viability of our Nation's coal sector"); Exec. Order No. 14270, *Zero-Based Regulatory Budgeting To Unleash American Energy*, 90 Fed. Reg. 15,643 (Apr. 15, 2025) (directs regulatory agencies, including EPA, to issue rule terminating existing regulations one year after promulgation and prohibiting enforcement thereafter); Exec. Order No. 14260, *Protecting American Energy From State Overreach*, 90 Fed. Reg. 15,513, 15,513–14 (Apr. 14, 2025) (noting Trump Administration's commitment to "unleashing American energy," "particularly" oil and other fossil fuels, likening State climate change laws that promote use of renewable energy to "extortion," and directing Attorney General to identify all State and local laws "burdening" production and use of fossil fuels such as oil, particularly those addressing climate change or environmental issues); Exec. Order No. 14236, *Additional Rescissions of Harmful Executive Orders and Actions*, 90 Fed. Reg. 13,037 (Mar. 20, 2025); Exec. Order No. 14225, *Immediate Expansion of American Timber Production*, 90 Fed. Reg 11,365 (Mar. 6, 2025); Exec. Order No. 14162, *Putting America First in International Environmental Agreements*, 90 Fed. Reg. 8455 (Jan. 30, 2025). Further, in March 2025, "[t]o advance President Trump's Executive Orders and Power the Great American Comeback, EPA set up an electronic mailbox to allow the regulated community to request a Presidential Exemption under section 112(i)(4) of the Clean Air Act" which allows for an up to 2-year, renewable exemption from pollution standard

determine certain key factual or legal matters prior to opening any proposal for public comment. These Executive Orders direct and commit executive agencies to an agenda of facilitating greater use of fossil fuels, while constraining the use of renewable energy,[339] with the intent of reshaping the country's energy sector in favor of the resources the Administration prefers.[340] In particular, the *Unleashing* EO requires DOE to "identify those agency actions that impose an undue burden on the identification, development, or use of domestic energy resources—with particular attention to oil, natural gas, [and] coal . . . resources." 90 Fed. Reg. at 8354. The *Unleashing* EO also required Secretary Wright to, within thirty days, "develop and begin implementing action plans to suspend, revise, or rescind all agency actions identified as unduly burdensome." *Id.* And the *Unleashing* EO also directed that "the Administrator of the EPA, in collaboration with the heads of any other relevant agencies, shall submit joint recommendations to the Director of OMB on the legality and continuing applicability of the Administrator's findings, 'Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act,' Final Rule, 74 FR 66496 (December 15, 2009)," i.e., the 2009 Endangerment Finding that EPA now proposes to rescind in reliance on a draft of the CWG Report. 90 Fed. Reg. at 8357.

> True to the President's plan, in announcing its release of the CWG Report, DOE stated:
>
> The report was published today as part of the U.S. Environmental Protection Agency's (EPA) proposed rule repealing the 2009 Endangerment Finding. EPA's proposed rule, if finalized, will mark a critical step forward in achieving President Trump's commitment to unleash American energy dominance.[341]

Secretary Wright's identification of the Report as a "critical step" toward fulfilling the mandate of the directives in President Trump's Executive Orders, and his coordinated release of the

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compliance. *See* EPA, *Clean Air Act Section 112 Presidential Exemption Information* https://perma.cc/56HR-V3NU (last updated Apr. 14, 2025). Although EPA asserts that "[s]ubmitting a request does not entitle a submitter to an exemption," no specific data or demonstration was requested, and EPA did not indicate what criteria would be applied to make decisions. *Contra* Presidential Memorandum of January 16, 2025, *Orderly Implementation of the Air Toxics Standards for Ethylene Oxide Commercial Sterilizers*, 90 Fed. Reg. 6773 (Jan. 17, 2025).

[339] *See* Exec. Order No. 14315, *Ending Market Distorting Subsidies for Unreliable, Foreign-Controlled Energy Sources*, 90 Fed. Reg. 30,821 (July 10, 2025) (directing Treasury Department to strictly enforce termination of renewable energy tax credits and restrict their use); Presidential Memorandum of January 20, 2025, *Temporary Withdrawal of All Areas on the Outer Continental Shelf from Offshore Wind Leasing and Review of the Federal Government's Leasing and Permitting Practices for Wind Projects*, 90 Fed. Reg. 8363 (Jan. 29, 2025) (precluding wind leasing on the Outer Continental Shelf, pausing all wind approvals, leases, loans, and rights of way, and putting a moratorium on the Lava Ridge Wind Project).

[340] In signing the first tranche of Executive Orders, President Trump said: "We're bringing back an industry that was abandoned. . . . All those plants that have been closed are going to be opened." Adam Burke, *Trump Orders Coal Revival, But Market Favors Natural Gas*, NAT'L PUB. RADIO (NPR) (Apr. 17, 2025, 12:01 AM ET), https://perma.cc/CB5T-P7VV.

[341] Press Release, DOE, *Department of Energy Issues Report Evaluating Impact of Greenhouse Gasses on U.S. Climate, Invites Public Comment* (July 29, 2025), https://perma.cc/MU67-7JJ6.

Report on the same day as EPA's proposed Endangerment Finding rescission, "as part of the [EPA's] proposed rule," demonstrate that he and DOE are not free—either in theory or in reality—to change their minds after public comment. Rather, Secretary Wright has demonstrated an unshakable, predetermined commitment to facilitate use of the CWG Report to undermine the established climate science underpinning climate regulations as a tool to achieve the President's directive to advantage fossil fuels in the name of energy dominance and promote skepticism about the existence and impacts of climate change. Although general political or ideological stances are not enough to show prejudgment, President Trump's Executive Orders on fossil fuels are specific and binding. *See Ass'n of Nat'l Advertisers*, 627 F.2d at 1170. President Trump's agenda does not reflect merely an interest in allowing increased greenhouse gas emissions, but, according to the Secretary, a specific promise to "dismantl[e]" regulations controlling greenhouse gas emissions.[342]

Second, an agency official's actions and statements, both before and after purporting to seek public comment, may indicate that they have prejudged the outcome of the proceeding. To determine whether an official has demonstrated an "unalterably closed mind on matters critical to the disposition of the proceeding," their statements are to be examined as a whole using a clear and convincing evidence standard. *Hous. Study Grp. v. Kemp*, 736 F. Supp. 321, 332 (D.D.C. 1990); *see also Ass'n of Nat'l Advertisers*, 627 F.2d at 1170–71. While "an expression of opinion prior to the issuance of a proposed rulemaking does not, without more, show that an agency member cannot maintain an open mind during the hearing stage of the proceeding," patterns of behavior or statements may indicate an inability or unwillingness to meaningfully consider the public's comments. *Hous. Study Grp*., 736 F. Supp. at 333 (*quoting Ass'n of Nat'l Advertisers*, 627 F.2d at 1173). In this inquiry, courts have noted a distinction between statements made prior to a proposed rulemaking and statements made after a proceeding has commenced, viewing the latter with increased skepticism. *See id.*; *Penobscot Indian Nation v. U.S. Dep't of Hous. & Urb. Dev*., 539 F. Supp. 2d 40, 46 n.5 (D.D.C. 2008). While a showing of prejudgment requires more than "mere discussion of policy or advocacy on a legal question," *Ass'n of Nat'l Advertisers*, 627 F.2d at 1171, a statement that constitutes or announces a dramatic change in agency policy can constitute a prejudgment, *Int'l Snowmobile Mfrs. Ass'n*, 340 F. Supp. 2d at 1260–61.

Secretary Wright has repeatedly demonstrated, through his actions and statements both before and after release of the Report, that he has prejudged, and almost certainly influenced the CWG's findings on, the specific scientific and policy issues in the CWG Report on which DOE purportedly seeks public comment and upon which EPA has already relied. First, even before release of the Report, Secretary Wright frequently expressed his disagreement with the overwhelming scientific consensus on the harmful consequences of climate change, consistent with the arguments set forth in the Report. For example, he has frequently asserted that extreme weather events are not increasing over time.[343] This matches the CWG Report's statement that

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[342] *See* DOE, *Statement from Energy Secretary Chris Wright on President Trump's Joint Address to Congress* (Mar. 4, 2025), https://perma.cc/4DB8-H33D.

[343] *Energy Secretary Wright Testifies on 2026 Budget Request*, C-SPAN, at 51:10 (June 18, 2025) [hereinafter Sec. Wright Testimony June 18, 2025], https://tinyurl.com/54m8d3dm ("Extreme weather is not actually exploding and growing as everyone says."); *see also Beyond Scope: How the SEC's Climate Rule Threatens American Markets: Hearing Before the H. Comm. on Fin. Servs*., 118th Cong. 11 (Apr.

"[m]ost types of extreme weather exhibit no statistically significant long-term trends over the available historical record."[344] He has stated that "a warmer planet, with more CO_2, is better for growing plants."[345] This mirrors the CWG Report's claim that "[t]he growing CO_2 concentration in the atmosphere has the important positive effect of promoting plant growth."[346] Both Secretary Wright and the CWG Report critique climate policies and mainstream science for their purported reliance on the RCP 8.5 scenario, explained *infra* Section V.B.2.a.iii.[347] Both Secretary Wright and the CWG Report state that social-cost-of-carbon calculations are unfounded and that emission reductions policies will do more harm than good.[348] To support those contrarian assessments, Secretary Wright has even relied on some of the same studies cited in the CWG Report.[349]

Furthermore, Secretary Wright's empanelment of the five individuals he hand-picked to comprise the CWG is additional evidence of his prejudgment. The five members of the CWG all hold opinions contrary to the vast majority of climate scientists.

Member John Christy has a reputation for being "a favorite of the political right, in large part, because of his views that carbon dioxide emissions have very little influence on the

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10, 2024) (statement of Chris Wright, Founder, Chairman & CEO, Liberty Energy Inc.) [hereinafter Wright Statement on SEC Rule], https://perma.cc/XZY2-BCV4 ("[T]o date we have not seen an increase in extreme weather events."); Chris Wright, CEO, Liberty Energy, *Introduction, Bettering Human Lives Report* 16 (Jan. 2024), https://perma.cc/4WFL-WW97 ("[W]e often hear [that] climate change . . . leads to a significant increase in extreme weather events with deadly consequences. This claim is false."); Chris Wright, CEO Liberty Energy, LinkedIn (2024), https://perma.cc/2V2R-7M4R (IPCC "reports no significant trends in extreme weather events like hurricanes, tornadoes, floods or droughts" (citation omitted)).

[344] CWG REPORT, *supra* note 4, at 47.

[345] *Secretary Wright Joins FOX Business's Stuart Varney*, at 0:20, YOUTUBE: U.S. DEP'T OF ENERGY CHANNEL (Feb. 19, 2025) [hereinafter Wright Fox Business Interview], https://www.youtube.com/watch?v=GsijyIafpPA.

[346] CWG REPORT, *supra* note 4, at 3.

[347] *Id.* at 12; Clare Zhang, *DOE Secretary Defends Cuts to National Labs while Suggesting Future Boost*, AM. INST. PHYSICS (June 20, 2025), https://perma.cc/QY6Z-NMV8.

[348] CWG REPORT, *supra* note 4, at viii, 120–21, 125; *DOE Secretary Defends Cuts to National Labs while Suggesting Future Boost*, *supra* note 347 ("Wright criticized the Biden administration's calculations of the social cost of carbon as 'crazy' and 'torturous math[.]' . . . '[S]hould we spend $300 to reduce a cost that maybe is $100? . . . Clearly, that math just doesn't add up.'" (quoting Sec. Wright Testimony June 18, 2025, *supra* note 343)).

[349] *See* Wright Statement on SEC Rule, *supra* note 343, at 10–11 & nn. 52–3, 56 (citing Gasparrini et al. (2015), *infra* note 607; Qi Zhao, et al., *Global, Regional, and National Burden of Mortality Associated with Non-Optimal Ambient Temperatures from 2000 to 2019: A Three-State Modelling Study*, 5 LANCET PLANETARY HEALTH E415-E425 (July 2021); and Philip J. Klotzbach et al., *Continental U.S. Hurricane Landfall Frequency and Associated Damage: Observations and Future Risks*, 99 BULL. AM. METEOROLOGICAL SOC'Y 1359 (July 1, 2018), https://perma.cc/7HMJ-LNDM); CWG REPORT, *supra* note 4, at 51–52, 112 (same).

climate."[350] He has made "frequent appearances on Capitol Hill [that] have almost always been at the request of Republican legislators opposed to addressing climate change,"[351] and he is also "a frequent speaker at conservative think tanks that promote the notion that worldwide temperature increases are largely unrelated to human activity."[352] Christy "is a critic of efforts to mandate reduction of carbon emissions,"[353] and he has long "advocated for the repeal of regulations on greenhouse gas emissions."[354]

Member Judith Curry is known for having "testified in front of Congress, boosted by politicians who use her work to argue that environmental regulations and a scaling down of fossil fuel use will be ineffective. Her work is frequently invoked by climate skeptics and denialists."[355] She maintains a climate-skepticism blog, Climate Etc.[356] In one blog post, she predicts that climate scientists will hate the CWG Report "because Trump Derangement Syndrome,"[357] and she has opined that "the threat from human-caused climate change is not dire" and advised "*not* [to] suppress fossil-fuel use because that would impose serious costs while generating no detectable benefits."[358]

Member Steven Koonin describes himself as a friend of Secretary Wright.[359] Koonin has publicly stated that Secretary Wright is "well aligned with what I wrote in the book," *Unsettled: What Climate Science Tells Us, What It Doesn't and Why It Matters*,[360] in which Koonin

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[350] Richard Banks, *Alabama's John Christy May Be the Country's Best Known and Most Criticized Climate Change Skeptic*, WBHM.org (Sept. 1, 2023), https://perma.cc/U95D-J2QJ.

[351] Michael Wines, *Though Scorned by Colleagues, a Climate-Change Skeptic Is Unbowed*, N.Y. TIMES (July 15, 2014), https://perma.cc/R8XY-253S.

[352] Scott Waldman & E&E News, *Scientist Who Rejects Warming Is Named to EPA Advisory Board*, SCI. AM. (Feb. 1, 2019), https://perma.cc/2NE7-69QQ.

[353] William Thornton, *Trump Administration Hires 2 Alabama Climate Change Skeptics for Energy Department*, ALA. MEDIA GRP. (July 9, 2025, 12:43 PM; updated July 9, 2025, 1:23 PM), https://perma.cc/77B5-PSX7.

[354] Waldman & E&E News (2019), *supra* note 352.

[355] Scott Waldman, *Judith Curry Retires, Citing "Craziness" of Climate Science*, E&E NEWS (Jan. 4, 2017, 8:30 AM EST), https://perma.cc/8X3Y-JNZ2.

[356] Judith Curry, *About*, CLIMATE ETC. BLOG, https://judithcurry.com/about/.

[357] *See* Judith Curry, *New Climate Assessment Report from US DOE*, CLIMATE ETC. BLOG (July 29, 2025), https://perma.cc/T33Q-YQQQ.

[358] Judith Curry, *A Critique of the Apocalyptic Climate Narrative*, Judith Curry, CLIMATE ETC. BLOG (May 7, 2025), https://perma.cc/2M77-PBBC (emphasis in original); *see also* Rupert Darwall, *Book Review: Climate Uncertainty and Risk, by Judith Curry*, REAL CLEAR ENERGY (Oct. 8, 2023), https://perma.cc/P2HY-L2PZ (describing book by Curry as one "counter to the IPCC that offers a radical alternative to the UN paradigm of climate change that could well serve as a manual for a future Republican administration"); Maxine Joselow, *Trump Hires Scientists Who Doubt the Consensus on Climate Change*, N.Y. TIMES (July 8, 2025), https://perma.cc/2HEF-TNTS.

[359] Joselow, *supra* note 358.

[360] *Id.*

advocates against reductions in fossil fuel use.[361] He has long advocated against renewable energy,[362] and has publicly acknowledged having a reputation for being a climate denier and a "shill for the oil business."[363] Koonin is well-known for having suggested a debate on the issue of climate change—termed a "red team-blue team exercise"—which has been called "a mockery of scientific research, which already relies on an extensive process of peer review to weed out flawed analyses."[364]

Member Ross McKitrick, despite being an economist and not a scientist (climate or otherwise), co-authored a book, *Taken by Storm: The Troubled Science, Policy, and Politics of Global Warming*, that purports to "deconstruct[] the myth of global warming."[365] Upon President Trump's 2024 re-election, McKitrick published an article advocating for "a rethink of climate and energy policies."[366] He has long advocated against renewable energy.[367]

Member Roy Spencer is a prolific blogger and often disputes warming trends and human causes of climate change.[368] He has written numerous books on topics covered in the CWG Report, including such titles as *Climate Confusion: How Global Warming Hysteria Leads to Bad Science, Pandering Politicians and Misguided Policies That Hurt the Poor*.[369]

Secretary Wright was familiar with the CWG members' stances regarding the Report's topics before tapping them for the CWG,[370] and those stances are well known in the scientific

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[361] Marianne Lavelle & Bob Berwyn, *A New Book Feeds Climate Doubters, but Scientists Say the Conclusions Are Misleading and Out of Date*, INSIDE CLIMATE NEWS (May 4, 2021), https://perma.cc/FZP7-AWHL.

[362] Caitlin McFall & Andrew Murray, *Obama DOE Scientist Dissents from Biden Climate Change "Existential Crisis" Narrative*, FOX NEWS (Apr. 22, 2021, 9:04 PM EDT), https://perma.cc/AX6P-EAH3.

[363] *Joe Rogan Experience: Episode 1776: Steven E. Koonin*, YOUTUBE: JOE ROGAN EXPERIENCE CHANNEL, at 1:24:45 (June 27, 2024), https://www.youtube.com/watch?v=OBjX0O7gOmw.

[364] Brad Plummer & Coral Davenport, *E.P.A. to Give Dissenters a Voice on Climate, No Matter the Consensus,* N.Y. TIMES (June 30, 2017), https://perma.cc/Z6FW-F9XS; Steven Koonin, *A "Red Team" Exercise Would Strengthen Climate Science*, WALL ST. J. (Apr. 20, 2017), https://tinyurl.com/d5rw9ahy.

[365] CHRISTOPHER ESSEX & ROSS MCKITRICK, TAKEN BY STORM: THE TROUBLED SCIENCE, POLICY, AND POLITICS OF GLOBAL WARMING (Jan. 1, 2008).

[366] Ross McKitrick, *Opinion: Trump 2.0 Requires a Rethink of Climate and Energy Policies*, Fin. Post (Nov. 14, 2024), https://perma.cc/AB56-NTAX.

[367] *See, e.g.*, Hannes Sarv, *Professor McKitrick: Climate Story Is a Good Way of Expanding Government Power*, FREEDOM RSCH. (June 19, 2024) https://perma.cc/YH8R-HZD2.

[368] Roy Spencer, *Home/Blog Page*, ROY SPENCER, PH.D. BLOG, https://perma.cc/W6EC-DDK3.

[369] *Roy W. Spencer, All Books, Amazon.com*, https://perma.cc/J874-9E83.

[370] *See All Things with Kim Strassel: Energy Secretary Chris Wright on Resetting the Climate Debate*, Wall St. J. Podcasts, at 3:16 (Aug. 5, 2025), https://tinyurl.com/4rpsv88d ("I've been engaged in the climate discussion and debate for probably a little more than 20 years . . . so I have followed this stuff to a fault, a lot, and, you know, I had a list . . . of 12 scientists . . . I just started at the top and called them . . . 'You've been attacked for speaking out. Will you work with us?' . . . All of them said yes . . . I made five calls.").

community. Indeed, he admits he had worked with them before.[371] While the CWG stated in the Report's preface that Secretary Wright exercised "no editorial oversight" over the Report, it defies credulity to suggest that he did not expect and intend the conclusions his hand-picked group reached in the Report at the time he appointed them.

In addition to appointing the five members of the CWG, Secretary Wright also appointed Travis Fisher to organize the CWG and the Report. In appointing Fisher, as in appointing the CWG, Secretary Wright showed his prejudgment. Fisher's understanding of his assigned task similarly reveals Secretary Wright's prejudgment. Fisher is a vocal proponent of energy sector deregulation.[372] In explaining "Why I Helped Organize the Department of Energy's Climate Report," Fisher describes Secretary Wright's "simple" plan to "cut against the prevailing narrative that climate change is an existential threat."[373]

Secretary Wright's prejudgment further tainted the CWG Report through his exercise of improper influence during the drafting process. While the CWG was working on the Report, Secretary Wright provided them with his Foreword, which characterizes the Report's content and purpose.[374] Although Secretary Wright had not yet reviewed the Report, the Foreword summarizes its conclusions.[375] As further evidence of the skewed nature of the process, DOE scientists were only provided with two weeks to review the draft, right before the Report was released and well after the Secretary had reached his conclusions.[376] It is simply implausible to believe that the Secretary's description of the Report did not influence its content or findings. And even if DOE's far-fetched claim that the five members who served on the CWG provided independent advice could be credited (it cannot), the Secretary's decision to dissolve the group[377] means that they will not be involved in evaluating or responding to public comment on the Report (although, in further evidence of the CWG's haphazard process and continued violations of FACA, one of its members, Judith Curry, contends that despite the group's dissolution cited in a court filing in support of a mootness argument, "[t]he Climate Working Group is still working and we plan to respond to comments and issue a revised report."[378]). Unless the Curry quote, and

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[371] CWG REPORT, *supra* note 4, at vii.

[372] Paul Best, Cato Inst., *Travis Fisher on Why a Dynamic Electric Grid Is "Essential to Human Flourishing,"* FREE SOC'Y (Spring 2025), https://perma.cc/DG9M-9CW3.

[373] Travis Fisher, *Why I Helped Organize the Department of Energy's Climate Report*, CATO INST.: CATO AT LIBERTY BLOG (Aug. 6, 2025), https://perma.cc/FU8W-KGCX.

[374] *See* CWG REPORT, *supra* note 4, at vii; *Climate Realism Show: Episode 167: The End of Official Climate Alarmism (Guest: Dr. Judith Curry)*, at 30:24, YOUTUBE: HEARTLAND INST. CHANNEL (Aug. 1, 2025, 1:00 PM ET), https://www.youtube.com/watch?v=TNdfQk8Mgmc (Curry explaining that the CWG understood "what is the Secretary thinking along these lines" because they received his Foreword in mid-May).

[375] CWG REPORT, *supra* note 4, at vii.

[376] *See* Defs.' Mem. in Opp'n to Pls. Mot. for Prelim. Inj., *supra* note 304, at 4.

[377] *See* Decl. of Jeff Novak, Ex. 1, *supra* note 304, at 1.

[378] Andy Revkin, *Facing Lawsuits, Team Trump Has Dissolved Its "Climate Working Group;" Its Climate Science Critique May Be Next*, SUBSTACK: SUSTAIN WHAT (Sept. 10, 2025), https://perma.cc/EE85-CKKG.

not DOE's court filing, is to be believed, only Secretary Wright and those who report to him will be involved in finalizing the Report, further confirming that his judgment will have tainted the CWG and the CWG's preparation at every step.

Secretary Wright's recent statements, both within the CWG Report and since release of the Report, similarly reveal prejudgment. In his Foreword, he makes the case for a policy shift, rather than neutrally introducing scientific findings.[379] In support of his policy pitch, he opines that "[c]limate change . . . is not the greatest threat facing humanity" and makes demonstrably false claims, including that the Report is based on "the best available data and scientific assessments."[380] *See infra/supra* Sections V.A, V.B.2.

Since release of the Report for public comment, Secretary Wright appeared on a podcast to tout "the findings [of the CWG Report], including the upsides of warming, the minimal economic effects of climate change, the limits of U.S. policy actions and the lack of evidence that climate is related to the frequency or intensity of extreme weather."[381] He has also taken to social media, claiming, "[t]he ceaseless repeating from the media, politicians and activists claiming that climate change is making weather more dangerous and severe is just nonsense. That is just NOT true."[382] These arguments are not new and have been widely debunked for decades in thousands of peer-reviewed scientific publications. If Secretary Wright has to date been unwilling to accept the scientific evidence amassed over decades and supported by 97% of climate scientists, he certainly is not open to changing his mind after the mere thirty-two day public comment period on the CWG Report. And Secretary Wright's repeated, adamant statements make clear he prejudged the outcome of the Report, notwithstanding any disclaimers otherwise. *Cf. City & Cnty. of San Francisco v. Trump*, 897 F.3d 1225, 1233, 1239 (9th Cir. 2018); *HIAS, Inc. v. Trump*, 985 F.3d 309, 325 (4th Cir. 2021) (savings clause cannot save something that is unlawful).

Prejudgment is also indicated where, among other statements and actions, a senior political official announces a drastic change in agency policy before a proceeding (here, a public comment period) is complete. *See Int'l Snowmobile Mfrs. Ass'n*, 340 F. Supp. 2d at 1260–61. DOE previously hewed to "net-zero carbon policies . . . constraining energy production in pursuit of aggressive emissions targets."[383] Secretary Wright's predecessor, Jennifer Granholm, had embraced and pursued the goals of "combating the climate crisis, creating clean energy

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[379] CWG REPORT, *supra* note 4, at vii.

[380] *Id.* at vii.

[381] All Things with Kim Strassel, *supra* note 370, at landing page.

[382] *Secretary Chris Wright (@SecretaryWright)*, X (Aug. 4, 2025, 10:08 AM), https://perma.cc/H4RK-R5PT; *see also* Kim LaCapria, *US Official Faces Backlash After Perpetuating Dangerous Claims in Recent Report: "This Destroys Wealth, Lives, and Livelihoods"*, YAHOO! NEWS (Aug. 8, 2025, 6:05 AM EDT), https://perma.cc/MU2L-2R4M.

[383] Robert Rapier, *Energy Secretary Wright Charts A New Direction In U.S. Energy Policy*, FORBES (Feb. 7, 2025, 6:00 AM EST), https://tinyurl.com/3nw3jmjj. Said policy was in keeping with the Executive Order then in place. *See* Exec Order No. 14008, of Jan. 27, 2021, *Tackling the Climate Crisis at Home and Abroad*, 86 Fed. Reg. 7619, 7622–23 (Feb. 1, 2021) ("taking a government-wide approach to the climate crisis" and creating a National Climate Task Force, amongst other measures).

union jobs, and promoting energy justice."[384] Before the current administration took office, DOE repeatedly acknowledged that "[c]limate change is intensifying and ravaging our communities and our planet [and aimed to] put America on an irreversible path to achieve net-zero carbon emissions by 2050."[385] The DOE policy change that Secretary Wright announced before the public comment period even commenced is drastic.

Not only has Secretary Wright prejudged the outcome of the public comment period, he and DOE are also using the Report as a pretext for his and the President's policy goal: slashing greenhouse gas regulations in the name of energy dominance. Pretext can be found where the agency has proffered "an explanation for agency action that is incongruent with what the record reveals about the agency's priorities and decisionmaking process." *Dep't of Commerce*, 588 U.S. at 785. Secretary Wright states in his Foreword that the Report is meant "to encourage a more thoughtful and science-based conversation about climate change and energy."[386] But in light of his other statements and actions, in the context of the simultaneous proposed rescission of EPA's Endangerment Finding, and his disbanding of the CWG to evade accountability in the courts, it is clear such a disclaimer is "contrived." *See Dep't of Commerce*, 588 U.S. at 784; *see also id.* at 785 (requiring that "agencies offer genuine justifications . . . that can be scrutinized by courts and the interested public"). The Report is a pretext that cloaks Secretary Wright's true motivation: to provide an imprimatur of legitimacy to fringe climate skepticism to advance his and the President's energy agenda.[387] Viewed as a whole, the Presidential directives, Secretary Wright's obedient and concurring statements, his choice of appointees to serve on the CWG, his statements on climate science, and the drastic change in agency policy show that the Secretary does not have a truly open mind on the questions addressed in the Report. In short, Secretary Wright unlawfully prejudged the outcome of this proceeding, and the reasons he has provided are pretextual. EPA cannot reasonably rely on it to rescind the 2009 Endangerment Finding.

c. DOE failed to comply with well-established scientific integrity standards.

DOE has not published a peer review of the CWG Report or the data and code underlying many of its analyses. Those failures violate multiple scientific integrity requirements, including policies from OMB and DOE implementing the Information Quality Act, Pub. L. No. 106-554, § 515, 114 Stat. 2763A (2000), and the Open, Public, Electronic, and Necessary (OPEN) Government Data Act, Pub. L. No. 115-435, 132 Stat. 5534 (2019).

i. Lack of Peer Review

The required peer review of the CWG Report has not occurred. DOE's work is subject to the requirements of OMB's Final Information Quality Bulletin for Peer Review, 70 Fed. Reg.

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[384] DOE, *Secretary Granholm's Message to America* (Feb. 25, 2021), https://www.energy.gov/articles/secretary-granholms-message-america.

[385] *See id.*

[386] CWG REPORT, *supra* note 4, at vii.

[387] Similarly, the studies and findings invoked in the Report are used as pretext to arrive at the predetermined outcome. Numerous scientists whose work is referenced in the Report have contested the Report's use and manipulation of said work. *See infra* Section V.B.2.b.

2664 (Jan. 14, 2005) (Information Quality Bulletin), issued pursuant to the Information Quality Act.[388] The Information Quality Bulletin requires DOE to conduct a peer review before disseminating any "influential scientific information" and imposes even stricter requirements for "highly influential scientific assessments." *Id*. at 2675.

"Scientific information" includes "analyses . . . or scientific assessments based on . . . life and earth sciences, engineering, or physical sciences." *Id*. "'[I]nfluential scientific information' means scientific information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions . . . ." *Id.* This includes any information that "may result in an annual effect on the economy of $100 million or more."[389] The term "highly influential scientific assessments" includes any "influential scientific information that [constitutes] a scientific assessment" and either "[c]ould have a potential impact of more than $500 million in any year, or . . . [i]s novel, controversial, or precedent-setting or has significant interagency interest." 70 Fed. Reg. at 2675.

The CWG Report meets all these definitions. "Secretary Wright assembled [the CWG] to write a report on issues in climate science relevant for energy policymaking[,]" purporting to focus on "scientific certainties and uncertainties in how anthropogenic carbon dioxide (CO_2) emissions have affected, or will affect, the Nation's climate."[390] The Report contends that analyses underpinning recent climate policies "are based on IPCC emission scenarios that have tended to exceed observed trends," and "CO2-induced warming might be less damaging economically than commonly believed."[391] Similarly, the CWG Report expressly states that it "supports a more nuanced and evidence-based approach to climate policy."[392] The Report already threatens a major policy impact. In May 2025, less than two months after the CWG began work on it, DOE provided a draft of the Report to EPA, which then used it to examine the critical question of whether greenhouse gas emissions endanger human health and welfare. EPA relies upon the draft Report as a central basis for the Proposal. *See* 90 Fed. Reg. at 36,292 n.10. EPA estimates that the Endangerment Finding rescission will have a multi-billion-dollar yearly impact,[393] so the CWG Report easily crosses the $100 million and $500 million yearly thresholds. And as Secretary Wright intended, the CWG Report makes conclusions directly contrary to widely accepted overviews of climate science, showing that it is novel and controversial.[394]

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[388] *See* OFF. OF MGMT. & BUDGET, EXEC. OFF. OF THE PRESIDENT, OMB M-19-15, MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES RE: IMPROVING IMPLEMENTATION OF THE INFORMATION QUALITY ACT, at 4 (Apr. 4, 2019) [hereinafter OMB M-19-15], https://perma.cc/DF49-NDPP.

[389] DOE, FINAL REPORT IMPLEMENTING UPDATES TO THE DEPARTMENT OF ENERGY'S INFORMATION QUALITY ACT GUIDELINES, at 12 (2019) [hereinafter DOE FINAL UPDATED INFORMATION QUALITY GUIDELINES], https://perma.cc/99CJ-JAX5.

[390] CWG REPORT, *supra* note 4, at viii, ix.

[391] *Id.* at viii, 12.

[392] *Id.* at viii.

[393] Draft RIA, *supra* note 131, at 20–52.

[394] *See, e.g.*, CWG REPORT, *supra* note 4, at 12–22, 39, 58, 91, 95.

Because the CWG Report constitutes influential scientific information and a highly influential scientific assessment, it must comply with peer review requirements. Specifically, before dissemination[395] of the Report, a peer review must be conducted by a group of non-DOE employees that is "sufficiently broad and diverse to fairly represent the relevant scientific and technical perspectives and fields of knowledge." 70 Fed. Reg. at 2675–76. DOE must then disseminate a "peer review report" identifying the reviewers and summarizing their comments, as well as a written response to the peer review report. *Id.*

DOE has violated these requirements. As an initial matter, DOE has disseminated the CWG Report for public comment. Both the version of the CWG Report relied upon by EPA in the Proposal and the version ultimately released by DOE for comment bear DOE's seal and provide a suggested citation, and the later version states that it "is being disseminated by the Department of Energy."[396] DOE's press release states that the Report "was published . . . as part of the U.S. Environmental Protection Agency's (EPA) proposed rule repealing the 2009 Endangerment Finding."[397]

Despite the requirements of the Information Quality Bulletin, no peer review has been published, and it appears that none was conducted.[398] "Peer review typically evaluates the clarity of hypotheses, the validity of the research design, the quality of data collection procedures, the robustness of the methods employed, the appropriateness of the methods for the hypotheses being tested, the extent to which the conclusions follow from the analysis, and the strengths and limitations of the overall product." 70 Fed. Reg. at 2665. "A high quality peer review can only be conducted if the experts have sufficient insight and knowledge of the subject area to provide meaningful feedback for more information."[399]

Here, there was none. Both versions of the Report state that DOE had "no editorial oversight" over the Report, and the later version that a "team of anonymous DOE and national lab reviewers [provided] input."[400] One author stated that "eight scientists/administrators employed by the DOE" reviewed the Report, but she noted that the authors did not respond to the

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[395] "The term 'dissemination' means agency initiated or sponsored distribution of information to the public." 70 Fed. Reg. at 2674 (internal citation omitted).

[396] CWG REPORT, *supra* note 4, at i, iii (May 27, 2025); *id.* at i, iii (July 23, 2025).

[397] Press Release, DOE, *Department of Energy Issues Report Evaluating Impact of Greenhouse Gasses on U.S. Climate, Invites Public Comment* (July 29, 2025), https://perma.cc/Q2SB-FR7C; *see also* DOE, *Climate*, https://perma.cc/LC9P-8S9X (stating that DOE "published" the Report on July 29, 2025, and providing a summary of the Report's "find[ings]" and "conclu[sions]").

[398] Even if the CWG is considered to be a non-DOE entity, DOE's publication of the CWG Report meets the definition of dissemination because DOE's imprimatur and statements describing the report "suggest[] that [DOE] endorses or adopts the information" and "is using or proposing to use the information to formulate or support a regulation [or] guidance." DOE FINAL UPDATED INFORMATION QUALITY GUIDELINES, *supra* note 389, at 15.

[399] DOE OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY, EERE 810: PEER REVIEW GUIDANCE, 11 (June 2016), https://perma.cc/RNF5-MG8K.

[400] CWG REPORT, *supra* note 4, at ix (May 27, 2025); *id.* at x (July 23, 2025).

reviewers' comments and that there was no "formal" peer review.[401] As discussed above, DOE technical staff had very little role in the Report, with only the two weeks before publication to review the draft.[402] It appears that three of the reviewers were not scientists, and that the reviewers may not have included any climate or physical scientists.[403] DOE plainly failed to assemble an appropriate review team, publish a peer review report and written response, identify the reviewers, and limit the reviewers to non-DOE employees. *See* 70 Fed. Reg. at 2675–76.

Moreover, the public comment period cannot substitute for peer review. As OMB explains, "[t]he mere existence of a public comment process . . . does not constitute adequate peer review or an 'alternative process,' because it does not assure that qualified, impartial specialists in relevant fields have performed a critical evaluation of the agency's draft product." *Id.* at 2672 (footnote omitted).[404] Even if public comment could substitute for peer review (it cannot), the fact that the CWG was disbanded prior to its evaluation of any public comment further signals that DOE now views the Report as final, and that public comments on it will be futile (as noted above, one member of the CWG insists that the group is still working and will respond to public comment, despite its formal dissolution[405]). Indeed, DOE suggested as much in a recent court filing in attempting to moot the FACA lawsuit.[406] And because EPA disseminated the May 27, 2025, draft version of the CWG Report by publishing it in the docket for this Proposal before any peer review, EPA has likewise violated the Information Quality Bulletin.

The lack of peer review similarly violates DOE's scientific integrity policies, which require "appropriate technical peer review."[407] DOE and EPA have also violated Executive Order 14303, *Restoring Gold Standard Science*, 90 Fed. Reg. 22,601, 22,602 (May 29, 2025) (*Gold*

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[401] Curry, New Climate Assessment Report from US DOE, *supra* note 357.

[402] *See* Defs.' Mem. in Opp'n to Pls. Mot. for Prelim. Inj., *supra* note 304, at 4.

[403] *See Heartland Inst.: Climate Realism Show: Episode 167*, *supra* note 374, at 39:56 (Curry stating that the review team included "five scientists" who were "a little bit more heavily biased in the direction of [agriculture] and land and forests . . . so we didn't have . . . a lot of what I would call climate, physics kind of people reviewing it"); *id.* at 1:00:10 (similar).

[404] *See also* 70 Fed. Reg. at 2665 ("Peer review should not be confused with public comment and other stakeholder processes. The selection of participants in a peer review is based on expertise, with due consideration of independence and conflict of interest. . . . [N]otice-and-comment procedures for agency rulemaking do not provide an adequate substitute for peer review.").

[405] *See* Revkin, *supra* note 378.

[406] *See* Defs.' Mem. in Opp'n to Pls. Mot. for Prelim. Inj., *supra* note 304, at 13–14 (claiming that the "conclusion" that "much of the relief Plaintiffs seek is unavailable, and no practical purpose is served by requiring the now-defunct CWG to comply with FACA's procedural requirements . . . accords with this court's analysis of the degree to which FACA claims are 'rendered moot by the issuance of [a committee's] final report and the resignation of its members'" (quoting *Nat'l Ass'n of Consumer Advocs. v. Uejio*, 521 F. Supp. 3d 130, 146–48 (D. Mass. 2021)).

[407] DOE, DOE P 411.2B, DOE Scientific Integrity Policy, § 7(e) (Jan. 30, 2025), https://perma.cc/R64G-94AR; *see also* DOE, DOE O 411.2, Scientific Integrity Order, § 5(d)(2) (Jan. 4, 2017), https://perma.cc/5SZD-2VYK ("Scientific and technical objectivity should be supported through independent peer review . . . .").

Standard Science EO), at § 3(a)(vii), which requires agencies' scientific endeavors to be "subject to unbiased peer review." And DOE has violated the directive in its own plan implementing the *Gold Standard Science* EO, the *Gold Standard Science* Plan, to "ensure all scientific results, including agency-directed reports, undergo an enhanced scientific peer-review process by domain experts."[408] The CWG Report's failure to seek thorough peer review and engage with diverse collaborators is also in conflict with the *Gold Standard Science* Plan's directive to advance science "through collaboration and interdisciplinary partnerships with academia, federal laboratories, [and] other funding agencies," and to rely upon "objective and unbiased . . . independent merit review by domain experts" when doing so.[409] In contrast, an example of a robust peer-review process can be seen in the development of NCA5, one of the documents that the CWG Report critiques. *See infra* Section V.C.2.a.

Similarly, EPA's dissemination of and reliance on the CWG Report also violated its own Peer Review Handbook (including its Peer Review Policy) and its Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency.[410] As EPA's 2006 Peer Review Policy explains: "Influential scientific information, including highly influential scientific assessments, should be peer reviewed in accordance with the Agency's Peer Review Handbook."[411] EPA's Handbook, in turn, emphasizes that peer review aims "to ensure that activities are technically defensible, competently performed, properly documented and consistent with established quality criteria."[412] Accordingly, it entails "in-depth assessment of the assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria and conclusions pertaining to the scientific or technical work product, and of the documentation that supports them."[413] EPA also emphasizes that "[a]lthough it may be an important component of the EPA's decision-making process, public comment does not substitute for peer review."[414] EPA's dissemination of and reliance on the CWG Report as a primary basis for its Proposal—with no peer review whatsoever—plainly violates EPA's own peer review policy.

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[408] DOE, RESTORING GOLD STANDARD SCIENCE DOE IMPLEMENTATION PLAN 1 (Aug. 22, 2025) [hereinafter GOLD STANDARD SCIENCE PLAN], https://perma.cc/68YY-8YT6; *see also id.* at ii (emphasizing the "use of the peer review process for building skepticism into the process of disseminating scientific results").

[409] *See id.* at 2–3.

[410] *See generally* EPA SCI. & TECH. POL'Y COUNCIL, U.S. ENVIRONMENTAL PROTECTION AGENCY PEER REVIEW HANDBOOK (4th ed. 2015) [hereinafter EPA PEER REVIEW HANDBOOK], https://perma.cc/PU9G-XAFB; *id.* at App. A, EPA PEER REVIEW POLICY; EPA OFF. OF ENV'T INFO., EPA Doc. No. 260R-02-008, GUIDELINES FOR ENSURING AND MAXIMIZING THE QUALITY, OBJECTIVITY, UTILITY, AND INTEGRITY, OF INFORMATION DISSEMINATED BY THE ENVIRONMENTAL PROTECTION AGENCY (2002), https://perma.cc/P3AR-4UVR.

[411] EPA PEER REVIEW HANDBOOK, *supra* note 410, at 20.

[412] *Id.*

[413] *Id.*

[414] *Id.* at 25.

In sum, the CWG Report is a paradigmatic example of a document that requires peer review. It purports to be a scientific assessment (not purely a policy document), and it seeks to upend the consensus on arguably the most impactful scientific issue of the 21st century. As described below, *see infra* Sections V.B.2.a.iv, V.B.2.b, several scientists have already stated that their work was misconstrued in the CWG Report, providing a window into the crucial feedback that a peer review would have generated. Accordingly, EPA may not rely on the DOE Report in any final rule.

ii. Open Data Requirements

The CWG Report also violates open data requirements. Multiple laws and policies—including the Information Quality Act, the Open, Public, Electronic, and Necessary (OPEN) Government Data Act, implementing policies from OMB and DOE, the *Gold Standard Science* EO, and the *Gold Standard Science* Plan—require the government to provide public access to data and code underlying its scientific publications. Put simply, the authors need to "show their work." Much of the CWG Report involves original analyses, but the data and code underlying those analyses are not publicly available, in contravention of these open data requirements.

OMB guidelines state that agencies "shall generally require sufficient transparency about data and methods that an independent reanalysis could be undertaken by a qualified member of the public."[415] Agencies are "require[d]" under the OPEN Government Data Act and OMB policies "to collect and create information in a way that supports public transparency as well as downstream, secondary information dissemination and processing by third parties."[416] And when "an agency has performed analysis using a specialized set of computer code, the computer code used to process it should be made available to the public for further analysis, if consistent with applicable law and policy."[417] Similarly, section 4(b)(i)(A) of the *Gold Standard Science* EO requires agencies to "make publicly available . . . the data, analyses, and conclusions associated with scientific and technological information produced or used by the agency that the agency reasonably assesses will have a clear and substantial effect on important public policies." In the *Gold Standard Science* Plan, DOE also promised to "maximize appropriate sharing of scientific data and code," and "produce results that can be replicated or validated by third parties."[418] To this end, DOE guidelines state that "a high degree of transparency of data and methods should be ensured to facilitate the reproducibility of [influential scientific] information by qualified third

[415] Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 67 Fed. Reg. 8452, 8460 (Feb. 22, 2002) (implementing the Information Quality Act).

[416] OMB M-19-15, *supra* note 388, at 5.

[417] *Id.* at 8.

[418] GOLD STANDARD SCIENCE PLAN, *supra* note 408, at 1, ii, 1.

parties."[419] Data underlying DOE research should generally be "publicly shared and preserved in a timely and equitable manner that enables validation and replication of results."[420]

Here, various parts of the CWG Report contain the authors' original analyses, *e.g.*, Figures 6.2.1, 6.3.3, 6.3.4, 6.3.5, 6.3.6, but the public has no access to any underlying data and code. DOE's release of the CWG Report is inconsistent with open-data requirements, providing yet another reason EPA may not rely on the CWG Report in the Proposal or any final rule.

iii. Communication of uncertainty

The CWG Report also violates the *Gold Standard Science* Plan's requirements for the communication of uncertainty. The Plan directs DOE to "communicat[e] . . . as appropriate, methodological constraints, assumptions, uncertainties, and confidence intervals associated with results."[421] The CWG Report fails to do so. For instance, the CWG Report claims that there are uncertainties in calculating the social cost of carbon,[422] but rather than establish "confidence intervals" to explain this alleged uncertainty, the Report foregoes estimating the social cost entirely. The CWG Report also asserts that certain trends are "exaggerated" or that "biases have not been completely" accounted for, but then fails to provide any estimate or range of estimates reflecting this supposed uncertainty.[423] Furthermore, as a general matter, the CWG Report does not caveat its conclusions by disclosing the authors' level of confidence in those conclusions.

The CWG Report's failures on this front contrast with the practices of international and national climate assessments, as well as the NAS. The IPCC, for instance, qualifies each of its conclusions with a level of confidence.[424] *See infra* Section V.A. Similarly, the NAS in its recent Consensus Study Report describes the level of confidence associated with different areas of climate research.[425] These are models of transparent communication about uncertainty. The CWG Report is not, nor is it consistent with DOE's obligations under the *Gold Standard Science* Plan.

2. The CWG Report, including the draft on which EPA relies, is substantively flawed.

DOE's rushed process, failure to follow uniform standards and procedures and transparency requirements, and violation of scientific integrity principles like peer review and open data have resulted in a document that is blatantly wrong on the substance. On each topic it addresses, the CWG Report's conclusions are unsupported and unsupportable. And the Report,

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[419] DOE FINAL UPDATED INFORMATION QUALITY GUIDELINES, *supra* note 389, at 17.

[420] DOE, PUBLIC ACCESS PLAN 13 (June 2023), https://perma.cc/B8SJ-9HGJ; *see also* DOE Off. of Sci., Statement on Digital Data Management (2022) (requiring research proposals to include a plan for sharing and preserving data or justify not doing so), https://perma.cc/CN29-SYYG.

[421] GOLD STANDARD SCIENCE PLAN, *supra note* 408, at 2.

[422] CWG REPORT, *supra* note 4, at 125.

[423] CWG REPORT, *supra* note 4, at vii, viii, 9, 22.

[424] *See* IPCC, DRAFT GUIDANCE NOTES FOR LEAD AUTHORS OF THE IPCC FIFTH ASSESSMENT REPORT ON CONSISTENT TREATMENT OF UNCERTAINTIES (2010).

[425] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 1.

like the Proposal that relies on it, *infra* Section VIII.B, fails to contend with the massive social cost of carbon that our States and Local Governments face and that will increase without bold federal action to firmly acknowledge, seriously study, and meaningfully address climate change. Moreover, insofar as EPA or DOE would claim deference on the Report's conclusions, as reflected in the Proposal, none is warranted: DOE is not even an expert agency on climate change science, and the purportedly scientific findings of a handful of cherry-picked climate skeptics do not meet scientific standards for reliability.

Notably, in dissolving the CWG, Secretary Wright characterized the CWG Report "as a means to catalyze scientific and public debate" over climate science and explained that he was "confident that we've excited the much-needed debate" and therefore could dissolve the group "without undermining that goal."[426] And as the CWG explained: "The short timeline and the technical nature of the material meant that we could not comprehensively review all topics. Rather, we chose to focus on topics that are treated by a serious, established academic literature; that are relevant to our charge; that are downplayed in, or absent from, recent assessment reports; and that are within our competence."[427] Even with that limited charge—which expressly disclaims the vast scope that EPA assigns it in the Proposal—errors, omissions, and mischaracterizations abound.

EPA thus greatly overreads the import of the draft of the CWG Report on which it relied—a report intended to spark debate and review only a small slice of relevant science—as evidence supporting a conclusion that the 2009 Endangerment Finding should be rescinded. It also rushes to prematurely conclude that the outcome of the debate—just purportedly "sparked" by the CWG Report—will be a level of uncertainty EPA could deem sufficient to repeal the endangerment finding. EPA must, but has altogether failed to, grapple with the full scientific record—including the IPCC, USCGRP, and NAS reports—not just lean on a secret, rushed, and incomplete report from a handpicked set of climate skeptics.

a. <u>The CWG Report's scientific analyses are erroneous and misleading.</u>

Climate science is a vast and complex field. Prior efforts to encapsulate the subject have taken years of work by thousands of scientists. As described *supra* Section V.A, the science amply documents that human-induced climate change is already endangering public health and welfare through rising temperatures, increases in extreme weather events, threats to our electricity grid and other infrastructure, ozone pollution, damages to fisheries and other marine life, and harms to agricultural production, among many other impacts. EPA relies on the CWG Report to disregard this scientific consensus, but the Report was written in less than two months by four contrarian scientists and an economist, each of whom lack sufficient scientific training and expertise over all of the relevant fields of science covered in the Report. Unsurprisingly, the Report does not reflect a faithful description of the state of climate science; indeed, it does not

[426] Decl. of Jeff Novak, Ex. 1, *supra* note 304, at 1

[427] CWG REPORT, *supra* note 4, at x (July 23, 2025).

even purport to do so.[428] The following section provides a small sampling of the many and significant errors, omissions, and mischaracterizations contained in the Report.

i. Sea Level Rise

First, the conclusions about sea-level rise in the CWG Report—the *only* source EPA cites in support of the Proposal's claims on this topic, 90 Fed. Reg. at 36,309—are unfounded and at odds with peer-reviewed literature and the findings in the NAS Consensus Study Report.[429] As the CWG Report notes, global-mean sea level has risen about eight inches since 1900, and this rise is "unambiguously associated with increasing temperatures."[430] Nonetheless, the CWG Report claims that "U.S. tide gauge measurements in aggregate show no obvious acceleration in sea level rise beyond the historical average rate."[431] The Report provides no systematic, statistical analysis to support this claim.[432] It also ignores the substantial analyses and literature documenting sea-level acceleration both in the global mean[433] and at regional scales.[434]

The scientific literature shows that sea-level rise has accelerated in the United States. Sweet et al. (2022) analyze aggregate tide gauge measurements in the contiguous United States and confirm an aggregate acceleration in sea-level rise since the 1970s, driven particularly by acceleration along the Atlantic and Gulf Coasts.[435] Using a different statistical method, Piecuch

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[428] *See* CWG REPORT, *supra* note 4, at x (July 23, 2025).

[429] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 31–33.

[430] CWG REPORT, *supra* note 4, at 75.

[431] *Id.* at viii; *see also id.* at 75.

[432] *Id.* at 75–80.

[433] Anny Cazenave et al., *Contemporary Sea-Level Changes from Global to Local Scales: A Review*, 478 PROC. OF THE ROYAL SOC'Y A: MATHEMATICAL, PHYSICAL & ENG'G SCIS. (May 2022), https://perma.cc/NGN2-JZ7K; Sönke Dangendorf et al., *Probabilistic Reconstruction of Sea-Level Changes and Their Causes since 1900*, 16 EARTH SYS. SCI. DATA 3471–94 (2024), https://perma.cc/J54U-W8WS; IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at ch. 9: Ocean Cryosphere and Sea-Level Change, at 1211–1362; B. D. Hamlington et al., *The Rate of Global Sea Level Rise Doubled During the Past Three Decades*, 5 NATURE COMMC'NS EARTH & ENV'T (2024), https://perma.cc/U6TV-UCC4.

[434] Sönke Dangendorf et al., *Acceleration of U.S. Southeast and Gulf Coast Sea-Level Rise Amplified by Internal Climate Variability*, 14 (1935) NATURE COMMC'NS (Apr. 10, 2023), https://perma.cc/NX6E-4HKD; Tal Ezer, *Sea Level Acceleration and Variability in the Chesapeake Bay: Past Trends, Future Projections, and Spatial Variations Within the Bay*, 73 OCEAN DYNAMICS 23–34 (Dec. 27, 2022), https://doi.org/10.1007/s10236-022-01536-6; Robert E. Kopp, *Does the Mid-Atlantic United States Sea Level Acceleration Hot Spot Reflect Ocean Dynamic Variability?* 40 (15) GEOPHYSICAL RSCH. LETTERS 3981–85 (Aug. 2013), https://perma.cc/2HEF-MWBF.

[435] W. V. SWEET ET AL., NOAA, GLOBAL AND REGIONAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES: UPDATED MEAN PROJECTIONS AND EXTREME WATER LEVEL PROBABILITIES ALONG U.S. COASTLINES (NOAA TECHNICAL REPORT NO. NOS 01), at xii–xiii, 15–16, (2022), https://perma.cc/ZW4R-5MMV; *see also* Jennifer S. Walker et al., *Common Era Sea-Level Budgets*

(2025) demonstrates a sustained acceleration in contiguous U.S. sea level since 1900.[436] Similarly, the NAS Consensus Study Report found that "the rate [of global sea level rise] increased from about 0.08 inch (2.1 millimeters) per year in 1993 (the first year in previous averaged period) to about 0.18 inch (4.5 millimeters) per year in 2023 (Hamlington, et al. 2024)," and that this acceleration has been "evident in both tide gauge and satellite altimetry records (Eyring, et al., 2021, Sweet, et al., 2022)."[437] The NAS Consensus Study Report further shows that this acceleration has been seen on the regional scale in the United States: "Regional relative sea level . . . rose on average by approximately 11 inches (28 centimeters) in the last century along the continental United States, with about half of this amount (5–6 inches, about 13–15 centimeters) in the last 30 years."[438]

The CWG Report performs no statistical analysis to test for acceleration. Instead, it selectively shows graphs of linear fits for four selected U.S. tide gauges, and presents tabular results for these four gauges and a fifth, unplotted tide gauge. The Report provides no rationale for how these five gauges were selected for presentation from among the 141 actively updated, long-duration NOAA tide gauges.[439] In contrast with the Report's untested assumption of linearity, an interagency analysis led by NASA, NOAA, and U.S. Geological Survey shows that four of the five tide gauges highlighted in the CWG Report show an increase in the rate of sea-level rise (i.e., an acceleration) of at least 1.5 inches/decade between the 1970s and the 2010s.[440]

Kopp et al. (2025)[441] likewise rebut the CWG Report's claims on this issue. In addition to affirming that the CWG Report lacks statistical analysis and ignores aggregate trends that show accelerated rates of sea-level rise, Kopp et al. highlight the CWG Report's failure to acknowledge important relevant literature, insights, and findings, including: any literature documenting sea-level acceleration at the global-mean and regional scales; any evaluation of the IPCC's sea-level projections (which the CWG Report incorrectly claims predicted higher sea-level rise rates than observed); any literature on ice sheets and their projected mass change; any review of the impacts of sea-level rise on the United States (such as increased coastal

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Along the U.S. Atlantic Coast, 12 (1841) NATURE COMMC'NS (Mar. 23, 2021), https://perma.cc/GGE8-JHVT.

[436] Christopher G. Piecuch, Woods Hole Oceanographic Inst., *The Rate of U.S. Coastal Sea-Level Rise Doubled in the Past Century* (Aug. 15, 2025) (unpublished manuscript) (on file with ESS Open Archive), https://perma.cc/B6YT-XUYT.

[437] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 31–32.

[438] *Id.* at 32.

[439] *Sea Level Trends: U.S. Linear Relative Sea Level (RSL) Trends and 95% Confidence Intervals (CI) in mm/Year and in ft/Century*, NOAA TIDES & CURRENTS, https://perma.cc/WN7M-88UE.

[440] *See* U.S. Interagency Task Force on Sea Level Change, *National Sea Level Explorer: Explore Sea Level Change in the Coastal U.S.*, https://earth.gov/sealevel/us/national-sea-level-explorer/.

[441] Robert E. Kopp et al., *Technical Comment on the DOE CWG Report, Chapter 7: Changes in Sea Level*, *in* CLIMATE EXPERTS' REVIEW OF THE DOE CLIMATE WORKING GROUP REPORT 243, 243–63 (A.E. Dessler and R.E. Kopp eds., Aug. 30, 2025) (unpublished comments) [hereinafter CLIMATE EXPERTS' CWG REVIEW], attached as ***Appendix 8***.

tidal/storm-driven flooding, saltwater intrusion into groundwater, ground waterflooding, coastal erosion, loss of tidal wetlands, etc.); and any analysis of adaptation to sea-level rise.[442]

The CWG Report's failure to address these last two points is particularly salient, given EPA's wholesale reliance on the CWG Report for its claims on this topic. 90 Fed. Reg. at 36,309 ("aggregate sea level rise has been minimal, at least with respect to impacts on the United States"). In its report last week, NAS particularly emphasized the risk of coastal flooding and vulnerability to coastal storms due to sea level rise, noting "[c]hanges in average sea level have doubled the frequency of high tide flooding in the continental United States over the past few decades."[443] The CWG and the Proposal fail to address this growing risk.

And the CWG Report and the Proposal's failures to provide any adaptation analysis undercuts the Proposal's claim that the 2009 Endangerment Finding's "lack of analysis of adaptation generally, and particularly with respect to sea level rise, reduces confidence in the reasonableness, accuracy, and reliability of the assumptions and conclusions in the Endangerment Finding." 90 Fed. Reg. at 36,309. Indeed, the United States is not adapted to current levels of sea level rise, and EPA and the CWG Report provide no evidence that communities will succeed in cost-effectively adapting to future levels or evidence regarding what damage mitigation will occur.[444]

ii. Direct Impacts of CO_2 on the Environment

The CWG Report purports to analyze two aspects of the impact of CO_2 emissions on the planet: the carbon fertilization effect, and ocean acidification. Neither analysis is an accurate or complete description of the science.

The carbon fertilization effect. The Report and the Proposal, 90 Fed. Reg. at 36,308, argue that increased CO_2 concentrations are beneficial because they "promot[e] plant growth by enhancing photosynthesis and improving water use efficiency."[445] This phenomenon is often called the carbon fertilization effect. The Report discusses the effects of increased CO_2 on agriculture and the level of vegetation across the planet, asserting that these effects are largely ignored in mainstream climate science.[446] In fact, the carbon fertilization effect is well studied in the peer-reviewed literature,[447] but, as described *infra* Section V.A, is predicted to be negated by

[442] *Id.*

[443] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 32.

[444] *See* Kopp et al., *Technical Comment on the DOE CWG Report, Chapter 7: Changes in Sea Level*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 252–54; CWG REPORT, *supra* note 4, at 75–80.

[445] CWG REPORT, *supra* note 4, at 3.

[446] *Id.* at 7.

[447] In contrast, the studies cited in the CWG Report are taken from co2science.org, a website that does not produce peer-reviewed literature but rather highlights only research finding benefits of CO_2 fertilization.

other effects of climate change, as the Climate Experts' CWG Review and NAS Consensus Study Report explain in detail.[448]

The CWG Report's conclusion about increased agricultural yields depends on flawed studies and ignores important findings in the literature.[449] Importantly, the laboratory experiments discussed in the CWG Report do not reflect real-world growing conditions. They can inform our understanding of fertilization effects, but are less informative than state-of-the-art FACE (free air CO_2 enrichment) studies, which are conducted in situ. Ainsworth and Long (2021) summarize the results of thirty years of FACE studies over fourteen sites and five continents.[450] They find that "elevation of [CO_2] by [about] 200 ppm caused a [carbon fertilization effect (CFE) of approximately] 18% increase in yield under non-stress conditions," which the CWG Report correctly cites.[451] But Ainsworth and Long (2021) also find (and the CWG Report and the Proposal fail to acknowledge) that rising temperatures, wet and drought conditions, and soil characteristics (e.g., nitrogen deficiency) negatively affect crop productivity.[452] They also report reduced nutrient levels in most crops under carbon fertilization, and lower nitrogen and protein in the seeds of non-leguminous crops.[453] The relevant inquiry is not whether CO_2 fertilization is beneficial to plants, but how the stress of climate change affects agriculture long term.

With its selective emphasis on the benefits, the CWG Report ignores the research showing that the carbon fertilization effect will be counteracted by other effects of climate change. For example, Zhu et al. (2023)[454] is a meta-regression analysis of 86 studies of four major crops and their seed yield responses to simultaneous increases in CO_2 and temperature. This analysis finds that carbon fertilization effects on seed yield will likely be greatly reduced or entirely negated by temperature stress effects on all crops in the study other than soy.[455] The CWG Report's non-methodological analysis fails to rebut the robust conclusions of the literature. The CWG Report also ignores the consensus in the peer-reviewed literature that the combined

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[448] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 58–64; Kopp et al., *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 252–54.

[449] CWG REPORT, *supra* note 4, at 3, 104–08.

[450] Elizabeth A. Ainsworth & Stephen P. Long, *30 Years of Free-Air Carbon Dioxide Enrichment (FACE): What Have We Learned About Future Crop Productivity and Its Potential for Adaptation?* 27 (1) GLOB. CHANGE BIOLOGY 27–49 (Jan. 2021), https://tinyurl.com/yf6vhtuh.

[451] *Id.* at 27.

[452] *Id.* at 31–35.

[453] *Id.* at 27.

[454] Chunwu Zhu et al., *Rising Temperatures Can Negate CO_2 Fertilization Effects on Global Staple Crop Yields: A Meta-Regression Analysis*, 342 (109737) AGRIC. & FOREST METEOROLOGY 342 (Nov. 2023), https://perma.cc/GJY6-DQ8V.

[455] *Id.*; *see also, e.g.*, Jacob Schewe et al., *Multimodel Assessment of Water Scarcity Under Climate Change,* 111 (9) PROC. NAT'L ACAD. SCIS. 3245, 3245 (Mar. 4, 2014), https://perma.cc/3K3X-N5TF (finding that "climate change is likely to exacerbate regional and global water scarcity considerably," and noting that water scarcity "impairs food security").

effects of different climate change impacts will have detrimental effects on agriculture in the major growing regions of the United States and for most of the world. *See infra* Section V.A.

The CWG Report and the Proposal's related claim that increased global vegetation, described as "global greening," demonstrates benefits of CO_2 emissions (and mitigates their harmful effects) likewise falls short. *See* 90 Fed. Reg. at 36,308.[456] AR6's Special Report on Climate Change and Land notes that a significant amount of greening has occurred due to afforestation and croplands, rather than a generalized carbon fertilization effect.[457] And "[p]rojected increases in drought conditions in many regions suggest long-term global vegetation greening trends are at risk of reversal to browning in a warmer climate."[458] Of particular relevance, the AR6 Report on Impacts, Adaptation and Vulnerability concludes with high confidence that "carbon uptake services [in terrestrial ecosystems] linked to CO_2 fertilisation effects are being increasingly limited by drought and warming."[459] Research also suggests that "CO_2 fertilisation [in tropical forests] is outweighed by the impacts of higher temperatures and drought that enhance tree mortality and diminish growth."[460] Furthermore, evidence indicates that the carbon fertilization effect has been weakening over time[461] and may decrease biodiversity.[462]

Even in ecosystems where greening occurs, the ecosystems may become less able to absorb carbon, thus exacerbating climate change.[463] Chen et al. (2024) find that the Amazon rainforest biome shifted from being a net absorber of carbon dioxide in the period from 1901 to 1959 to becoming a net carbon emitter in the period from 1960 to 2021.[464] And Wang et al. (2020)[465] examine long-term satellite and ground-based data sets and find that global carbon fertilization effects have declined across most terrestrial regions of the globe from 1982 to 2015,

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[456] *See also* CWG REPORT, *supra* note 4, at 3–7.

[457] Gensuo Jia et al., *Ch. 2: Land-Climate Interactions*, *in* CLIMATE CHANGE AND LAND: AN IPCC SPECIAL REPORT ON CLIMATE CHANGE, DESERTIFICATION, LAND DEGRADATION, SUSTAINABLE LAND MANAGEMENT, FOOD SECURITY, AND GREENHOUSE GAS FLUXES IN TERRESTRIAL ECOSYSTEMS § 2.2.4, at 144 (P. R. Shukla et al., eds., 2019), https://perma.cc/B4FR-PTPK (citations omitted).

[458] *Id.*

[459] IPCC IMPACTS AR6 WGII, *supra* note 295, at 47.

[460] *Id.* at 273–74.

[461] *Id.* at 251; *see also* Baozhang Chen et al., Inhibitive Effects of Recent Exceeding Air Temperature Optima of Vegetation Productivity and Increasing Water Limitation on Photosynthesis Reversed Global Greening, 10 (11) EARTH'S FUTURE (Nov. 2022), https://perma.cc/5TSE-L6BA (finding that greening was "reversed . . . around the year 2000 over 90% of the global vegetated area").

[462] Oliver L. Phillips et al., *Increasing Dominance of Large Lianas in Amazonian Forests*, 418 NATURE 770–74 (Aug. 15, 2002).

[463] *See* Bin Chen et al., *Carbon Dioxide Fertilization Enhanced Carbon Sink Offset by Climate Change and Land Use in Amazonia on a Centennial Scale*, 955 (176903) SCI. TOTAL ENV'T (Dec. 10, 2024; Songhan Wang et al., *Recent Global Decline of CO_2 Fertilization Effects on Vegetation Photosynthesis*, 370 (6522) SCI. 1295–1300 (Dec. 2020).

[464] Bin Chen et al., *supra* note 463.

[465] Songhan Wang et al., *supra* note 463.

correlating with changing nutrient availability and soil water. They conclude that "[t]his declining trend in the forcing of terrestrial carbon sinks by increasing amounts of atmospheric CO_2 implies a weakening negative feedback on the climatic system and increased societal dependence on future strategies to mitigate climate warming."[466] Neither the CWG Report nor EPA accounts for these findings. In fact, the NAS Consensus Study Report found that for the United States,

> Climate driven changes in temperature and precipitation extremes and variability are leading to negative impacts on agricultural crops and livestock, even as technological and other changes have increased agricultural production. There is increasing evidence of effects of excess heat and precipitation extremes on crop yields in the Southeast United States, of increasing drought conditions in western U.S. agriculture, and negative impacts on agricultural crops in the Midwest. Impacts of heat stress on livestock include increased susceptibility to disease and mortality, and reduced milk production and reproduction rates.[467]

As to the citations included in the Proposal beyond reliance on the CWG Report (which citations also appear in the CWG Report), Beerling et al. (2025)[468] clearly rebut the claims of Haverd et al. (2020)[469] and Zeng et al. (2017).[470] As Bering et al. explain: "the Haverd et al., (2020) study does not focus on agriculture, but on the net carbon exchange between the global biosphere and the atmosphere" and so "does not support any statements about the response of crops or agriculture specifically."[471] Additionally, Beerling et al. point out that many studies have concluded that crop models underestimate the negative impacts of climate extremes on crop production (Barriopedro et al., 2023; Heinicke et al., 2022; Kornhuber et al., 2023; C. Zhao et al., 2017). And the findings of Havert et al. are based on tropical forests, and "[m]any studies have predicted that the low phosphorus concentrations of soils in the Amazon in particular (Quesada et al., 2010) are likely to limit this response (Cunha et al., 2022; Fleischer et al., 2019)."[472] Likewise, for the reasons described by Beerling et al., the characterization of Zeng et

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[466] *Id.* at 1.

[467] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 57.

[468] David J Beerling et al., *Response to Chapter 2, Section 2.1: CO_2 As a Contributor to Global Greening*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 9, 9–35.

[469] Vanessa Haverd et al., *Higher than Expected CO_2 Fertilization Inferred from Leaf to Global Observations*, 26 (4) GLOBAL CHANGE BIOLOGY 2390–2402 (Apr. 2020), https://doi.org/10.1111/gcb.14950.

[470] Zhenzhong Zeng et al., *Climate Mitigation from Vegetation Biophysical Feedbacks During the Past Three Decades*, 7 NATURE CLIMATE CHANGE 432–36 (May 22, 2017), https://doi.org/10.1038/nclimate3299.

[471] Beerling et al., *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 14.

[472] *Id.*

al. (2017) in the CWG Report, and repeated in the Proposal, "oversimplifies the global impact versus regional impacts of greening."[473]

Ocean acidification. Carbon dioxide creates carbonic acid when it reacts with sea water, which increases ocean acidity. The increased acidity changes the relative levels of minerals in the sea water, making it more difficult for corals, some plankton, and other marine species to produce calcium carbonate, an essential mineral in their hard skeletons and shells. As such, the increased acidity can negatively impact these species, which in turn can "lead to broader changes in the overall structure of ocean and coastal ecosystems, and can ultimately affect fish and shellfish populations and the people, communities, or Tribes who depend on them for jobs or subsistence."[474]

The CWG Report and the Proposal, 90 Fed. Reg. at 36,308, claim that ocean acidification is not a cause for concern and asserts that much of the science on this topic is not robust. The Report states that the oceans are presently alkaline and will only become neutralized as pH decreases.[475] These misleading claims ignore the vast majority of the literature and fail to rebut the widespread consensus on the dangers of ocean acidification, including as detailed in the NAS Consensus Study Report.[476]

Specifically, the CWG Report asserts:

> Even if the water were to turn acidic, it is believed that life in the oceans evolved when the oceans were mildly acidic with pH 6.5 - to 7.0 [sic]. On the time scale of thousands of years, boron isotope proxy measurements show that ocean pH was around 7.4 or 7.5 during the last glaciation (up to about 20,000 years ago) increasing to present-day values as the world warmed during deglaciation. Thus, ocean biota appear to be resilient to natural long-term changes in ocean pH since marine organisms were exposed to wide ranges in pH.[477]

These statements ignore important aspects of present and past circumstances. During the last glaciation (the time period mentioned in the above quote), various species suffered significant decreases in weight, thus undercutting claims that ocean biota will not be affected.[478] Moreover, the current rate of ocean acidification is faster than at any time in the past 300 million years, and the rate of change is of key importance to whether organisms and ecosystems can adapt.[479] For instance, the most recent de-glacial transition phase was "two orders of magnitude

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[473] *Id.* at 12.

[474] EPA, *Climate Change Indicators: Ocean Acidity*, https://perma.cc/LJ98-6899.

[475] CWG REPORT, *supra* note 4, at 7–9.

[476] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 29–30.

[477] *Id.* at 8 (citations omitted); *see also* 90 Fed. Reg. at 36,308.

[478] Bärbel Hönisch et al., *The Geological Record of Ocean Acidification*, 335 (6072) SCI. 1058, 1060 (Mar. 2, 2012).

[479] *Id.* at 1058.

slower."[480] Another example is the period 56 million years ago known as the Paleocene-Eocene Thermal Maximum, which is generally considered to be the closest analog to current climate change.[481] That period is associated with the largest extinction among deep-sea sediment invertebrates of the past 75 million years and other major shifts in marine life, which were likely caused in part by ocean acidification.[482] Current acidification is occurring almost ten times as fast.[483] It is worth noting that modern marine life and ecosystems are very different from the initial lifeforms that evolved in the earliest oceans, and thus have different vulnerabilities and capacities to adapt to changing conditions.[484]

Ocean pH is expected to continue changing based on current and future greenhouse gas emissions.[485] There is strong scientific evidence that the current pace and scale of changes in ocean pH will have a variety of impacts on ocean biota, including commercially important marine fisheries, which would in turn impact the many businesses, communities, and economies that depend on them.[486] The IPCC AR6 concludes with high confidence that ocean warming and acidification have already reduced production from fisheries and shellfish aquaculture in some regions.[487]

The Report also ignores the fact that biological response to changing ocean pH is more complicated than survival or mortality alone. For example, adult scallops are known to eat less when CO_2 is high,[488] which has implications for growth rates. These impacts may not necessarily affect a species' survival but would have consequences for food production and conservation efforts. Calcifying organisms (from small plankton, to oysters, to larger coral-reef building organisms) require more energy to respond to stressors like ocean acidification, which can have consequences for growth and reproduction. For example, oysters have been shown to experience mortality if exposed to high CO_2 levels during their first forty-eight hours of life.[489] Lastly, the

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[480] *Id.* at 1062.

[481] *Id.* at 1060; Lee R. Kump et al., *Ocean Acidification in Deep Time,* 22 (4) OCEANOGRAPHY 94-107, at 103–04 (Dec. 2009).

[482] Hönisch et al., *supra* note 478, at 1060; Kump et al., *supra* note 481, at 104.

[483] Hönisch et al., *supra* note 478, at 1060.

[484] Chris Colose et al., *Section 2.2.1: Changing pH*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 36, 38.

[485] IPCC IMPACTS AR6 WGII, *supra* note 295, at 396.

[486] *Id.* at 48.

[487] *Id.* at 9.

[488] Emilien Pousse et al., *Juvenile Atlantic Sea Scallop*, *Placopecten magellanicus*, *Energetic Response to Increased Carbon Dioxide and Temperature Changes*, PLOS CLIMATE (Feb. 22, 2023), https://journals.plos.org/climate/article?id=10.1371/journal.pclm.0000142.

[489] Alan Barton et al., *The Pacific Oyster, Crassostrea gigas, Shows Negative Correlation to Naturally Elevated Carbon Dioxide Levels: Implications for Near-Term Ocean Acidification Effects*, 57 (3) LIMNOLOGY & OCEANOGRAPHY 671–896 (May 2012).

impacts of ocean acidification on ocean biota will worsen with continued greenhouse gas emissions.[490]

A more extensive literature review, Connell and Leung (2023),[491] than the 2016[492] and 2022[493] publications on which the CWG Report relies confirms these flaws. As the Climate Experts' Report explains:[494]

> This meta-analysis of 373 studies across 24 years concludes that although there is a decline in negative effects of ocean acidification as more studies are conducted, this pattern is due to improved experimental designs, adaptation in some species, and a broader range of taxa studied. Overall, the effects of ocean acidification are still negative particularly on calcification in corals and bivalves, skeletal mineralization in fish, and fish behavior.

As to the CWG Report[495] and the Proposal's, 90 Fed. Reg. at 36,309, claims regarding coral reef decline, specifically, the two studies EPA alone cites do not support its claims. *Infra* Section V.C.1. Moreover, Jones et al. (2025) point out that "hard coral cover as a metric is a poor representation of ecosystem health or diversity (Bruno et al. 2009; Hughes et al. 2018a). High coral cover on the [Great Barrier Reef (GBR)] is driven by fast-growing Acropora corals, which may mask the loss of other species (Hughes et al. 2018a)."[496] And as Jones et al. explain, the more recent Australian Institute of Marine Science (AIMS) survey released in 2025 comes to the opposite conclusion than the one for which EPA cites the outdated survey. Specifically, it:

> shows that, in 2025, 48% of surveyed reefs underwent a decline in percentage coral cover, 42% showed no net change, and only 10% had an increase (AIMS 2025). Reefs with stable or increasing coral cover were predominantly located in the Central GBR (AIMS 2025). Regional declines ranged between 14% and 30% compared to 2024 levels, with some individual reefs experiencing coral declines of up to 70.8% (AIMS 2025).[497]

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[490] IPCC IMPACTS AR6 WGII, *supra* note 295, at 48, 406; NCA5, *supra* note 6, ch. 10. Ocean Ecosystems and Marine Resources.

[491] Sean D. Connell & Jonathan Y.S. Leung, *Reproducibility Crisis and Gravitation Towards a Consensus in Ocean Acidification Research*, 13 NATURE CLIMATE CHANGE 1266–71 (2023), https://perma.cc/8XLY-ZDT4.

[492] Howard I. Browman, *Applying Organized Skepticism to Ocean Acidification Research*, 73 (3) ICES J. OF MARINE SCI. 529–36 (2016).

[493] Jeff C. Clements et al., *Meta-Analysis Reveals an Extreme "Decline Effect" in the Impacts of Ocean Acidification on Fish Behavior*, 20 PLOS BIOLOGY 1–20 (2022), https://perma.cc/QE3F-XCE5.

[494] Marc E. Jones et al., *Response to DOE Section 2.2.2: Coral Reef Changes*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 43, 47 (2025).

[495] CWG REPORT, *supra* note 4, at 8–9.

[496] Jones et al., *in* CLIMATE EXPERT'S CWG REVIEW, *supra* note 441, at 45.

[497] *Id.*

iii. Human Influences on the Climate

The CWG Report[498] and the Proposal, 90 Fed. Reg. at 36,307–09, seek to downplay the influence of human-induced greenhouse gas emissions on climate change—emphasizing the natural variability of the global climate, the planet's capacity to absorb CO_2, and other purported uncertainties and flaws in climate science—but none of those contentions withstands scrutiny.

The Report's cursory review of a small fraction of the relevant literature does not undermine the robust consensus of the scientific community. The IPCC Physical Science AR6 concludes:

> Human influence on the climate system is now an established fact. . . . It is unequivocal that the increase of CO_2, methane (CH_4) and nitrous oxide (N_2O) in the atmosphere over the industrial era is the result of human activities and that human influence is the main driver of many changes observed across the atmosphere, ocean, cryosphere and biosphere. . . . [O]ver the past several decades, key indicators of the climate system are increasingly at levels unseen in centuries to millennia and are changing at rates unprecedented in at least the last 2000 years.[499]

The findings of the NAS Consensus Study Report are in accord.[500]

Neither the CWG Report nor EPA rebuts these conclusions. For example, the CWG Report critiques the IPCC's use of the RCP 8.5 scenario (an early scenario involving radiative forcing of 8.5 watts per square meter by the year 2100) as implausible.[501] Although there is a growing consensus among climate scientists that RCP 8.5 is unlikely, it is just one of many scenarios analyzed by the IPCC, and was explicitly designed to explore the effects of a very high emissions possible future, not as a projection of the most likely emissions trajectory.[502] The other scenarios, which explore lower future emission trajectories, are nonetheless projected to involve significant and lasting harms to the environment, public health and welfare, and economies in the United States and throughout the world. The CWG Report's critique of this single scenario ignores the fact that climate models have proven to be quite accurate and that developments in climate science since the RCP 8.5 was first developed have reduced the uncertainty associated with these scenarios. As Sanderson et al. (2025) explain:

> [T]he DOE report fails to accurately convey the nuanced role of high-emissions scenarios in climate science. The CMIP6 ScenarioMIP (O'Neill et al., 2016), which informed the IPCC-AR6 assessments, explicitly introduced 'scenarios describing

[498] *See* CWG REPORT, *supra* note 4, at 12–22.

[499] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 41.

[500] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 9–16, 18–20.

[501] CWG REPORT, *supra* note 4, at 16.

[502] Also, carbon-cycle feedback effects could plausibly lead to radiative forcing of 8.5 W/m^2. Zeke Hausfather & Richard Betts, *Analysis: How "Carbon-Cycle Feedbacks" Could Make Global Warming Worse*, CarbonBrief: Climate Modeling (Apr. 14, 2020, 4:49 PM), https://perma.cc/V52D-K84K.

> possible future developments of anthropogenic drivers of climate change,' which, as such, are not forecasts. High-end scenarios explore the possible impacts of tipping points and how large the climate change risks to which society may have to adapt might be. Each generation of ScenarioMIP has included several scenarios, one of which in each case represents the upper plausible bound to inform the 'worst-case' scenario for climate adaptation. This upper bound shifts as understanding evolves.[503]

These scenarios, which represent the upper end in a range of future development, are not treated as a baseline or most likely scenario by the IPCC, as the EPA aims to suggest with the three additional references provided.[504, 505, 506] And one of EPA's references, Pielke and Ritchie (2020), is not peer-reviewed.

Furthermore, the IPCC no longer uses the RCP pathways as its primary scenarios.[507] As explained in IPCC Physical Science AR6:

> The AR6 assessment of future change in global surface temperature is, for the first time in an IPCC report, explicitly constructed by combining new projections for the [Shared Socioeconomic Pathway] scenarios with observational constraints based on past simulated warming as well as the AR6-updated assessment of equilibrium climate sensitivity and transient climate response. In addition, climate forecasts initialized from the observed climate state have been used for the period 2019–2028. The inclusion of additional lines of evidence has reduced the assessed uncertainty ranges for each scenario . . . .[508]

As to EPA's claim (relying on a figure 3.2.2 in the CWG Report) that empirical data suggest that actual greenhouse gas concentration increases and corresponding warming trends through 2025 have tracked the IPCC's more optimistic scenarios, 90 Fed. Reg. at 36,308, Sanderson et al. (2025)[509] point out the CWG's figure "shows only fossil CO_2 emissions and excludes land use" and "[b]oth land use and fossil CO_2 emissions are important in determining the magnitude of future warming." Further, Sanderson et al. (2025) note that "agreement or disagreement between scenarios and observed emissions over the past decade is a limited

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[503] Benjamin M. Sanderson et al., *Assessment of Chapter 3: Human Influences on the Climate*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 60.

[504] Zeke Hausfather & Glen P. Peters, *Emissions—The 'Business as Usual' Story Is Misleading*, NATURE 577, 618–20 (2020).

[505] Matthew G. Burgess et al., *IPCC Baseline Scenarios Have Over-Projected CO_2 Emissions and Economic Growth*, 16 ENV'T RSCH. LETTERS 1 (2020).

[506] Roger Pielke & Justin Ritchie, Systemic Misuse of Scenarios in Climate Research and Assessment (Apr. 21, 2020).

[507] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 52.

[508] *Id.* at 60.

[509] Sanderson et al., *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 61.

constraint on the evolution of future emissions over the remainder of the century."[510] So, even *if* past emissions do not align with model scenarios, future projections would not be invalidated.

The CWG Report downplays the risks of climate change by pointing to models showing increased CO_2 uptake on land and/or in oceans as anthropogenic emissions have increased. The scientific consensus, however, concludes that the net carbon sink activities of the carbon fertilization effect are likely to be counteracted by increases in emissions from soils and vegetation due to climate change in conjunction with deforestation and emissions and removals from other land use activities.[511] Meanwhile, the capacity for the ocean to act as a carbon sink is likely to be limited by emerging carbon-climate feedbacks.[512] Projections show that the ocean and land sinks will stop growing from the second part of the 21st century under all emissions scenarios.[513] Of critical importance for climate change, the fraction of emissions taken up by land and ocean is expected to decline as the CO_2 concentration increases—which means that the fraction of emissions that remain in the atmosphere will rise.[514]

Finally, the CWG Report and the Proposal claim there is evidence that urbanization biases in the land warming record have not been completely removed from climate data sets. 90 Fed. Reg. at 36,308.[515] But urbanization has a negligible effect on global surface temperature overall.[516] Moreover, urbanization is incorporated into climate modeling in spatial patterns emphasizing the regional character of land use and land management, like changes to albedo.[517]

As to the citations raised by EPA (again, also included in the CWG Report), Wallace and Ng (2025) further demonstrate that the data showing warming trends do not support claims of urban heat islands confounding measures of global warming (such as those in McKitrick

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[510] *Id.*

[511] P.R. Shukla et al., *IPCC, 2019: Summary for Policymakers*, *in* CLIMATE CHANGE AND LAND: AN IPCC SPECIAL REPORT ON CLIMATE CHANGE, DESERTIFICATION, LAND DEGRADATION, SUSTAINABLE LAND MANAGEMENT, FOOD SECURITY, AND GREENHOUSE GAS FLUXES IN TERRESTRIAL ECOSYSTEMS 10 (P.R. Shukla et al., eds., 2019), https://perma.cc/TL9G-327D.

[512] Jens Daniel Müller et al., *Decadal Trends in the Oceanic Storage of Anthropogenic Carbon from 1994 to 2014,* 4 AGU ADVANCES 1 (2023), https://perma.cc/C9SZ-72AW; Tereza Jarníková et al., *Decreasing Importance of Carbon-Climate Feedbacks in the Southern Ocean in a Warming Climate,* 11 SCI. ADVANCES 1 (2025), https://perma.cc/5L32-NUH7; Nicolas Gruber et al., *Trends and Variability in the Ocean Carbon Sink,* 4 NATURE REVS. EARTH & ENV'T 119–34 (2023).

[513] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 80.

[514] *Id.* at 677.

[515] CWG REPORT, *supra* note 4, at 21–22.

[516] *Id.* at 144; *see also* Zeke Hausfather et al., *Quantifying the Effect of Urbanization on U.S. Historical Climatology Network Temperature Records*, 118 J. GEOPHYSICAL RSCH.: ATMOSPHERES 481–94 (2013).

[517] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 310, 324.

(2013)[518] (one of the authors of the CWG Report)), as the areas of greatest temperature increases are largely rural areas in the arid west and southwestern United States.[519] EPA's citation, 90 Fed. Reg. 36,309, n.97, to several papers authored by McKitrick[520] and McKitrick and Nierenberg (2010)[521] as challenging the optimal fingerprinting method for attribution of global warming to anthropogenic emissions is likewise unhelpful to it. Callahan (2025) explains that "this section of the DOE CWG report presents a misleading sample of the wide array of evidence on fingerprint-based attribution."[522] Chatzistergos and Amdur (2025)[523] characterize the studies cited by EPA and the CWG Report,[524] including Connolly et al. (2021), 90 Fed. Reg. 36,309, n.97,[525] as suffering from critical methodological flaws. Finally, Po-Chedley et al. (2025) refute the methodology in the CWG Report and another warming trends paper by McKitrick and Christy (2020), which "do[] not discuss the role of internal variability issues," and which "sample one simulation per model, even though the effect of internal variability can be substantial over this time period."[526] Thus, this critique is completely unfounded.

iv. Climate Models

More broadly, the CWG Report erroneously argues that climate models cannot be trusted as a source of accurate climate change prediction because they "generally run 'hot' in their description of the climate of the past few decades."[527]

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[518] Ross McKitrick, *Encompassing Tests of Socioeconomic Signals in Surface Climate Data*, 120 CLIMATE CHANGE 95–107 (2013).

[519] John M. Wallace & Chan-Pang Ng, *3.3: Urbanization Influence on Temperature Trends*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 91, 91–94.

[520] Ross McKitrick, *Checking for Model Consistency in Optimal Fingerprinting: a Comment*, 58 CLIMATE DYNAMICS 405–11 (2021), https://perma.cc/53AB-7UL7; Ross McKitrick, *Total Least Squares Bias in Climate Fingerprinting Regressions with Heterogeneous Noise Variances and Correlated Explanatory Variables*, 35 ENVIRONMETRICS 1 (2023), https://perma.cc/6B6Y-CJUT; Ross McKitrick, *On the Choice of TLS Versus OLS in Climate Signal Detection Regression*, 60 CLIMATE DYNAMICS 359–74 (2022), https://perma.cc/X6V6-ZZ8A.

[521] Ross McKitrick & Nicolas Nierenberg, *Socioeconomic Patterns in Climate Data*, 35 J. OF ECON. & SOC. MEASUREMENT 149–75 (2010).

[522] Christopher Callahan, *Response to Section 8.3.2.: Optimal Fingerprinting*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 271, 271–74.

[523] Theodosios Chatzistergos & Ted Amdur, *Section 8.3.1: Solar Variability*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 292, 292–305.

[524] CWG REPORT, *supra* note 4, at 13–22, 82–92.

[525] Ronan Connolly et al., *How Much Has the Sun Influenced Northern Hemisphere Temperature Trends? An Ongoing Debate*, 21 RSCH. IN ASTRONOMY & ASTROPHYSICS 131 (2021).

[526] Stephen Po-Chedley et al., *Section 5.3: Tropospheric Warming*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 127, 128–130 (citing R. McKitrick and J. R. Christy, *Pervasive Warming Bias in CMIP6 Tropospheric Layers*, 7 EARTH & SPACE SCI. 1 (2020) (EPA-HQ-OAR-2025-0194-0068)).

[527] CWG REPORT, *supra* note 4, at viii.

First, climate models are a well-respected and highly reviewed area of climate research, and are based on fundamental physics and empirical data, as the NAS Consensus Study Report explains.[528] These models undergo extensive quality assessment, quality control, and third-party verification.[529] Nearly all model code and data inputs and results are available publicly as a condition of publication.[530] Climate model outputs are collected to create a well-rounded understanding of the most likely scenarios for the future, such as the Coupled Model Intercomparison Project Phase 6 (CMIP6) ensemble that the CWG Report cites. CMIP6 includes 23 endorsed models,[531] each with specific strengths and weaknesses. The consensus in the field is that models are to be used for their intended use-cases, such as precipitation forecasts or tropical storm projections, not as a catch-all for future changes.[532] The CWG Report's criticisms do undermine the robust literature supporting the use of these models.

Second, as a general point, the CWG Report's criticisms are largely directed at older climate models.[533] The IPCC's AR6 explains recent improvements in modeling:

> The latest generation of complex climate models has an improved representation of physical processes, and a wider range of Earth system models now represent biogeochemical cycles. Since AR5, higher-resolution models that better capture

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[528] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 36–37; *see also id.* at 18 ("Understanding of the effect of GHGs on the Earth's energy balance remains solidly grounded in physics and in laboratory measurements, which date back to the 19th century (e.g., Tyndall, 1863), as well as in surface and satellite measurements (e.g., Harries et al., 2001; Teixeira et al., 2024). This understanding of the fundamental physics of the Earth's energy system, combined with observational constraints on feedback processes, mean that, at the global scale, the effect of a GHG forcing can be evaluated with a simple equation and does not require the use of complex numerical models or other complicated analysis. In practice, relatively simple models used decades ago can now be seen to have performed extremely well in matching the observed global mean warming over time per unit radiative forcing (Hausfather et al., 2020; Supran et al., 2023).").

[529] *See generally* IPCC PHYSICAL SCIENCE AR6, *supra* note 209, ch. 9, Evaluation of Climate Models, https://perma.cc/5NJ6-YXNN; Hausfather et al., *Evaluating the Performance of Past Climate Model Projections*, *supra* note 269; DAVID C. BADER ET AL., U.S. CLIMATE CHANGE SCI. PROGRAM & SUBCOMM. ON GLOB. CHANGE RSCH., CLIMATE MODELS: AN ASSESSMENT OF STRENGTHS AND LIMITATIONS (SYNTHESIS AND ASSESSMENT PRODUCT 3.1) (July 2008), https://perma.cc/PHD6-PUAC.

[530] *E.g.*, Neil C. Swart et al., *The Canadian Earth System Model Version 5 (CanESM5.0.3),* 12 GEOSCIENTIFIC MODEL DEV. 4823–73 (2019), https://perma.cc/CS84-DMSV; Hans Hersbach et al., *The ERA5 Global Reanalysis*, 146 Q. J. ROYAL METEOROLOGICAL SOC'Y 1999–2049 (2020), https://perma.cc/28Z2-2393.

[531] Gov't of Can., *CMIP6 Multi-Model Ensembles Model List* (last updated Aug. 25, 2023), https://perma.cc/WYU2-AKJ5; World Climate Rsch. Program: Coupled Model Intercomparison Project, *CMIP Phase 6 (CMIP6)*, https://perma.cc/C3XY-62LK.

[532] Najeebullah Khan et al., *Global Climate Models Performance: A Comprehensive Review of Applied Approaches, Recognized Issues and Possible Future Directions*, 326 ATMOSPHERIC RSCH. 1 (2025); David W. Pierce et al., *Selecting Global Climate Models for Regional Climate Change Studies*, 106 PROC. NAT'L ACAD. SCIS. 8441–46 (2009).

[533] *See* CWG REPORT, *supra* note 4, at 27.

> smaller-scale processes and extreme events have become available. Key model intercomparisons supporting this Assessment include the Coupled Model Intercomparison Project Phase 6 (CMIP6) and the Coordinated Regional Climate Downscaling Experiment (CORDEX), for global and regional models respectively. Results using CMIP Phase 5 (CMIP5) simulations are also assessed. Since AR5, large ensemble simulations, where individual models perform multiple simulations with the same climate forcings, are increasingly used to inform understanding of the relative roles of internal variability and forced change in the climate system, especially on regional scales. The broader availability of ensemble model simulations has contributed to better estimations of uncertainty in projections of future change (high confidence).[534]

Third, the CWG Report contends that the climate models are inaccurate with regard to surface warming, tropospheric warming, stratospheric cooling, the U.S. Corn Belt, and snow cover impacts. These claims mischaracterize the data and rely on faulty studies.

Surface warming. The CWG Report argues that climate models of surface warming exhibit warming biases and that the IPCC has only incompletely addressed this issue.[535] As the NAS Consensus Study Report finds, however, "[t]he Earth energy imbalance . . . leads to warming of the surface and lower atmosphere, which is clearly detected in temperature observations."[536] And as to predictive modeling, the literature has extensively explored the reasons that some models run hotter,[537] and the IPCC thoroughly accounted for these variations in AR6's treatment of the CMIP6 ensemble (for example, through observational constraint[538] and weighted average[539]). The CWG Report relies heavily on the work of Scafetta (2023)[540] to support its claims about supposed inaccuracy of climate models.[541] But Scafetta (2023)'s methodologies are thoroughly rebutted by Schmidt et al. (2022) (analyzing a related paper by Scafetta) and other writings from Schmidt.[542] For example, Scafetta (2023) incorrectly analyzes internal and

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[534] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 151.

[535] *See* CWG REPORT, *supra* note 4, at 34–35.

[536] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 22.

[537] *E.g.*, Mark D. Zelinka et al., *Causes of Higher Climate Sensitivity in CMIP6 Models*, 47 GEOPHYSICAL RSCH. LETTERS 1 (2020), https://perma.cc/V52F-8CG7.

[538] *E.g.*, Yongxiao Liang et al., *Climate Model Projections of 21st Century Global Warming Constrained Using the Observed Warming Trend,* 47 GEOPHYSICAL RSCH. LETTERS 1 (2020), https://perma.cc/5DCH-QUMJ.

[539] Zeke Hausfather et al., *Climate Simulations: Recognize the "Hot Model" Problem*, 605 NATURE: COMMENT 26–29 (2022).

[540] Nicola Scafetta, *CMIP6 GCM Ensemble Members Versus Global Surface Temperatures*, 60 CLIMATE DYNAMICS 3091–312 (Sept. 18, 2022). This article was published online in 2022, hence the Schmidt et al. (2022) rebuttals.

[541] *See, e.g.*, CWG REPORT, *supra* note 4, at 34 & Figure 5.2.

[542] Gavin A. Schmidt et al., *Comment on "Advanced Testing of Low, Medium, and High ECS CMIP6 GCM Simulations Versus ERA5-T2m" by N. Scafetta (2022)*, 50 (18) GEOPHYSICAL RSCH. LETTERS 1

interannual variability in model outputs, which is important in modeling long term climate change (in this case, decadal temperature change).[543] And Scafetta categorizes the models into low, middle, and high climate sensitivity groups, which do not match up with the ranges used in the dominant literature and whose cut-offs are necessary for Scafetta's conclusions.[544]

Next, the CWG Report Figure 5.3 claims to show a trend in models producing more warming than observed from 1979 to 2024.[545] The chart shows thirty models, but not all are endorsed by CMIP6.[546] CWG Report Figure 5.3 is taken from a policy brief authored by Roy Spencer, one of the authors of the CWG Report. It is not from a refereed or peer-reviewed journal and not an appropriate source for reliable information on climate science.

As illustrated in Figure 3.4 from IPCC Physical Science AR6 (reproduced below), the CMIP6 model average shows that models are not producing more warming than observed for global mean surface air temperature. Specifically, the CMIP6 model average is "within 0.2° C of the observations over most of the historical period, and observed warming is within the 5-95% range of the CMIP6 ensemble," which is sufficient to "support detection and attribution of human-induced warming" with "very high confidence."[547]

(Sept. 28, 2023), https://perma.cc/W5CF-4YWY; *see also* Gavin Schmidt, *Scafetta Comes Back for More*, REAL CLIMATE: CLIMATE MODELLING (Oct. 10, 2022), https://perma.cc/M4GN-X94W. Schmidt is the Director and Principal Investigator for NASA's Goddard Institute for Space Studies (GISS) ModelE Earth System Model in New York. Schmidt is also an author of the Hausfather et al. (2022), *supra* note 539, study in *Nature* that originally describes the "hot models" question in climate modeling.

[543] *See* Schmidt et al., *Comment on "Advanced Testing of Low, Medium, and High ECS CMIP6 GCM Simulations Versus ERA5-T2m" by N. Scafetta*, *supra* note 542; Schmidt, *Scafetta Comes Back for More*, *supra* note 542.

[544] Schmidt, *Scafetta Comes Back for More*, *supra* note 542; *see also* Gavin Schmidt, *The Scafetta Saga*, REAL CLIMATE: CLIMATE MODELLING (Sept. 21, 2023), https://perma.cc/U93Q-SKL4.

[545] *See* CWG REPORT, *supra* note 4, at 33–34.

[546] CMIP6 Multi-Model Ensembles Model List, *supra* note 531.

[547] Stephen Po-Chedley et al., *Section 5.2: Surface Warming*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441 at 119.

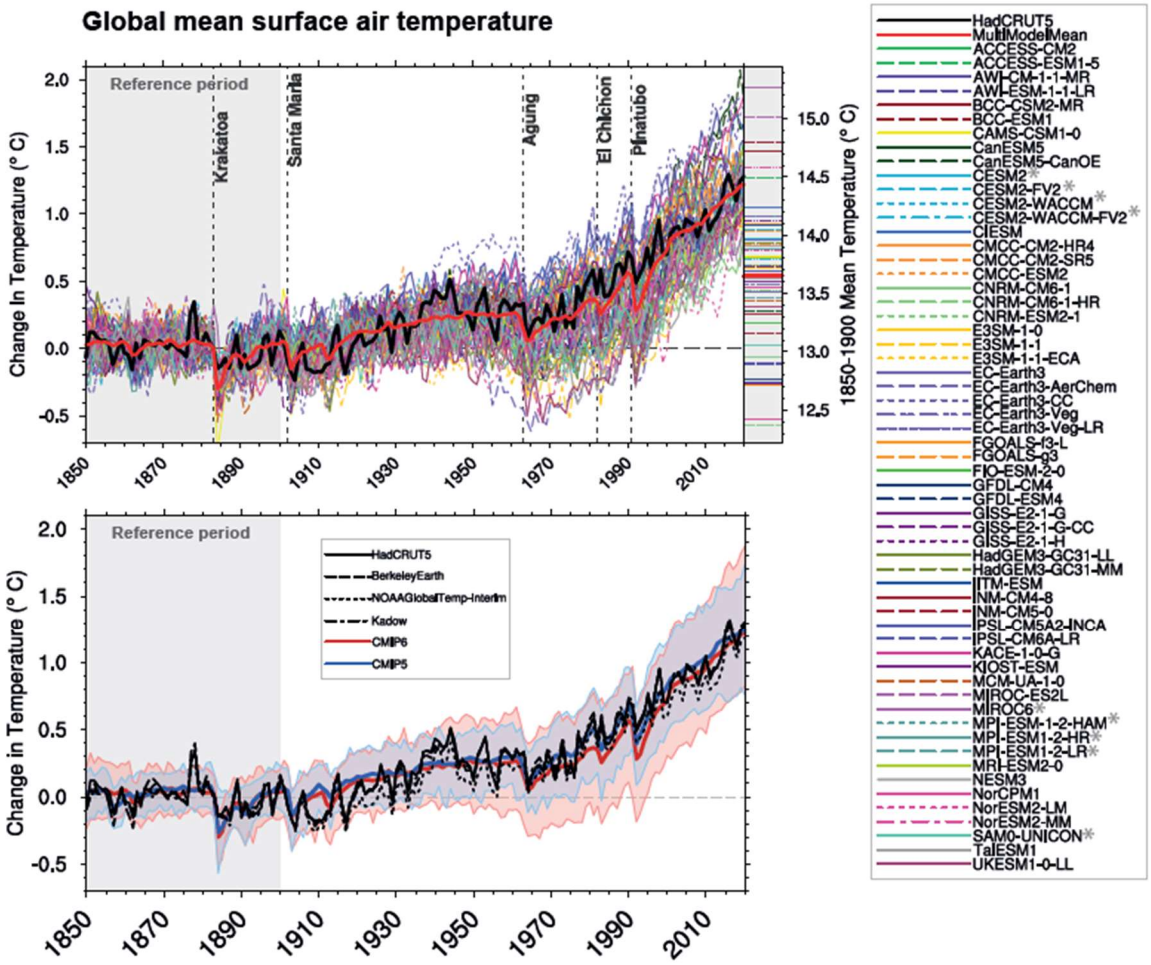

Figure 3.4 | Observed and simulated time series of the anomalies in annual and global mean surface air temperature (GSAT). All anomalies are differences from the 1850–1900 time-mean of each individual time series. The reference period 1850–1900 is indicated by grey shading. **(a)** Single simulations from CMIP6 models (thin lines) and the multi-model mean (thick red line). Observational data (thick black lines) are from the Met Office Hadley Centre/Climatic Research Unit dataset (HadCRUT5), and are blended surface temperature (2 m air temperature over land and sea surface temperature over the ocean). All models have been subsampled using the HadCRUT5 observational data mask. Vertical lines indicate large historical volcanic eruptions. CMIP6 models which are marked with an asterisk are either tuned to reproduce observed warming directly, or indirectly by tuning equilibrium climate sensitivity. Inset: GSAT for each model over the reference period, not masked to any observations. **(b)** Multi-model means of CMIP5 (blue line) and CMIP6 (red line) ensembles and associated 5th to 95th percentile ranges (shaded regions). Observational data are HadCRUT5, Berkeley Earth, National Oceanic and Atmospheric Administration NOAAGlobalTemp-Interim and Kadow et al. (2020). Masking was done as in (a). CMIP6 historical simulations were extended with SSP2-4.5 simulations for the period 2015–2020 and CMIP5 simulations were extended with RCP4.5 simulations for the period 2006–2020. All available ensemble members were used (see Section 3.2). The multi-model means and percentiles were calculated solely from simulations available for the whole time span (1850–2020). Figure is updated from Bock et al. (2020), their Figures 1 and 2. CC BY 4.0 https://creativecommons.org/licenses/by/4.0/. Further details on data sources and processing are available in the chapter data table (Table 3.SM.1).

IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 435.

The CWG Report nonetheless asserts that climate models are "overly sensitive."[548] But only a subset of climate models can arguably be characterized this way, "and their projections have been downweighted in the IPCC AR6 assessment and other analyses."[549] Moreover, the CWG Report incorrectly implies that climate change risks are assessed solely based on climate

[548] CWG REPORT, *supra* note 4, at ix.

[549] Stephen Po-Chedley et al., *Section 5.2: Surface Warming*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 121 (citation omitted).

modeling.[550] In fact, "the IPCC report produces projections that are based on multiple lines of evidence, including climate models, assessed values of climate sensitivity, and observational constraints."[551]As the NAS Consensus Study Report explains, "[r]isks of future impacts for some quantities. . . including heat . . .can be assessed with relatively high confidence."[552] The CWG Report's critiques related to surface warming are thus misguided.

Tropospheric warming and stratospheric cooling. The CWG Report asserts that models have predicted too much warming in the troposphere and too much cooling in the stratosphere.[553] The Report cites Benjamin Santer's work to support the Report's claims on stratospheric cooling. Santer has stated that the CWG Report "completely misrepresents my work."[554] While his research does not show the re-emergence of a cooling trend within the lower stratosphere due to the separate and countervailing effects of ozone recovery, Santer et al. (2023)'s[555] analysis of the upper stratosphere produces a distinct view of the "fingerprint" of anthropogenic climate change, which the CWG Report ignores. Santer et al. (2023) conclude that the "fingerprint" is undoubtable, even if the lower stratosphere, in isolation, does not show significant cooling due to the additional influence of ozone depletion and recovery.[556] As the NAS Consensus Study Report concludes: "No known natural drivers, such as incoming solar radiation or volcanic emissions, can explain observed changes. This is particularly true for the magnitude of warming at Earth's surface and the vertical distribution of warming in the troposphere (lower atmosphere) and cooling in the stratosphere (upper atmosphere)."[557]

U.S. Corn Belt. The CWG Report asserts that for the U.S. Corn Belt, the CMIP6 models used by the IPCC "warm far too rapidly compared to observations."[558] The Report bases this observation on global climate models (within the CMIP6 ensemble). But those climate models are not intended to be used for smaller-scale regional predictions due to the complex systems and randomness of regional weather and climate patterns such as lake effects[559] and the intensive agriculture practices and productivity in the Corn Belt.[560] Specifically, Dessler (2025) explains,

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[550] CWG REPORT, *supra* note 4, at viii.

[551] Po-Chedley et al., *Section 5.2*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 122.

[552] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 38.

[553] CWG REPORT, *supra* note 4, at 35–39.

[554] Andrew Zinin, *US Energy Department Misrepresents Climate Science in New Report*, SCI. X: PHYS.ORG (Aug. 1, 2025), https://perma.cc/Q8PP-6W9Z.

[555] Benjamin D. Santer et al., *Exceptional Stratospheric Contribution to Human Fingerprints on Atmospheric Temperature*, 120 PROC. NATL. ACAD. SCIS. (2023), https://perma.cc/R576-J836.

[556] *Id.*

[557] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 9.

[558] CWG REPORT, *supra* note 4, at 43.

[559] Laura J. Briley et al., *Large Lakes in Climate Models: A Great Lakes Case Study on the Usability of CMIP5*, 47 J. GREAT LAKES RSCH. 405–18 (Apr. 2021), https://perma.cc/UN3G-CMCT.

[560] Nathaniel D. Mueller et al., *Cooling of US Midwest Summer Temperature Extremes from Cropland Intensification*, 6 NATURE CLIMATE CHANGE 317–22 (Mar. 1, 2016).

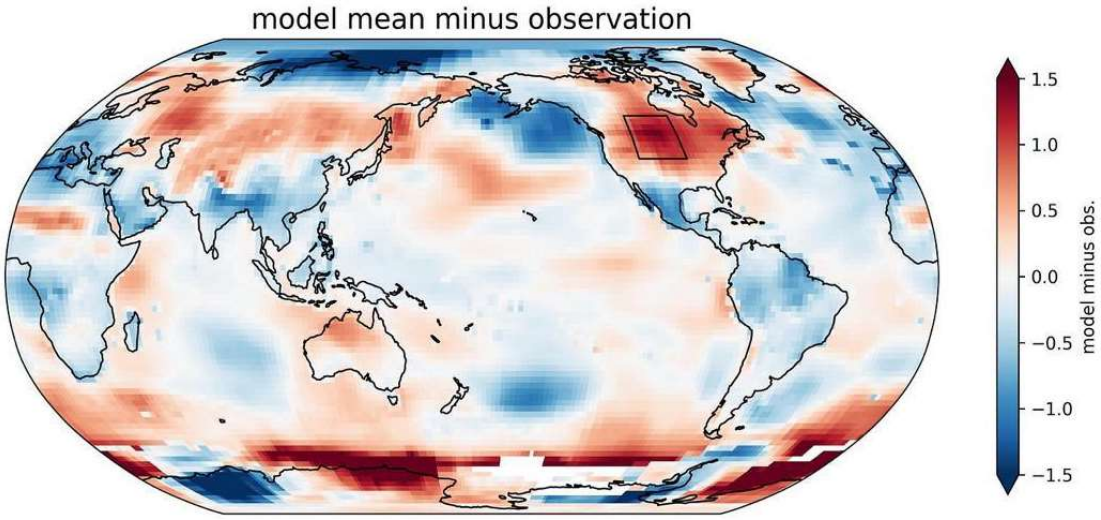
"[t]his argument relies on sloppy data analysis and cherry picking to reach a conclusion that analysis of the full data record does not support."[561] Dessler (2025) demonstrates:

> The figure below shows spatial pattern of the difference between the average of the screened model ensemble and the observations. Red colors indicate where the average model warming is faster than observations while blue areas show that models are warming slower. As mentioned above, 52% of the area of the globe is blue, indicating places where the models are warming slower than observations.
>
> The box over North America shows the region that the DOE plot focuses on. It's clear that the region that was selected in the DOE plot is the place in the Northern Hemisphere where models look the absolute worst. This constitutes a textbook case of cherry picking — the practice of selectively extracting a narrow subset of data that contradicts the broader dataset to support a predetermined conclusion.[562]

(*figure on following page*)

[561] Andrew E. Dessler, *Response to Section 5.8*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, 155–61.

[562] *Id.* at 159.



Andrew E. Dessler, *Response to Section 5.8*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, Figure 4 at 159 (avg. warming in screened models minus observed warming, 1970–2023).

In fact, Dessler (2025) explains the reason the models do so poorly in this region is precisely due to the presence of intensive agriculture (e.g., Mueller et al., 2016; Alter et al., 2018).[563] "This is the most agriculturally productive region on the planet, and land-use changes over the last few decades have largely offset greenhouse gas warming here."[564]

The CWG Report itself acknowledges that "users need to assess model projections carefully on a case-by-case basis since local biases might be sufficiently large that the models are simply not fit for purpose."[565] This point is in direct conflict with the CWG Report's critique that the models shown in Figure 5.10,[566] which are *global* climate models, are inaccurate as to a relatively small area of the United States.[567] There are, however, models designed to look at the resolution of the Corn Belt, such as The Weather Research and Forecasting (WRF) model,[568] which can produce much more accurate projections for this scale but which the CWG Report ignored. Furthermore, the CWG Report fails to provide any justification for the models used in the figure and the ones omitted (such as CanESM5/r1i1p1f1).[569]

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[563] *Id.* at 160.

[564] *Id.*

[565] CWG REPORT, *supra* note 4, at 44; *see also* Tim Palmer & Bjorn Stevens, *The Scientific Challenge of Understanding and Estimating Climate Change*, 116 PROC. NAT'L ACAD. SCIS. 24,390–95 (Dec. 3, 2019), https://perma.cc/7RDE-BJSS.

[566] This figure was incorrectly numbered in the May 27, 2025, version of the CWG Report and was corrected to Figure 5.9 in the July 23, 2025, version.

[567] *See* CWG REPORT, *supra* note 4, at 43.

[568] Zhe Zhang et al., *US Corn Belt Enhances Regional Precipitation Recycling*, 122 PROC. NATL. ACAD. SCI. 1 (2024), https://perma.cc/94QG-FTDL.

[569] *See* CWG REPORT, *supra* note 4, at 44.

Finally, the CWG Report remarks that "the anticipated negative effects of increasing temperatures on U.S. corn yields have not materialized."[570] What the CWG Report fails to acknowledge is that yields of corn are dependent on more than just temperature conditions; they also depend heavily on inputs such as irrigation,[571] fertilization,[572] and the use of pesticides and herbicides.[573] Yields are predicted to start to decrease due to the impacts of climate change in many locations,[574] and at some point, technological fixes will not be enough to counter those impacts.[575]

Snow cover impacts. Addressing the issue of snowpack decline, EPA relies on the CWG Report to claim that "the Northern hemispheric winter snow cover has not decreased in line with the models used in the [2009] Endangerment Finding." 90 Fed. Reg. at 36,309. Colose et al. (2025) document, however, that the observational product used by the CWG (on which EPA bases this claim) is "not robust with respect to [Northern Hemisphere] winter trends and disagrees with many other observational datasets."[576]

Changes in seasonal snow cover, ice and permafrost can affect climate through various feedback mechanisms. Snow and ice surfaces have much higher albedos than do other natural land surfaces and thus are capable of reflecting a greater percentage of the incident solar radiation. Decreasing coverage of snow and ice will, therefore, lead to an increase in the amount of solar radiation absorbed by the earth, thereby enhancing the global warming process. Snowmelt water availability is important for agricultural use, hydropower, and human settlements.[577] Melting of glaciers, snow decline and thawing of permafrost have threatened the water and livelihood security of local and downstream communities through changes in hydrological regimes and increases in the potential of landslides and glacier lake outburst

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[570] *Id.*

[571] T.J. Troy et al., *The Impact of Climate Extremes and Irrigation on US Crop Yields*, 10 ENV'T RSCH. LETTERS 1 (May 14, 2015), https://perma.cc/SS2N-2LQ2.

[572] Yihenew G. Selassie, The Effect of N Fertilizer Rates on Agronomic Parameters, Yield Components and Yields of Maize Grown on Alfisols of North-western Ethiopia, 4 ENV'T SYS. RSCH. 1 (2015), https://perma.cc/JW8A-LX7N.

[573] *Assessing Yield-Limiting Factors in Corn, When Do Yield Components Develop?*, CROP OBSERVATION & RECOMMENDATION NETWORK (C.O.R.N.) NEWSL. (OHIO STATE UNIV. COLL. OF FOOD, AGRIC., & ENV'T SCIS./OHIO STATE UNIV. EXTENSION AGRONOMIC CROPS NETWORK) (2022), https://perma.cc/9QX8-4UDH.

[574] JAYSON BECKMAN ET AL., ESTIMATING MARKET IMPLICATIONS FROM CORN AND SOYBEAN YIELDS UNDER CLIMATE CHANGE IN THE UNITED STATES, Rep. No. 324, USDA ECON. RSCH. SERV. (2023), https://perma.cc/UP3G-PR9L.

[575] *Climate Change Cuts Global Crop Yields, Even When Farmers Adapt*, ACES NEWSL. (UNIV. OF ILL. URBANA-CHAMPAIGN COLL. OF AGRIC., CONSUMER & ENV'T SCIS.) (June 18, 2025), https://perma.cc/2VVJ-HWNB.

[576] Christopher M. Colose et al., *Comments on Section 5.6: Snow Cover Mismatch*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 146.

[577] IPCC IMPACTS AR6 WGII, *supra* note 295, at 14.

floods.[578] Snow monitoring and modeling posed challenges in AR5,[579] but the accuracy of ensemble model outputs to observational data has increased greatly in the CMIP6 models used and referenced in AR6.[580] Indeed, as the NAS Consensus Study Report concluded, "Northern Hemisphere spring snow cover has continued to decline, with a loss since 1922 of approximately 0.3 million square-kilometers per decade (IPCC, 2021)."[581]

The CWG Report and the Proposal rely on Connolly et al. (2019)[582] to support the idea that models do not capture declines in winter snow cover extent (SCE). 90 Fed. Reg. at 36,309 n.96.[583] Connolly et al., however, use CMIP5 model results to make this claim. Colose et al. (2025) note that "the climatology of [snow cover extent (SCE)] in winter has improved in CMIP6 compared to CMIP5, and despite the structural uncertainties in the observations, the models appear to be consistent with the observed trends."[584] Had EPA and the CWG used the most current modeling data, they would have found that models actually do capture NH winter SCE trends.[585] It is also important to note that, in focusing on winter trends, EPA ignores other important, societally relevant snow cover trends. For example, Colose et al. comment that:

> The strong downward trends in SCE in spring are also very important to ecosystems, hydrology, water security, and agriculture (Mankin et al., 2015; Qin et al., 2020). A substantial fraction of the world's population relies on seasonal melt (Barnett et al., 2005). . . . Spring snowpack declines have been observed in many mid-latitude basins and these declines have been attributed to human influence (Paik and Min, 2020; Gottlieb and Mankin, 2024).[586]

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[578] *Id.* at 50.

[579] *See e.g.*, Stef. Bokhorst et al., *Changing Arctic Snow Cover: A Review of Recent Developments And Assessment of Future Needs For Observations, Modelling, and Impacts*, 45 AMBIO 516–37 (2016), https://perma.cc/AML4-CA42.

[580] *See e.g.*, Lawrence Mudryk et al., *Historical Northern Hemisphere Snow Cover Trends and Projected Changes in the CMIP6 Multi-Model Ensemble*, 14 CRYOSPHERE 2495–2514 (2020), https://perma.cc/4E8U-P3JW.

[581] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 31.

[582] R. Connolly et al., *Northern Hemisphere Snow-Cover Trends (1967–2018): A Comparison Between Climate Models and Observations*, 9 GEOSCIENCES 135 (2019), https://perma.cc/CX68-ML2Q.

[583] *See also* CWG REPORT, *supra* note 4, at 41.

[584] Colose et al., *Comments on Section 5.6*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 146; *see also* Mudryk et al., *Historical Northern Hemisphere Snow Cover Trends and Projected Changes in the CMIP6 Multi-Model Ensemble supra* note 580.

[585] EPA and more recent studies acknowledge an average of 18% decline in snowpack between 1950 and 2023 throughout the United States, with more pronounced declines in Western states, including California, Washington and Oregon. EPA, *Climate Change Indicators: Snowpack*, *supra* note 44; Alexander R. Gottlieb & Justin S. Mankin, *supra* note 44.

[586] Colose et al., *Comments on Section 5.6*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 147.

v. Extreme Weather

The CWG Report asserts that "[m]ost types of extreme weather exhibit no statistically significant long-term trends over the available historical record."[587] This conclusion misstates the evidence and ignores the well-supported scientific consensus that extreme weather is becoming more severe and more frequent because of human-caused climate change, as reflected in the peer reviewed literature, IPCC ARs, USCGRP NCAs, and the NAS Consensus Study Report.[588]

Temperature and Heat Waves. The CWG Report and the Proposal, 90 Fed. Reg. at 36,309, argue that temperatures in the United States have become less extreme over time and that heatwaves are not increasing due to human-caused greenhouse gas emissions.[589] Further, the report asserts, "[w]hile there has been an increase in hot days in the U.S. since the 1950s, . . . numbers are still low relative to the 1920s and 1930s."[590]

These points are erroneous and misleading. As explained in AR6, "[i]t is *virtually certain* that hot extremes (including heatwaves) have become more frequent and more intense across most land regions since the 1950s, while cold extremes (including cold waves) have become less frequent and less severe, with *high confidence* that human-caused climate change is the main driver of these changes."[591] The NAS Consensus Study Report is in accord.[592] For example, it notes that "EPA's Heat Wave indicator, based on six decades of observations, documents a tripling of average annual heat-wave frequency since the 1960's."[593]

The CWG Report's reference to relatively high numbers of hot days during the 1920s and 1930s is based on outlier data: the hot days of the 1930s were caused by the Dust Bowl, a regional event in which European settlers inappropriately applied temperate ecosystem farming practices in the dryland ecosystem of the Great Plains, at the same time that the region experienced three multi-year periods of drought.[594] Much of the topsoil in the central United States blew away during this period, allowing increased warming from the sun.[595] "[W]eather patterns sometimes pushed the dust and heat all the way to the East Coast."[596] The anomalies of

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[587] CWG REPORT, *supra* note 4, at 47.

[588] *See e.g.*, NAS CONSENSUS STUDY REPORT, *supra* note 1, at 22–27.

[589] *See* CWG REPORT, *supra* note 4, at 53–60.

[590] CWG REPORT, *supra* note 4, at 47.

[591] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 8.

[592] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 22–24.

[593] *Id.* at 24 (internal citations omitted).

[594] Bob Henson & Jeff Masters, *Why Were the 1930s So Hot in North America?*, YALE CLIMATE CONNECTIONS NEWSL. (July 15, 2024), https://perma.cc/3CV3-H3SR; Robert A. McLeman et al., *What We Learned from the Dust Bowl: Lessons in Science, Policy, and Adaptation*, 35 POPULATION & ENV'T 417–40 (Aug. 28, 2014), https://perma.cc/2BS3-NU62.

[595] Henson & Masters, *supra* note 594.

[596] *Id.*

the Dust Bowl do not detract from the strong evidence that heatwaves are increasing due to human-caused climate change.

For its claim that temperatures in the United States are becoming less extreme, the CWG Report relies on data from the United States Historical Climate Network (USHCN), which is comprised of 1,211 weather stations. The CWG Report uses the single year in which a record high or low temperature for any particular calendar day occurred over the time period of the dataset, and finds that more of the hottest or coolest days occurred in the first half of the dataset than in the last half.[597] In 2014, however, the USHCN was replaced by the nClimDiv dataset as NOAA's official temperature data set for the contiguous forty-eight states and Alaska.[598] The nClimDiv divisional data set incorporates data from more than 10,000 stations and uses a computational approach known as climatologically aided interpolation that helps to address topographic variability.[599] The nClimDiv data set represents a vast improvement in geographical coverage, resolution, and accuracy over the USHCN dataset alone.[600] Moreover, standard, peer-reviewed measures for examining trends in average surface temperature show significant increase. For example, the following figure from EPA shows that the average surface temperature in the contiguous United States has unequivocally increased since 1901, and that average temperatures have risen more quickly since the late 1970s:

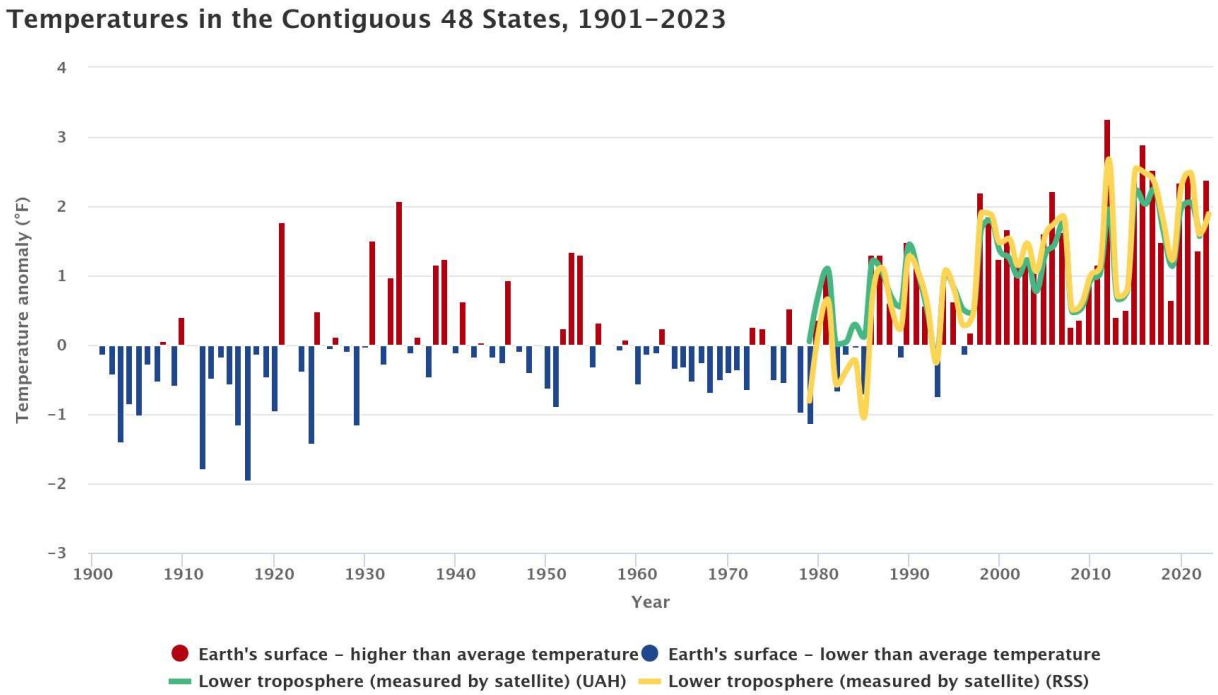
(*figure on following page*)

[597] *See* CWG REPORT, *supra* note 4, at 54–55.

[598] EPA, TECHNICAL DOCUMENTATION: U.S. AND GLOBAL TEMPERATURE (June 2024), https://perma.cc/K8WT-2J8V (referenced at EPA, *Climate Change Indicators: U.S. and Global Temperature* (May 9, 2025), https://perma.cc/Q9EP-4DRL).

[599] *Id.* at 3.

[600] *Id.* at 2–7; NOAA Nat'l Ctrs. For Env't Info., *National Temperature Index: Background*, https://perma.cc/KP7S-JZZ6.



Climate Change Indicators: U.S. and Global Temperature, *supra* note 658.

The CWG Report and EPA, 90 Fed. Reg. 36,308, relatedly claim that cold is more dangerous than heat, and rising temperatures will therefore save lives.[601] This claim is misleading. It is true that with global warming, in general, cold-driven mortality rates will decline while heat-driven mortality rates increase. These two effects are countervailing, and the net effects will depend heavily on adaptation to rising heat. Further, the CWG Report asserts that "[m]ortality during heat extremes is typically caused by heat stroke and heat exhaustion."[602] In fact, deaths from cardiovascular and respiratory illnesses related to heat are much more common.[603] In addition, it is well known that heat-related deaths are severely underreported in coroners' reports, and thus undercounted.[604] Data from the National Weather Service and from the U.S. Centers for Disease Control (CDC) show clearly that heat is the leading cause of weather-related mortality in the United States.[605] Most importantly, in emphasizing the

[601] *See* CWG REPORT, *supra* note 4, at 111–14.

[602] CWG REPORT, *supra* note 4, at 112.

[603] EPA, CLIMATE INDICATORS REPORT: TECHNICAL DOCUMENTATION: HEAT-RELATED DEATHS at 8 (June 2024) [hereinafter EPA HEAT-RELATED DEATHS REPORT], https://perma.cc/J4B5-ZBP4.

[604] *Id.* at 9.

[605] NOAA Nat'l Weather Serv., *Weather Related Fatality and Injury Statistics: Weather Fatalities 2024*, https://perma.cc/GBG6-6BTV; *see also* N.Y.C. Dep't of Health & Mental Hygiene, *2025 Heat-*

counteracting effects of cold versus heat-driven mortality changes, the Report and the Proposal incorrectly imply that climate change is net beneficial for health, which ignores the morbidity burden from rising temperatures and increases in morbidity and mortality driven by increased exposure to dangerous air pollution, higher disease burdens, extreme weather events, flooding, and other impacts discussed, *supra* Section II. [606] To claim otherwise, the CWG Report relies heavily on the sources, Gasparini *et al.* (2015),[607] whose conclusions have been called into question,[608] and Zhao *et al*. (2021).[609] For the reasons described *supra* Section V.B.2.a.ii, and by Lyssa Freese, et al. (2025)[610] and Dessler (2025),[611] the CWG Report and similar claims made by EPA in the Proposal present a highly inaccurate characterization of this research.

Tropical cyclones. As the CWG Report notes, although "all measures of Atlantic hurricane activity show a significant increase since 1970[,]" there is not strong evidence of long-term trends in the frequency or intensity of tropical cyclones.[612] The CWG Report limits its analysis to hurricanes, while scientists generally discuss a range of tropical convective events called tropical cyclones, which include hurricanes.[613] And the CWG Report ignores important and strongly supported dangers regarding tropical cyclones and climate change.

For example, there is strong evidence that "human-caused climate change increases heavy precipitation associated with tropical cyclones."[614] Scientists also have a high level of confidence that 1.5°C global warming will cause an "increased proportion of and peak wind speeds of intense tropical cyclones."[615] And tropical cyclones have become slower moving over

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Related Mortality Report, https://perma.cc/E6RR-LC93 (finding "an estimated 525 people died annually due to heat" in New York City).

[606] *See also*, *e.g.*, NCA5 *supra* note 6 at 14-5 – 15-48.

[607] Antonio Gasparrini, et al., *Mortality Risk Attributable to High and Low Ambient Temperature: A Multicountry Observational Study*, 386 LANCET 369–75 (July 25, 2015). Moreover Dr. Gasparrini expresses disagreement with the CWG Report's analysis. *See* Ayesha Tandon et al., *Factcheck: Trump's climate report includes more than 100 false or misleading claims*, CARBON BRIEF (Aug. 13, 2025), https://perma.cc/V7DK-EAMX (quoting Dr. Antonio Gasparrini).

[608] Keith Dear & Zhan Wang, *Climate and Health: Mortality Attributable to Heat and Cold*, 386 LANCET 320–22 (2015), https://perma.cc/ECY6-788K.

[609] Qi Zhao et al., *supra* note 349.

[610] Lyssa Freese et al., *Response to Section 10.3: 10.3.1: Heat and Cold Risks and 10.3.2: Mortality Risks and Energy Costs*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 367–81.

[611] Andrew E. Dessler, *Section 10.3: Mortality from Extreme Temperatures*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 382–85.

[612] CWG REPORT, *supra* note 4, at 49–50.

[613] *See* NOAA Nat'l Weather Serv.: Nat'l Hurricane Ctr. & Cent. Pac. Hurricane Ctr., *Tropical Cyclone Climatology*, https://perma.cc/6ZYZ-W4WM.

[614] 2023 IPCC SYNTHESIS REPORT, *supra* note 66, at 51; *see also* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 26.

[615] *Id.* at 98.

the past century, resulting in more rain, wind, flooding, and property damage.[616] EPA's own cited source regarding hurricane frequency and intensity, 90 Fed. Reg. at 36,309, n.94, acknowledges that economic and human damages of every storm are rising due to increases in vulnerability and exposure of people and assets along heavily urbanized and populated coastlines.[617]

The CWG Report also cherry-picks the data to paint an inaccurate picture of mild weather. In Table 6.2.1 and related discussions, the Report analyzes hurricanes that have made landfall with sustained winds greater than 150 mph,[618] an arbitrary cut off that has no basis in tropical cyclone science and little relationship to the effects of tropical cyclones on human populations. Similarly, EPA contends that expected changes in extreme events have not materialized. 90 Fed. Reg. at 36,909. But EPA's claims of expected and observed increases in hurricane intensity and precipitation (both centrally relevant to the damage these storms cause) are thoroughly rebutted in the Climate Experts' Review.[619] For example, Nolan et al. (2025) summarize the current state of research on tropical cyclones, including hurricanes: "The key research findings on observed changes in hurricane hazards have been omitted, which is that hurricanes are becoming more hazardous, reaching higher intensity, intensifying more quickly, and producing more rainfall, which is increasing their inland impacts."[620] Similarly, the NAS Consensus Study Report finds that the global share of hurricanes reaching the maximum category (or intensity) has increased over the past four decades.[621]

Tornadoes. The CWG Report asserts that "there is a noticeable downward trend in the number of severe tornadoes in the U.S. since 1950."[622]The downward trend since, however, may be attributable to the change in severity rating in 1973 when the Enhanced Fujita Scale was adopted. Before that, tornadoes were rated by newspaper clippings,[623] which most likely over-rated the severity of storms.[624] The CWG Report also inaccurately states that "tornado strength is

[616] NCA5, *supra* note 6, at 2-20.

[617] Philip J. Klotzbach et al., *supra* note 349.

[618] CWG REPORT, *supra* note 4, at 52–53.

[619] David S. Nolan et al., *Comment on the DOE CWG Report, Section 6.2: Hurricanes and Tropical Cyclones*, *in* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441, at 162.

[620] *Id.*

[621] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 50.

[622] CWG REPORT, *supra* note 4, at 67.

[623] Christopher J. Anderson et al., *Population Influences on Tornado Reports in the United States*, 22 WEATHER & FORECASTING 571–79 (June 1, 2007).

[624] Timothy A. Coleman et al., *A Comprehensive Analysis of the Spatial and Seasonal Shifts in Tornado Activity in the United States*, 63 J. OF APPLIED METEOROLOGY & CLIMATOLOGY 717–30 (June 1, 2024).

measured by the damage it produces."[625] Tornado strength is rated by recorded windspeed *and* expected damage information.[626] The CWG Report fails to account for those factors.

The CWG Report also fails to mention that "Tornado Alley," the geographic area most commonly associated with tornado activity, is moving eastward.[627] The annual number of tornadoes rated moderate or higher has decreased in the western United States by 34% while increasing 60% in the eastern United States.[628] This eastward shift could lead to more fatalities and monetary damages due to higher population density and less wind-resilient infrastructure.[629]

Flooding. Contrary to the findings of the NAS Consensus Study Report,[630] the CWG Report asserts there is an "absence of detectable US-wide trends in flooding."[631] This interpretation is based solely on streamflow measurements and disregards the serious threat of flash flooding and sunny-day flooding in coastal areas. As the NAS Consensus Study Report notes, the variables that impact river flooding are also more complex than streamflow measurements: they are "affected by characteristics of the land and by both the amount and timing of precipitation."[632]

In addition, as described by the IPCC, "the seasonality of floods has changed in cold regions where snowmelt dominates the flow regime in response to warming."[633] This shift can cause snow to melt earlier and more quickly in the year, leading to the potential for fluvial and flash flooding events downstream.[634] As average temperatures continue to rise due to climate change, that risk will also continue to grow. And "robust evidence [shows] that human-caused warming has contributed to increases in the frequency and severity of the heaviest precipitation events across nearly 70% of the US."[635]

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[625] CWG REPORT, *supra* note 4, at 67.

[626] NOAA Nat'l Weather Serv. Huntsville, Ala. Weather Forecast Off., *Explanation of EF-Scale Ratings*, https://perma.cc/S66V-URT5.

[627] Todd W. Moore & Tiffany A. DeBoer, *A Review and Analysis of Possible Changes to the Climatology of Tornadoes in the United States*, 43 PROGRESS PHYSICAL GEOGRAPHY: EARTH & ENV'T 365–90 (Feb. 25, 2019).

[628] Coleman et al., *supra* note 624, at 726.

[629] James B. Elsner et al., *A Model for U.S. Tornado Casualties Involving Interaction between Damage Path Estimates of Population Density and Energy Dissipation*, 57 J. APPLIED METEOROLOGY & CLIMATOLOGY 2035–46 (Sept. 1, 2018).

[630] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 32–33, 35, 66–67.

[631] CWG REPORT, *supra* note 4, at 68.

[632] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 66.

[633] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 1568.

[634] Manuela Nied et al., *On the Relationship Between Hydro-Meteorological Patterns and Flood Types*, 519 J. HYDROLOGY 3249–62 (2014), https://perma.cc/96T4-NFZX.

[635] NCA5, *supra* note 6, at 2-18.

Similarly, with rising sea levels caused by climate change, coastal communities continue to see more instances of sunny day flooding, which occurs due to high tides rather than precipitation events.[636] "Since 1990, high tide flooding has nearly tripled . . . due to sea level rise caused by climate change and sinking land."[637] This type of flooding requires infrastructure upgrades that can be prohibitively expensive and expose vulnerable communities to dangerous conditions, such as mold growth from persistent moisture.[638]

Droughts. Droughts are generally categorized as meteorological droughts (caused by lack of precipitation), agricultural and ecological droughts (caused by soil moisture deficits), or hydrological droughts (involving water deficits in waterbodies).[639] The CWG Report focuses narrowly on meteorological droughts, summarily asserting "there is no evidence of increasing *meteorological* drought frequency or intensity in the U.S. or globally over recent decades."[640] The NAS Consensus Study Report squarely refutes that statement, however, finding: "[m]eteorological droughts (i.e., periods of low precipitation) have increased in the southwestern United States and parts of the southeastern United States[] from 1915-2011."[641]

Further, as the IPCC's AR6 found, "[t]rends in precipitation are not a main driver in affecting global-scale trends in drought."[642] Rather, "there is *high confidence* that [agricultural and ecological droughts have] increased on average on continents, contributing to increased [evapotranspiration] and resulting water stress during periods with precipitation deficits, in particular during dry seasons."[643] The same is true in the United States, as "human-caused warming has changed the main driver of the soil moisture droughts over the western United States, from precipitation deficit to heat-driven high evaporative demand, since 2000."[644]

Moreover, the sole chart in this section depicts the monthly percent of the United States classified as "very dry" from 1895 to 2025.[645] This analysis is inapt for two reasons. First, it is based solely on precipitation data and says nothing about non-meteorological droughts. Second, it groups the entire United States together, thus ignoring (and obscuring) regional trends, where some regions are seeing an increase in precipitation and others are experiencing drought. A more

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[636] NOAA Ctr. for Operational Oceanographic Prods. & Servs: NOAA Tides & Currents, *The State of High Tide Flooding and 2022 Outlook*, https://perma.cc/YXY5-3Z9B.

[637] NOAA Ocean Today, *Flooding on a Sunny Day? Here's How (1-Minute Watch)*, https://oceantoday.noaa.gov/flooding-sunny-day/.

[638] N.Y.C. Mayor's Off. of Climate & Env't Just., *Chronic Tidal Flooding*, https://perma.cc/3B3N-VSFU.

[639] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, Annex VII: Glossary, definitions of "Drought," at 2226.

[640] CWG REPORT, *supra* note 4, at 69 (July 23, 2025) (emphasis added).

[641] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 26.

[642] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 1518.

[643] *Id.* at 1575 (emphasis in original).

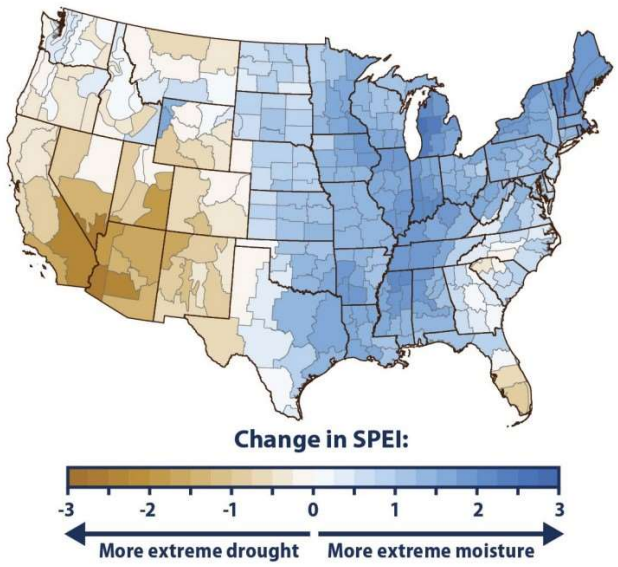
[644] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 26.

[645] *See* CWG REPORT, *supra* note 4, at 69, Figure 6.7.1.

robust analysis can easily avoid these pitfalls. The following figure from EPA's Climate Change Indicators in the United States: Fifth Edition, accounts for both precipitation and evapotranspiration on a regional level, and demonstrates a significant increase in drought conditions in western United States since 1900:

Figure 15. Average Change in Drought (Five-Year SPEI) in the Contiguous 48 States, 1900–2023

This map shows the total change in drought conditions across the contiguous 48 states, based on the long-term average rate of change in the five-year Standardized Precipitation Evapotranspiration Index (SPEI) from 1900 to 2023. SPEI measures the combination of water supply (precipitation) and atmospheric water demand (evapotranspiration, which is based on temperature) to determine whether a certain area is experiencing extreme drought, extreme moisture, or conditions in between. Data are displayed for small regions called climate divisions. Blue areas represent increased moisture; brown areas represent decreased moisture or drier conditions. Data sources: Abatzoglou et al., 2017;[5] Western Regional Climate Center, 2024.[6]



Climate Change Indicators in the United States, *infra* note 698.

This figure also shows that while drought has increased in some U.S. regions, extreme moisture has increased in others, demonstrating that drought trends are region-specific. Therefore, considering the entirety of the United States in the "monthly percent classified as very dry" does not make sense. Rather, any drought trend analysis should reflect the region-specific nature of moisture and drought trends in the United States.

The CWG Report references Kogan et al. (2020) to assert there has been no observable increase in drought frequency or intensity and to dispute a connection between global drought and climate change.[646] This article's utility may be limited by the fact that it uses a vegetative-health-based metric to measure drought rather than the frequency and tendency of drought conditions.[647]

Finally, the CWG Report and the Proposal fail to address the potential impact that further greenhouse gas emissions may have on droughts. NAS found in its Consensus Study Report that with each additional increment of greenhouse gas emissions and resulting warming, "extreme heat becomes more frequent and extreme precipitation events increase across some regions,

[646] CWG REPORT, *supra* note 4, at 69.

[647] Felix Kogan et al., *Near 40-Year Drought Trend During 1981-2019 Earth Warming and Food Security*, 11 GEOMATICS, NAT. HAZARDS & RISK 469–90 (Feb. 26, 2020), https://perma.cc/7PPW-C5H7.

while aridification and drought persist in others—patterns that often scale approximately linearly with global temperature, though not uniformly across all metrics or places."[648] NAS further noted that possible abrupt changes in climate change could include megadroughts,[649] a phenomenon nowhere acknowledged by the CWG Report or the Proposal.

Wildfires. The CWG Report first states that the area burned by wildfires has been decreasing globally. The CWG Report's presentation of these facts is misleading and lacking in context. The Report relies on data on annual average burned area across the globe.[650] Analyzing burned area in the global aggregate excludes extreme fires, which pose the greatest risks to society. According to Cunningham et al., (2024), which is referenced in the CWG Report:

> [A]s most fires are human ignited and have relatively small impacts, a focus on average intensities and global burned area mean that such analyses are swamped by relatively low-impact fires, including fire used for habitat management, pastoralism, agriculture, and silviculture. A focus on global averages disproportionately weights Africa (67% of burned land) and conceals opposing trends in different regions. Importantly, a focus on average intensities obscures the extreme events—those that cause the most damage and release the most emissions. . . . Our results show that events of extreme intensity have more than doubled in frequency and magnitude, with increases largely concentrated in the carbon-rich boreal and temperate conifer forest of the northern hemisphere.[651]

The CWG Report also asserts that global wildfire coverage is "constant or declining on every continent," citing Samborska and Ritchie (2024). But this reference clarifies that the difference between vegetative biomes must be considered, as "most of this decline has come from shrublands, grasslands, and croplands (with small declines in savannas). Forest fires have been relatively stable."[652] Indeed, another study cited by the CWG Report finds "an increasing global trend in forest loss due to fire from 2001 to 2019, driven by near-uniform increases across the tropics, subtropical, and temperate Australia, and boreal Eurasia[,]" which "quantif[ies] the increasing threat of fires to remaining forests globally."[653]

Additionally, the CWG and EPA's focus on the total United States ignores the region where the most intense impacts of increasing wildfires are being seen: the western United States. In the Consensus Study Report, NAS found that, "[i]n the West, both total burned area and the area burned at high severity have increased alongside warmer, drier fire seasons and higher

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[648] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 38.

[649] *Id.* at 39.

[650] CWG REPORT, *supra* note 4, at 70, Figure 6.8.1.

[651] Calum X. Cunningham et al., *Increasing Frequency and Intensity of the Most Extreme Wildfires on Earth*, 8 NATURE ECOLOGY & EVOLUTION 1420–25 (2024) (internal citations omitted).

[652] Veronika Samborska & Hannah Ritchie, *Wildfires*, OUR WORLD IN DATA (Apr. 2, 2024; updated weekly), https://perma.cc/EW93-NRLY.

[653] Alexandra Tyukavina et al., *Global Trends of Forest Loss Due to Fire from 2001 to 2019*, 3 FRONTIERS REMOTE SENSING 1(2022), https://perma.cc/8SJ7-438G.

vapor-pressure deficit (a measure of fuel aridity) (Abatzoglou and Williams, 2016)" and that "[s]ynthesizing satellite burn-severity maps with incident records indicates roughly an eightfold rise in annual area burned and in high-severity burned area in western forests since the mid-1980s (EPA, 2025g)."[654] NAS further discusses two important factors of U.S. wildfires that the CWG and EPA ignore. First, it acknowledges the potential health impacts of wildfire emissions: "With increased wildfires, substantial amounts of particulate matter are produced (Law et al., 2025). Exposure to fine particulate matter is a known cause of mortality and cardiovascular disease and is linked to onset and worsening of respiratory conditions." [655] NAS further notes the positive feedbacks of wildfires that can increase future fire risk, like fire emissions that lead to a build-up of litter in forests, or emitted greenhouse gases and particulates which contribute to further atmospheric warming.[656]

Lastly, in its analysis of U.S. data on wildfires, the CWG Report acknowledges that National Interagency Fire Center data from before 1960 is unreliable, but nonetheless includes that data in Figure 6.8.3, which skews the apparent trend in U.S. wildfire area.[657] In contrast, the EPA Climate Change Indicators in the United States: Fifth Edition report correctly excludes pre-1960 data from its graph, depicted on the following page.

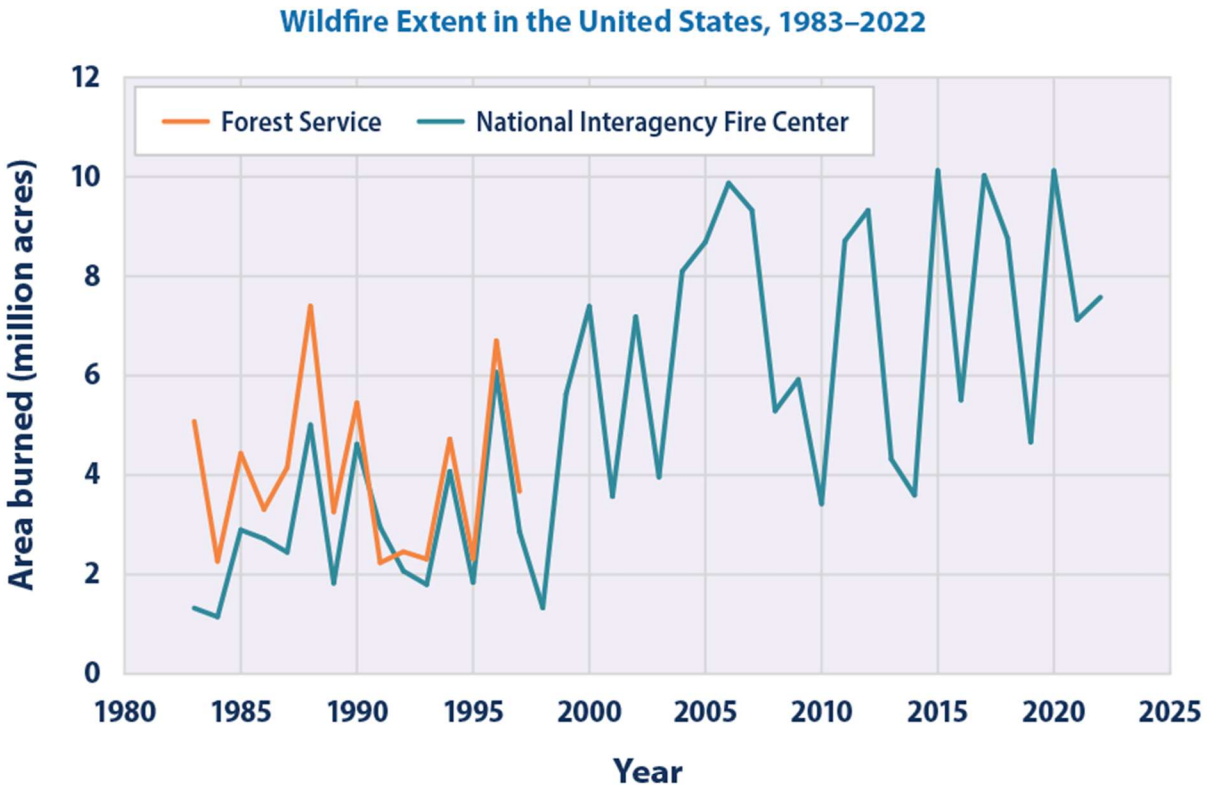
(*figure on following page*)

[654] NAS CONSENSUS STUDY REPORT, *supra* note 1, at 34.

[655] *Id.*

[656] *Id.*

[657] CWG REPORT, *supra* note 4, at 72.



Data sources:
- NIFC (National Interagency Fire Center). (2024). *Total wildland fires and acres (1983–2023).* [Data set]. Retrieved February 21, 2024, from www.nifc.gov/fireInfo/fireInfo_stats_totalFires.html
- Short, K. C. (2015). Sources and implications of bias and uncertainty in a century of US wildfire activity data. *International Journal of Wildland Fire, 24*(7), 883–891. https://doi.org/10.1071/WF14190

For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

CLIMATE CHANGE INDICATORS IN THE UNITED STATES, *infra* note 658.

When plotted correctly, it is evident that area burned by wildfires in the United States has been increasing since 1985, including after 2007. The fact that the number of fires has not increased over this period (as noted by the CWG Report), but burned area has, demonstrates that fires in the United States are becoming more extreme.

"This rise in extreme weather events fits a pattern one can expect with a warming planet, where average temperatures are increasing and the atmosphere holds more moisture. Scientists project that climate change will make some of these extreme weather events more likely to occur and/or more likely to be severe."[658]

[658] EPA, CLIMATE CHANGE INDICATORS IN THE UNITED STATES 26 (5th ed.: EPA 430-R-24-003 July 2024), https://perma.cc/4ZDE-HH2V.

The CWG Report and the Proposal, 90 Fed. Reg. at 36,309–10, relatedly take issue with the attribution of extreme weather events to anthropogenic climate change.[659] As the IPCC concludes, however:

> It is an established fact that human-induced greenhouse gas emissions have led to an increased frequency and/or intensity of some weather and climate extremes since pre-industrial time, in particular for temperature extremes. Evidence of observed changes in extremes and their attribution to human influence (including greenhouse gas and aerosol emissions and land use changes) has strengthened since AR5, in particular for extreme precipitation, droughts, tropical cyclones and compound extremes (including dry/hot events and fire weather).[660]

Similarly, IPCC Physical Science AR6 provides no support for the CWG Report and EPA's claim that extreme weather events are not resulting and increasing from climate change. To the contrary, IPCC Physical Science AR6 found, for example, that "[h]uman influence has contributed to the intensification of heavy precipitation in three continents where observational data are most abundant: North America, Europe and Asia (*high confidence*)" and noted that "[t]here is *high confidence* that anthropogenic climate change contributed to extreme rainfall amounts during Hurricane Harvey (in 2017) and other intense tropical cyclones."[661]

Notably, extreme event attribution studies can estimate whether global warming made (or will make) an event more likely than it would have been without human-caused climate change.[662] Some extreme event attribution studies can identify how global warming affected the severity of an extreme event and the resulting economic damages.[663] In 2004, Stott et al., published a paper in *Nature* showing that climate change had at least doubled the risk of the record-breaking 2003 European summer heatwave that resulted in the deaths of over 70,000 people.[664] It was the first peer-reviewed published study identifying how anthropogenic climate change had affected a specific extreme weather event.[665] Extreme event attribution research has

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[659] CWG REPORT, *supra* note 4, at 95.

[660] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 1517.

[661] *Id.* at 108.

[662] Rebecca Lindsey, *Extreme Event Attribution: The Climate Versus Weather Blame Game*, CLIMATE.GOV (Dec. 15, 2016), https://perma.cc/RR7H-JWNB;

[663] *Id.*

[664] Peter A. Stott, D. A. Stone & M. R. Allen, *Human Contribution to the European Heatwave of 2003*, 432 NATURE 610, 613 (2004); Jean-Marie Robine et al., *Death Toll Exceeded 70,000 in Europe During the Summer of 2003*, 331 COMPTES RENDUS BIOLOGIES 171, 177 (2008).

[665] Ayesha Tandon, *Q&A: The Evolving Science of 'Extreme Weather Attribution,'* CarbonBrief (Nov. 18, 2024), https://perma.cc/8RA5-85M8.

rapidly expanded and become more robust, and has identified anthropogenic contributions to hot and cold temperature extremes, heavy precipitation events, droughts, and tropical cyclones. [666]

In sum, the CWG's critiques of climate science are based on incomplete analyses and flawed interpretations of the literature. These critiques do not undermine the scientific consensus that human-induced climate change is causing widespread harm to humans, which will dramatically worsen without rapid greenhouse gas emission reductions.[667]

b. The CWG Report's economic analysis and policy commentary, including its assessment of the social cost of carbon, are unfounded and flawed.

The CWG Report's discussion of climate change, the economy, and the social cost of carbon fails to accurately reflect available research (including the research it cites) and fails to undermine the extensive evidence of social costs already caused by climate change and of the much greater costs to public health and welfare that will be caused by unabated greenhouse gas emissions.[668]

The Report asserts, for example, that "[s]tudies that take full account of modeling uncertainties either find no evidence of a negative effect on global growth from CO_2 emissions or find poor countries as likely to benefit from it as rich countries."[669] For this sweeping conclusion, the CWG Report cites only *a single study*, which actually finds precisely the opposite. The study concluded that "the central estimate of the economic impact of global warming is always negative"; "[t]he uncertainty about the impact is skewed towards negative surprises"; and "[p]oorer countries are much more vulnerable than richer ones."[670] Indeed, after the CWG Report was released, Richard Tol, the author of that study, wrote that the CWG misrepresented his conclusions and failed to conduct a robust review of relevant research.[671]

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[666] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 108–10, 204–06, 1522–27, 1541–42, 1552–53. Note that this type of analysis is distinct from the long-established research attributing global warming to anthropogenic greenhouse gas emissions and broader body of research projecting climate impacts from rising temperatures and ocean acidification. *Id.*; *see also Explaining Extreme Events of 2021 and 2022 from a Climate Perspective*, BULL. AM. METEOROLOGICAL SOC'Y SPECIAL COLLECTION (2023).

[667] IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 1517; *see also* NCA5, *supra* note 6, at 2-16 (similar). The CWG Report, *supra* note 4, at 95, contends that Table 12.12 of IPCC Physical Science AR6 conflicts with those conclusions, but Table 12.12 in fact concludes with high and medium confidence that various increases in extreme weather have already occurred and that many more would occur under high-emissions scenarios. IPCC PHYSICAL SCIENCE AR6, *supra* note 209, at 1856, Table 12.12.

[668] *See generally* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 40–70 (documenting extensive impacts to public health and welfare from greenhouse gas emissions).

[669] CWG REPORT, *supra* note 4, at 116, 120.

[670] *See* Richard Tol, *A Meta-Analysis of the Total Economic Impact of Climate Change,* 185 ENERGY POL'Y 1, 1 (Feb. 2024), https://perma.cc/84VL-H699.

[671] Richard Tol, *Is Climate Change Dangerous?*, SUBSTACK: TOL TALES (July 30, 2025), https://perma.cc/7V46-GFAF ("I am cited 3 times, incorrectly all three times. . . . Tol (2024) finds that the

As another example, the CWG Report cites a 2023 study for the theory that rising temperatures could be economically beneficial because the negative effects of extreme cold events are greater than those of extreme heat events.[672] But this study finds that its results "provide evidence for the damage that climate change causes in the US using various economic indicators."[673] As a final example, the CWG Report argues that social cost of carbon calculations are flawed because they do not account for the private benefit of fossil fuel usage.[674] For this point, the Report relies on a 2017 paper by Richard Tol, who points out that his paper was correctly rejected during peer review and therefore never published in a peer-reviewed journal because its methodology was "wrong."[675]

As the CWG Report indicates, some climate change effects are beneficial rather than detrimental.[676] "Cold regions may benefit from low levels of warming[677] while temperate and hot regions are generally harmed."[678] But the Report grossly overstates the benefits of warming, and fails to acknowledge the critical point that the detrimental effects are much greater in number, scale, and severity—presumably because the Report entirely fails to discuss or grapple with any of the deleterious effects of climate change. Indeed, in most areas researchers have examined,

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then available studies jointly point to a negative impact of climate change on global economic growth. . . . Their conclusion that "poor countries" are "likely to benefit" is again not backed up with references. Tol (2024), the only reference in the paragraph, concludes the opposite. . . . The [social cost of carbon] literature is vast. I counted 446 papers with estimates. There are numerous commentaries; and two handfuls of meta-analyses (e.g., Tol (2023) and Moore et al. (2024)). Instead, the authors wrote their own review, which omits the most influential papers and misses key insights. Cherry-picking may be a better term than review.").

[672] CWG REPORT, *supra* note 4, at 117 (July 23, 2025).

[673] Kamiar Mohaddes et al., *Climate Change and Economic Activity: Evidence from US States*, 2 OXFORD OPEN ECONS. 1 (2023), https://perma.cc/KKF7-GCYJ; *see also* Tandon et al., *supra* note 607 (quoting Dr. Kamiar Mohaddes).

[674] CWG REPORT, *supra* note 4, at 123.

[675] Tol, *supra* note 671.

[676] *See* CWG REPORT, *supra* note 4, Chapters 2, 9, and 10.

[677] For example, rising temperatures are expected to reduce cold-related mortality while increasing heat-related mortality. A recent study of these countervailing effects for European cities found that increases in heat-related mortality are projected to dominate decreases in cold-related mortality, with the effect most pronounced for higher global warming and lower adaptation levels. In scenarios where greenhouse gas emissions are aggressively mitigated and adaptation is very robust, temperature-related mortality can be reduced. Pierre Masselot et al., *Estimating Future Heat-Related and Cold-Related Mortality Under Climate Change, Demographic and Adaptation Scenarios in 854 European Cities,* 31 NATURE MED. 1294–1302 (Jan. 27, 2025), https://perma.cc/G5N9-68QT.

[678] NCA5, *supra* note 6, at 19-6 (citation omitted).

"more Americans are harmed than are helped by climate change."[679] As noted above, "estimates of nationwide impacts indicate a net loss in the economic well-being of American society."[680]

The CWG Report's discussion of the social cost of greenhouse gas emissions largely ignores EPA's peer-reviewed methodology for monetizing the harm caused by these emissions, set out in EPA's Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances (the 2023 EPA Report).[681] *See infra* Section VIII.B. Indeed, during every previous administration since the Clinton administration, including the first Trump administration, DOE correctly concluded that the costs of climate change should be factored into its decision making.[682] As DOE explained quite simply in 2000, "reductions in CO_2 . . . are a positive benefit to the nation."[683]

In contrast to the robust, well-established methodologies and values laid out in the 2023 EPA Report, the CWG Report's scant discussion of social cost of carbon estimates—which makes the wholly unremarkable points that any estimates are only as robust as the underlying data and analysis upon which they are based, and that projecting into the future involves significant uncertainty—provides no reasonable justification for abandoning the 2023 EPA Report estimates.[684] The CWG Report focuses almost exclusively on two social cost of climate

[679] *Id.* at 19-6, 19-10 (Figure 19.1b).

[680] *Id.* at 19-6 (citing S. Hsiang et al., *supra* note 298; A. Rode, et al. (2021), *supra* note 298; A. Rode et al. (2019), *supra* note 298; A. Hultgren et al., *supra* note 298; T. Carleton et al., *supra* note 298; J. Martinich & A. Crimmins, *supra* note 298); *see also id.* at 19-20 ("Most of the [cited] papers find an asymmetric relationship with regard to temperature, where being too hot is worse than being too cold. Hence, the effect of an increase in extreme heat is the dominant driver for most places in the US leading to a net [economic] loss.").

[681] 2023 EPA REPORT, *supra* note 191, at 6–9.

[682] *See, e.g.*, Energy Conservation Program for Consumer Products: Energy Conservation Standards for Water Heaters, 66 Fed. Reg. 4474, 4491 (Jan. 17, 2001); Energy Conservation Program for Commercial and Industrial Equipment: Packaged Terminal Air Conditioner and Packaged Terminal Heat Pump Energy Conservation Standards, 73 Fed. Reg. 58,772, 58,813–14. (Oct. 7, 2008); Energy Conservation Program for Certain Industrial Equipment: Energy Conservation Standards and Test Procedures for Commercial Heating, Air-Conditioning, and Water-Heating Equipment, 74 Fed. Reg. 36,312, 36,333, 36,342–43 (July 22, 2009); Energy Conservation Program: Energy Conservation Standards for Walk-In Cooler and Freezer Refrigeration Systems, 82 Fed. Reg. 31,808, 31,853–57 (July 10, 2017); Energy Conservation Program: Energy Conservation Standards for Uninterruptible Power Supplies, 85 Fed. Reg. 1447, 1477–480 (Jan. 10, 2020); Energy Conservation Program: Definitions for General Service Lamps, 87 Fed. Reg. 27,461, 27,474–77 (May 9, 2022).

[683] Energy Conservation Program for Consumer Products: Energy Conservation Standards for Water Heaters, 65 Fed. Reg. 25,042, 25,078 (Apr. 28, 2000).

[684] *See* CWG REPORT, *supra* note 4, at 116, 120–22.

change models (FUND and DICE),[685] that were not relied upon in the 2023 EPA Report, and are therefore irrelevant to any critique of that report. [686]

The CWG Report also concedes that "[t]here are potential abrupt change points in the climate system in response to warming," but claims that "[w]hen these have been taken into account the result is only a modest increase in the SCC value in the 21st century."[687]This assertion is belied by the very study cited, which found that incorporating the risk of eight potential tipping points (a subset of all known and unknown potential tipping points) into a social cost of carbon estimate increased the estimate by 24.5%.[688]

The CWG Report cites a 2025 publication as purportedly calling into question the 2023 EPA Report's reliance on a study assessing the net effects of climate change (including warming and CO_2 fertilization) on agriculture.[689] The 2025 publication concludes that a reanalysis of data indicates that "[t]he negative temperature effects are fully offset by gains from CO_2 fertilization and adaptation" leading to "insignificant but positive average output gains for all crop types."[690] Even if this single study's conclusion is accurate, it would at most suggest that the agricultural category should be removed from the social cost estimate, leaving the other inputs of the social cost estimate in place. This would result in a social cost of greenhouse gas estimate of $194/ton CO_2[691]—a reduction (16%) from the $230/ton estimate, but certainly not a reduction that undermines the calculation of very large monetizable damages caused by climate change. It seems unlikely, however, that this study will survive scrutiny. First, it reinterprets one dataset used in Moore (2017), but ignores the second,[692] which also indicated net climate change damages to agriculture. Second, a much larger body of research on crop yield response to climate change is now available, including a new dataset with more than 8,700 point estimates of changes in crop yield across varying temperature, precipitation, CO_2 and other factors[693] (as

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[685] *See* CWG REPORT, *supra* note 4, at 118–23.

[686] 2023 EPA REPORT, *supra* note 191, at 2, 45–56.

[687] CWG REPORT, *supra* note 4, at 125.

[688] *Id.* at 123 (citing Simon Dietz et al., *Economic Impacts of Tipping Points in the Climate System*, 118 PROC. OF THE NAT'L ACAD. OF SCIS. 1 (2021), https://perma.cc/DVE8-LDHT).

[689] CWG REPORT, *supra* note 4, at 122 (citing Frances C. Moore et al., *New Science of Climate Change Impacts on Agriculture Implies Higher Social Cost of Carbon*, 8 NATURE COMMC'NS 1 (2017) [hereinafter F. Moore 2017], https://perma.cc/3W4H-FJUM; and Ross McKitrick, *Extended Crop Yield Meta-analysis Data Do Not Support Upward SCC Revision*, 15 SCI. REPS. 1 (2025) [hereinafter McKitrick 2025], https://perma.cc/HN6C-GLT2.

[690] McKitrick 2025, *supra* note 689, at 5.

[691] Taking numbers from Table 3.1.4 in the 2023 Report at 81, zeroing out the "Agriculture" row, and recalculating the 3 sums and then averaging them, as EPA did previously to derive a central estimate, results in (233 – 4 = $229) + (219 – 103 = 116) + (238) / 3 = $194/ton CO_2 as compared to EPA's original value of $230/ton CO_2.

[692] F. Moore 2017, *supra* note 689, at 3–5.

[693] Toshihiro Hasegawa et al., *A Global Dataset for the Projected Impacts of Climate Change on Four Major Crops*, 9 SCI. DATA 1 (2022), https://perma.cc/MWA7-DV22.

compared to 1,010 observations in the dataset evaluated in Moore (2017)[694] and 1,222 in McKitrick (2025)[695]). A meta-analysis of that dataset found net declines in global yields for major crops (with the exception of soybeans) even under aggressive emission mitigation scenarios; without aggressive mitigation the analysis found much larger declines across corn, rice, soybeans, and wheat.[696]

For these reasons, those discussed in Section VIII.B, *infra*, and in the CWG Report Comment, the Report does not undermine the extensive evidence of social costs incurred as a result of climate change and of the much greater costs that will occur due to unabated greenhouse gas emissions.

3. EPA's wholesale reliance on the CWG Report's purported scientific findings and conclusions warrants no deference.

Neither EPA's reliance on the deeply flawed CWG Report in justifying its rescission of the 2009 Endangerment Finding, nor the purported findings and conclusions in that Report, are entitled to any deference. In considering DOE's findings as a basis for its decision to rescind the 2009 Endangerment Finding under the Clean Air Act, EPA may not lawfully "blindly adopt [those] conclusions" or "turn a blind eye to errors or omissions apparent on the face of the report." *See Ergon-West Va.*, 896 F.3d at 612 (holding it was arbitrary and capricious for EPA to rely on erroneous findings in DOE report concerning criteria for granting waiver for compliance with renewable fuel standards program) (citation and quotations omitted). And the "presumption of agency expertise may be rebutted if the decisions, even based on scientific expertise, are not reasoned." *Greenpeace v. Nat'l Marine Fisheries Serv.*, 80 F. Supp. 2d 1137, 1147 (W.D. Wash. 2000) (citation omitted); *see Kisor v. Wilkie*, 588 U.S. 558, 622 (2019) (while courts should give "respectful consideration" to agency's views, "they must remain open to competing expert and other evidence supplied in an adversarial setting"). Here, Secretary Wright commissioned the CWG Report for the purposes of informing "energy policymaking," and its rushed development and immediate use indicate it was intended to affect policy beyond DOE, and well beyond

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[694] F. Moore 2017, *supra* note 689, at 6.

[695] McKitrick 2025, *supra* note 689, at 1.

[696] Christine Li et al., *Predicting Changes in Agricultural Yields Under Climate Change Scenarios and Their Implications for Global Food Security*, 15 SCI. REPS. 1, 10 (2025), https://perma.cc/S4FE-8G9G. Additional peer-reviewed publications support the finding that climate change will lead to yield declines in most parts of the world. See Tongxi Hu et al., *Climate Change Impacts on Crop Yields: A Review of Empirical Findings, Statistical Crop Models, and Machine Learning Methods*, 179 ENV'T MODELLING & SOFTWARE 1 (2024), https://perma.cc/6GFN-LH5C; Andrew Hultgren et al., *Impacts of Climate Change on Global Agriculture Accounting for Adaptation*, 642 NATURE 644–52 (2025), https://perma.cc/9BY7-UVAB; Jonas Jägermeyr et al., *Climate Impacts on Global Agriculture Emerge Earlier in New Generation of Climate and Crop Models*, 2 NATURE FOOD 873–85 (2021); Chuang Zhao et al., *Temperature Increase Reduces Global Yields of Major Crops in Four Independent Estimates*, 114 PROC. NAT'L ACAD. SCIS. 9326–31 (2017); Peng Zhu et al., *Warming Reduces Global Agricultural Production by Decreasing Cropping Frequency and Yields*, 12 NATURE CLIMATE CHANGE 1016, 1021–22 (2022); Chunwu Zhu et al., *supra* note 454; E. Marie Muehe et al., *Rice Production Threatened by Coupled Stresses of Climate and Soil Arsenic*, 10 NATURE COMMC'NS 1 (2019), https://perma.cc/YY7D-UP3T.

energy.[697] Indeed, the timing, announcement, and use of the Report show that it was specifically intended to support EPA's proposed rescission of the 2009 Endangerment Finding. Despite that purpose, the Report warrants no deference in this rulemaking, for at least two reasons.

First, there is a fatal mismatch regarding agency expertise and the Report's subject matter. EPA, not DOE, is the agency charged with implementing section 202 of the Clean Air Act, including evaluating scientific evidence relevant to endangerment. DOE was created, *inter alia*, "[t]o carry out the planning, coordination, support, and management of a balanced and comprehensive energy research and development program[,]" and "place major emphasis on the development and commercial use of solar, geothermal, recycling and other technologies utilizing renewable energy resources." 42 U.S.C. § 7112(5), (6). In contrast, EPA was created, *inter alia*, to "conduct . . . research on the adverse effects of pollution and on methods and equipment for controlling it, the gathering of information on pollution, and the use of this information in strengthening environmental protection programs and recommending policy changes." 5 U.S.C. app. 1, Reorganization Plan No. 3 of 1970, 84 Stat. 2086.

Nonetheless, DOE created the CWG to author the Report critiquing climate science, an area directly in EPA's wheelhouse, but apparently without EPA's assistance or input. Although there may be instances in which consultation with DOE is appropriate (e.g., in context of setting emission standards for power plants under section 111), EPA has offered no explanation for DOE's—much less the CWG's—primary climate science role in decision making under the Clean Air Act. *Cf. Massachusetts*, 549 U.S. at 534 (concluding that EPA could not consider foreign policy concerns and noting that "Congress authorized the State Department—not EPA—to formulate United States foreign policy with reference to environmental matters relating to climate."). And the evidence indicates that role change is attributable to Secretary Wright having worked with the climate skeptics that he hand selected to serve on the CWG. *See supra* Section V.B.1. Indeed, it does not appear that EPA's own expert climate scientists were given an opportunity to review and comment on the CWG Report, or played any role whatsoever in developing or reviewing the alternative Proposal. And the Proposal and CWG Report's explanation of the science contrast sharply with the hundreds of peer-reviewed EPA reports and studies conducted by EPA's own climate scientists available on EPA's website.[698] EPA cannot ignore the work of its own expert climate scientists while relying on that of Secretary Wright's handpicked, unlawfully convened climate skeptics.

Second, the Report's numerous procedural and substantive flaws demonstrate that deference would be inappropriate. The CWG Report was not created pursuant to any statute or regulation. *Cf.* 42 U.S.C. § 7607(d)(3) (requiring EPA to take account of and explain departures from "any pertinent findings, recommendations, and comments by the Scientific Review

[697] CWG REPORT, *supra* note 4, at ix.

[698] *E.g.*, CLIMATE CHANGE INDICATORS IN THE UNITED STATES, *supra* note 658, at 1 (peer-reviewed report documenting the "multiple lines of evidence reveal[ing] the far-reaching impacts of climate change on the people and environment of the United States"); CLIMATE CHANGE AND CHILDREN'S HEALTH AND WELL-BEING IN THE UNITED STATES, *supra* note 285, at 4 (peer-reviewed report "investigat[ing] five climate-related environmental hazards associated with children's health and well-being in the contiguous United States []: extreme heat, poor air quality, changes in seasonality, flooding, and different types of infectious disease").

Committee established under [the Clean Air Act] and the National Academy of Sciences"). Indeed, it is fundamentally inconsistent with the findings of the NAS in the NAS Consensus Study Report,[699] *see supra* Section V.A–B, which Congress specifically requires EPA to assess (but which EPA wholly failed to do here, *infra* Section VII.C). Rather, the Secretary of Energy privately commissioned the CWG and gave it a mandate to advance a particular viewpoint: to "cut against the prevailing narrative that climate change is an existential threat."[700] As described *supra* Section V.B.1.a, the creation and activities of the CWG violated FACA. Secretary Wright prejudged the issues in the Report, dictating its conclusions before it was even finished and disbanded the CWG prior to its evaluation of public comments on the Report. *See supra* Section V.B.1.b. DOE and the CWG did not follow basic policies concerning scientific integrity. *See supra* Section V.B.1.c. Also, as described extensively elsewhere in these Comments, the CWG Report's critiques of climate science and endangerment are deeply flawed. *See supra* Section V.B.2. And by "turn[ing] a blind eye" to those multiple errors and omissions in the CWG Report, EPA cannot claim deference for the Report's findings. *See Ergon-West Va.*, 896 F.3d at 612 (EPA reliance on DOE report arbitrary and capricious where it ignored clear errors in report).

EPA's reliance on an early draft of the CWG Report further undercuts any claim for deference. *See* 90 Fed. Reg. at 36,292 n.10. "A draft is, by definition, a preliminary version of a piece of writing subject to feedback and change." *U.S. Fish & Wildlife Serv. v. Sierra Club*, 592 U.S. 261, 269 (2021). Here, the May draft that EPA relied on did not even go through the cursory two-week review by DOE career staff in late July, or the truncated public comment period that followed, much less the required peer review, making it devoid of any indicia of reliability. *Cf. S. Utah Wilderness All. v. Dabney*, 222 F.3d 819, 829 (10th Cir. 2000) (draft agency guidance entitled to no judicial deference); *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 70 n.27 (D. D.C. 2019) (same). And in any attempt by EPA to rely on a later version of the Report (the publicly-released one or any subsequent draft reflecting further review), it must make that version available for public comment in this rulemaking. *See infra* Section VII.A.

A procedurally unlawful draft report, prepared in secret for a nonexpert agency by a now-disbanded group of hand-selected outlier scientists, influenced by non-scientists (including Secretary Wright) and not even reviewed by EPA's climate scientists, withheld from the public until the day it was used by another agency for a significant proposed rule, and lacking in reasoned basis, is not entitled to any persuasive value or deference. *See Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 422 F.3d 782, 798–99 (9th Cir. 2005) (deference not owed to agency's biological opinion where omitted factors essential to the analysis); *Defs. of Wildlife v. Babbit*, 958 F. Supp. 670, 679, 682 (D.D.C. 1997) (no deference to decision declining to list endangered species where agency factual findings contradicted by the record).

[699] NAS CONSENSUS STUDY REPORT, *supra* note 1.

[700] Fisher, *Why I Helped Organize the Department of Energy's Climate Report*, *supra* note 373.

C. EPA's other weak attempts to undermine scientific consensus fail.

1. EPA's few additional citations fail to support its sweeping Proposal.

As described above, the Proposal cites extensively to the CWG Report as the primary scientific basis for its claims. Beyond the Report, EPA merely string cites twenty-seven studies—some of which are not published in peer-reviewed journals—to support its claims around scientific challenges to the global consensus on climate change. 90 Fed. Reg. at 36,308–10 nn. 90–97. EPA does not actually engage with these studies, however, much less explain how they could possibly justify the agency's sweeping claims regarding endangerment and uncertainty. And in any event, of the twenty-seven additional citations provided in the Proposal, all but one is cited within the CWG Report.[701] As discussed above in the context of the CWG Report's substantive flaws, these individually cited studies are plainly insufficient to justify any of the Proposal's claims. The one unique citation is a 2017 analysis of climate driven variability of major floods across North America and Europe[702] that uses data that is nearly a decade out of date, and does not represent relevant contemporary knowledge on flooding in North America. Even the CWG Report cites to the more recent flooding data and results presented by IPCC AR6. In short, the smattering of citations EPA adds to its record fail to support its Proposal. *Cf. Ctr. for Biological Diversity v. EPA*, 141 F.4th 153, 173 (D.C. Cir. 2025) (citation omitted) (holding "EPA failed to articulate a 'rational connection between the facts found and the choice made'" to rely on a single, fifteen-year old study "which, absent further explanation, renders its climate change analysis arbitrary").

2. Unspecified critiques cannot and do not undermine the National Climate Assessments.

EPA claims that unspecified "critiques" that the NCAs, and in particular NCA5, deviated from OMB Information Quality Act guidelines or Executive Order No. 14303 requirements undermine the NCAs' conclusions. *See* 90 Fed. Reg. at 36,292, 36,308, 36,310, 36,325. Those vague assertions fail. NCA5 and previous NCAs were produced via processes that adhered to OMB's guidelines and satisfied Executive Order No. 14303's requirements for scientific information. Further, the Proposal fails to identify the critiques of the NCAs it considered, thereby denying interested parties a meaningful opportunity to address those critiques. In addition, the Proposal's consideration of the OMB guidelines and Executive Order No. 14303 is arbitrary and capricious.

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[701] While it may appear that one other citation—the 2022 AIMS report—is unique to the Proposal; it is not. Rather, the CWG Report includes a typo, listing the date as 2022, but like the Proposal, is actually citing the 2023 version (which, for the reasons discussed above, fails to support the CWG and the Proposal's claims).

[702] Glenn A. Hodgkins et al., *Climate-Driven Variability in the Occurrence of Major Floods Across North America and Europe*, 552 J. OF HYDROLOGY 704–17 (2017).

a. The National Climate Assessments complied with OMB information quality guidelines and Executive Order No. 14303 requirements for scientific information.

In stark contrast to the CWG Report, described *supra* Section V.B.1.c, the scientifically rigorous, peer-reviewed NCA5 plainly adhered to OMB's Information Quality Act guidelines.[703] *See* Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 67 Fed. Reg. 8452 (Feb. 22, 2002). Those guidelines require agencies to adopt standards of quality for disseminated information and to develop processes for reviewing the quality of information before it is disseminated. *See id*. at 8453. USGCRP developed several processes to ensure the quality of information disseminated in NCA5 accorded with OMB guidelines.

Among those processes, NCA5 authors were advised "to evaluate the quality of information sources based on applicability and utility, transparency and traceability, objectivity, integrity and security, and reproducibility."[704] NCA5 authors used "information quality decision pathways" to aid in that evaluation.[705] To ensure that information was complete, USGCRP called for public submissions of "relevant scientific and/or technical research studies."[706] *See* 67 Fed. Reg. at 8459 (advising that data be complete). Further, NCA5 authors used a comprehensive survey to "facilitate the collection and review of metadata for all report figures and applicable tables."[707] That data was evaluated for adherence to standards of reproducibility and openness.[708] Figures and tables were also "reviewed multiple times before release to identify and address any gaps in documentation," and metadata underlying figures and tables was made publicly available.[709] *See* 67 Fed. Reg. at 8460 (advising that, where possible, reproducible data be used, and that data and methods be made publicly available). Finally, USGCRP took steps to ensure the integrity of information, including by protecting the integrity of scientific processes and allowing scientific information to flow freely between contributors and to the public.[710] *See* 67 Fed. Reg. at 8460 (advising that the integrity of information be protected from unauthorized

[703] The development, review, and publication processes for NCA5 are similar to those used for previous NCAs. *See, e.g*., NCA5, *supra* note 6, at A1-4; DAVID REIDMILLER ET AL., U.S. GLOB. CHANGE RSCH. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT VOLUME II 1,378 (2018), https://perma.cc/G8TR-M84C; JERRY M. MELILLO ET AL., U.S. GLOB. CHANGE RSCH. PROGRAM, THE THIRD NATIONAL CLIMATE ASSESSMENT 729–31 (2014), https://perma.cc/X4V5-LYAV. Accordingly, the arguments here apply to unspecified critiques of previous NCAs. Further, to the extent that critiques apply only to earlier NCAs, NCA5 reaffirms the findings of those earlier assessments.

[704] NCA5 REPORT, *supra* note 233, at 9; *see* NCA5, *supra* note 6, at A2-3 – A2-4.

[705] *See* NCA5 REPORT, *supra* note 233, at 9; NCA5, *supra* note 6 at A2-4.

[706] NCA5 REPORT, *supra* note 233, at 9.

[707] *Id.* at 9–10.

[708] *See* NCA5, *supra* note 6, at A2-4.

[709] NCA5 REPORT, *supra* note 233, at 10, NCA5, *supra* note 6, at A3-7.

[710] *See* NCA5 REPORT, *supra* note 233, at 14–17.

access or revision). To ensure the sufficiency of those processes, an NCA5 Information Quality Officer verified and reported on Information Quality Act compliance.[711]

NCA5 also adhered to criteria for "Gold Standard Science" and other requirements set forth in Executive Order No. 14303, *Restoring Gold Standard Science*, 90 Fed. Reg. 22,601 (May 29, 2025). NCA5's processes ensured that the science underlying the assessment was, within reason, "reproducible," "transparent," "communicative of error and uncertainty," "collaborative and interdisciplinary," "skeptical of its findings and assumptions," "structured for falsifiability of hypotheses," "subject to unbiased peer review," "accepting of negative results as positive outcomes," and "without conflicts of interest." *Id.* at 22,602. Furthermore, USGCRP made publicly available "the data, analyses, and conclusions" underlying NCA5, was transparent about the methodologies used, and weighed all available scientific evidence. *Id.* at 22,603–04.

In particular, and in addition to the aforementioned processes, NCA5 "underwent an extensive, multiphase process of internal and external review from federal agency experts and the general public, as well as external peer review by a panel of experts established by [the National Academies of Sciences, Engineering, and Medicine (NASEM)]."[712] *See* 67 Fed. Reg. at 8459 ("If data and analytic results have been subjected to formal, independent, external peer review, the information may generally be presumed to be of acceptable objectivity."). That peer review process met Information Quality Act requirements for Highly Influential Scientific Assessments, which are more stringent than the OMB guidelines referred to in the Proposal.[713] The committee established by NAS performed a comprehensive, independent review to "determine whether [NCA5] . . . provides accurate information grounded in the scientific literature; and effectively communicates climate science, impacts, and responses."[714] And the committee published the resulting peer review report and the names, affiliations, and credentials of the peer reviewers.[715] A second independent panel reviewed the peer review report,[716] and NCA5 authors responded to all peer review comments.[717] The peer review process included three rounds of interagency technical review, as well as a clearance review,[718] and involved a public call for review editors, who ensured that review comments were appropriately addressed and

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[711] *See id.* at 8; NCA5, *supra* note 6, at A2-3.

[712] NCA5 REPORT, *supra* note 233, at 4.

[713] *See id.* at 3; OMB's Final Information Quality Bulletin for Peer Review, 70 Fed. Reg. 2664, 2665 (Jan. 14, 2005).

[714] NCA5 REPORT, *supra* note 233, at 4; *see* NAT'L ACADS. OF SCIS., ENG'G, & MED., REVIEW OF THE DRAFT FIFTH NATIONAL CLIMATE ASSESSMENT (2023) [hereinafter NAS NCA5 REVIEW], https://perma.cc/C5AH-CVBL.

[715] *See* NAS NCA5 REVIEW, *supra* note 714.

[716] *See* NCA5 REPORT, *supra* note 233, at 4.

[717] *See* U.S. GLOB. CHANGE RSCH. PROGRAM, FIFTH NATIONAL CLIMATE ASSESSMENT PUBLIC COMMENT PERIOD & NATIONAL ACADEMIES REVIEW ANNOTATION (2023), https://perma.cc/UN4F-6FPA.

[718] NCA5 REPORT, *supra* note 233, at 4–5, 15.

documented by NCA5 authors and certified that NCA5 had addressed all review comments.[719] In addition, NCA5 underwent two rounds of public comment.[720]

USCGRP also adopted processes to ensure that NCA5 contributors, including review editors, did not have potential conflicts of interest or biases that could interfere with objectivity.[721] And to prevent political interference from undermining objectivity, Executive Office of the President employees and appointed officials of federal agencies were excluded from the group of NCA5 authors, contributors, and review editors.[722]

The production of NCA5 also incorporated opportunities for public engagement, which ensured that "the final report represents the priorities and needs of decision-makers across the country."[723] Those engagement opportunities allowed decision-makers to challenge any assumptions or methodological choices used in the assessment.[724] Among those opportunities, chapter leads were required to consider any NCA5 authors nominated by the public.[725] Also, much of the peer review process, including responses to review editors' comments and the identities of peer reviewers, was made available to the public.[726] The public could respond to that information through public comment.[727] And USGCRP hosted thirty-four virtual public engagement workshops that were free and open to the public, and which helped inform source evaluation.[728]

Further, USGCRP adopted policies to promote objectivity and prevent inappropriate influence over the Assessment by any one person or group. This helped ensure that the assessment was "collaborative and interdisciplinary," that it was "structured for falsifiability," and that it was "accepting of negative results." *Restoring Gold Standard Science*, 90 Fed. Reg. at 22,602. Among those policies: comments and responses were shared across agencies to ensure that a single agency did not have inappropriate influence over NCA5;[729] chapter lead authors had autonomy to select author teams and determine the scope of their chapters without political

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[719] *See id.* at 4–5; Call for Review Editor Nominations for the Fifth National Climate Assessment (NCA5), 87 Fed. Reg. 33,131 (Jun. 1, 2022).

[720] *See* NCA5 Report, *supra* note 233, at 4–5; U.S. GLOB. CHANGE RSCH. PROGRAM, FIFTH NATIONAL CLIMATE ASSESSMENT PUBLIC COMMENT PERIOD FOR ANNOTATED OUTLINE (2022), https://perma.cc/X6EB-H4JU; U.S. GLOB. CHANGE RSCH. PROGRAM, FIFTH NATIONAL CLIMATE ASSESSMENT PUBLIC COMMENT PERIOD & NATIONAL ACADEMIES REVIEW ANNOTATION (2023), https://perma.cc/456J-V6C8.

[721] *See* NCA5 REPORT, *supra* note 233, at 4–5, 15.

[722] *See id.* at 15.

[723] NCA5, *supra* note 6, at A1-5.

[724] *See id.*

[725] *See id.*

[726] *See* NCA5 REPORT, *supra* note 233, at 4–8.

[727] *See id.*

[728] *See* NCA5, *supra* note 6, at A1-5, A2-4.

[729] *See* NCA5 REPORT, *supra* note 233, at 16.

interferences;[730] all NCA5 authors were required to have relevant scientific expertise;[731] and chapter leads were required to build diverse teams across a range of disciplines and experience.[732]

In short, unlike the CWG Report, the NCA5 and previous NCAs were indisputably developed pursuant to rigorous policies that ensured scientific integrity and transparency. There is therefore no question that the NCAs adhered to OMB information quality guidelines and Executive Order. No. 14303 requirements for scientific information. EPA's bare-bones, unsupported claim otherwise cannot justify the agency's disregard for the NCAs and their scientifically sound conclusions. Indeed, as further described *infra* Section VII.A, EPA's failure to identify any actual critiques of the NCA5 deprives the public of meaningful opportunity for notice and comment in violation of the APA.

b. The Proposal's consideration of Executive Order No. 14303 and OMB guidelines is arbitrary and capricious.

Beyond the fact that the NCAs plainly comport with scientific integrity and transparency requirements, the Proposal's consideration of purported (but undisclosed and unsubstantiated) concerns that the NCAs might have deviated from requirements imposed by Executive Order. No 14303 and OMB guidelines—calling for so-called "Gold Standard Science"—is also flawed in several ways.

First, the Proposal fails to address that certain provisions of Executive Order 14303, if enforced, would likely undermine the objectivity and neutrality of climate assessments, thereby eroding OMB's Information Quality Act guidelines. Several individuals and organizations have correctly expressed concern that Executive Order No. 14303, if implemented, would grant "political appointees sweeping power over the interpretation, use, and communication of federal scientific research."[733] In wielding that unheralded and unauthorized power, political appointees could compromise the integrity of federal scientific research by interfering with research that threatens desired policy outcomes.[734] *See* 67 Fed. Reg. at 8459 (advising that, under OMB guidelines, disseminated information should be "accurate, reliable, and unbiased"). Executive Order 14303 also threatens to undermine the integrity of scientific research by establishing nearly unachievable criteria for scientific information without establishing any such standards for

[730] *See id.*; NCA5, *supra* note 6, at A1-5.

[731] *See* NCA5 REPORT, *supra* note 233, at 17; NCA5, *supra* note 6, at A1-5.

[732] *See* NCA5 REPORT, *supra* note 233, at 17; NCA5, *supra* note 6, at A1-5.

[733] Letter from Members of Congress to President Trump (June 26, 2025), https://perma.cc/3U2T-8V7F; *see also* David Michaels & Wendy Wagner, *Trump's "Gold Standard" for Science Manufactures Doubt*, ATLANTIC (July 20, 2025); Ctr. for Open Sci., *COS Statement on "Restoring Gold Standard Science" Executive Order* (May 29, 2025) [hereinafter *COS Gold Standard Science EO Statement*], https://perma.cc/Z7G2-XWJY; Colette Delawalla et al., *Trump's New "Gold Standard" Rule Will Destroy American Science as We Know It*, THE GUARDIAN (May 29, 2025).

[734] *See* Jules Barbati-Dajches *Trump's Executive Order Puts Science Under the Thumb of Politics*, THE EQUATION: UNION OF CONCERNED SCIENTISTS (May 29, 2025), https://perma.cc/54PK-RYFK.

nonscientific information.[735] *See* 67 Fed. Reg. at 8460 (providing that OMB guidelines encompass "any communication or representation of knowledge such as facts or data"). The Proposal does not address those concerns or Executive Order 14303's inconsistencies with OMB guidelines, and therefore ignores "an important aspect of the problem." *Del. Div. of the Pub. Advocate v. FERC*, 3 F.4th 461, 469 (D.C. Cir. 2021) (citation omitted); *see Gresham v. Azar*, 950 F.3d, 93, 102–04 (D.C. Cir. 2020), *vacated as moot and remanded sub nom. Arkansas v. Gresham*, 142 S. Ct. 1665 (2022) (mem.) (holding that Secretary's approval of Medicaid demonstration requests was arbitrary and capricious because Secretary failed to consider whether such approval would undermine a "principal objective of Medicaid").

Second, the Proposal's claim that the NCAs might deviate from OMB guidelines and Executive Order 14303 requirements is inconsistent with the Proposal's reliance on a draft of the procedurally and substantively flawed CWG Report, which fails basic standards of transparency and scientific integrity. *Supra* Section V.B.1.c. This "logical inconsistency" renders the Proposal "arbitrary and capricious." *Evergreen Shipping Agency (Am.) Corp. v. Fed. Mar. Comm'n*, 106 F.4th 1113, 1118 (D.C. Cir. 2024); *see City of Port Isabel v. FERC*, 111 F.4th 1198, 1214–15 (D.C. Cir. 2024) (holding that FERC's rejection of air quality data was arbitrary and capricious because FERC failed to explain why that data was less reliable than the data it did use).

Third, the Proposal itself flouts Executive Order 14303, which requires each agency to establish internal processes that are the "*sole and exclusive means* of evaluating and . . . addressing alleged violations of th[e] order and other agency policies governing the use, interpretation, and communication of scientific information." 90 Fed. Reg. at 22,605 (emphasis added). The Proposal itself fails to adhere to those internal processes, another internal inconsistency. Because the Proposal does not address the mandatory processes it accuses the NCAs of contravening, and indeed does not provide any basis or explanation for its claim that the NCAs are inconsistent with the Order, it does not "adequately explain its result." *Erwin v. FAA*, 23 F.4th 999, 1007 (D.C. Cir. 2022) (citation omitted).

In short, unnamed critiques of the NCAs cannot support rescission of the 2009 Endangerment Finding or vehicles greenhouse gas emission standards.

3. <u>The Proposal unlawfully fails to grapple with scientific findings in subsequent rulemakings or intervening scientific developments.</u>

Since issuing the 2009 Endangerment Finding, EPA has consistently reaffirmed in subsequent rulemakings that greenhouse gas emissions endanger the public health and welfare of current and future generations. But with the Proposal, EPA implicitly casts aside all recent evidence without any reasoned explanation or credible support. EPA cannot simply aim its fire at the 2009 Endangerment Finding, but must also explain why its repeated scientific conclusions in multiple rulemakings since are so flawed as to support its alternative Proposal.

In at least fifteen Clean Air Act rules over the last sixteen years, EPA has reinforced the scientific findings underlying the 2009 Endangerment Finding based on advancing scientific

[735] *See COS Gold Standard Science EO Statement*, *supra* note 733; Leigh Krietsch Boerner, *"Gold Standard Science" May Lead to Discarding Valid Research*, CHEM. & ENG'G NEWS (June 9, 2025).

understanding of greenhouse gas emissions' negative impacts. But in the Proposal, EPA fails to grapple with those well-supported findings in any meaningful way.

In non-vehicles-related rules, EPA has repeatedly reaffirmed and reinforced the 2009 Endangerment Finding based on scientific developments in subsequent rulemakings under sections 111 and 231 of the Clean Air Act. In 2015, EPA reiterated the robust and compelling scientific evidence detailed in the 2009 Endangerment Finding along with the public health and welfare impacts. *See* Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Generating Units, 80 Fed. Reg. 64,510, 64,517 (Oct. 23, 2015) (2015 NSPS Rule). EPA also carefully reviewed the then-current scientific assessments from the IPCC, the USGCRP, and the NRC because they "addressed the scientific issues that the EPA was required to examine, were comprehensive in their coverage of the GHG and climate change issues, and underwent rigorous and exacting peer review by the expert community, as well as rigorous levels of U.S. government review." 80 Fed. Reg. at 64,517–18. EPA summarized multiple public health and welfare threats intensified by climate change since the 2009 Endangerment Finding, including increased extreme weather events, wildfires, reduced air quality, and health issues. 80 Fed. Reg. at 64,517–22. And EPA discussed observed and projected climate-change-caused changes across regions of the United States, noting that "changes in physical climate parameters such as temperatures, precipitation, and sea ice retreat were already having impacts on forests, water supplies, ecosystems, flooding, heat waves, and air quality." 80 Fed. Reg. at 64,520.

In 2016, EPA issued two rules under the section 111, each again reaffirming the 2009 Endangerment Finding and its underlying studies, and including updated analyses of then-current scientific assessments. *See* Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources, 81 Fed. Reg. 35,824, 35,833–37 (June 3, 2016); Standards of Performance for Municipal Solid Waste Landfills, 81 Fed. Reg. 59,332, 59,337–41 (Aug. 29, 2016). In summarizing the updated scientific assessments, EPA noted:

> Since the administrative record concerning the 2009 Endangerment Finding closed following the EPA's 2010 Reconsideration Denial, the climate has continued to change, with new records being set for a number of climate indicators such as global average surface temperatures, Arctic sea ice retreat, methane and other GHG concentrations, and sea level rise.

81 Fed. Reg. at 35,834. EPA highlighted that the updated scientific assessments "confirm and strengthen the science that supported the 2009 Endangerment Finding." 81 Fed. Reg. at 59,338.

Also in 2016, EPA again found that greenhouse gas emissions endanger the public health and welfare of current and future generations. *See* 81 Fed. Reg. at 54,440. EPA found that the body of scientific evidence amassed in the record for the 2009 Endangerment Finding compellingly supported a similar endangerment finding under section 231(a)(2)(A) of the Clean Air Act. *Id*. at 54,424. EPA described the 2009 Endangerment Finding as "firmly established and well settled," and found that subsequent scientific assessments strengthened it. *Id*. at 54,459. EPA emphasized that in 2016 atmospheric greenhouse gas concentrations were at unprecedented levels compared to distant and recent past, unambiguous due to human activity. *Id*. at 54,463.

Then, in 2024, EPA issued two updated rules under section 111 again reaffirming the 2009 Endangerment Finding and the extensive scientific and technical evidence in its supporting record. *See* 89 Fed. Reg. at 16,836–41; 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 Fed. Reg. 39,798, 39,807–10 (May 9, 2024). EPA also reviewed post-2016 scientific assessments and found:

> most recent information demonstrates that the climate is continuing to change in response to the human-induced buildup of GHGs in the atmosphere. These recent assessments show that atmospheric concentrations of GHGs have risen to a level that has no precedent in human history and that they continue to climb, primarily because of both historical and current anthropogenic emissions, and that these 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.

89 Fed. Reg. at 16,838; 89 Fed. Reg. at 39,808. Among other things, EPA highlighted that "years 2015–2021 were the warmest 7 years in the 1880–2021 record, contributing to the warmest decade on record with a decadal temperature of 0.82 °C (1.48 °F) above the 20th century." 89 Fed. Reg. at 39,808. EPA further found that climate change is causing lethal heatwaves, deadly wildfires, and catastrophic flooding, among other harms. *Id*. at 39,807–10.

In the Proposal, however, EPA fails to acknowledge its change from the agency's findings in these subsequent rulemakings and offers no reasoned or supported basis to now summarily reject the peer-reviewed, thoroughly vetted scientific research that represents the broad consensus of climate scientists, as reflected in the 2009 Endangerment Finding and as confirmed and expanded on in subsequent rulemakings. *See infra* Section VI.A (discussing why this flaw renders the Proposal arbitrary and capricious); *see also* Sections IV.E, V.C.4 (discussing EPA's unlawful reliance on "uncertainty" to support rescission); Section V.C.2 (discussing EPA's vague assertions of criticism of science underlying 2009 Endangerment Finding by unnamed public watchdog groups).

The Proposal's only nod at intervening developments is woefully incomplete and inaccurate, ignoring all subsequent agency findings and instead relying on a draft of the fatally flawed CWG Report. In particular, EPA claims that the CWG Report sheds light on "empirical observations made after . . . 2009" and documents "recent" or "intervening . . . scientific developments." 90 Fed. Reg. at 36,308–10. Yet many of the draft report's claims, which critics of climate action commonly deploy, long predate 2009. Indeed, EPA addressed most of these claims in the 2009 Endangerment Finding.[736] While the CWG Report does cite some articles and

[736] For example, the following topics in the draft CWG Report are discussed in the 2009 rulemaking docket's Technical Support Document, EPA Climate Change Div., Off. of Atmospheric Programs, Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act (Dec. 2009) (Doc. No. EPA-HQ-OAR-2009-0171-11645) [hereinafter TSD], and the 2009 rulemaking docket's Response to Comments, EPA Climate Change Div., Off. of Atmospheric Programs, Endangerment and Cause or Contribute Findings for Greenhouse Gases

events from the last fifteen years (often inaccurately, as explained *supra* Section V.B.2.a), those citations do not change the fact that the underlying concepts and mischaracterizations in the CWG Report are well-worn rather than "recent" or "intervening"; and they certainly do not contend with EPA's findings that intervening scientific developments *support* the 2009 Endangerment Finding. Take three examples, each more fully described *supra* Section V.B.2.a:

> *Global greening* (CWG REPORT, *supra* note 4, at 3): In 2009, EPA acknowledged the potential benefits of warming related to the effects of elevated CO_2 concentrations on the agriculture and forestry sectors. 74 Fed. Reg. at 66,531; *see also* 2009 TSD Sections 9 and 10; 2009 RTC Vol. 1 at 51–52. Consistent with the AR4, issued in 2007, EPA contextualized that information by evaluating the net adverse and beneficial effects to plant and crop quality, finding that "the body of evidence points toward increasing risk of net adverse impacts on U.S. food production and agriculture, with the potential for significant disruptions and crop failure in the future." 74 Fed. Reg. at 66,531–32.
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> *Sea level rise* (CWG REPORT, *supra* note 4, at 75): EPA in 2009 acknowledged that sea level rise related to climate change is not uniform, but nonetheless found that "global average sea level increased during the 20th century and is currently rising," 2009 RTC Vol II at 52, and the strong evidence of adverse sea level impacts supported the endangerment finding, 74 Fed. Reg. at 66,498. Indeed, EPA responded to comments citing articles of Wöppelmann, 2009 RTC Vol. 1 at 53–54, one of the scientists whose work the CWG Report relies upon.[737]
>
> *Extreme weather* (CWG REPORT, *supra* note 4, at 47): In 2009, EPA carefully described changes in extreme weather events. For example, it noted that some parts of the United States had not experienced increases in weather extremes, 2009 RTC Vol 2 at 60, that the intensity of particular events are trending up, *id.* at 60–61, and that "there are some cases where data limitations and uncertainties preclude interpretation of trends," *id.* at 61. EPA conveyed the scientific consensus that human-caused greenhouse gas emissions have

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Under Section 202(a) of the Clean Air Act: EPA's Response to Public Comments, Vols. 1, 2, 3, 4, and 7 (Doc Nos. EPA-HQ-OAR-2009-0171-11644[Vol. 1], EPA-HQ-OAR-2009-0171-11638 [Vol. 2], EPA-HQ-OAR-2009-0171-11641 [Vol. 3], EPA-HQ-OAR-2009-0171-11642 [Vol. 4], EPA-HQ-OAR-2009-0171-11673 [Vol. 7] [hereinafter RTC]:

- Global Greening: TSD Secs.9 and 10; RTC Vol. 1.4 at 51–52.
- Human Influences on the Climate: RTC Vol. 3.1 at 1–20; TSD Sec. 5.a.
- Climate Sensitivity to CO_2 Forcing: RTC Vol. 3.2.4 at 41–46.
- Discrepancies Between Models and Instrumental Observations: RTC Vol. 4.1 at 1–30.
- Extreme Weather: TSD Secs, 4.b, c, d, k, & l; RTC Vol 2.5 at 60–70, Vol. 4.5 at 53–60.
- Sea Level Rise: TSD Sec. 4.f; RTC Vol. 2.4 at 52–59, Vol 4.6 at 60–64, Vol. 7.2at 17–29.
- Climate Change Attribution: RTC, Vol. 3; TSD Sec. 3, 5.a.
- Ecosystem Impacts: TSD Secs. 5.b, 14; RTC Vol .7.3 at 29–56.

[737] *See* CWG REPORT, *supra* note 4, at 76.

increased the intensity of some weather and climate extremes since pre-industrial times. 74 Fed. Reg. at 66,526.

In short, EPA fails to address its own scientific findings after 2009 or intervening scientific developments, instead rehashing information EPA already considered in the 2009 Endangerment Finding.

4. The Proposal unlawfully rests on uncertainty.

In a number of places EPA cites uncertainty in climate science and climate impacts, and the uncertainty and complexity of causal relationships in climate change, to argue that endangerment is "too uncertain to establish a credible and reliable finding of actionable risk."[738] EPA's vague and unsubstantiated appeals to uncertainty cannot be squared with the statutory directives that constrain EPA's authority and the precautionary thrust reflected in that statutory language and the legislative history. *See supra* Section IV.E. And they cannot be used to repeal an endangerment finding already made. To do that, EPA must do more than cite uncertainty; it must demonstrate that the evidence points to a lack of harm. *See id.* EPA's current assertions also cannot be squared with climate science—either as reflected in the 2009 Endangerment Finding or in the numerous subsequent assessments by EPA, the USGCRP, and the IPCC, and, just last week, the NAS in its Consensus Study Report—all of which explicitly identify relevant sources of uncertainty (and its scope) and, taking those into account, conclude that climate change is being driven by anthropogenic emissions and that the harms it is causing and will cause to human health and welfare are diverse and increasingly severe. *See supra* Section V.A.

EPA has provided no non-arbitrary justification for concluding otherwise. Rather, EPA has ignored the vast preponderance of climate science, relied on a draft of the procedurally and substantively flawed CWG Report, thrown in a handful of specious (and unsupported) allegations that a random subset of climate model and climate science projections may be incorrect, *see supra* Section V.B,[739] and given zero attention to the majority of climate impacts projected to harm human health and welfare—including increased exposure to conventional air pollutants and associated morbidity and mortality, *see infra* Section VIII.

There is *no* uncertainty that adding greenhouse gases into the atmosphere causes additional global warming, and more severe negative climate impacts. *See supra* Section V.A. The questions of precisely how that additional energy is transferred around the globe, where

[738] 90 Fed. Reg. at 36,309; *see also id.* at 36,299 ("[T]he [2009] Administrator exercised that discretion unreasonably by adopting an approach that papered over substantial uncertainties in the scientific record."); *id.* at 36,299 ("[D]evelopments since 2009 demonstrate the uncertainties acknowledged in the Endangerment Finding are more significant than previously believed."); *id.* at 36,301 ("[W]e propose that global climate change concerns involve analyzing causal relationships that are too uncertain, too remote, and too confounded by intervening and confounding factors to fit within the terms 'cause' and 'contribute' as used in CAA section 202(a)."); *id.* at 36,308–09 ("[T]he data since 2009 suggest that the balance of climate change as a whole appears to skew substantially more than previously recognized by the EPA in the direction of net benefits, or is at least too uncertain to establish a credible and reliable finding of actionable risk."); *id.* at 36,310 (scientific record includes "too many analytical gaps, uncertainties, and speculative predictions to reach an affirmative endangerment finding").

[739] *See also* CLIMATE EXPERTS' CWG REVIEW, *supra* note 441.

local climate impacts occur, and their severity at different levels of warming (or ocean acidification) do involve uncertainty, and the continued mission of climate scientists around the world is to understand those dynamics more fully and make more informed and more certain projections. All that research is available to EPA, but EPA ignored anything that does not align with its pre-determined goal of rescinding the 2009 Endangerment Finding. *See* Section VI.D.

EPA's own 2023 Report on the Social Cost of Greenhouse Gases,[740] further described *supra* Section V.B.2.b, *infra* Section VIII.B.1, provides a clear roadmap for how to identify uncertainty and use it to inform analysis, producing social cost of greenhouse gas estimates that are uncertainty-weighted. In other words, where climate science predicts a range of possible outcomes of various likelihoods, EPA's estimates reflect both that range and the greater probability of certain outcomes. These uncertainty-weighted estimates indicate that the emission reductions achieved by the vehicles greenhouse gas standards will generate massive net climate benefits, and nearly as massive net benefits overall. *See infra* Section VIII.B.1; Vehicles Comment Sections II.A.1, IV.B.1-2, IV.B.6. Further, the probability distributions for the 2023 estimates themselves show a very significant risk that the "actual" social cost of greenhouse gas value is much higher than the central estimate.[741] In other words, high-end social cost of greenhouse gas values with a 5% or 10% likelihood of being "correct" are dramatically higher than the central estimate, while the low-end social cost of greenhouse gas values with a 5% or 10% likelihood of being "correct" are much closer to the central estimate. To be non-arbitrary, agency decisions—like an endangerment finding—need to be informed not only by "best guess" projections of climate impacts, but also by the significant likelihood that climate impacts will be far worse, and have a low but non-zero likelihood of being catastrophic.

Finally, EPA's proposed approach cannot be squared with the reality that the federal government must and does make consequential decisions (and investments) based on uncertainties every day. Consider pandemic and national disaster preparedness, nuclear war or terrorism risk mitigation, investments in novel military and space technologies, investments in basic research that lead to innovations in medicine and safety, to name a few. Every action EPA itself takes is informed by science and economic analysis that carries uncertainty. The nature and scale of harms caused by exposure to pollution—any pollution—is uncertain. The costs of harm to health and welfare are uncertain. The approaches that regulated sources will use to comply are uncertain. The costs of compliance with standards are uncertain. The future economy, future population demographics, future tax code, and future demand for specific products are all uncertain. For EPA to claim that it is suddenly paralyzed by the existence of uncertainty is both unconvincing and unlawful. "Agencies are often called upon to confront difficult administrative problems armed with imperfect data." *Montana Wilderness Ass'n v. McAllister*, 666 F.3d 549, 559 (9th Cir. 2011). "[T]he proper response to that problem is for the [agency] to do the best it can with the data it has." *Id.* The Clean Air Act's "precautionary and preventive orientation" and reliance on the Administrator's "judgment" is designed "precisely to permit [EPA] to act in the face of uncertainty." *Lead Indus. Ass'n*, 647 F.2d at 1155; *see also Mississippi v. EPA,* 744 F.3d at 1357–58; *Am. Lung Ass'n*, 134 F.3d at 389; *Pub. Citizen v. Fed. Motor Carrier Safety Admin.*,

[740] 2023 EPA REPORT, *supra* note 191.

[741] Figure 3.1.1, *Id.* at 80.

374 F.3d 1209, 1219 (D.C. Cir. 2004) ("The mere fact that the magnitude of [an effect] is *uncertain* is no justification for *disregarding* the effect entirely.").

5. The Proposal unlawfully rests on tentative explanations.

Ironically, it is the Proposal's conclusions and "findings" that are arbitrarily plagued by uncertainty. EPA baldly contends that scientific developments "appear to undermine the assumptions, methodologies, and conclusions" of the 2009 Endangerment Finding, 90 Fed. Reg. at 36,307, without providing any definitive statements sufficient to undermine the conclusions in the substantial body of scientific research supporting the 2009 Endangerment Finding. *See supra* Section V.B. Instead, EPA merely raises a handful of tentative points—many of which are irrelevant to the endangerment inquiry in any event—that EPA claims "may" or "could" be valid (emphases added):

- "There *may* also be as-yet unidentified issues or discrepancies present in the underlying TSD and scientific justifications offered in the Endangerment Finding."[742]
- "We now believe that GHG emission standards for new motor vehicles and engines *may* harm public health and welfare without having any measurable impact on the global climate change concerns identified in the Endangerment Finding."[743]
- "[T]he EPA did not consider 'carbon leakage,' which 'refers to the situation that *may* occur if, for reasons of costs related to climate policies, businesses were to transfer production to other countries with laxer emission constraints . . . [and] *could* lead to an increase in their total emissions."[744]
- "We propose that multiple instances of recent legislation addressing GHGs individually and through distinct regulatory approaches *suggests* that Congress views such policy decisions as economically and politically significant and not adequately addressed by general statutory authorities enacted in response to different problems."[745]
- "Recent scientific analyses propose that this divergence *may* be explained by greater capacity for the climate to reuptake GHGs in the atmosphere through natural processes."[746]
- "[R]ecent empirical data and analyses *suggest* that the Endangerment Finding was unduly pessimistic in attributing health risks from heat waves to increases in global temperature."[747]

[742] 90 Fed. Reg. at 36,296 (emphasis added).

[743] *Id.* at 36,297–98 (emphasis added).

[744] *Id.* at 36,305 (emphases added).

[745] *Id.* at 36,306 (emphasis added).

[746] *Id.* at 36,308 (emphasis added).

[747] *Id.* (emphasis added).

- "[D]ata continue to *suggest* that mortality risk from cold temperatures remains by far the greater threat to public health in the United States."[748]
- "[T]he data relied upon as inputs to these models *may* be based on inaccurate assumptions."[749]
- "Recent data and analyses *suggest*, however, that . . . extreme weather events have not demonstrably increased relative to historical highs."[750]
- "[T]he data since 2009 *suggest* that the balance of climate change as a whole appears to skew substantially more than previously recognized by the EPA in the direction of net benefits."[751]
- "[R]ecent data and analyses *suggest* that aggregate sea level rise has been minimal, at least with respect to impacts on the United States, and that sea level has risen in some domestic localities while falling in others."[752]
- "[T]he models relied upon by the Endangerment Finding *may* be incorrect with regard to warming in the U.S. Corn Belt given the divergence of recent empirical data from projected trends."[753]
- "[R]ecent data and analyses *suggest* that attributing adverse impacts from climate change to anthropogenic emissions in a reliable manner is more difficult than previously believed and demand additional analysis of the role of natural factors and other anthropogenic factors such as urbanization and localized population growth."[754]
- "GHG emission standards *may* harm, rather than advance, public welfare as defined in the CAA by reducing fleet turnover that improves air quality, safety, consumer choice, and economic opportunity."[755]
- EPA seeks comment on "the potential costs to air quality of retaining standards that *may* slow fleet turnover as compared to the potential benefits of retaining GHG emission standards in response to global climate change concerns."[756]
- "A delay in the turnover of the fleet also *could* lead to a higher risk to drivers and passengers and delay the safety benefits provided by new vehicles, thereby harming the public welfare in a more direct way than the global climate change impacts animating the EPA's GHG standards."[757]

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[748] *Id.* (emphasis added).

[749] *Id.* at 36,309.

[750] *Id.* (emphasis added).

[751] *Id.* at 36,308–09 (emphasis added).

[752] *Id.* at 36,309 (emphasis added).

[753] *Id.* (emphasis added).

[754] *Id.* (emphasis added).

[755] *Id.* at 36,311 (emphasis added).

[756] *Id.* at 36,313 (emphasis added).

[757] *Id.* (emphasis added).

- "By increasing the price of new vehicles and existing vehicles subject to the standards at manufacture, our GHG emission standards *may* prevent some people from accessing the benefits of vehicle ownership."[758]

Not only are these equivocating statements unsubstantiated and contrary to climate science—as discussed *supra* in Sections IV.D.3, V; Vehicles Comment Section IV.B—but these speculative statements provide no rational basis on which to abandon the enormous body of peer-reviewed climate science that concludes with high confidence that climate change caused by anthropogenic emissions is accelerating and harming human health and welfare. *See infra* Section VI.A (explaining why this flaw renders the Proposal arbitrary and capricious).

VI. THE PROPOSAL IS ARBITRARY AND CAPRICIOUS.

As set forth above, the Clean Air Act requires EPA to reasonably explain the basis for its rulemaking. *See supra* Section III. Here, the Proposal is arbitrary and capricious on at least four grounds. *First*, by failing to adequately explain its new position that regulation of motor vehicle greenhouse gas emissions is neither authorized by section 202(a) nor supported by science, EPA has failed to articulate "a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *State Farm*, 463 U.S. at 43 (internal quotation marks and omitted). *Second*, despite proposing to rescind the longstanding 2009 Endangerment Finding and vehicle emissions regulations, EPA failed to consider the "serious reliance interests" of States and Local Governments, much less "provide a more detailed justification" for its new policy. *See Fox Television Stations*, 556 U.S. at 515–16. *Third*, EPA's proposed "rescission" of previous denials of petitions to reconsider the 2009 Endangerment Finding is unexplained, unsupported, and inadequately noticed for comment. *Fourth*, in committing to rescind the 2009 Endangerment Finding at the outset of the rulemaking, EPA has prejudged the outcome of the rulemaking and based its final actions on pretext, which on its face cannot serve as serve as a "reasoned explanation." *Dep't of Commerce,* 588 U.S. at 785.

A. EPA has failed to adequately explain or support its new interpretations and findings.

The Proposal's myriad, unsupported, and internally inconsistent rationales are arbitrary and capricious, both on the law and the science.

First, as to its legal authority rationales, as discussed above in Section IV, *supra*, EPA has not demonstrated, and cannot demonstrate, that those new interpretations reflect the best—or even a permissible—reading of the statutory language. After all, the "requirements" imposed by relevant statutes are an "important aspect of the problem" that an agency must consider. *Little Sisters of the Poor Saints Peter & Paul Home v. Pennsylvania*, 591 U.S. 657, 682 (2020). Pollution control and the resulting impacts on climate and public health and welfare are "arguably the most important aspect" of the problem Congress aimed to address in the Clean Air Act. *Am. Lung Ass'n*, 985 F.3d at 995. Yet in the Proposal, EPA seeks to evade any motor vehicle greenhouse gas regulation and, in so proposing, fails to justify its claims that, among other things, section 202(a): (i) limits EPA's regulatory authority to air pollution that endangers

[758] *Id.* (emphasis added).

public health and welfare through local or regional exposure only; (ii) requires EPA to employ "proximate causation" principles to determine that motor vehicle greenhouse gas emissions meet the "contribute" criterion of that section; (iii) prohibits EPA from separately issuing an endangerment finding and emission standards; (iv) prohibits EPA from considering, collectively, the six greenhouse gases that are well-mixed in the atmosphere; and (v) authorizes EPA to retroactively reconsider an endangerment finding based on uncertainty. *See Loper Bright*, 603 U.S. at 400. The Proposal thus lacks any "reasoned explanation" for its change in policy, *Fox Television Stations*, 556 U.S. at 515, and instead "relie[s] on factors which Congress has not intended it to consider," *State Farm*, 463 U.S. at 43; *see Fox Television Stations*, 556 U.S. at 515 (agency must show "new policy is permissible under the statute"); *Encino Motorcars*, 579 U.S. at 221; *see also Sook Young Hong v. Napolitano*, 772 F. Supp. 2d 1270, 1279 (D. Haw. 2011) (agency's disregard of Congress's enacted policy "entirely fail[s] to consider an important aspect of the problem").

EPA's scattershot justification for its various changed legal interpretations also reflects "[u]nexplained inconsistenc[ies]" in agency policy that render the Proposal arbitrary and capricious. *Brand X Internet Servs*., 545 U.S. at 981. For example, EPA does not reconcile its claims that motor vehicles do not contribute to endangerment with its own prior rulemakings, involving other air pollutants, finding that stationary sources with smaller emission contributions "significantly contribute" to dangerous pollution for purposes of regulation under Section 111. *See supra* Section IV.D.3. Similarly, in claiming, in support of its "integrated 202" interpretation, that it must consider harms from each of the six "well-mixed" greenhouse gases separately, EPA makes no mention of its longstanding approach of doing just the opposite under the Clean Air Act for other collections of related pollutants. *See supra* Section IV.D.2. Likewise, EPA's reliance on the example of water vapor to bolster its new "contribution" interpretation ignores EPA's explicit rejection of that argument in the 2009 Endangerment Finding. *See* Section IV.C.1. Indeed, EPA even fails to reconcile internal inconsistencies within the Proposal itself. For instance, in attempting to justify its reinterpretation of section 202(a) to prohibit regulation of global pollution, EPA relies on the inconsistent propositions that Congress both narrowly limited covered air pollution harms to local and regional exposures for "endangerment" purposes while very broadly defining the "welfare" effects considered in the standard-setting process. *See* 90 Fed. Reg. at 36,291, 36,300–01; *see supra* Section IV.C.1; *Nat. Res. Def. Council v. Nuclear Reg. Comm'n*, 879 F.3d 1202, 1214 (D.C. Cir. 2018) ("Of course, it would be arbitrary and capricious for the agency's decision making to be internally inconsistent." (internal quotation marks and citation omitted)); *General Chem. Corp. v. United States*, 817 F.2d 844, 846 (D.C. Cir. 1987) ("internally inconsistent and inadequately explained" agency action is arbitrary and capricious); *Farmers Union Cent. Exch., Inc. v. FERC*, 734 F.2d 1486, 1520 (D.C. Cir. 1984) ("self-contradictory, wandering logic does not constitute an adequate explanation").

EPA also fails to address the many ways in which its new interpretations are inconsistent with binding precedent interpreting section 202(a) and subsequent legislative action. EPA's discussion of its "integrated 202" interpretation, for example, entirely ignores the D.C. Circuit's *Coalition for Responsible Regulation* decision, which squarely rejects that proposed interpretation of section 202(a). *See supra* Section IV.D.1; *see also, e.g*., *supra* Section IV.C.1 (discussing *Massachusetts's* rejection of EPA's prior attempt to employ local-versus-global pollutant distinction to avoid action under section 202(a)); *supra* Section IV.C.2 (*Massachusetts's* finding that term "air pollutant" is "capacious" under section 202 forecloses

interpretation requiring individual consideration of each type of emitted greenhouse gas separately). In addition, EPA repeatedly ignores subsequent legislative actions that cannot be reconciled with its new section 202(a) interpretations. Thus, in advancing its new view that it lacks authority to regulate motor vehicle greenhouse gas emissions under section 202, EPA makes no mention of the numerous post-2009 congressional actions and EPA rulemakings confirming that greenhouse gas emissions are air pollutants covered under that section. *See supra* Section IV.B. EPA similarly fails to explain how its proposed reinterpretation of "contribution" can be reconciled with subsequent congressional enactments recognizing the contribution of transportation sector greenhouse gas emissions to climate change. *See supra* Section IV.C.2.

None of the litany of EPA's proffered rationales supplies any "good reasons" for its changed interpretations. *Fox Television Stations*, 556 U.S. at 515. For instance, in seeking to justify reversal of its prior position that section 202(a) covers pollutants with global effects, EPA claims that its hands are tied by application of the "major questions" doctrine. 90 Fed. Reg. at 36,307. But *Massachusetts* made clear that doctrine is not applicable in this context. *See supra* Section IV.C.4. EPA's argument that direct exposure or inhalation harms are a prerequisite for section 202(a) regulation cannot be reconciled with the Act's broad definition of "welfare," which easily encompasses the kinds of harms that EPA disclaims. *See supra* Section IV.C.1. EPA's local or regional exposure interpretation is also derailed by the fact that greenhouse gas emissions *do* cause harm through direct exposure, such as through acidification of marine areas, a harm that constitutes an even more direct exposure than the acid rain example EPA cites, 90 Fed. Reg. at 36,300; *see supra* Section IV.C.1. For these reasons, and others, *see supra* Section IV.C.1, EPA has failed to provide the requisite reasonable explanation for reversing is prior interpretation that pollutants with global effects are subject to regulation under section 202. *See State Farm*, 463 U.S. at 43 (agency may not "offer[] an explanation for its decision that runs counter to the evidence before the agency").

Similarly, EPA's reliance on sky-is-falling claims, such as its favorite water vapor hypothetical, 90 Fed. Reg. at 36,301-02, provide no reasoned basis for its proposed new section 202(a) interpretations. *State Farm*, 463 U.S. at 43; *see also supra* Sections IV.A, IV.C.2 (noting also that EPA points to no "absurd" results during more than 15 years of regulation of motor vehicle greenhouse gas emissions under section 202(a)). To the contrary, it is EPA's new interpretations that lead to absurd and confusing results. For example, under EPA's exceedingly vague new "standard" for issuance of an endangerment finding—whether such a finding would "reliably and meaningfully reduce the [identified] risks" of climate change, 90 Fed. Reg. at 36,312—motor vehicles emissions would, inexplicably, not contribute to harmful greenhouse gas air pollution, even though they make up 80% of U.S. transportation sector emissions, the largest source of domestic greenhouse gas emission (constituting 28% of those emissions); *see also supra* Section IV.D.3 (noting that section 202(a) does not require, as EPA's reinterpretations seem to assume, that the pollution problem be solvable by regulation of a source category, or multiple source categories, alone). That unexplained conclusion arbitrarily conflicts not just with EPA's ongoing regulation under section 111 of other pollutants with lower emissions contributions, but also EPA's existing similar contribution finding for domestic aircraft emissions. *See supra* Section IV.D.3; *Inteliquent, Inc. v. FCC*, 35 F.4th 797, 802 (D.C. Cir. 2022) (agency "cannot ignore evidence that undercuts its judgment" (internal quotation marks and citation omitted)); *Nat. Res. Def. Council v. EPA*, 755 F.3d 1010, 1023 (D.C. Cir. 2014)

("EPA retains a duty to examine key assumptions as part of its affirmative burden of promulgating and explaining a nonarbitrary, non-capricious rule . . . ." (cleaned up)).

Moreover, in attempting its wholesale reversal of its prior interpretations, EPA leaves multiple unexplained gaps that are critical to understanding the reasoning behind its changes. EPA fails to explain, for example, when deciding (wrongly) that it must limit any regulation to "new" motor vehicles or engines under section 202(a), what cohort of vehicles it will use and why. 90 Fed. Reg. at 36,304. Nor does EPA explain why the reasons it gave in 2009 for considering the entire fleet of applicable vehicles as a "reasonable surrogate," 74 Fed. Reg. at 66,543–44, are no longer persuasive or reasonable. *See supra* Section IV.C.2. Similarly, in the context of its view that the six "well-mixed" greenhouse gases considered collectively by the 2009 Endangerment Finding must instead be considered separately, EPA fails, among other things, to explain why separate consideration is warranted given that each of those gases causes climate harm in the same way and that completing separate endangerment finding inquiries for each would be unlikely to change the outcome. *See supra* Section IV.D.2. Again, EPA's failure to engage with these facts or to provide a reasoned explanation for its deviations from its prior interpretations in light of those facts is arbitrary and capricious. *Encino Motorcars*, 579 U.S. at 221; *State Farm*, 463 U.S. at 43.

Fatal flaws also infect EPA's overarching argument that the results of the 2024 Presidential election is an "independent and sufficient basis" to justify its radical departure from its prior interpretations of section 202(a). 90 Fed. Reg. at 36,297. That assertion is simply wrong. As *Loper Bright* made clear, a Presidential transition is not an independent and sufficient basis for changing a *legal interpretation*. That state of affairs would, the Supreme Court reasoned, allow the law to "change erratically" rather than "develop in a principled and intelligible fashion." 603 U.S. at 411–12 (quoting *Vasquez v. Hillery*, 474 U.S. 254, 265 (1986)). Irrespective of any electoral outcome, "[t]he statute still has a best meaning, necessarily discernible by a court deploying its full interpretive toolkit." *Id.* at 408-09; *see also id.* at 403. It is true that the election of a new President is an independent and sufficient basis for changing *policy* within the boundaries set by the Clean Air Act. But not only must the agency still begin with the best reading of the text of the statute, the mere fact of a Presidential transition cannot supply the required "rational connection between the facts found and the choice made." *State Farm*, 463 U.S. at 43 (cleaned up).

Second, as to the Proposal's scientific rationales, 90 Fed. Reg. 36,307–11, as discussed in detail in Section V, *supra*, Fed. Reg. 36,307–11, EPA similarly fails to provide any "good reasons" for its new position that greenhouse gas emissions, in general, and motor vehicle greenhouse gas emissions, in particular, do not contribute to endangerment of public health and welfare, within the meaning of section 202(a), and that the overwhelming scientific consensus on climate change is too uncertain to support an endangerment finding. And EPA certainly has not provided the more detailed explanation required where, as here, the agency's new factual findings contradict those underlying its previous policy. *Fox Television Stations*, 556 U.S. at 515.

To the contrary, in support of those wholesale reversals, EPA relies almost entirely on the cherry-picked conclusions of a draft of the CWG Report, an unreliable, admittedly incomplete document that is rife with inaccurate and self-serving characterizations critiquing the peer-reviewed work of credentialed climate scientists. *See supra* Section V.B (detailing CWG Report's massive flaws); Section V.C.1 (discussing inadequacy of the Proposal's citation to a

single (and out-of-date) study not included in the Report). Given the limits of that report, EPA is left to explain its reversal of course in decidedly tentative terms, e.g.: "intervening legal and scientific developments [] *appear to undermine* the assumptions, methodologies, and conclusions of the Endangerment Finding." 90 Fed Reg. at 36,307 (emphasis added); *see supra* Section V.C.5 (describing the series of speculative and tentative assertions underlying that explanation). In doing so, EPA ignores the massive and consistent body of scientific evidence—which has only grown since the 2009 Endangerment Finding—documenting that greenhouse gas emissions, including from motor vehicles, increasingly endanger public health and welfare across the nation. *See supra* Sections V.A, V.B.2. For those reasons, EPA's new position is textbook arbitrary and capricious action, blatantly failing each *State Farm* criterion: the Proposal "relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, . . . is so implausible that it [cannot] be ascribed to a difference in view or the product of agency expertise," and has neither "examine[d] the relevant data" nor "articulate[d] a satisfactory explanation for its action," including the essential "rational connection between the facts found and the choice made." *State Farm*, 463 U.S. at 43 (citation omitted); *see WildEarth Guardians v. U.S. Fish & Wildlife Serv.*, 782 F. Supp. 3d 893, 907–08 (C.D. Cal. 2025) (agency's failure to use best available science on threat of climate change in Joshua tree listing decision was arbitrary and capricious).

Further, the Proposal's consideration of the impacts of greenhouse gas emissions on public health and welfare makes no mention of the disproportionate impacts that climate harms have on certain vulnerable groups and communities with environmental justice concerns. *See* 90 Fed. Reg. at 36,308–11. As described *supra* Section II.A.2, and as recognized by EPA in the 2009 Endangerment Finding, greenhouse gas emissions—including from vehicles in particular—exacerbate, in a variety of ways, the disproportionate environmental and health harms such communities already face. *See* 74 Fed. Reg. at 66,506, 66,534. For this reason, in every relevant rulemaking since 2009, EPA carefully evaluated such harms and reaffirmed that determination. *See* Vehicles Comment Section IV.B.1.c. The Proposal's silence on this important issue is arbitrary and capricious both because it has failed to explain that change to EPA's longstanding policy of considering disparate impacts of greenhouse gas emissions on such communities, *see Fox Television Stations*, 556 U.S. at 515-16, and because it shows that EPA has, once again, "entirely failed to consider an important aspect of the problem," *State Farm*, 463 U.S. at 43.

Beyond its reliance on the CWG Report, EPA's feeble attempts to support the Proposal's stunning disregard for decades of climate science are woefully insufficient to support its conclusions and sweeping rescissions and also do not meaningfully contend with its past findings. *See supra* Section V.C. In short, EPA has failed entirely to provide any reasonable justification, much less the required "more detailed justification" to support its complete "disregard[] [of] the facts and circumstances" underlying the 2009 Endangerment Finding, and the comprehensive scientific record developed since 2009 that further affirms that determination. *Fox Television Stations*, 556 U.S. at 515–16; *see Inteliquent, Inc*., 35 F.4th at 802.

These failures include EPA's across-the-board refusal to consider the USGCRP's Third, Fourth, and Fifth NCAs or the IPCC's Fifth and Sixth Assessment Reports, *see supra* Section V.A, the most comprehensive and well-respected assessments of climate change science and harms available. And that refusal comes despite EPA's reliance on those assessments, as available, since 2009 to make decisions related to climate change under section 202(a) and other

statutory directives. *See supra* Section II.B.1. EPA also fails to grapple with the scientific findings in its own post-2009 rulemakings, *see supra* Section V.C.3, which are entirely inconsistent with its determination here that motor vehicle greenhouse gas emissions do not meet the 202(a) endangerment standard. Indeed, the *only* reason EPA offers for casting aside nearly fifteen years of valuable climate change scientific analysis, are unspecified critiques of the NCAs, about which it provides no further detail or discussion. *See supra* Section V.C.2. In doing so, EPA has not only "offered an explanation for its decision that runs counter to the evidence before" it, EPA has also provided one that "is so implausible that it could not be ascribed to a difference in view or the product of agency expertise"—indeed, EPA has foregone application of its expertise by adopting wholesale the draft recommendations of the CWG. *State Farm*, 463 U.S. at 43; *see supra* Section V.B.3; *Comcast Corp. v. FCC*, 579 F.3d 1, 8 (D.C. Cir. 2009) ("[W]e have not hesitated to vacate a rule when the agency has not responded to empirical data or to an argument inconsistent with its conclusion."). EPA, thus, has in no way offered the required detailed justification for departing from its longstanding reliance on those assessments. *See Fox Television Stations*, 556 U.S. at 515-16. And, further, it has "entirely failed to consider an important aspect of the problem." *Ctr. for Biological Diversity v. EPA*, 141 F.4th at 182 ("Because FWS failed to engage with the results of those models or, in the alternative, identify why they did not constitute the best available science and data, it 'entirely failed to consider an important aspect of the problem.'" (quoting *State Farm*, 463 U.S. at 43)).

Similarly flawed is EPA's specious claim that uncertainty related to climate science and impacts justifies rescinding the 2009 Endangerment Finding. *See supra* Section V.C.4 (Proposal's claims regarding uncertainty are unsupported and unsupportable); *see also supra* Sections IV.E (EPA may not cease regulating based on uncertainty). In making that claim, EPA ignores not only the established approaches of the NCAs and IPCC, but also in its own guidance and rulemakings for addressing that uncertainty, *see supra* Section V.C.4, and fails to acknowledge that federal agencies regularly make important decisions in the face of uncertainty, *see supra* Section IV.E. Each of these flaws also renders the Proposal arbitrary and capricious. *See Nat'l Ass'n of Mfrs. v. U.S. Sec. & Exch. Comm'n*, 105 F.4th 802, 812 (5th Cir. 2024) (concluding that rule was arbitrary and capricious where findings contradicted previous risk assessment, yet agency "did not engage in any analysis of its prior finding regarding the level of risk or explain *why* it had changed its mind").

In sum, the Proposal's kitchen-sink rationales are arbitrary and capricious at every turn.

B. EPA fails to consider the States and Local Governments' serious reliance interests in the federal program for vehicles greenhouse gas emissions.

Where an agency's "'prior policy has engendered serious reliance interests that must be taken into account,'" then "the agency 'must' provide 'a more detailed justification' for" its change in policy, including "'a rational connection between the facts found and the choice made.'" *Mingo Loan Coal Co. v. EPA*, 829 F.3d 710, 719 (D.C. Cir. 2016) (quoting *Fox Television Stations*, 556 U.S. at 515, and *State Farm*, 463 U.S. at 43). EPA's Proposal is arbitrary and capricious because it ignores the States and Local Governments' serious reliance on the vehicles greenhouse gas program to combat climate change and to comply with their obligations under state and federal law.

The Clean Air Act assigns EPA an indispensable role in reducing greenhouse gas emissions and protecting the public health and welfare against climate change impacts. *See, e.g.*, *Massachusetts*, 549 U.S. at 530–33. Under the Act's preemption regime, 42 U.S.C. § 7543, EPA sets federal standards for the U.S. transportation sector, currently the largest contributor to greenhouse gas pollution; and even where other standards are operative, *see id*. §§ 7507, 7543, the federal standards remain critical. 89 Fed. Reg. at 27,844. As such, the States and Cities depend on the federal government to adopt protective vehicles greenhouse gas standards. *Cf. Massachusetts*, 549 U.S. at 519–21 (having surrendered "sovereign prerogatives" to Union, States are harmed when federal government refuses to regulate greenhouse gas emissions).

The States and Local Governments are currently experiencing direct, compounding climate harms, and without deep reductions in anthropogenic emissions of greenhouse gases from the federal greenhouse gas program, those harms will only worsen. *See supra* Sections II, IV.D.3, V.A & ***Appendix 1***. Without the federal greenhouse gas program, the States and Local Governments are certain to experience, among other climate harms, more frequent, more severe, and longer extreme heat events, reduced snowpack, increased drought, and warming waters; more frequent and intense wildfires; costlier and deadlier extreme storms and flooding, and consequently more damage to their roads, power lines, sewerage and water treatment systems, and other critical infrastructure; greater sea level rise submerging sovereign territory in coastal states and increasing saltwater intrusion into public waters and aquifers; damages to parks and other public lands; loss of state waters, forests, and other natural resources; and increased expenditure of funds on drought, wildfire, storm, and flood preparation and response, public health programs, and strengthening and repairing roads, seawalls, ports, power lines, sewers, and waste treatment systems impacted by extreme weather. *Id*.

Consistent with its duty to regulate dangerous vehicle emissions, 42 U.S.C. § 7521(a)(1), following the 2009 Endangerment Finding EPA initially issued and then regularly amended vehicles greenhouse gas standards. *See* 89 Fed. Reg. 29,440; 89 Fed. Reg. 27,842; 86 Fed. Reg. 74,434; 85 Fed. Reg. 24,174; 81 Fed. Reg. 73,478; 79 Fed. Reg. 23,414 (Apr. 28, 2014); 76 Fed. Reg. 57,106; 75 Fed. Reg. 25,324; *see also supra* Section II.B.1. Each time, many of our States and Local Governments have submitted comments on the proposed rules emphasizing their reliance on robust federal vehicle greenhouse gas standards to protect their residents, industries, infrastructure, and natural resources.[759] And as discussed below, States have also spent substantial time and resources on modeling and other program development work in reliance on the federal vehicles greenhouse gas standards.

In short, the States and Local Governments have relied on the vehicles greenhouse gas program for over fifteen years to protect the health and welfare of their residents, economies, and resources. The Proposal's failure to grapple with these reliance interests—and its suggestion that

[759] *See, e.g.*, Cal. Att'y Gen. Office et al., Comments of the States and Cities Supporting EPA's Proposal to Strengthen Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, EPA-HQ-OAR-2022-0829, https://perma.cc/E5S5-VXK7; Cal. Att'y Gen. Xavier Becerra et al., Detailed Comments of the States of California et al. and the Cities of Los Angeles et al. on EPA's and NHTSA's Joint Proposed "SAFE" Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, EPA-HQ-OAR-2018-0283 / NHTSA-2018-0067, https://perma.cc/E2C5-WZCU.

such serious reliance interests are not properly considered in light of EPA's flawed legal authority interpretation, 90 Fed. Reg. at 36,297–98—is plainly arbitrary and capricious. EPA may not finalize the Proposal without justifying, in light of these serious reliance interests, its unjustifiable abandonment of its pollution-reduction mandate. *Mingo*, 829 F.3d at 719; *Fox Television Stations*, 556 U.S. at 515.

1. The States and Local Governments have relied on federal greenhouse gas standards to craft state and local climate policy.

Within their traditional and historic police powers over air pollution, many of our States and Local Governments have designed and implemented comprehensive policies to reduce greenhouse gas emissions and adapt to climate change impacts, often referred to as climate action plans. These climate action plans are frequently developed at the state agency level to implement laws or mandates by the State's duly elected representatives. For example, Massachusetts published and regularly updates a Clean Energy and Climate Plan[760] to meet its statutory greenhouse gas emission reduction goals under the Massachusetts Global Warming Solutions Act,[761] and the Next-Generation Roadmap for Massachusetts Climate Policy.[762] California developed its 2022 Scoping Plan in order to meet its statutory greenhouse gas reduction target under SB 32.[763] New Jersey developed a Climate Action Plan in response to the State's Global Warming Response Act of 2007 and later executive orders, also with the aim of meeting the New Jersey Department of Environmental Protection's emission reduction targets.[764] Oregon and New Mexico's Climate Action Plans respond to goals and directives in state executive orders.[765] New York's Climate Action Council developed its 2022 Scoping Plan to identify actions to implement the State's 2019 Climate Leadership and Community Protection Act.[766] And this is not an exhaustive list; many other States and Local Governments have similarly developed plans in response to state or local requirements.[767] These climate action plans make crucial and sensitive choices on how to allocate limited state and local resources for the maximum protection against climate change. *See generally* ***Appendix 1***. For the past fifteen years, EPA's unbroken policy of maintaining the federal vehicles greenhouse gas program has thereby engendered serious reliance interests in States and Local Governments' legislatures,

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[760] *See* MASS. EXEC. OFF. OF ENERGY & ENV'T AFFS., MASSACHUSETTS CLEAN ENERGY AND CLIMATE PLAN FOR 2025 AND 2030 (July 2022), https://www.mass.gov/doc/clean-energy-and-climate-plan-for-2025-and-2030/download.

[761] 2008 Mass. Legis. Serv. ch. 298 (S.B. 2540) (West).

[762] 2021 Mass. Legis. Serv. ch. 8 (S.B. 9) (West).

[763] CAL. AIR RES. BD., 2022 SCOPING PLAN FOR ACHIEVING CARBON NEUTRALITY 2 (2022), https://perma.cc/6H9U-M65L.

[764] N.J. DEP'T OF ENV'T PROT., STRATEGIC CLIMATE ACTION PLAN 5–6 (June 2025), https://perma.cc/D4QM-E2B4.

[765] OR. GLOBAL WARMING COMM'N, OREGON CLIMATE ACTION ROADMAP TO 2030 1 (Mar. 2023), https://perma.cc/D5MM-BGCY; N.M. INTERAGENCY CLIMATE CHANGE TASK FORCE, PROGRESS & RECOMMENDATIONS 3 (2021), https://perma.cc/AF3B-LXT9.

[766] N.Y. State Climate Action Council, SCOPING PLAN (Dec. 2022), https://perma.cc/RK8Q-WTNT.

[767] *See, e.g.*, PlaNYC Getting Sustainability Done (Apr. 2023), https://perma.cc/RY8X-6GX7.

councils, and executive agencies when determining what climate policies to prioritize and fund at the state and local level.

In designing climate action plans, the States and Local Governments have relied on the continued existence of the vehicles greenhouse gas program. For example, many States' climate action plans have utilized EPA's Motor Vehicle Emission Simulator ("MOVES") model, a "state-of-the-science emission modeling system that estimates emissions for mobile sources at the national, county, and project level for criteria air pollutants, greenhouse gases, and air toxics."[768] MOVES accounts for environmental factors, including temperature and humidity, type of fuels available for use, and, crucially, the phase-in of federal emission standards over time, thereby incorporating federal vehicles greenhouse gas standards to calculate the quantity of pollutants that will be released in future years as those standards go into effect.[769] Several States, including New Jersey,[770] North Carolina,[771] Oregon,[772] and Pennsylvania,[773] as well as

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[768] EPA, *MOVES and Mobil Source Emissions Research*, https://perma.cc/CN3T-MAFW (last updated July 11, 2025).

[769] EPA ASSESSMENT & STANDARDS DIV., OFF. OF TRANSP. & AIR QUALITY, GREENHOUSE GAS AND ENERGY CONSUMPTION RATES FOR ONROAD VEHICLES IN MOVES3, App. A: Timeline of Energy and GHG Emissions in MOVES 24–25 (EPA-420-R-20-015 Nov. 2020), https://perma.cc/FD3J-2X6P; EPA OFF. OF TRANSP. & AIR QUALITY, QUESTIONS AND ANSWERS: EPA RELEASES MOVES2014 MOBILE SOURCE EMISSIONS MODEL 1–2 (EPA-420-F-14-049 July 2014), https://perma.cc/M2SA-MPGZ; Assessment & Standards Div., Off. of Transp. & Air Quality, Greenhouse Gas and Energy Consumption Rates for On-road Vehicles: Updates for MOVES2014 2–4 (EPA-420-R-15-003 Oct. 2015), https://perma.cc/9QCM-XHCB; EPA ASSESSMENT & STANDARDS DIV., OFF. OF TRANSP. & AIR QUALITY, UPDATES TO THE GREENHOUSE GAS AND ENERGY CONSUMPTION RATES IN MOVES2010a 3–5 (EPA-420-R-12-025 Aug. 2012), https://perma.cc/G3D3-7MNX; EPA ASSESSMENT & STANDARDS DIV., OFF. OF TRANSP. & AIR QUALITY, OVERVIEW OF EPA'S MOTOR VEHICLE EMISSION SIMULATOR (MOVES5) (EPA-420-R-24-011 Nov. 2024), https://perma.cc/8RC3-RJ35.

[770] New Jersey's Strategic Climate Action Plan relies on the state's 2022 Greenhouse Gas Emissions Inventory Report. N.J. DEP'T OF ENV'T PROT., STRATEGIC CLIMATE ACTION PLAN, *supra* note 764, at 20 (citing N.J. DEP'T OF ENV'T PROT., 2022 NEW JERSEY GREENHOUSE GAS EMISSIONS INVENTORY REPORT YEARS 1990-2019, https://perma.cc/8V86-EGCL). The inventory report used MOVES3 to estimate on-road emissions for on-road sources. N.J. DEP'T OF ENV'T PROT., NEW JERSEY GREENHOUSE GAS EMISSIONS INVENTORY REPORT YEARS 1990–2019, *supra* this note, at 88.

[771] The North Carolina Climate Action Plan relies on North Carolina's latest greenhouse gas inventory report which relies on emissions standards assumed in the MOVES4 model. N.C. DEP'T OF ENV'T QUALITY, NORTH CAROLINA PRIORITY CLIMATE ACTION PLAN 7, A-3 to A-6, A-25, A-28 to A-29 (2024), https://perma.cc/XA2F-5HPN; N.C. DEP'T OF ENV'T QUALITY, NORTH CAROLINA GREENHOUSE GAS INVENTORY (1990–2050) 11 (Jan. 2024), https://perma.cc/KDH6-W3R8.

[772] Oregon's Department of Environmental Quality provided the global warming commission with "draft emissions data" to calculate the effect of climate actions against the baseline. OR. GLOBAL WARMING COMM'N, OREGON CLIMATE ACTION ROADMAP TO 2030, *supra* note 765, at 9. The Department uses MOVES to create its emissions inventory. Or. Dep't Env't Quality, *Air Quality: Mobile Sources*, https://perma.cc/FVX3-LQHF.

[773] PA. DEP'T OF ENV'T PROT., PENNSYLVANIA CLIMATE ACTION PLAN UPDATE 40 (2024), https://perma.cc/D9JF-V2RZ.

Washington, D.C.,[774] have used MOVES to create their greenhouse gas emissions inventories or estimate on-road emissions. The model estimates the amount of greenhouse gases currently being emitted by mobile sources, and the amount that will be emitted under various scenarios (i.e., baseline scenarios, and scenarios where various mitigation measures are employed).

Other States, instead of relying on MOVES emissions data, have made similar foundational assumptions relying on continued existence of the vehicles greenhouse gas program. For example, California's reference scenario assumptions include the estimated impact of all current regulations as of spring 2022.[775] Minnesota used the Minnesota Energy Policy Solutions tool created by Energy Innovation LLC and Rocky Mountain Institute.[776] Transportation emissions projections in that model account for the most recent EPA greenhouse gas standards and the National Highway Traffic Safety Administration (NHTSA) fuel-economy standards.[777] Maryland expressly assumed that EPA's "more stringent heavy-duty engine and vehicle greenhouse gas standards will be fully implemented by model year 2027."[778] New Hampshire's business-as-usual case was "based on existing state and federal 2020 policies."[779]

These emissions estimates played a key role in our States' climate action plans and subsequent actions. For example, "North Carolina uses the [emissions] inventory to benchmark progress on GHG reductions against state goals and policies to determine which sectors offer opportunities for future reductions. The inventory is crucial for understanding the state's contribution to climate change and serves as a foundation for planning reduction strategies."[780] Similarly, Delaware's reliance on federal greenhouse gas vehicles emission standards informed their business-as-usual scenario, which "serves as both a reference for estimating the necessary emission reductions Delaware must achieve to accomplish its [greenhouse gas] reduction goal, as well as a baseline for comparing the incremental [greenhouse gas] benefits of additional mitigation actions."[781] Many States and Cities have planned future climate and emissions-

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[774] GOV'T OF THE DIST. OF COLUMBIA, DEP'T OF ENERGY & ENV'T, GREENHOUSE GAS INVENTORY 2006-2016 14 (2016), https://perma.cc/59S8-9MSW.

[775] CAL. AIR RES. BD., 2022 SCOPING PLAN FOR ACHIEVING CARBON NEUTRALITY, APPENDIX H: AB 32 GHG INVENTORY SECTOR MODELING 18 (Nov. 2022), https://perma.cc/2KY2-DG5W.

[776] MINN. CLIMATE CHANGE SUBCABINET, MINNESOTA'S CLIMATE ACTION FRAMEWORK: GREENHOUSE GAS ANALYSIS 1 (Doc. No. cc-mn4-01b 2022), https://perma.cc/Y9QW-7YWA.

[777] Energy Innovation Pol'y & Tech., LLC, *Energy Policy Simulator: State EPS Methodology*, ENERGY (last updated Sept. 2024), https://perma.cc/M42Y-3SYG.

[778] MD. DEP'T OF THE ENV'T, MARYLAND'S CLIMATE POLLUTION REDUCTION PLAN 26 (Dec. 28, 2023), https://perma.cc/3UWT-XPE2.

[779] N.H. DEP'T OF ENV'T SERVS., STATE OF NEW HAMPSHIRE PRIORITY CLIMATE ACTION PLAN 15–16 (Doc No. R-ARD-24-01 2024), https://perma.cc/Q8D5-4BBD.

[780] N.C. DEP'T OF ENV'T QUALITY, NORTH CAROLINA PRIORITY CLIMATE ACTION PLAN, *supra* note 771, at 15.

[781] ICF INC., LLC, DELAWARE CLIMATE ACTION PLAN SUPPORTING TECHNICAL GREENHOUSE GAS MITIGATION ANALYSIS REPORT 9 (Del. Dep't of Nat. Res. & Env't Control, Div. of Climate, Coastal & Energy Aug. 31, 2020), https://perma.cc/38AE-RPRM.

reduction actions based on these emissions inventories, which in turn relied on federal vehicle greenhouse gas standards.

2. The States have relied on co-pollutant reductions from EPA's vehicles greenhouse gas standards to attain and maintain National Ambient Air Quality Standards.

The Proposal also fails to account for States' reliance on co-pollutant emission reductions from the federal vehicles greenhouse gas standards in complying with their NAAQS obligations through State Implementation Plans (SIPs). Under the Clean Air Act, EPA has established primary and secondary NAAQS for six criteria air pollutants, four of which—carbon monoxide, PM, ozone, and NO_2—are co-pollutants of tailpipe greenhouse gas emissions or formed from such co-pollutants. 42 U.S.C. § 7408(a). Each State has the "primary responsibility" for assuring air quality within its geographic area with respect to the NAAQS, and, to that end, is required to submit to EPA for approval a SIP that specifies the manner in which the State will achieve the NAAQS. *Id.* §§ 7407(a), 7410(a)(1). If EPA finds that the State has failed to submit a SIP or that the SIP submitted by the State is inadequate, it may override the State's sovereign prerogatives by promulgating a Federal Implementation Plan, impose severe sanctions, or both. *Id.* §§ 7407(a); 7410(c), (m); 7509.

States have relied on the existence of federal vehicles regulations, including the vehicles greenhouse gas program, when selecting emission control measures to implement to attain and maintain the NAAQS. In their most recent submissions for the Northern New Jersey-New-York-Connecticut Nonattainment Area, for example, New Jersey, New York, and Connecticut relied on the projected emission reduction benefits from the 2024 Multipollutant Rule, the Phase 3 Greenhouse Gas Standards for Heavy-Duty Vehicles, and MY2023–26 light-duty greenhouse gas Standards to attain the 2015 70 ppb 8-hour ozone NAAQS.[782] New Jersey has similarly relied on the emission reduction benefits from the MY2023–26 light duty greenhouse gas standards to attain the 2006 24-hour $PM_{2.5}$ NAAQS.[783] Without the aid of vehicles greenhouse gas standards, States would have to take additional actions and expend significant resources. For example, the California Air Resources Board (CARB) spends up to $33,000 to mitigate a single ton of NO_x emissions (a key ozone precursor and greenhouse gas co-pollutant) in California.[784]

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[782] N.J. DEP'T OF ENV'T PROT., STATE IMPLEMENTATION PLAN (SIP) REVISION FOR THE ATTAINMENT AND MAINTENANCE OF THE OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS, 2015 70 PPB 8-HOUR OZONE, MODERATE CLASSIFICATION, FOR THE NORTHERN NEW JERSEY-NEW YORK-CONNECTICUT NONATTAINMENT AREA AND THE SOUTHERN NEW JERSEY-PENNSYLVANIA-DELAWARE-MARYLAND NONATTAINMENT AREA at 3-31, 4-5, App. 4-6 (Feb. 2025), https://perma.cc/C349-B43F.

[783] N.J. DEP'T OF ENV'T PROT., STATE IMPLEMENTATION PLAN (SIP) REVISION FOR MAINTENANCE OF THE FINE PARTICULATE MATTER (PM2.5) 2006 24-HOUR 35 µG/M3 NATIONAL AMBIENT QUALITY STANDARDS LIMITED MAINTENANCE PLAN 32 (July 2023), https://perma.cc/CYY5-V9G3.

[784] CAL. AIR RES. BD., PROPOSED FISCAL YEAR 2021-22 FUNDING PLAN FOR CLEAN TRANSPORTATION INCENTIVES ACCOMPANIED BY PROPOSED CARL MOYER PROGRAM CHANGES, AGRICULTURAL BURNING INCENTIVES FOR COMBUSTION EQUIPMENT, AND THE CLIMATE HEAT IMPACT RESPONSE PROGRAM, Resol. 21–24 at 8 (Nov. 19, 2021), https://perma.cc/F8WL-MLL7. Within certain California air districts, prices per ton are even higher. For instance, the South Coast Air Quality Management District's maximum cost-effectiveness value for NO_x best available control technology ranged from $38,355–38,706 per ton in 2023. S. Coast Air Quality Mgmt. Dist., 2023 South Coast Air

A another example, because States depend on early planning to reduce the costs of compliance, changes in federal regulatory approaches that significantly increase criteria-pollutant emissions can be costly and disruptive to the States, as well as to regulated industries within those States.

Several States also have relied on the vehicles greenhouse gas program to project the efficacy of proposed control measures in their Ozone NAAQS SIP updates. States in the Mid-Atlantic/Northeast Visibility Union ("MANE-VU")—Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, New Jersey, and New York—have utilized emissions inventories to project NOx emissions within their geographic areas through the year 2028 as part of their efforts to comply with Ozone NAAQS.[785] These emissions projection systems, in turn,

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Quality Management District BACT Maximum Cost Effectiveness Values ($/Ton), https://perma.cc/2KSS-XMLA. And the twelve-month rolling average price per ton for South Coast's NO_x RECLAIM Trading Credits was $47,864 for January–December 2022 and $17,686 for January–December 2023. S. COAST AIR QUALITY MGMT. DIST., TWELVE-MONTH AND THREE-MONTH ROLLING AVERAGE PRICE OF COMPLIANCE YEARS 2023 AND 2024 NO_X AND SO_X RTCS (OCTOBER – DECEMBER 2023): JANUARY 2024 REPORT TO THE STATIONARY SOURCE COMMITTEE, https://perma.cc/T6CU-T8FY.

[785] Air Plan Approval, Delaware, 2022 Amendments to Delaware's Ambient Air Quality Standards, 89 Fed. Reg. 104,431 (Dec. 23, 2024); Conn. Dep't of Energy & Env't Prot., Revision to Connecticut's State Implementation Plan, Ozone Attainment Demonstration for Areas Classified Serious Nonattainment for the 2008 Ozone Standards: Technical Support Document: Draft for Public Comment at 13 (reliance on Tier 2 and Tier 3 standards), at 22–26 (reliance on OTC/MANE-VU modeling) (Oct. 2021), https://perma.cc/6L8A-V755; Joseph Jakuta et al., Ozone Transp. Comm'n, Ozone Transport Commission/Mid-Atlantic Northeastern Visibility Union 2011 Based Modeling Platform Support Document – October 2018 Update at 4–17, 14–161, B-178 (EPA-R01-OAR-2023-0186-0020 2nd version Oct. 18, 2018); EPA OFF. OF TRANSP. & AIR QUALITY, QUESTIONS AND ANSWERS: EPA RELEASES MOVES2014 MOBILE SOURCE EMISSIONS MODEL (EPA-420-F-14-049 July 2014), https://perma.cc/SH6L-9YE9; METRO. WASH. COUNCIL FOR GOV'TS FOR THE DIST. DEP'T OF ENERGY & ENV'T, MD. DEP'T OF THE ENV'T, AND VA. DEP'T OF ENV'T QUALITY, STATE IMPLEMENTATION PLAN REVISION: MOTOR VEHICLE BUDGET REVISIONS BASED ON THE MOVES3 MODEL: WASHINGTON DC-MD-VA 2008 OZONE NAAQS MAINTENANCE PLAN at 8–9, App. C1 at 2 (Sept. 27, 2023), https://perma.cc/WXU2-E9M4, https://perma.cc/HKY2-JCGV; EPA ASSESSMENT & STANDARDS DIV., OFF. OF TRANSP. & AIR QUALITY, GREENHOUSE GAS AND ENERGY CONSUMPTION RATES FOR ONROAD VEHICLES IN MOVES3, *supra* note 769, App. A at 24–25; MASS. EXEC. OFF. OF ENERGY & ENV'T AFFS., DEP'T OF ENV'T PROT., CERTIFICATION OF ADEQUACY OF THE MASSACHUSETTS STATE IMPLEMENTATION PLAN WITH CLEAN AIR ACT SECTION 110(A)(2)(D)(I) INTERSTATE AIR POLLUTION TRANSPORT REQUIREMENTS FOR THE 2008 OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS 7 (Feb. 9, 2018), https://perma.cc/43CJ-W77N (reliance on 2018 EPA Projections from EPA 2018 National Emissions Inventory v6, v1 Modeling Platform Reports); EPA AIR QUALITY ASSESSMENT DIV., OFF. OF AIR QUALITY PLANNING & STANDARDS, TECHNICAL SUPPORT DOCUMENT (TSD): PREPARATION OF EMISSIONS INVENTORIES FOR THE 2018 NORTH AMERICAN EMISSIONS MODELING PLATFORM at 43 (EPA-454/B-22-005 July 2022), https://perma.cc/CZU8-FD27 (reliance on MOVES3, and noting that it incorporates HD Phase 2 GHG rule); CONN. DEP'T OF ENERGY & ENV'T PROT., BUREAU OF AIR MGMT., STATE IMPLEMENTATION PLAN REVISION at 24 (Apr. 2025), https://perma.cc/RMJ9-PHVM; N.J. DEP'T OF ENV'T PROT., STATE IMPLEMENTATION PLAN (SIP) REVISION FOR THE ATTAINMENT AND MAINTENANCE OF THE OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS, 2015 70 PPB 8-HOUR OZONE, MODERATE CLASSIFICATION, *supra* note 782, at 4-4 – 4-5; N.Y. DEP'T OF ENV'T CONSERVATION, DIV. OF AIR RES., BUREAU OF AIR QUALITY PLAN, NEW YORK STATE IMPLEMENTATION PLAN FOR THE 2008 NATIONAL AMBIENT AIR QUALITY STANDARDS, NEW YORK-N.

rely on the MOVES model, discussed *supra*. Pennsylvania has relied on EPA's MOVES model, and the federal vehicle regulations it incorporates, to revise its State NO_x motor vehicle emission budget.[786] Colorado has similarly utilized EPA's MOVES model to create its SIPs for its moderate and severe ozone nonattainment areas.[787] And no fewer than 15 States' Regional Haze SIPs, *see* 42 U.S.C. § 7491(b), have relied on EPA's MOVES model to project emissions reductions resulting from federal vehicles regulations by 2028 to inform their strategies to comply with federal regional haze requirements.[788]

NEW JERSEY-LONG ISLAND, NY-NJ-CT SERIOUS NONATTAINMENT AREA 5-1 (Nov. 2021), https://perma.cc/T6MP-TNES.

[786] PA. DEP'T OF ENV'T PROT., BUREAU OF AIR QUALITY, FINAL VOL II: TECHNICAL SUPPORT DOCUMENT: STATE IMPLEMENTATION PLAN REVISION: NO_x MOTOR VEHICLE EMISSION BUDGET REVISIONS BASED ON THE MOVES2010A MODEL, READING EIGHT-HOUR OZONE MAINTENANCE AREA (Mar. 2013), https://perma.cc/9WDB-6K9F.

[787] COLO. DEP'T OF PUB. HEALTH & ENV'T, AIR QUALITY CONTROL COMM'N & REG'L AIR QUALITY COUNCIL, STATE IMPLEMENTATION PLAN FOR THE DENVER METRO AND NORTH FRONT RANGE OZONE NONATTAINMENT AREA, STATE IMPLEMENTATION PLAN FOR THE 2015 8-HOUR OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS at 4-3 (Dec. 2, 2022), https://perma.cc/6G5A-LEH5; COLO. DEP'T OF PUB. HEALTH & ENV'T, AIR QUALITY CONTROL COMM'N & REG'L AIR QUALITY COUNCIL, SEVERE AREA OZONE SIP FOR THE DENVER METRO AND NORTH FRONT RANGE NONATTAINMENT AREA, STATE IMPLEMENTATION PLAN FOR THE 2008 8-HOUR OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS at 4-3 (Dec. 15, 2023), https://perma.cc/PP6Q-DS99.

[788] CONN. DEP'T OF ENERGY & ENV'T PROT., CONNECTICUT REGIONAL HAZE STATE IMPLEMENTATION PLAN REVISION SECOND IMPLEMENTATION PERIOD (2018–2028) 63 (Nov. 2021), https://perma.cc/7WRL-G6HR; Joseph Jakuta et al., Ozone Transp. Comm'n, Ozone Transport Commission/Mid-Atlantic Northeastern Visibility Union 2011 Based Modeling Platform Support Document – October 2018 Update, *supra* note 785; DEL. DEP'T OF NAT. RES. & ENV'T CONTROL, DELAWARE'S VISIBILITY SIP REVISION 61, 80–81 (Aug. 2022), https://perma.cc/5RKG-53KF; HAWAII STATE DEP'T OF HEALTH REGIONAL HAZE STATE IMPLEMENTATION PLAN SECOND PLANNING PERIOD (DRAFT) 30–31; Technical Support Document for EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska 10 (EPA-454/R-21-007 Aug. 2021), https://perma.cc/XK8D-Y6EH; Lake Mich. Air Dirs. Consortium, *Appendix B: Modeling and Analysis for Demonstrating Reasonable Progress for the Regional Haze Rule 2018-2028 Planning Period Technical Support Document*, *in* Ill. Env't Prot. Agency; ILLINOIS REGIONAL HAZE STATE IMPLEMENTATION PLAN FOR THE SECOND IMPLEMENTATION PERIOD § 3.4.2 (AQPSTR 24-01 Jan. 2024), https://perma.cc/USC3-RMHP; EPA Air Quality Assessment Div., Off. of Air Quality Plan. & Standards, Technical Support Document (TSD): Preparation of Emissions Inventories for the 2016v1 North American Emissions Modeling Platform 48 (Mar. 2021), https://perma.cc/5CK5-GGRB; MASS. EXEC. OFF. OF ENERGY & ENV'T AFFS., DEP'T OF ENV'T PROT., MASSACHUSETTS REGIONAL HAZE STATE IMPLEMENTATION PLAN REVISION FOR THE SECOND IMPLEMENTATION PERIOD (2018-2028) 55–56 (July 22, 2021), https://perma.cc/J3ET-2SFD; MINN. POLLUTION CONTROL AGENCY, MINNESOTA'S STATE IMPLEMENTATION PLAN FOR REGIONAL HAZE, Appendix A: Technical Support Document 17–19 (Dec. 2022), https://perma.cc/U7C5-UMDF (citing Minn. Pollution Control Agency Data, *About Emissions*, https://perma.cc/EXK2-V8ZL); N.J. DEP'T OF ENV'T PROT., STATE IMPLEMENTATION PLAN (SIP) FOR REGIONAL HAZE 93–94 (Mar. 2020), https://perma.cc/RM32-ZQQL; N.M. ENV'T DEP'T, AIR QUALITY BUREAU, NEW MEXICO REVISED PROPOSED REGIONAL HAZE STATE IMPLEMENTATION PLAN REVISION SECOND PLANNING PERIOD

As with the climate action plans, States have made high-stakes, sensitive policy decisions about pollution control while relying on federal vehicle regulations, including the vehicles greenhouse gas program, as their baseline. Reductions in vehicular greenhouse gas co-pollutants like NO_x and PM are central to the States' efforts to attain and maintain NAAQS and achieve regional visibility goals in numerous airsheds, and the lost reductions from the repeal of the vehicles greenhouse gas program will have to be made up with additional, expensive controls on other sources like electricity generation and heavy industry. Before EPA demolishes the regulatory foundation for States' planning, it is incumbent on the agency to give meaningful consideration to these serious reliance interests.

C. EPA's proposed rescission of its long-past denials of petitions to reconsider the 2009 Endangerment Finding are unexplained, unsupported, and inadequately noticed.

EPA also offhandedly proposes to "rescind" the agency's denials of petitions for reconsideration of the 2009 Endangerment Finding in 2010 and 2022. 90 Fed. Reg. at 36,291. This aspect of EPA's proposal is confounding, unexplained and unsupported, and also insufficiently noticed for comment.

First, EPA provides no authority—none—for rescinding a denial of a petition for reconsideration, much less rescinding one (or multiple) when it is simultaneously reconsidering the underlying action. It is unclear what EPA is attempting to do with this proposed action or how it can do so.

(2019-2028), Appendix B: WRAP Technical Support System for Regional Haze Planning: Modeling Methods, Results, and References at 5 (Sept. 11, 2024, rev. Feb. 24, 2025), https://cloud.env.nm.gov/resources/_translator.php/OTI5MTYyMThlZDhlMTUyZGRkYTJiNDBmNV8xODMxNTA~.pdf; EPA AIR QUALITY ASSESSMENT DIV., OFF. OF AIR QUALITY PLAN. & STANDARDS, 2014 National Emissions Inventory, version 2 Technical Support Document (July 2018), https://perma.cc/URM6-W3GU; N.Y. DEP'T OF ENV'T CONSERVATION, DIV. OF AIR RESOURCES, BUREAU OF AIR QUALITY PLAN., NEW YORK STATE IMPLEMENTATION PLAN REVISION FOR REGIONAL HAZE SECOND IMPLEMENTATION PERIOD 7-43 – 7-45 (Mar. 2020), https://perma.cc/SHL7-HV8J; R.I. DEP'T OF ENV'T MGMT., RHODE ISLAND REGIONAL HAZE STATE IMPLEMENTATION PLAN REVISION FOR THE SECOND IMPLEMENTATION PERIOD (2018-2028) 63–66 (Mar. 7, 2025), https://perma.cc/65PZ-S689; WASH. STATE DEP'T OF ECOLOGY, AIR QUALITY PROGRAM, STATE IMPLEMENTATION PLAN REVISION SECOND REGIONAL HAZE PLAN (2018-2028) 64–68 (Publ'n No. 22-02-005 Jan. 2022), https://perma.cc/F8F4-PCW5; WIS. DEP'T OF NAT. RES., WISCONSIN REGIONAL HAZE STATE IMPLEMENTATION PLAN REVISION FOR THE SECOND IMPLEMENTATION PERIOD at A2-49 – A2-51 (July 30, 2021), https://perma.cc/ZJ8F-J5A9; MICH. DEP'T OF ENV'T, GREAT LAKES & ENERGY, AIR QUALITY DIV., SUPPLEMENT TO MICHIGAN'S AUGUST 23, 2021, REGIONAL HAZE STATE IMPLEMENTATION PLAN REVISION FOR THE SECOND PLANNING PERIOD 30 (Mar. 2025), https://perma.cc/QF6U-QLQR; EPA Air Quality Assessment Div., Off. of Air Quality Plan. & Standards, Technical Support Document (TSD): Preparation of Emissions Inventories for the 2022v1 North American Emissions Modeling Platform 52 (EPA-454/B-25-001 May 2025), https://perma.cc/55EG-RXB6; E. Rsch. Grp. for Se. States Air Res. Managers, Inc., *Appendix B-1a: VISTAS II Task 2A — Emission Inventory Updates Report (AOI and PSAT)*, in N.C. DEP'T OF ENV'T QUALITY, DIV. OF AIR QUALITY, REGIONAL HAZE STATE IMPLEMENTATION PLAN (SIP) FOR NORTH CAROLINA CLASS I FEDERAL AREAS FOR SECOND PLANNING PERIOD (2019 – 2028) at 11 (Apr. 4, 2022), https://perma.cc/A6AR-W43F.

Second, even if EPA could rescind a reconsideration petition denial in such circumstances, EPA's sole stated rationale makes no sense. EPA claims it is rescinding the denials "for the sake of consistency and to ameliorate potential confusion regarding the EPA's proposed action." *Id.* Consistency with what? And what potential confusion? EPA does not say. (Indeed, EPA's bizarre Proposal only causes confusion). EPA's claim that the denials reflect "many of the same legal and scientific flaws" as the 2009 Endangerment Finding is similarly vague: Which alleged flaws? How many? In what way? Again, EPA does not say. EPA's failure of explanation is fatal to its cryptic Proposal here. *Cf. Small Refiner Lead Phase-Down Task Force* v. *EPA*, 705 F.2d 506, 551 (D.C. Cir. 1983) ("A rule without a stated reason is necessarily arbitrary and capricious.").

Third, and relatedly, EPA cannot seek from commenters a rationale for rescinding its petition denials where it has supplied none. To attempt to make sense of its perplexing proposal, EPA turns to commenters to do its job. *See* 90 Fed. Reg. at 36,292 ("We seek comment on the impact of the denials, if any, and on whether the denials were legally flawed for additional reasons not explicitly explored in this proposal."); *id.* at 36,311 ("we are also seeking comment on whether the denials in 2022 and 2010 were unlawful for any additional reasons not explored explicitly in this proposal"); *id.* at 36,325 (seeking comment on "the impact, if any, of the EPA's denial of rulemaking petitions in 2022 and 2010 on this alternative proposal"). But it is blackletter law that EPA cannot rely in any final rule on "additional reasons not explicitly explored in [its] proposal." *id.* at 36,292. If EPA intends to rely on such a rationale, it must re-notice its Proposal and hold another public comment period. *Cf. District of Columbia v. U.S. Dep't of Agric.*, 496 F. Supp. 3d 213, 234, 235 (D.D.C. 2020) (finding agency failure to provide "meaningful[] opportunity to participate in the notice-and-comment process" where "agency's explanation was far from "clear[ ]," and "depriv[ed] plaintiffs and other interested parties of the opportunity to test the agency's proffered conclusions and analysis, by providing correction, context or alternative interpretations of the data on which the agency relied").

To comply with the law and avoid propounding further confusion, EPA must withdraw its proposed rescission of its denials of petitions to reconsider the 2009 Endangerment Finding.

D. The Proposal is prejudged and its rationales pretextual.

1. EPA Administrator Zeldin has prejudged the outcome of the proposed Endangerment Finding rescission.

Like Secretary Wright with respect to the CWG Report, Administrator Zeldin has demonstrated an "unalterably closed mind on matters critical to the disposition of th[is] proceeding," and therefore EPA must withdraw this current Proposal and begin a new rulemaking process untainted by the Administrator's prejudgment. *Ass'n of Nat'l Advertisers*, 627 F.2d at 1170; *Nehemiah Corp.*, 546 F. Supp. 2d at 847 (describing the appropriate remedies when an agency official has prejudged the outcome of a particular matter).

A showing of prejudgment requires more than "mere discussion of policy or advocacy on a legal question." *Ass'n of Nat'l Advertisers*, 627 F.2d at 1171. An administrator "test[ing] his own views on different audiences" or "express[ing an] opinion prior to the issuance of a proposed rulemaking" does not show he "is unwilling or unable to consider rationally argument" from affected parties contrary to his position. *Id.* at 1173–74. It is permissible for a regulator to

"ma[ke] his intention known so that interested parties can contribute to the debate," provided that the regulator in question remains open to an alternative course of action despite their initial intention. *Kemp*, 736 F. Supp. at 333.

But an administrator's statements and actions may show he is "unable to consider meaningfully" the evidence presented in a rulemaking. *Ass'n of Nat'l Advertisers*, 627 F.2d at 1170. In such cases, "[a]llowing the public to submit comments to an agency that has already made its decision is no different from prohibiting comments altogether." *Nehemiah Corp.*, 546 F. Supp. 2d at 847. Indeed, "[t]here is no doubt that the purpose of [rulemaking proceedings] would be frustrated if [agency officials] had reached an irrevocable decision on whether a rule should be issued prior to . . . final action." *Ass'n of Nat'l Advertisers*, 627 F.2d at 1170.

As described *supra* Section V.B.1.b, courts have identified several patterns of behavior or statements which indicate an administrator is indeed unable to meaningfully consider the public's comments. Administrator Zeldin's conduct, both before and after he announced this Proposal, exemplifies each of these disqualifying courses of conduct, demonstrating that he prejudged the outcome of this proceeding: rescission of the 2009 Endangerment Finding and all vehicles greenhouse gas standards. And as described in the Vehicles Comment at Section V.A.2, Administrator Zeldin likewise prejudged the social cost of carbon as zero dollars per ton.

A senior political official's definitive and unequivocal announcement of a "dramatic change" in the agency's position, prior to the conclusion of administrative proceedings, can "indicate a prejudged political conclusion." *Int'l Snowmobile Mfrs. Ass'n*, 340 F. Supp. 2d at 1260–61 (predetermined political decision to ban snowmobiles shown by statements that "there will be . . . no future for these antiquated polluting vehicles in the National Park System"). Administrator Zeldin made just such unequivocal announcements here.

In announcing EPA's reconsideration of several climate change-related rules, including the 2009 Endangerment Finding and greenhouse-gas vehicle standards at issue here, Administrator Zeldin demonstrated an unalterably closed mind by repeatedly and consistently characterizing the announcement itself as marking a dramatic change in course, styling March 11, 2025, the date of that announcement, as "the Greatest Day of Deregulation in American History."[789] In Administrator Zeldin's press release on the announced reconsideration proceedings, he once more asserted, "*today is* the greatest *day* of deregulation our nation has seen."[790] Multiple press releases reiterate March 11 is "the greatest and most consequential *day* of deregulation in U.S. history." On March 12, Administrator Zeldin's *Wall Street Journal* opinion piece declared: "*Yesterday was* the most consequential day of deregulation in American history."[791] On July 29th, EPA reiterated that the "greatest and most consequential day of

[789] *EPA Administrator Lee Zeldin Launches the Greatest Day of Deregulation in American History*, YouTube: EPA (Mar. 12, 2025) [hereinafter March 12 Zeldin 'Deregulation Day' Speech], https://perma.cc/A8F9-AUCD .

[790] Press Release, EPA, EPA Launches Biggest Deregulatory Action in U.S. History (Mar. 12, 2025) [hereinafter March 12 EPA 'Deregulatory Day' Press Release], https://perma.cc/NQ58-FG2F (emphasis added).

[791] March 12 Zeldin *WSJ* Op-Ed, *supra* note 5 (emphasis added).

deregulation in the history of the United States" occurred "in March 2025"[792] Administrator Zeldin repeatedly identified the *announcement* of reconsideration proceedings as the operative action.[793] These statements indicate that prior to receiving any comments, Administrator Zeldin had already made a definitive decision about repealing prior climate change regulations.

Administrator Zeldin's commentary indicates not just a precommitment to *a* change as of March 11, but also a commitment to a particular *type* of regulatory change, prior to receiving any public comments at all. In declaring "the greatest and most consequential day of deregulation in U.S. history,"[794] Administrator Zeldin indicated unequivocally that EPA's actions would be *deregulatory*.[795] To characterize EPA's actions as definitively deregulatory commits the agency to one direction: less stringent vehicle standards. But to characterize the initiation of reconsideration proceedings—before even the release of a proposal—as the "greatest and most consequential day of deregulation in U.S. history"[796]—reveals EPA's commitment to an extreme scale of deregulation before any consideration of the public's input. Under the previous Trump administration, EPA took highly consequential deregulatory actions against greenhouse gas controls, relaxing vehicle standards to near costless, industry-following standards with (at best) anti-backsliding benefits. In that context, Administrator Zeldin's characterization of the March 11 announcements as "the greatest and most consequential day of deregulation *in U.S. history*" (emphasis added) reveals a pre-determined decision to go further than the first Trump administration and eliminate standards for vehicles altogether, as EPA has now proposed.

Underscoring the point, Administrator Zeldin committed EPA to a number: "These actions *will roll back trillions of dollars* in regulatory costs," he wrote.[797] That number matches the cost EPA's press office on March 12 assigned to the 2009 Endangerment Finding and greenhouse gas program for vehicles: "EPA has subsequently relied on the Endangerment Finding as part of its justification for seven vehicle regulations with an aggregate cost of more than one trillion dollars."[798] In releasing the Proposal, EPA similarly asserted that the 2009 Endangerment Finding "has been used to justify over $1 trillion in regulations."[799] Administrator Zeldin's math indicates that, as of March 11, he knew he would rescind the 2009 Endangerment Finding and the entire vehicles greenhouse gas program altogether, as EPA now proposes.

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[792] Press Release, EPA, EPA Releases Proposal to Rescind Obama-Era Endangerment Finding, Regulations that Paved the Way for Electric Vehicle Mandates (July 29, 2025) [hereinafter July 29 EPA Endangerment Finding Press Release], https://perma.cc/V2ZY-KVHX.

[793] March 12 EPA 'Deregulatory Day' Press Release, *supra* note 790 ("*As a result of these announcements*, the cost of living for American families will decrease." (emphasis added)).

[794] *Id.*; *see* July 29 EPA Endangerment Finding Press Release, *supra* note 792.

[795] March 12 Zeldin 'Deregulation Day' Speech, *supra* note 789; *see also* March 12 EPA Endangerment Finding Press Release, *supra* note 5; March 12 *WSJ* Op-Ed, *supra* note 5.

[796] March 12 EPA 'Deregulatory Day' Press Release, *supra* note 790.

[797] March 12 Zeldin *WSJ* Op-Ed, *supra* note 5 (emphasis added).

[798] March 12 EPA Endangerment Finding Press Release, *supra* note 5.

[799] July 29 EPA Endangerment Finding Press Release, *supra* note 792.

Administrator Zeldin included other "gratuitous (but prejudicial)" statements, *Int'l Snowmobile Mfrs. Ass'n*, 340 F. Supp. 2d at 1260, displaying extreme contempt for the protective purpose of greenhouse gas regulations and indicating he cannot and will not consider evidence in favor of greenhouse gas regulations. Twice, in both a Press Release and an Op-Ed, Administrator Zeldin asserted that, by "overhaul[ing] the Endangerment Finding," the EPA was "driving a dagger straight into the heart of the climate change religion."[800] Administrator Zeldin repeatedly characterized climate change prevention efforts as the "Green New Scam,"[801] and asserted on March 12 that "[t]oday marks the death of the Green New Scam."[802] Administrator Zeldin leveled wild aspersions against the motive behind and nature of climate change regulations, accusing the decision to enact greenhouse gas regulations in general of being a "quest to destroy the American economy in the name of climate change."[803] This intemperate, absolutist, and inflammatory language clearly indicates Administrator Zeldin "is unwilling or unable to consider rationally" contrary evidence and argument regarding the value to public health and welfare of controlling greenhouse gas emissions. *Ass'n of Nat'l Advertisers*, 627 F.2d at 1174. Moreover, Administrator Zeldin tipped his hand in a podcast appearance discussing the Proposal, where he stated that "repealing [the Endangerment Finding] will be the largest deregulatory action in the history of America; so it's kind of a big deal."[804]

These statements more than overcome the contemporary, pro forma statements Administrator Zeldin and the EPA made disclaiming any prejudgment of the outcome. Much like so-called "savings clauses" directing agencies to proceed "consistent with law," these statements "are read in their context" and cannot overcome "clear and specific language" that shows exactly the prejudgment these statements disclaim. *See City & Cnty. of S.F.*, 897 F.3d at 1239; *see HIAS, Inc.*, 985 F.3d at 325.

While Administrator Zeldin's inflammatory language is incompatible with the open mind that agency rulemaking demands, it is wholly consistent with President Trump's Day One directive to eliminate regulations that "burden" fossil fuel use and other Executive commands. *Unleashing* EO, 90 Fed. Reg. at 8354; *see supra* Section V.B.1.b & notes 338–340. In Section 6(f) of that order, the President targeted the 2009 Endangerment Finding specifically, directing EPA to "submit joint recommendations . . . on the legality and continuing applicability of" that finding. *Unleashing* EO, 90 Fed. Reg. at 8357. Read in context with the *Unleashing* EO's unmistakable condemnation of environmental regulations that inhibit the development of fossil fuel resources, *id.* at 8353, its declared opposition to "ill-conceived government-imposed market distortions that favor EVs over other technologies," *id.*, its attacks on the social cost of carbon,

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[800] March 12 EPA Endangerment Finding Press Release, *supra* note 5; *see* March 12 Zeldin *WSJ* Op-Ed, *supra* note 5.

[801] March 12 Zeldin *WSJ* Op-Ed, *supra* note 5; March 12 EPA Endangerment Finding Press Release, *supra* note 5.

[802] March 12 Zeldin *WSJ* Op-Ed, *supra* note 5.

[803] Lisa Friedman, *How Lee Zeldin Went From Environmental Moderate to Dismantling the E.P.A.*, N.Y. TIMES (Mar. 30, 2025), https://www.nytimes.com/2025/03/29/climate/lee-zeldin-epa.html.

[804] *See Why the left is going crazy over Sydney Sweeney, plus EPA admin Zeldin breaks news on the Progrum!*, YouTube: Ruthless Podcast, at 21:27–21:35 (July 29, 2025), https://www.youtube.com/watch?v=gReirNB2rwA.

id. at 8356, and its attacks on federal laws and congressional funding that support greenhouse gas reductions, *id.* at 8357, any reading of section 6(f) directs EPA toward one result: withdrawing the 2009 Endangerment Finding. That internal directive likewise shows the Administrator is not "free, [neither] in theory [nor] in reality, to change his mind." *Ass'n of Nat'l Advertisers*, 627 F.2d at 1172; *see Int'l Snowmobile Mfrs. Ass'n*, 340 F. Supp. 2d at 1260 (citing Assistant Secretary's memorandum, prior to conclusion of environmental review, "directing the agency to prohibit snowmobile access in national park units" and providing "a sweeping condemnation of all recreational snowmobile use in the National Park System" as evidence of prejudgment).

2. The Proposal's Rationale is Pretextual.

The above evidence also indicates that the actual motivations for the proposed repeal have been improperly excluded from the administrative record, and that the reasons in the Proposal are pretextual. Indeed, the pretextual nature of the Proposal is apparent on its face: EPA proposes to abandon the 16-year-old scientific determination that greenhouse gas emissions endanger public health and welfare, a fact underpinned by arguably the largest body of scientific and economic research ever dedicated to a single topic, by relying on a procedurally and substantively flawed report, tepid appeals to uncertainty, and a handful of statements that EPA finds "may" or "could" be valid. *See generally* Section V. Indeed, the sheer number of tortured alternative rationales purportedly all leading to the same outcome suggest an Administrator with a closed mind casting about for a viable justification for his predetermined result.

But the broader context confirms the pretext. Perhaps most telling is EPA's stunningly casual disregard of five comprehensive assessments of climate science and climate change impacts compiled by the IPCC and five Congressionally mandated and comprehensive NCAs of U.S. climate impacts prepared by expert scientists and economists under the auspices of the USGCRP—reflecting the peer-reviewed work of thousands of scientists and economists. *See supra* Sections V.A, V.C.2. Indeed, the Proposal is entirely devoid of discussion of the central findings of the NCA and IPCC reports. Instead, the Proposal references them only to provide misleading discussions of cherry-picked topics intended to undermine confidence in the body of climate science and distract from the overwhelming evidence of the severe risks posed by unabated climate change, on which the Proposal is silent. *See supra* Sections V.A–B. Similarly, EPA has embraced a draft of the deeply flawed CWG Report, authored by a hand-picked group—now disbanded—of four scientists and an economist long-associated with discredited climate skeptic positions, which was, within hours of its release, drawing public condemnation from researchers whose work had been mischaracterized and misused. *See supra* Section V.B.

All available evidence shows that, rather than conducting a neutral review of available research, consistent with EPA's statutory obligations, EPA was instead motivated by the Administration's political attacks on the legitimacy of climate change science and climate pollution regulations to benefit the fossil fuel industry. Indeed, the USGCRP has simultaneously been disbanded and federal employees removed from their positions, the website that provided the public with access to the NCAs has been taken offline, and the scientists working on the next NCA have been dismissed.[805] Thousands of employees at the federal agencies with the greatest

[805] Chelsea Harvey, *Top Website for Crucial U.S. Climate Information Goes Dark*, SCI. AM. (July 1, 2025), https://perma.cc/PU9F-W4EM.

expertise in climate change and ongoing research on climate change and climate impacts (including NOAA, NASA, and EPA) have been fired or let go.[806] In other words, the federal government has opted to rely on the rushed work of five climate skeptics whose deliberations are veiled in secrecy, disregarded all rigorous, peer-reviewed science, and made it more difficult for actual experts to conduct a rigorous survey of climate science by firing career employees with the relevant expertise and hiding the most relevant, rigorous federal syntheses of that science.

Numerous Executive Orders also confirm what these actions make clear: the Administration and EPA's true goal is to reshape the country's energy sector in favor of the resources the Administration prefers,[807] misapplying various federal authorities—including the health-protective mandates of the Clean Air Act—in pursuit of this political end. EPA's approach in the Proposal is by all indications shaped by the numerous Executive Orders that urge and facilitate greater use of fossil fuels, constrain use of renewable energy, and remove pollution abatement and even reporting obligations from pollution sources using fossil fuels. *See supra* Section V.B.1.b & notes 338–340. Statements by President Trump and agency leaders and officials have likewise evinced a desire to promote fossil fuels, undermine renewable energy, and discourage the use of electric vehicles.[808]

Here, far from a genuine concern over the scientific basis of agency authority or the technological feasibility of greenhouse gas controls, the agency's actual motivation appears to be—in service of Executive Orders promoting fossil fuels—to remove an inherent market disadvantage from the petroleum industry by eliminating pollution control requirements. In any final agency action, the administrative record—as defined here by 42 U.S.C. § 7607(d)(7)(A)—must be "expanded" to include the genuine justifications underpinning this action. In particular,

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[806] *Id.*

[807] In signing the first tranche of Executive Orders, President Trump stated: "We're bringing back an industry that was abandoned. . . . All those plants that have been closed are going to be reopened." Burke, *supra* note 340.

[808] *See, e.g.*, *Watch: Trump says 'we don't allow windmills' after cancelling nearly complete offshore wind project*, YOUTUBE: PBS NEWSHOUR, at 0:00-0:07, 0:19-0:31, 2:02-2:08 (Aug. 26, 2025), https://www.youtube.com/watch?v=sp97kSwaBfQ (President Trump: "Coal is back in this country too by the way. There's a reason they use it, cause it's good. . . . We don't allow windmills. . . . [W]e don't want . . . solar panels. . . . I hope [other countries] get back to fossil fuel. . . . [W]hether we like it or not, fossil fuel is the thing that works."); '*Electric Car Lunacy': A Look at Harsh Things Donald Trump Said About EVs over the Years*, MINT (Mar. 11, 2025), https://perma.cc/SRT5-QEP7 (noting that during his presidential campaign, President Trump discussed "All Electric Car Lunacy," described EV promotion as a "hoax" and a project of "Radical Left Fascists, Marxists & Communists," and repeatedly claimed, contrary to fact, that electric vehicles cannot travel long distances); Brad Plumer & Lisa Friedman, *With Little Explanation, Trump Throws Wind Industry into Chaos*, N.Y. TIMES, (Aug. 26, 2025), https://www.nytimes.com/2025/08/26/climate/trump-wind-farms-energy.html ("'The president is not a fan of wind, the economic impacts, the environmental impacts to fisheries,' Mr. Zeldin said on Fox News, adding that the president believes the nation needs more fossil fuels."); *id.* ("'Americans deserve energy that is affordable, reliable and built to last — not experimental and expensive wind projects that are proven failures,' Aubrie Spady, a spokeswoman for the Interior Department, said. . . ."); *Secretary of Energy Chris Wright delivers Keynote Remarks at CERAWeek 2025*, U.S. DEP'T OF ENERGY (Mar. 10, 2025), https://perma.cc/68X3-R3W3 (alleging that policies promoting the use of EVs had been "wreaking havoc on our auto industry.").

EPA must include both internal and external agency communications relevant to the action being taken, including communications with the White House and outside political and industry stakeholders. *See Dep't of Commerce*, 588 U.S. at 781.

In sum, EPA has prejudged the outcome of this rulemaking, and its stated reasons for rescinding the 2009 Endangerment Finding and associated vehicle standards are pretextual. Accordingly, the Agency must withdraw this current proposed rule and begin a new rulemaking process that is untainted by the Administrator's prejudgment and that clearly discloses the grounds upon which the agency acted.[809]

VII. THE PROPOSAL IS PROCEDURALLY FLAWED

The Proposal was also issued "without observance of procedure required by law" in myriad ways. 42 U.S.C. § 7607(d)(9)(D). Specifically, EPA has failed to provide a meaningful opportunity for comment, including by failing to docket data and other information considered; has failed to explain if and how it plans to employ artificial intelligence in the decision making process; and has failed to explain its deviation from recommendations of the National Academy of Sciences. Each of these serious failures is of central relevance to the outcome of this rulemaking and warrants withdrawal.

A. EPA has not provided a meaningful opportunity for comment and has failed to docket and make available for comment data and other information considered.

Notice and sufficient time for public comment are critically important "(1) to ensure that agency regulations are tested via exposure to diverse public comment, (2) to ensure fairness to affected parties, and (3) to give affected parties an opportunity to develop evidence in the record to support their objections to the rule and thereby enhance the quality of judicial review." *Prometheus Radio Project v. FCC*, 652 F.3d at 449 (citing *Int'l Union, United Mine Workers of Am. v. Mine Safety & Health Admin.*, 407 F.3d 1250, 1259 (D.C. Cir. 2005)). This same logic applies to repeals, as the notice and comment period for a repeal of a final rule "ensures that an agency will not undo all that it accomplished through its rulemaking without giving all parties an opportunity to comment on the wisdom of repeal." *California by & through Becerra v. DOI*, 381 F. Supp. 3d 1153, 1172 (N.D. Cal. 2019) (citing *Consumer Energy Council of America v. FERC*, 673 F.2d 425, 446 (D.C. Cir. 1982)). For the following reasons, and as discussed in our requests to extend the comment period and for additional public hearings, attached as ***Appendix 3***, in numerous ways EPA failed to provide a meaningful opportunity for comment on the Proposal as required by the Clean Air Act. 42 U.S.C. § 7607(d)(9)(D).

First, EPA provided insufficient opportunity to comment. EPA offered a comment period of only 52 days on the Proposal. Given the breadth and complexity of the Proposal—which includes rescission of both the 2009 Endangerment Finding and the entirety of the light-, medium-, and heavy-duty vehicle vehicles greenhouse gas programs, as well as multiple

[809] EPA's decision to abandon its own state-of-the-art social cost of greenhouse gas estimate and refusal to use any other available estimates, to otherwise grapple with the harms that will be caused by the Proposed Rule, or to provide any justification for why the rescission is warranted given the harms it will cause, *see supra* Sections V.A, VI; *infra* Section VIII.B, is further evidence of pretext.

alternative proposed bases for those repeals—that abbreviated comment period is wholly inadequate.[810] Indeed, it is inconsistent not only with general Executive Branch practice,[811] but also with past EPA practice in the context of both greenhouse-gas endangerment findings and vehicles emission standard rulemakings.[812] Tellingly, when EPA proposed the Endangerment Finding in 2009, it provided a total of 180 days for comment and received over 380,000 comments. 74 Fed. Reg. 66,496, 66,500 (Dec. 15, 2009). And the public has shown a consistent high level of public interest in greenhouse-gas rulemakings since 2009, most recently submitting 127,231 comments on EPA's proposed repeal of power-plant greenhouse-gas emission standards earlier this summer, and more than 105,000 comments on this Proposal, as of September 17, 2025.[813] Against that backdrop, a 52-day comment period is plainly insufficient. *See California by & through Becerra*, 381 F. Supp. at 1177 (length of comment period and number of comments received in prior rulemaking processes relevant in evaluating the adequacy of repeal comment periods) (citing *N.C. Growers' Ass'n, Inc. v. United Farm Workers*, 702 F.3d at 770).

EPA also provided insufficient opportunity for comment through public hearings. Ignoring the requests of the States and Local Governments and others for additional and in-person hearings in impacted jurisdictions, EPA held a mere 4 virtual hearings, less than 3 weeks after publishing a complex policy reversal that would, if finalized, have dire consequences for communities, as well as zero- and low-emission vehicles businesses, across the nation. EPA then further artificially constrained public input at those hearings by permitting most commenters only 2.5 minutes to speak—including by cutting off microphones—and failing to allow commenters on a lengthy waitlist to speak.

Second, EPA has deprived the public of a meaningful opportunity for comment, and violated yet another provision of the Clean Air Act in another way, namely by failing to disclose at least five categories of relevant material and thus failing its statutory duty to disclose and docket essential data and information underlying the Proposal. *See* 42 U.S.C. § 7607(d)(3), (6); 5 U.S.C. § 553(b); *Sierra Club v. Costle*, 657 F.2d 298, 398 (D.C. Cir. 1981) (if "documents of central importance upon which EPA intended to rely had been entered on the docket too late for any meaningful public comment prior to promulgation, then both the structure and spirit of section 307 would have been violated."). For example, EPA relies heavily on the CWG Report to

[810] And this inadequate period was 7 days more than the mere 45 days EPA initially allotted before commenters pointed out EPA had failed to comply with the Act's requirement for a 30-day post-public-hearing comment period. 42 U.S.C. § 7607(d)(5)(iv).

[811] Executive Order No. 12866, 58 Fed. Reg. 51,735, 51,740 (Oct. 4, 1993) (comment period should be "not less than 60 days")

[812] *E.g.*, 84 Fed. Reg. 32,520 (July 8, 2019) (providing 150 days for comment on Clean Power Plan repeal); 80 Fed. Reg. 37,758 (July 1, 2015) (providing 60 days for comment on proposed aircraft greenhouse gas standards); 75 Fed. Reg. 25,324, 25,328 (May 7, 2010) (60-day comment period; 129,000 comments on light-duty vehicles greenhouse gas standards); 76 Fed. Reg. at 57,362 (62-day comment period; 41,000 comments on medium- and heavy-duty vehicles greenhouse gas standards).

[813] EPA, Repeal of Greenhouse Gas Emissions Standards for Fossil Fuel-Fired Electric Generating Units, Docket EPA-HQ-OAR-2025-0124, https://www.regulations.gov/docket/EPA-HQ-OAR-2025-0124; EPA, Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards, Docket EPA-HQ-OAR-2025-0194, https://www.regulations.gov/docket/EPA-HQ-OAR-2025-0194.

support its alternative rationale in the Proposal. 90 Fed. Reg. at 36,308–10. But the CWG Report is replete with procedural and substantive flaws, *see supra* Section V.B, and likewise had a woefully insufficient comment period.[814] If EPA intends to rely on the CWG Report in any form, it must first make that version available for public comment, and then extend the Proposal's comment period to at least 60 days after the CWG Report has been cured of all deficiencies, undergone public comment, and been finalized to ensure the public has meaningful opportunity to evaluate, scrutinize, and comment on the main scientific basis proffered for the Proposal.

Relatedly, because the CWG operated entirely in secret with no transparency whatsoever, *see supra* Section V.B.1.a, all CWG records, which are plainly of central relevance to this proceeding, are unavailable to commenters. EPA has failed to disclose that pertinent information as part of this rulemaking, thus also impeding commenters' ability to respond to the Proposal. *Sierra Club*, 657 F.2d at 398. Notably, EPA and other federal defendants in the lawsuit challenging the CWG's FACA violations have conceded that, "if EPA in fact relies on the CWG's work in its final rule," any "injury stemming from an inability to comment due to lack of CWG records could . . . be remedied in subsequent Clean Air Act litigation" challenging any final action by EPA, because such claims "can provide a basis for remand if a Court were to find that nondisclosure did indeed deprive Plaintiffs of their ability to meaningfully comment."[815] It is on the basis of that representation (and a comparable representation by counsel for EPA at the preliminary injunction hearing) that the district court in that case denied the plaintiffs' motion for a preliminary injunction to order disclosure of CWG records before the comment period closed.[816] Thus, EPA is estopped from now arguing that any CWG records that should have been disclosed before the comment period cannot "provide a basis for remand" of a final rule.[817]

Similarly, the abbreviated comment period has prevented the public's full consideration of the critically important NAS Consensus Study Report—released just five days before the comment deadline on the Proposal.[818] As discussed in more detail elsewhere in these Comments, NAS reached fundamentally different conclusions about the strength of the science supporting the 2009 Endangerment Finding. Contrary to the Proposal's contention that the scientific evidence is too uncertain to support a positive finding, the NAS found that the finding has "stood the test of time, and is now enforced by even stronger evidence."[819] Not only is that study, on its face, highly relevant to EPA's reconsideration of the 2009 Endangerment Finding, as discussed *infra* Section VII.C, section 307(d) *requires* EPA to evaluate and explain differences between the

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[814] *See* CWG Report Comment, *supra* note 2; States' Request for an Extension of Comment Period on the CWG Report, attached as Appendices.

[815] Defs.' Response to Plfs.' Notice at 2, *Env't Def. Fund v. Wright*, No. 1:25-cv-12249 (D. Mass. Sept. 15, 2025), ECF No. 56.

[816] *Env't Def. Fund*, 2025 WL 2663068, at *2 ("If the Plaintiffs proceed with their litigation and succeed, there is no indication that they will not receive those documents in time to challenge a possible future recission of the Endangerment Finding in court.").

[817] Defs.' Response to Plfs.' Notice at 2, *Env't Def. Fund v. Wright*, No. 1:25-cv-12249 (D. Mass. Sept. 15, 2025), ECF No. 56.

[818] NAS CONSENSUS STUDY REPORT, *supra* note 1.

[819] *Id.* at 1.

study's recommendations and the Proposal. *See* 42 U.S.C. 7607(d)(3)(C). Despite the announcement that NAS intended to produce a report "in time to inform EPA's decision process," EPA steamrolled ahead with an abbreviated comment period.[820] EPA must address the NAS report, and the public must have a meaningful opportunity to comment on the report's findings and EPA's analysis of them. *See id.* At a minimum, EPA must begin the rulemaking process anew to provide that analysis and allow adequate time for public review and input.

Further, EPA cites unspecified critiques of the NCAs as a justification for disregarding well-established, peer-reviewed scientific research underpinning the 2009 Endangerment Finding, as discussed *supra* in Section V.C.2. Yet EPA fails to name, identify, or docket for public review the critiques it purportedly considered, *see* 90 Fed. Reg. 36,310, thereby depriving interested parties of a reasonable opportunity to respond to the so-called critiques in violation of the Clean Air Act notice and comment requirements.[821]

EPA also failed to docket crucial information relevant to the true reasons driving the Proposal, as discussed *supra* in Section VI.D. The missing information about EPA's actual rationales for the Proposal includes, but is not limited to, internal and external agency communications relevant to the Proposal, as well as communications with the White House and external political and industry stakeholders.[822] Such omissions obstruct transparency and deprive the public of essential context necessary for informed participation in the rulemaking process.

EPA also failed to provide as part of this rulemaking fundamental information in the economic impact analysis required under Clean Air Act section 317. 42 U.S.C. § 7617(a)(5), (d) (requiring an economic impact assessment for all section 202 vehicle rules that is "as extensive as practicable"). These failures have likewise impeded the public's ability to understand and comment on the Proposal and, in effect, have forced the public to compile and present that information for EPA's consideration, within an unreasonably short comment period. EPA further failed to make available data regarding the cumulative impacts analysis underlying its draft RIA. *See infra* Section VIII. By failing to adequately disclose or docket relevant material, EPA has failed to fulfill its statutory duty, deprived the public of a meaningful opportunity to comment, and rendered the Proposal procedurally defective. *Conn. Light & Power*, 673 F.2d at 530–31 ("An agency commits serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary."); *Am. Pub. Gas Ass'n v. DOE*, 72 F.4th 1324, 1338–39 (D.C. Cir. 2023) (faulting agency for finalizing rule that relied on new data without opportunity for notice and comment on that data).

Further, an agency must provide an opportunity to comment on a final rule that is not the "logical outgrowth" of the initial notice. *Small Refiner Lead Phase-Down Task Force*, 705 F.2d

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[820] Defs.' Response to Plfs.' Notice at 2, *Env't Def. Fund v. Wright*, No. 1:25-cv-12249 (D. Mass. Sept. 15, 2025), ECF No. 56.

[821] To the extent that EPA intended to incorporate critiques found in Request for Correction under Executive Order No. 14303 and the Information Quality Act Concerning the NCA5 Published by the USGCRP, Docket No. EPA-HQ-OAR-2025-0194-0019, those unidentified critiques are addressed *supra* Section V.C.2.

[822] *See supra* note 127, explaining the States' unsuccessful attempts to gather this information via FOIA requests.

at 547 ("both under the APA and under Clean Air Act § 307(d) . . . the final rule must be a 'logical outgrowth' of the proposed rule"). A final rule is not the logical outgrowth of the original notice if a new round of notice and comment would "provide commenters with their first occasion to offer new and different criticisms which the agency might find convincing." *Fertilizer Inst. v. EPA*, 935 F.2d 1303, 1311 (D.C. Cir. 1991). "An agency commits serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary." *Penobscot Indian Nation v. U.S. Dep't of Hous. & Urb. Dev.*, 539 F. Supp. 2d 40, 49–50 (D.D.C. 2008) (cleaned up); *see also Kern County Farm Bureau v. Allen*, 450 F.3d 1072, 1076 (9th Cir. 2006) ("An agency's 'duty to identify and make available technical studies and data that it has employed in reaching the decisions to propose particular rules' is integral to its notice requirement."). To the extent that EPA, after the public comment period, attempts to address any of the Proposal's myriad defects with additional information or analysis, it must offer a new opportunity for comment. *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1031 (D.C. Cir. 1978) (finding that agency's final rule was not "logical outgrowth" of previous notice and comment where it was "the result of a complex mix of controversial and uncommented upon data and calculations").

In sum, these procedural failures by EPA, among others detailed in the States and Local Governments' extension requests, attached as ***Appendix 3***, plainly violate section 307(d)(3)(C) and (9)(D). 42 U.S.C. § 7607(d)(3)(c), (9)(D). The States and Local Governments raised EPA's failures during the comment period, and they are so serious and of central relevance to the Proposal such that it is substantially likely that it would have been significantly changed if EPA had not made those errors. Altogether, EPA failed to provide a "meaningful opportunity" for comment on the Proposal. *Prometheus Radio Project v. FCC*, 652 F.3d at 450 ("meaningful opportunity" must include "enough time with enough information to comment" (quoting *Rural Cellular Ass'n v. FCC*, 588 F.3d 1095, 1101 (D.C. Cir. 2009)).

B. EPA must disclose, explain, and subject to public comment the use of Artificial Intelligence in the decision-making process.

It is well-established that in agency rulemakings, "the most critical factual material that is used to support the agency's position on review must have been made public *in the proceeding* and exposed to refutation." *Air Transp. Ass'n of Am. v. FAA*, 169 F.3d 1, 7 (D.C. Cir. 1999) (emphasis in original). Not only the substance of EPA's decision, but also the methods used to reach it, must be made available for public comment. Although agencies may utilize computer models—including artificial-intelligence models—in the course of decision making, that use must be disclosed and subjected to comment. Among other things, "[w]hen an agency uses a computer model, it must explain the assumptions and methodology used in preparing the model and, if the methodology is challenged, must provide a complete analytic defense." *U.S. Air Tour Ass'n v. FAA*, 298 F.3d 997, 1008 (D.C. Cir. 2002) (cleaned up).

The Proposal and accompanying documents that EPA placed in its rulemaking docket for this rule neither assert nor, insofar as commenters have been able to discern, reveal any role of AI or other computer models in the Proposal's formulation (beyond the modeling done for the prior rule, as noted above), or any plans to utilize AI in formulating the final rule, including in reviewing public comment. The Agency, however, has recently announced that it "uses software with AI methods to more efficiently complete resource-intensive tasks like screening literature

for relevance and data extraction."[823] If, at any point during the rulemaking process, EPA has used or will use AI or other computer models, EPA must disclose—and solicit comment on—why a model was used; which model was selected and why, whether, and how the model has been validated; all prompts or inputs to the model (and how and why those prompts or inputs were selected); and how EPA has considered or may consider the model's outputs or other incidents in decision making. If the outputs or other incidents of a computer program play a substantive role in EPA's decision, then the program itself should be disclosed to commenters. In any instance where the program is not made available to commenters, or its results are not reproducible, EPA must explain why the program's public availability or reproducibility is unnecessary to comply with the Clean Air Act, Information Quality Act, and other pertinent statutes, as well as applicable regulations, policies, and procedures concerning information management, information quality, and peer review. EPA must also disclose any persons and entities not employed by the agency who developed, modified, provided access to, or used a computer program in the course of the decision-making process. To do otherwise would violate black-letter law.

C. EPA has failed to comply with the statutory requirements in Clean Air Act section 307(d)(3) to explain its deviation from recommendations by the National Academy of Sciences.

Section 307(d)(3) of the Clean Air Act requires that a proposed rule be accompanied by a statement of its basis and purpose, including:

> any pertinent findings, recommendations, and comments by the Scientific Review Committee . . . and the National Academy of Sciences, and, if the proposal differs in any important respect from any of these recommendations, an explanation of the reasons for such differences. All data, information, and documents referred to in this paragraph on which the proposed rule relies shall be included in the docket on the date of publication of the proposed rule.

42 U.S.C. § 7607(d)(3). The NAS provides independent, objective analysis and advice to the government on complex scientific issues.[824] *Pub. Citizen v. U.S. Dep't of Just.,* 491 U.S. 440, 461 n.11 (1989). Its "[m]embers are elected by their peers for outstanding contributions to research."[825] NAS's "conclusions deserve special weight because Congress specifically instructed EPA to consider" them. *Small Refiner Lead Phase-Down Task Force*, 705 F.2d at 530.

Here, as discussed *supra* Sections II.B.1, IV.A, NAS has made centrally relevant findings, recommendations, and comments regarding the 2009 Endangerment Finding and scientific evidence that has amassed since.[826] These findings touch on every important scientific issue discussed in the Proposal, *see* 90 Fed. Reg. at 36,308–10, including the extent of human-caused influences on climate change, observed physical changes in the climate, expected future

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[823] EPA, *AI tools used in EPA's Systematic Review Process*, https://perma.cc/BL44-JYE5.

[824] *See also* Nat'l Acad. of Scis., *Organization*, https://perma.cc/X8WK-Y8GY.

[825] *See id.*

[826] NAS CONSENSUS STUDY REPORT, *supra* note 1 at 1-2 (summarizing areas covered).

changes based on modeling, and impacts on public health and welfare.[827] The NAS Consensus Study Report's conclusions fundamentally differ from the Proposal's conclusions in many of these areas.

> Start with EPA and NAS's respective overarching conclusions. EPA found:
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> > The Administrator has serious concerns that many of the scientific underpinnings of the Endangerment Finding are materially weaker than previously believed and contradicted by empirical data, peer-reviewed studies, and scientific developments since 2009.

90 Fed. Reg. at 36,292. NAS, in turn, found:

> > EPA's 2009 finding that the human-caused emissions of greenhouse gases threaten human health and welfare was accurate, has stood the test of time, and is now reinforced by even stronger evidence.[828]

These findings are diametrically opposed. To give a few more granular examples, regarding increased temperatures, although the Proposal maintains that "the data suggest that domestic temperatures peaked in the 1930s and have remained more or less stable, in relative terms, since those highs (2025 CWG Draft Report at 57–60)," 90 Fed. Reg. at 36,308, NAS found that "[s]ix decades of observations document a tripling of average annual heat-wave frequency since the 1960s."[829] Similarly, with respect to ocean impacts, EPA contends that "the oceans have demonstrated a greater capacity to take up and process CO_2 (including through aquatic plant life) without resulting in the anticipated negative impacts on pH and ocean ecosystems, including coral reefs (2025 CWG Draft Report at 6–9, 18–20)." *Id.* By contrast, NAS found that "[o]cean pH has decreased, and along with ocean warming, poses risks to marine ecosystems and the benefits they provide. . . . Decreasing ocean pH, along with warming, poses risks to species with shells and skeletons and coral reefs."[830] And regarding sea level rise, EPA claims that "recent data and analyses suggest that aggregate sea level rise has been minimal, at least with respect to impacts on the United States, and that sea level has risen in some domestic localities while falling in others (2025 CWG Draft Report at 75–80)." 90 Fed. Reg. at 36,309. But NAS concluded that "[r]egional relative sea level rose on average by approximately 11 inches in the last century along the continental United States, putting many coastal communities at risk of increased coastal flooding and vulnerability to coastal storms" and that "[c]hanges in average sea level have doubled the frequency of high tide flooding in the continental United States over the past few decades."[831] Other fundamental differences abound.[832]

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[827] *Id.*

[828] NAS CONSENSUS STUDY REPORT, *supra* note 1 at 1.

[829] *See id.*, *supra* note 1, at 21.

[830] *See id.*

[831] *See id.*

[832] *Compare, e.g.*, Heat-related vs. cold-related mortality: Proposal, 90 Fed. Reg. at 36,308 ("data continue to suggest that mortality risk from cold temperatures remains by far the greater threat to public

Congress could not have been clearer about what it expected in such a situation: EPA has a statutory obligation to consider the pertinent findings and respond to any fundamental differences so that the public may have an opportunity to provide meaningful input. 42 U.S.C. § 7607(d)(3). EPA cannot lawfully proceed with this proceeding without satisfying these statutory requirements. *See Ctr. for Food Safety v. Regan*, 56 F. 4th 648, 659 (9th Cir. 2022) ("When an agency deliberately ignores Congress's legislative command, it undermines the will of the people and ultimately our constitutional structure of government."). EPA thus must begin its rulemaking process anew to incorporate and address the Consensus Study Report's findings. *See supra* Section VII.A.

Before the Proposal was issued, NAS also made extensive pertinent findings, recommendations, and comments relating to climate science reports that EPA (through its reliance on the CWG Report) ignores in the Proposal, but that it is also required to address. Yet EPA has neither included those pertinent findings in the docket nor explained the reasons the Proposal differs from them. For example, in conducting a technical review of the Draft NCA5 in

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health in the United States and around the world at the aggregate level (2025 CWG Draft Report at 112)."), *with* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 42, 44 ("According to data from the national Weather Service, heat is associated with more weather-related deaths than any other extreme weather event," and "cold-related mortality reductions with climate change have not been observed and remain unclear"); Climate modeling: Proposal, 90 Fed. Reg. at 36,309 ("The Endangerment Finding consistently cites climate models as showing or predicting warming trends, melting ice, anthropogenic droughts, shrinking snowpack, damage to aquatic systems of life, and increased ocean temperature and acidity. *E.g.*, 74 FR 66523, 66532. However, the data relied upon as inputs to these models may be based on inaccurate assumptions. (2025 CWG Draft Report at 14–22)."), *with* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 36 ("Models have proven skillful and are effective at simulating a fingerprint of human influence on the changing climate that is now observed… including the vertical structure of temperature changes and enhanced warming over land relative to oceans. All climate models – regardless of assumptions about future emissions scenarios or estimates of climate sensitivity – consistently project continued warming in response to future atmospheric greenhouse gas increases"); Extreme weather: Proposal, 90 Fed. Reg. at 36,309 ("[T]he Endangerment Finding projected adverse health impacts from increased frequency and severity of hurricanes, flooding, and wildfires. *E.g*., 74 FR 66498. Recent data and analyses suggest, however, that despite increased public attention and concern, such extreme weather events have not demonstrably increased relative to historical highs (2025 CWG Draft Report at 65–72, 111)."), *with* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 21 ("Observations show continuing increases in hot extremes alongside declines in cold extremes. . . . In the United States, regional shifts in annual precipitation and a higher number of extreme single-day precipitation events have been observed. . . . Evidence of increasing wildfire severity linked to climate change has grown since EPA (2009)."); CO_2 benefits: Proposal, 90 Fed. Reg. at 36,309 ("[T]he Endangerment Finding did not adequately balance the projected adverse impacts attributed to global climate change with the potential benefits to the United States of increased GHG concentrations, and increased CO_2 concentrations in particular."), *with* NAS CONSENSUS STUDY REPORT, *supra* note 1, at 59 ("[B]eneficial impacts will not likely fully mitigate losses associated with climate factors including heat stress, increased water demand, decreased water or nitrogen availability, or enhanced transfer of carbon belowground as plants respond to the need for additional nitrogen (Long, 1991; Mason et al 2022; Possinger et al 2025; Wolfe et al 1998). Carbon fertilization benefits have been difficult to detect in forests (Girardin et al 2016; Possinger et al 2025). Moreover, rapid growth does not necessarily translate to higher crop yields because faster development results in smaller plants, a shortened reproductive period, and reduced yield (Hatfield and Prueger 2015; Hatfield et al 2011; Zhu et al 2021).").

2023, NAS made findings, recommendations, and comments related to the scientific bases for climate change harms. In its NCA5 Review, NAS evaluated whether the NCA5 "provides accurate information grounded in the scientific literature."[833] NAS concluded that it did.[834] EPA failed to include NAS's findings in the docket and to explain the reason for the differences at the time it issued the Proposal.

From a methodological perspective, the NCA5 Review includes NAS's recommendations on scientific standards for data and analytical quality,[835] like the importance of using standard datasets[836] and of reporting on the full range of scenarios considered and presented.[837] But the CWG Report uses nonstandard datasets[838] and discusses only one particular scenario (RCP8.5) as implausible,[839] *but see supra* Section V.B.2.a.iii, ignoring the rest. NAS also addressed the need to present confidence and likelihood statements,[840] and to match findings with "an integration, evaluation, and assessment" of the authors' expertise,[841] but the CWG Report fail to do so, *see supra* Section V.B.1.c.iii, V.B.2.[842]

From a substantive perspective, NAS also made substantive findings that materially conflict with the Proposal and the CWG Report on which it relies. For example, the NCA5 Review found that the "key aspect of climate change for agriculture production is extreme events and uncertainties that impact production,"[843] and that "[u]npredictable weather is probably the most severe challenge facing agriculture production,"[844] including "increased weather variability and extremes in temperature and precipitation."[845] By contrast, the CWG Report asserts that increasing levels of atmospheric carbon dioxide have been and continue to be beneficial for

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[833] NAS NCA5 REVIEW, *supra* note 714, at 1.

[834] *Id.* at 1–2.

[835] *Id.*

[836] *Id.* at 24.

[837] "Where projections from multiple climate change scenarios are available, (e.g., RCPs 4.5 and 8.5), NCA5 should strive to report results from multiple scenarios. This is particularly important because the divergence between projected climate impacts based on different scenarios becomes more pronounced decades from now, especially after mid-century." *Id.*

[838] The CWG uses nonstandard data sets in the contexts of climate models, CWG REPORT, *supra* note 4, at 6.3 Temperature extremes, 53–60; 6.4 Extreme precipitation, 60–66; 6.5 Tornadoes, 66–67; 6.7 Droughts, 68–69; and 6.8 Wildfires, 69–72.

[839] *Id.* at 16.

[840] NAS NCA5 REVIEW, *supra* note 714, at 15–16.

[841] *Id*. at 18.

[842] *See also* CWG REPORT, *supra* note 4, at 6.3 Temperate extremes, 53–60; 6.6 Flooding, 68; 6.7 Droughts, 68–69; 7 Changes in sea level, 75–80; 2.2. The Alkaline Oceans, 7–8; and 6 Extreme Weather, 47.

[843] *Id.* at 103.

[844] *Id.*

[845] *Id.* at 104.

grasslands and agriculture generally.[846] NAS also issued pertinent findings in a Review of USGCRP's Draft Decadal Strategic Plan, 2022–2031.[847] In that Review, NAS made numerous recommendations with which the Proposal, in reliance on the CWG Report, contradicts without explanation.[848] In 2024, NAS issued a report finding that "[m]ost nations of the world have announced a goal of net zero GHG emissions by midcentury because of overwhelming scientific evidence that climate change is dangerous, and human caused."[849] NAS made 80 recommendations including many pertaining to transitioning to renewable energy to address the endangerment.[850] EPA must reconcile the Proposal and its reliance on the CWG Report with the findings, recommendations, and comments in these and similar reports.[851]

In sum, because EPA failed to fulfill its statutory duty to include the NAS's "pertinent findings, recommendations, and comments" identified above and to explain the reason for the differences between those recommendations and EPA's proposal at the time the Proposal was docketed, the Proposal is incurably procedurally defective and must be withdrawn. *See* 42 U.S.C. § 7607(d)(3)(C); *Mississippi v. EPA*, 744 F.3d at 1354–55, 1361–62.

VIII. EPA'S DRAFT REGULATORY IMPACT ANALYSIS IS ABITRARY AND CAPRICIOUS

EPA's Draft RIA is likewise woefully inadequate, and thus arbitrary and capricious, in multiple ways—masking the true costs of the Proposal. In particular, the Draft RIA fails to analyze impacts against an accurate baseline, instead ignoring the many deregulatory actions it is taking all at once, and it fails to assess the social cost of greenhouse gas emissions—an analysis that many States have incorporated into decision making—ignoring EPA's own methodology.

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[846] *See* CWG REPORT, *supra* note 4, at 3–6, 104–08; *compare also, e.g.*, NAS NCA5 REVIEW, *supra* note 714, at 103, *with* CWG REPORT, *supra* note 4, at 57–58, 64, *and* 90 Fed. Reg. at 36,308–10 (reflecting contradictory conclusions about impacts of climate change and findings of NCA5).

[847] *See* NASEM, Review of U.S. Global Change Research Program's Draft Decadal Strategic Plan, 2022-2031 (2022) [hereinafter Review of U.S. Global Change], https://perma.cc/7YLE-4FRP.

[848] *Compare* Review of U.S. Global Change, *supra* note 847, at 3, *with* CWG REPORT, *supra* note 4, at 3–7, and 90 Fed. Reg. at 36,303, 36,309–10 (reflecting contradictory findings regarding costs and alleged benefits of climate change); *compare* Review of U.S. Global Change, *supra* note 847, at 9, *with* CWG REPORT, *supra* note 4, at 12–14, 82–88, *and* 90 Fed. Reg. at 36,309 (reflecting contradictory findings regarding attribution); *compare* Review of U.S. Global Climate Change, *supra* note 847, at 10, *with* 90 Fed. Reg. at 36,309 (citing CWG REPORT, *supra* note 4, at 66–72, 110 (reflecting contradictory findings regarding extreme weather events)).

[849] See NASEM, Accelerating Decarbonization in the United States: Technology, Policy, and Societal Dimensions 5 (2024).

[850] *Id.* at 12–38.

[851] *See* NASEM, Communities, Climate Change, and Health Equity: Proceedings of a Workshop – In Brief (Jan. 2022); *see also* NASEM, Global Change Research Needs and Opportunities for 2022-2031 (2021).

As an initial matter, the Proposal disclaims any reliance on the Draft RIA. 90 Fed. Reg. at 36,326 ("The EPA has not relied upon any aspect of the draft RIA as justification for this proposed rulemaking."). But past vehicle rules have relied upon the RIA. *See, e.g.*, 89 Fed. Reg. 27,842 (Multipollutant Rule preamble citing the RIA over 150 times); *id*. at 27,857 (explaining that "our conclusion that the monetized estimated benefits exceed the estimated costs of the final program reinforces our view that the standards are appropriate under section 202(a)."). The Proposal does not acknowledge, much less explain, this change in position. Nor does the Proposal explain how it could comply with the Supreme Court's direction to weigh the advantages and disadvantages of a regulation without relying in any way on the RIA. *Michigan v. EPA*, 576 U.S. 743, 753 (2015) ("reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions."). Moreover, should EPA determine it would like to rely on the RIA in its final rule, it must give commenters an additional opportunity to comment on the RIA and whether it supports or undermines the actions EPA proposes to take.

A. EPA has not considered the cumulative effects of its contemporaneous rules.

It is impossible for the agency or for commenters to understand the actual impact of a proposed rule without an accurate baseline. Here, EPA was required to analyze its multiple concurrent actions in the baseline and to make those analyses available for comment. Otherwise, EPA's baseline will be incorrect or incomplete, without any analysis of the damage to communities that its rules are doing together. An updated RIA—informed by the suite of deregulatory actions EPA is undertaking—would likely show much greater climate harms and similarly greater costs of the Proposal. EPA's failure to perform and disclose an analysis of the cumulative effects of its contemporaneous rules is arbitrary and capricious and deprives the public of a meaningful opportunity for comment.

The Trump Administration has announced its intent to undertake a wide range of regulatory rollbacks, including many that will increase pollution and the attendant burdens on U.S. communities (and that the Administration claims will have cost and reliability benefits). *E.g.*, *Unleashing* EO; Executive Order 14192, *Unleashing Prosperity Through Deregulation*, 90 Fed. Reg. 9065 (Feb. 6, 2025); *Beautiful Clean Coal* EO; Executive Order 14219, *Ensuring Lawful Governance and Implementing the President's 'Department of Government Efficiency' Deregulatory Initiative*, Presidential Memorandum, Directing the Repeal of Unlawful Regulations, 90 Fed. Reg. 10,583 (Feb. 25, 2025); *see supra* notes 338–340. And Administrator Zeldin has specifically targeted 31 EPA regulations for rescission, including regulations to reduce greenhouse gases, criteria pollution, and hazardous air pollution from polluting sources.[852] The Draft RIA for this Proposal, however, fails to provide any analysis of the effects of these other significant rollbacks of air pollution standards that EPA has announced, which will have very significant effects on both the transportation sector and emissions of dangerous air pollutants. Because it is undertaking these actions simultaneously, it must account for the combined impacts of these rollbacks to public health and welfare. Indeed, in the press release just cited, EPA describes them as a single "action." The real-world effects of this action cannot be understood (or commented on) by the public or the agency without updated baseline analysis.

[852] March 12 EPA 'Deregulatory Day' Press Release, *supra* note 790.

EPA thus acted arbitrarily and capriciously by failing to assess its multiple concurrent actions to repeal or weaken air emission regulations, including greenhouse gas regulations, in its RIA. In fact, EPA has not taken into account the cumulative effects of repealing all standards included in the Proposal itself, as the modeling supporting the draft RIA appears to cover only light- and medium-duty greenhouse gas standards, and even then, only standards after model year 2027. *See* CARB, Comment Letter Comment Letter on Proposed Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards, at 46, 88 (Sept. 22, 2025) (EPA-HQ-OAR-2025-0194) (Sept. 22, 2025); *see Ctr. for Auto Safety v. Peck*, 751 F.2d 1336, 1391 (D.C. Cir. 1985) (finding arbitrary and capricious use of a "theoretical" baseline instead of the current baseline). To ignore those combined impacts in the baseline for the Proposed Rule is a "fail[ure] to consider an important aspect of the problem." *State Farm*, 463 U.S. at 43; *see also id.* at 46–48, 51; *Appalachian Power Co. v. EPA*, 251 F.3d 1026, 1034 (D.C. Cir. 2001) (finding arbitrary and capricious agency's failure to use IPM analysis it had conducted in its baseline without a reasoned explanation); *Mayo v. Jarvis*, 177 F. Supp. 3d 91, 138–39 (D.D.C. 2016) ("Without any indication in the record that the FWS adequately considered the environmental baseline as of 2013, the Court must grant summary judgment to Plaintiffs because it appears that the agency failed to 'consider an important aspect of the problem'."); *accord S. Yuba River Citizens League v. NMFS*, 723 F. Supp. 2d 1247, 1261 (E.D. Cal. 2010); *Defs. of Wildlife v. Babbitt*, 130 F. Supp. 121, 130–31 (D.D.C. 2001). And EPA's failure to make available data regarding the cumulative impacts analysis needed to reach its decision constitutes "serious procedural error." *Conn. Light & Power*, 673 F.2d at 530–31; *see also* 42 U.S.C. § 7607(d)(3).

EPA historically has considered the cumulative impacts of its rules by incorporating all of its prior rules into the baseline of each new rule. But where, as here, EPA intends to finalize a suite of rules all affecting the same sources, pollutants, and health endpoints all at once, it must grapple with and justify the combined effects of its rollbacks and regulatory actions to ensure an accurate baseline and enable analysis of the damage to communities that its rules are doing together. In the Biden Administration, when promulgating a much smaller number of regulatory actions close in time, the EPA took that charge seriously. In particular, it examined the cumulative effect of regulations affecting the production or use of power on the reliability of the grid. For example, in April 2024, EPA released a Resource Adequacy Analysis[853] that evaluated the combined effects of the vehicle rules and power plant rules (including Clean Air Act section 111 and section 112 rules, and the Clean Water Act effluent guidelines) on electricity resource adequacy. That approach allowed EPA to conclude that the combined effect of its rules was unlikely to adversely affect resource adequacy.[854] And before issuing the Carbon Pollution Standards, the last of the suite of power-sector-related rules, EPA ran a sensitivity analysis using its Integrated Planning Model that reflected the combined effects of all the rules finalized.[855]

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[853] EPA, EPA-HQ-OAR-2023-0072, Resources Adequacy Analysis: Vehicle Rules, Final 111 EGU Rules, ELG and MATS RTR at 3–4 (Apr. 2024). https://perma.cc/S4MB-E42K; *see also* EPA, Final Rule Sens Vehicle Rules MATS and ELG in Analysis of the Final Greenhouse Gas Standards and Guidelines, https://perma.cc/MNK8-283A (last updated Mar. 4, 2025); EPA, EPA-HQ-OAR-2023-0072, IPM Sensitivity Runs Memo (Apr. 2024), https://perma.cc/NU42-3W55.

[854] EPA, RESOURCES ADEQUACY ANALYSIS, *supra* note 853.

[855] EPA, IPM SENSITIVITY RUNS MEMO, *supra* note 853.

EPA now must similarly take into account the combined effects of its proposed rollbacks. Specifically, EPA must examine the combined emissions of greenhouse gases, criteria pollutants, and hazardous air pollutants from its near-in-time rollbacks, including this effort, its recission of the Carbon Pollution Standards, 90 Fed. Reg. at 25,755; its rescission of the updated Mercury and Air Toxics Standards (MATS), *see* 90 Fed. Reg. 25,535 (June 17, 2025); and any revision of the Good Neighbor Plan or Oil and Gas Standards, at a minimum. EPA cannot adequately consider an important aspect of the problem—one that affects the health and welfare of the American public—without doing so. *See State Farm*, 463 U.S. at 43, 46–48, 51. In particular, EPA must ensure that when it estimates the additional pollutants from one rollback (e.g., the MATS Technology Review), it is taking account of the potential for greater utilization of polluting sources created by another rollback (i.e., this Proposal). And when it is considering the ability of States to attain NAAQS (for example, under the Good Neighbor Program), it must similarly consider the effect of its rollbacks on the existence and utilization of polluting sources. EPA must also account for any anticipated effects on electricity from its power sector actions (like the Administration's assault on wind energy development, *supra* notes 339, 808, on the availability and cost of electricity to power electric vehicles. EPA cannot adequately consider an important aspect of the problem—one that affects the health and welfare of the American public—without doing so. *See State Farm*, 463 U.S. at 43, 46–48, 51.

B. EPA's failure to assign any monetary value to greenhouse gas reductions in the Draft Regulatory Impact Analysis is arbitrary and capricious.

EPA's failure to consider the cost of greenhouse gas emissions in its Draft RIA renders the Proposal arbitrary and capricious. EPA provides no justification or explanation for its failure, stating only that "EPA does not attempt to monetize the value, if any, of changes in GHG emissions that result from the proposed action. EPA, however, notes that any reliable estimate of that value would be orders of magnitude less than the benefits of the proposed action, for the reasons already cited."[856] By ignoring its own rigorous, state-of-the-art, peer-reviewed, and well-established methodologies for monetizing harms caused by greenhouse gas emissions,[857] EPA instead effectively set the social cost of greenhouse gas emissions at zero dollars. EPA's central estimate of the climate benefits generated by the Multi-Pollutant Emissions Standards alone—ignoring all the other greenhouse gas standards EPA proposes to repeal—was $1.6 trillion (in 2022 dollars), noting many categories of damages that could not be monetized.[858] The flaws in EPA's Draft RIA are particularly relevant here because EPA explicitly relies on both the costs of greenhouse gas regulations and the impacts they cause as justifying the Proposal.[859] And to the

[856] Draft RIA, *supra* note 131, at 42.

[857] 2023 EPA REPORT, *supra* note 191, at 6–9 (Exhibit C).

[858] 89 Fed. Reg. at 27,860; Multi-Pollutant Rule RIA, *supra* note 136, at 6-6 – 6-15, 9-7 – 9-18.

[859] *See*, *e.g.*, 90 Fed. Reg. at 36,292 ("As part of this reconsideration, the EPA . . . reviewed actions taken to regulate GHG emissions from new motor vehicles and new motor vehicle engines since 2009, [and] assessed the costs and non-cost adverse impacts of these GHG emission standards"); 90 Fed. Reg. at 36,312 ("EPA is proposing that the Agency must consider the impacts of making an Endangerment Finding . . . [and] that this interpretation means the Agency should not and need not make an endangerment finding under CAA section 202(a)(1) when the regulatory authority conferred by that

extent EPA proposes to rely on the CWG Report's blatantly flawed discussion of social cost of greenhouse gas estimates, *supra* Section V.B.2.b, it provides no reasonable justification for abandoning the estimates in the 2023 EPA Report.

Moreover, many of our States have incorporated these very costs into our own energy and environmental policies, underscoring the reasonableness and relevance of doing so and the reliance interests our States have developed (and EPA has ignored) on the application of such methodology. All these flaws (and those outlined in the Vehicles Comment at Section IV.B.1.b.2) warrant withdrawal of the Proposal because they demonstrate that EPA disregarded or (at best) misapprehended the harms of its actions and failed to consider a central aspect of the problem before it. *See State Farm*, 463 U.S. at 41; *City of Portland v. EPA*, 507 F.3d 706, 713 (D.C. Cir. 2007) (courts "will [not] tolerate rules based on arbitrary and capricious cost-benefit analyses"); *Nat'l Ass'n of Home Builders v. EPA*, 682 F.3d 1032, 1040 (D.C. Cir. 2012) ("[W]hen an agency decides to rely on a cost-benefit analysis as part of its rulemaking, a serious flaw undermining that analysis can render the rule unreasonable.").

1. EPA ignores its own well-established methodologies for monetizing climate harms.

In the Draft RIA, EPA effectively treats greenhouse gas emissions as causing zero dollars in monetizable damages. Although EPA fails to state its basis for doing so, the Office of Management and Budget has instructed agencies to "not monetize the impacts from [carbon] emissions" because, allegedly, "the uncertainties in performing monetized impacts quantifications are too great."[860] But courts have repeatedly held that agency analyses that ignore or give spurious treatment to important considerations are infirm. *Bus. Roundtable v. SEC*, 647 F.3d 1144, 1148–49 (D.C. Cir. 2011); *Pub. Citizen, Inc. v. Mineta*, 340 F.3d 39, 58 (2d Cir. 2003); *Sierra Club v. Sigler*, 695 F.2d 957, 979 (5th Cir. 1983); *Getty v. Fed. Savs. & Loan Ins. Corp*., 805 F.2d 1050, 1055, 1057 (D.C. Cir. 1986); *Sierra Club v. U.S. Dep't of Interior*, 899 F.3d 260, 293 (4th Cir. 2018). The Supreme Court reaffirmed in *Michigan*, 576 U.S. at 753, that "reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions." Further, the fact that something is uncertain—which any effort to project into the future or monetize harms and benefits necessarily is—does not exempt an agency from the obligations to consider relevant factors and reach reasonable conclusions. *Pub. Citizen v. Fed. Motor Carrier Safety Admin.*, 374 F.3d at 1219; *Montana Wilderness Ass'n*, 666 F.3d at 559.

Indeed, courts have rejected agency action for failure to consider the social cost of greenhouse gas emissions. For example, in *Center for Biological Diversity v. NHTSA*, the Ninth Circuit held that NHTSA had acted arbitrarily and capriciously when it established vehicle

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provision would have no meaningful impact on the identified dangers."); *see also* 90 Fed. Reg. at 36,325 ("We request comment on . . . whether benefit cost analysis is an appropriate and lawful basis for repealing the Endangerment Finding and/or resulting vehicle standards.").

[860] Memorandum from Jeffrey Bossert Clark, Acting Administrator, OIRA, on Guidance Implementing Section 6 of Executive Order 14154 Entitled "Unleashing American Energy" (May 5, 2025) [hereinafter "OMB M-25-27"], https://perma.cc/DA5M-8FNF.

efficiency standards without monetizing the benefits of greenhouse gas emissions reductions.[861] The Court rejected NHTSA's argument that the value of reducing greenhouse gas emissions was "too uncertain" to quantify:[862] "while the record shows that there is a range of values, the value of carbon emissions reduction is certainly not zero."[863] Moreover, the Court observed that NHTSA had monetized the value of *other* uncertain benefits, including reduction of criteria pollution, crashes, and increases in energy security.[864] Other courts have held that, if an agency quantifies the economic benefits of an action that could increase greenhouse gases, it must also employ the social cost of greenhouse gas to quantify the costs of the increased emissions.[865] These court decisions recognize that the social cost of greenhouse gas is a reliable and scientifically valid approach to monetizing climate change impacts that should inform federal decision making.

The U.S. government has been monetizing costs and benefits since the 1920s, and has been doing so consistently across the entire federal government since 1981.[866] In 2010, the federal government developed a social cost of carbon for use in monetizing the net damages caused by greenhouse gas emissions using an interagency group of experts and relying on state-of-the-art models from the peer-reviewed literature.[867] The history of this process is laid out in more detail in the 2023 EPA Report.[868] The values have been updated at numerous points since 2010 to incorporate advances in science and economics, and have been peer-reviewed, routinely subject to public comment, reviewed by the U.S. Government Accountability Office,[869] and comprehensively evaluated by NAS in 2016 and 2017.[870] The most recent values reflected in the 2023 EPA Report integrate the latest updates in scientific knowledge and economics, address the near-term recommendations of the NAS (including explicit representation of uncertainty), and produce a social cost of carbon central estimate of $140, $230, and $390/metric ton for 2030 emissions using a near-term discount rate of 2.5%, 2.0%, and 1.5%, respectively.[871]

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[861] 538 F.3d 1172, 1198–1203 (9th Cir. 2008).

[862] *Id.* at 1200.

[863] *Id.*

[864] *Id.* at 1202.

[865] *See Mont. Env't Info. Ctr. v. U.S. Off. of Surface Mining*, 274 F.Supp.3d 1074, 1095–99 (D. Mont. 2017); *High Cnty. Conservation Advocates v. U.S. Forest Serv*., 52 F.Supp.3d 1174, 1189–92 (D. Colo. 2014).

[866] Joseph Persky, *Cost-Benefit Analysis and the Classical Creed*, 15 J. ECON. PERSPS. 199, 200–01 (2001), https://perma.cc/Q3BU-P4CM; Exec. Order No. 12291, Federal Regulation, 46 Fed. Reg. 13,193 (Feb. 19, 1981).

[867] Interagency Working Grp. on the Social Cost of Greenhouse Gases, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Exec. Order 12866 (Aug. 2016), https://perma.cc/B58R-8F6S.

[868] 2023 EPA REPORT, *supra* note 191, at 5–19.

[869] *Id.* at 8.

[870] *Id.* at 8–10.

[871] *Id.* at 1, 20–21, 78, 106.

Here, EPA does not explain how using the value of zero provides decision-makers better information than the estimates in the 2023 EPA Report. *See* 42 U.S.C. § 7607(d)(3) (requiring EPA to set forth in a statement of basis and purpose, the pertinent findings, recommendations, and comments of the NAS, and to explain why the proposal differs in any important respect). Given the known potential for non-linear responses by the climate system to greenhouse gas forcing that could lead to truly catastrophic damages, a reasonable approach to considering the uncertainty involved in climate predictions would be to use a *higher* social cost estimate rather than a lower one, let alone zero. The estimates in the 2023 EPA Report are, as EPA acknowledged, only partial estimates of the actual damage values due to the many damage categories that are not included.[872] A recent study incorporating just part of one category of omitted damages—eight tipping points in the climate system—found that it increased the estimated social cost of greenhouse gas by 24.5%.[873] The significant risk that the "actual" damage number is significantly higher than the central estimate, the fact that these estimates are underestimates (omitting many damage categories entirely and covering many more partially), and the fact that estimates of the social cost of greenhouse gases have been increasing as data and methodologies have improved[874] render use of a value of zero even more arbitrary.

EPA also failed to use any other quantitative or qualitative approach to assess the harm caused by the lost emission reductions. EPA did not consider other estimates of the social cost of greenhouse gas available in the peer-reviewed economics literature—such as FrEDI (also a federal government model)[875] and the 2023 EPA Report's (acknowledged as partial) estimates of physical damages occurring in the United States.[876] And in rulemakings where harms and benefits cannot be monetized—which is *not* the case here—EPA has historically examined the harms and benefits qualitatively, providing a detailed overview of available science on how a pollutant causes harm, the types of harm caused, and the populations most affected. EPA has at its disposal multiple overviews of current climate science and impacts by the IPCC, five NCAs developed by leading experts through the USGCRP, and now the NAS Consensus Study Report. Despite these resources, EPA has altogether failed to provide any such discussion in the Proposal or to weigh well-established climate impacts.

The evidence before the agency is that greenhouse gas emissions cause very significant damages to human health and welfare, robustly and conservatively monetized by EPA itself in the peer-reviewed 2023 EPA Report. *See supra* Section V.A. Effects on greenhouse gas

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[872] 2023 EPA REPORT *supra* note 191, at 3, 5, 56, 81–87.

[873] *Id.* at 82 (citing Simon Dietz et al., *Economic Impacts of Tipping Points in the Climate System*, 118 PROC. OF THE NAT'L ACAD. OF Scis. 1 (2021), https://perma.cc/DVE8-LDHT).

[874] *Id.*

[875] 2023 EPA REPORT, *supra* note 191, at 96–99 ("FrEDI includes more than 20 specific impact categories, many with multiple adaptation scenarios."). A more recent synthesis of damage estimates specific to U.S. populations found U.S.-specific social cost of carbon estimates ranging from $31 to $85 for 2030 emissions, noting many omitted categories of impacts. Elizabeth Kopits et al., *Economic Damages from Climate Change to U.S. Populations: Integrating Evidence from Recent Studies* 1, 30 (EPA, Nat'l Ctr. for Env't Econ, Working Paper 25-01, Jan. 2025), https://perma.cc/RJ8E-DHSH.

[876] 2023 EPA REPORT, *supra* note 191, at 95, 98–99.

emissions are the centrally relevant factor to be considered with respect to a section 202 regulation addressing greenhouse gas emissions. EPA's total failure to engage with the record supporting its ability to monetize the costs of greenhouse gas emissions constitutes a failure to provide a "reasoned explanation [] for disregarding facts and circumstances that underlay" its prior policy. *Fox Television Stations*, 556 U.S. at 516. It is the epitome of arbitrary and capricious action to ignore more than a trillion dollars of costs.

2. The States' consideration in their own decision making of costs of greenhouse gas emissions further demonstrates that EPA's failure to consider those costs was arbitrary and capricious.

EPA's failure to consider the costs of greenhouse gas emissions in its RIA is also arbitrary and capricious in light of the widespread use of such metrics by States in analogous regulatory contexts. Indeed, numerous States rely on the costs of greenhouse gas emissions to inform decision making with respect to environment, energy, and infrastructure rulemakings, recognizing it as an essential tool for evaluating the full scope of harms.[877] EPA's refusal to consider these costs—even as States rely on them to assess regulatory impacts—marks a departure from reasoned decision making and from EPA's obligation to consider all relevant factors and serious reliance interests.

For example, Massachusetts has employed the EPA-issued social-cost of carbon to fully understand and evaluate the impacts of clean energy and energy efficiency programs. In developing Massachusetts's premier energy efficiency program, Mass Save, the Commonwealth uses EPA-issued social cost of carbon recommendations as part of its Avoided Energy Supply Cost (AESC) study,[878] which is foundational to the Mass Save benefit-cost ratio screening tool that enables many decarbonization and energy efficiency measures to be cost-effective and to able to be included in the programs.[879] Similarly, the EPA social cost of carbon has been critical for the Commonwealth's greenhouse gas emission reduction plans, which must "evaluate the total potential costs and economic and noneconomic benefits of various reduction measures to the economy, environment and public health, using the best available economic models, emissions estimation techniques and other scientific methods."[880] The social cost of carbon metrics helped provide decisionmakers and the public with an understanding of the costs and benefits of climate policy. The Massachusetts Clean Energy and Climate Plan for 2025 and 2030,

[877] *See* Inst. for Pol'y Integrity, N.Y.U. Sch. of L., *The Cost of Climate Pollution: States Using the SC-GHG*, https://perma.cc/47L7-ADZM; *see also* MAX SARINSKY, INST. FOR POL'Y INTEGRITY, N.Y.U. SCH. OF L., THE SOCIAL COST OF CARBON: OPTIONS FOR APPLYING A METRIC IN FLUX 1 (Sept. 2023), https://perma.cc/5AHT-Z79Q.

[878] *See* SYNAPSE ENERGY ECON., INC., AVOIDED ENERGY SUPPLY COSTS IN NEW ENGLAND (AESC): 2024 REPORT (Feb. 7, 2024), https://perma.cc/8BE5-9JQ3.

[879] *See* An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, 2021 Mass. Acts 8, §§ 16–27.

[880] *See id.* § 10(c).

for example, included an assessment of policies' "employment gains and disruptions, economic contribution to Gross State Product (GSP), and impacts on household energy expenditures."[881]

New York agencies also have considered the cost of greenhouse gas emissions in their own decision making for several years. In August 2016, the New York Public Service Commission adopted a Clean Energy Standard and accompanying Zero Emissions Credit to take into account the social cost of carbon in calculating the value of using nuclear power as compared to carbon-emitting fossil fuel generation.[882] New York's Climate Leadership and Community Protection Act directed the New York State Department of Environmental Conservation (NYSDEC) to formally establish a social cost of carbon for use by state agencies, expressed in terms of dollars per ton of carbon dioxide equivalent. N.Y. Env't Conserv. Law § 75-0113. In October 2020, NYSDEC published guidance for state agencies to use to consider the social cost of carbon in its decision making.[883] NYSDEC subsequently updated the guidance document by, among other things, revising values for all greenhouse gases to reflect the average values of new models adopted by the EPA.[884] In December 2022, the New York State Climate Action Council published the New York State Climate Action Council Scoping Plan, which used the social cost of greenhouse gases based on NYSDEC's guidance document to calculate the value of avoided greenhouse gas emissions.[885] And in adopting the Advanced Clean Car Standards, NYSDEC considered the social cost of carbon in estimating the monetized benefits of greenhouse gas reductions.[886] Similarly, NYSDEC used EPA's social cost metrics and the department's guidance document to estimate the societal benefits of amended regulations to reduce emissions of HFCs and SF_6.[887]

Similarly, Colorado requires the use of the social cost of CO_2 emissions and methane emissions in several circumstances. For instance, the Colorado Public Utilities Commission must annually set a value for the social cost of carbon dioxide and methane, and must require any electric or gas public utility subject to its jurisdiction to consider the social cost of CO_2 and methane when determining the cost, benefit, or net present value of various plans the utility is

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[881] MASS. EXEC. OFF. OF ENERGY & ENV'T AFFS., MASSACHUSETTS CLEAN ENERGY AND CLIMATE PLAN FOR 2025 AND 2030, at 103 (June 30, 2022), https://perma.cc/3VY5-96JJ.

[882] N.Y. Pub. Serv. Comm'n, Cases 15-E-0302 & 16-E-0270, Order Adopting a Clean Energy Standard (Aug. 1, 2016), https://perma.cc/2LC6-YG96.

[883] N.Y. DEP'T OF ENV'T CONSERV., ESTABLISHING A VALUE OF CARBON: GUIDELINES FOR USE BY STATE AGENCIES (rev. Oct. 2021), https://perma.cc/5A57-SHQ9.

[884] N.Y. DEP'T OF ENV'T CONSERV., ESTABLISHING A VALUE OF CARBON: GUIDELINES FOR USE BY STATE AGENCIES (rev. Aug. 2023), https://perma.cc/2VR6-HE92.

[885] N.Y. CLIMATE ACTION COUNCIL, SCOPING PLAN: FULL REPORT at 126–27 (Dec. 2022), https://perma.cc/H4FF-LMQU.

[886] N.Y. Dep't of Env't Conserv., Notice of Adoption, Advanced Clean Car (ACC) Standards, XLV N.Y. Reg. 3–7 (Aug. 23, 2023) (to Amend Parts 200 & 218 of Title 6 NYCRR), https://perma.cc/4VZY-UB7X.

[887] N.Y. Dep't of Env't Conserv. Notice of Adoption, Certain Substances that Contain Hydrofluorocarbons, Highly-Potent Greenhouse Gases, XLVI N.Y. Reg. 21–23 (Dec. 24, 2024), https://perma.cc/N2HJ-FHQX.

required to file for Commission approval.[888] This includes clean heat plans,[889] electric resource plans/clean energy plans, transportation electrification plans, beneficial electrification plans, renewable energy standards plans, and demand-side management plans.[890] Relatedly, when estimating the social cost of CO_2 or methane, the Colorado Energy Office, Department of Transportation, and Department of Public Health and Environment must base their cost estimate on the most recent assessment of the federal government using a discount rate that is 2.5% or less and does not yield a lower estimate of costs.[891]

California also uses the social cost of carbon in a variety of contexts. In 2017, when CARB developed a scoping plan to meet the state's statutory emissions reduction goals, it used the social cost of carbon to quantify the benefits of reducing greenhouse-gas emissions.[892] The State Legislature has also mandated that the Board consider the social costs of emissions of greenhouse gases when adopting rules and regulations related to the California Global Warming Solutions Act.[893] Similarly, in 2019, the California Public Utilities Commission issued a final order requiring the use of the social cost of carbon for evaluating distributed energy resources.[894] Specifically, under the order, utilities must conduct a societal cost test in resource planning that is comprised of three parts, one of which is the "avoided social cost of carbon." The final order requires utilities to model the social cost using two social cost of carbon values: the 3% estimate and high-impact estimate. The California Department of Transportation has also used the social cost of carbon in its cost-benefit analysis of proposed projects such as highways since 2009.

Still more states use the social cost of greenhouse gases in their regulatory programs. In Maryland, the Climate Solutions Now Act of 2022 requires the Maryland Department of the Environment to adopt regulations for Building Energy Performance Standards, including an option for covered building owners to make an alternative compliance payment greater than or equal to the social cost of greenhouse gases adopted by EPA for emissions above target levels.[895] In Oregon, the Oregon Public Utility Commission commonly asks utilities to undertake scenario runs that include consideration of the social cost of carbon to determine the least cost/least risk options in their proposed integrated resource plans and requests for proposals.[896] In

[888] Colo. Rev. Stat. § 40-3.2-106(1), (4) (2021).

[889] *Id.* § 40-3.2-108(6)(c)(I).

[890] *Id.* §§ 40-3.2-106(1)(a)–(d) & 40-3.2-107(2).

[891] Colo. Rev. Stat. § 24-38.5-111 (2021).

[892] CARB, CALIFORNIA'S 2017 CLIMATE CHANGE SCOPING PLAN at 39–40 (Nov. 2017), https://perma.cc/2CBV-XXP8; CARB, ACC 2 SRIA at 46-49, https://perma.cc/24W5-DTCV.

[893] Cal. Health & Safety Code § 38562.5 (2025).

[894] Cal. Pub. Utils. Comm'n, Rulemaking 14-10-003, Decision Adopting Cost-Effectiveness Analysis Framework Policies for All Distributed Energy Resources 15 (May 21, 2019), https://perma.cc/ANM9-5NTN; Inst. for Pol'y Integrity, N.Y.U. Sch. of L., *The Cost of Climate Pollution: California PUC Uses SCC to Help Determine Value of DERs* (Mar. 2018), https://perma.cc/2MAH-47YG.

[895] Md. Code Ann., Env't, § 2-1602 (2022).

[896] *See, e.g.*, In the Matter of Pacificorp, dba Pacific Power, 2021 WL 5014456 (Or. P.U.C. 2021); In the Matter of Avista Corporation, dba Avista Utilities, 2021 WL 4923923 (Or. P.U.C. 2021).

Washington, the Washington Department of Ecology uses the social cost of carbon to monetize avoided costs arising from rulemakings that would reduce greenhouse gas emissions.[897]

These examples demonstrate that EPA's refusal to consider the social cost of carbon in the Draft RIA ignores a widely accepted, readily available, and important tool for evaluating the consequences of the Proposal. By failing to account for the climate costs and harms that will result from the Proposal, EPA acted arbitrarily and capriciously and failed to account for a crucial aspect of the problem and serious reliance interests on social cost of carbon analyses. *Fox Television Stations*, 556 U.S. at 515; *State Farm*, 463 U.S. at 43.

IX. THE PROPOSAL'S DISCUSSION OF PREEMPTION AND DISPLACEMENT IS MISGUIDED

The Proposal seeks comment on:

- "whether any reliance interests in national uniformity and preemption would support adopting certain rationales and not finalizing other rationales," 90 Fed. Reg. at 36,324; and
- "the continued preemptive effect of the CAA in the event that the EPA finalizes the proposed rescission or otherwise concludes that it lacks authority to regulate GHG emissions under CAA section 202(a) or any other specific regulatory provision of the CAA," *id.* at 36,325; *see also id.* at 36,297, 36,314–15.

The States and Local Governments, whose laws the Supremacy Clause makes subject to preemption by federal law, have a strong interest in preemption as a general matter. But the topics above are not proper subjects for EPA's consideration under any of the rationales advanced in the Proposal.[898]

First, EPA has no authority to expand or contract the scope of the Clean Air Act's preemption of state and local new-motor-vehicle regulations because Congress has not delegated that task to the agency. *See Wyeth v. Levine*, 555 U.S. 555, 576–77 (2009). Nothing in the Clean Air Act directs EPA to resolve or enforce preemption under section 209(a). *See* 42 U.S.C. § 7543(a). Moreover, construing section 209(a)'s preemptive effect is not "necessary to carry out

[897] *See e.g.*, Wash. Dept. of Ecology, Pub. No. 24-14-082, Final Regulatory Analyses for Ch. 173-441 WAC, Reporting of Greenhouse Gases Emissions & Chapter 173-446 WAC, Climate Commitment Act Program Rule (Dec. 2024), https://perma.cc/L9QS-8YDX; Wash. Dept. of Ecology, Pub. No. 24-14-032, Final Regulatory Analyses Ch. 173-446 WAC, Climate Commitment Act Program Rule (Feb. 2024), https://perma.cc/MSU6-6AUD; Wash. Dept. of Ecology, Pub. No. 24-02-010, Final Regulatory Analyses Ch. 173-408 WAC – Landfill Methane Emissions (May 2024), https://perma.cc/7Q7A-WY4A.

[898] The States and Local Governments do not read the Proposal, through these vague requests for comment or other oblique references to the issue, *e.g.*, 90 Fed. Reg. at 36,297, 36,314–15, to contemplate an interpretive rule on any issue of preemption (or displacement), and any such rule would not be a logical outgrowth of the Proposal. In any event, EPA's interpretation of the Proposal's effect on preemption or displacement of other laws or causes of action could not take the form of an interpretive rule because EPA does not administer the relevant statutory provisions; the agency's views on the matter would "be nothing more than a general statement of policy." *Nat'l Park Hospitality Ass'n v. Dep't of Interior*, 538 U.S. 803, 809 (2003) (cleaned up).

[EPA's] functions" under section 202, *id.* § 7601(a)(1), and EPA strays outside its lane when addressing this topic.[899] The Supremacy Clause ensures precedence of "the *Laws* of the United States," U.S. Const. art. VI, cl. 2 (emphasis added), not the "priorities or preferences of federal officers" like the EPA Administrator, *Kansas v. Garcia*, 589 U.S. 191, 212 (2020).

Section 209(b) of the Act does not change the analysis. When EPA adjudicates whether the Clean Air Act entitles the State of California to a nondiscretionary waiver of preemption for specific laws, none of the three exhaustive factors that govern the agency's decision calls for the interpretation of section 209(a), much less to interpret the effect on Clean Air Act preemption of EPA's independent decision to adopt or revise its own emission standards. *See* 42 U.S.C. § 7543(b); *Motor & Equip. Mfrs. Ass'n v. Nichols*, 142 F.3d 449, 462–63 (D.C. Cir. 1998).

Second, even if EPA had been delegated authority to preempt any state or local emission standard for new motor vehicles, the contours of section 209(a) are not pertinent to any finding or decision EPA is to make in this proceeding under section 202(a)(1), or the proper interpretation of section 202(a)(1). It is thus premature and potentially confusing for the States and Local Governments to opine here on the question of preemption, as doing so would only encourage EPA to speculate in its final decision about topics that are both beyond its ken and not germane to this proceeding. If EPA finalizes the Proposal, then States and Local Governments will use all tools that are available and necessary to curb greenhouse gas pollution from the automotive sector.

Third, the Proposal's reference to the Clean Air Act's "preemption" of "Federal common-law claims for [greenhouse gas] emissions" is puzzling. 90 Fed. Reg. at 36,315. The Supremacy Clause operates vertically, not horizontally; by definition, federal law cannot preempt *federal* common law. Based on the Proposal's invocation of *AEP*, 564 U.S. 410, however, the States and Local Governments assume EPA means "displacement" rather than "preemption." Whether different constructions of section 202(a)(1) would have implications for displacement of federal-common-law causes of action is an issue far outside EPA's expertise, and it is irrelevant to the appropriate outcome of this proceeding. States and Local Governments will not opine on the issue here—again, so as not to drive EPA farther on this detour. If EPA finalizes the Proposal, then States and Local Governments will use all tools that are available and necessary to redress harms from vehicular greenhouse gas pollution.

The only notable thing about EPA's solicitation of views and advice about which of the Proposal's rationales maximizes preemption and displacement of non-federal efforts to reduce air pollution is the nihilism it lays bare. The *Environmental Protection* Agency was established so that our federal government could "make a coordinated attack on the pollutants which debase the air we breathe, the water we drink, and the land that grows our food."[900] Fifty-five years later, the agency's leaders—and the President they serve—propose not only to desert from that battle but also to ensure that states, cities, counties, and everyone else must do the same, at the expense of the health and welfare of the American public. Yet EPA's abandonment of its mission, its

[899] EPA strays off the highway altogether when speculating as to the effect of its Proposal on preemption under the Energy Policy and Conservation Act. *See* 90 Fed. Reg. at 36,314–15.

[900] President Richard Nixon, Special Message from the President to the Congress About Reorganization Plans to Establish the Environmental Protection Agency and the National Oceanic and Atmospheric Administration (July 9, 1970), https://perma.cc/MX4D-AK9F.

statutory duties, and scientific facts does not compel others to follow. In particular, each State has "its own direct relationship, its own privity, its own set of mutual rights and obligations to the people who sustain it and are governed by it," *Alden v. Maine*, 527 U.S. 706, 751 (1999), and must uphold those rights and obligations even when—especially when—the federal government refuses to do the same.

X. CONCLUSION

EPA's Proposal reflects a drastic change in statutory interpretation and findings, an astonishing disregard for science, and a reckless dereliction of EPA's duty to protect the health and welfare of hundreds of millions of Americans across the States and Local Governments' jurisdictions and nationwide. Congress and the Supreme Court have both spoken: section 202(a) of the Clean Air Act authorizes EPA to regulate greenhouse gas emissions that endanger public health and welfare. Heeding that call, EPA in 2009 found, based on overwhelming scientific evidence, that greenhouse gases endanger public health and welfare and then promulgated standards to control motor vehicle emissions—one of the largest sources of domestic greenhouse gas emissions. EPA cannot ignore the law and the science to reverse course now. For the foregoing reasons and those explained in the States and Local Governments' Vehicles Comment and CWG Report Comment, the Proposal cannot be finalized and must be withdrawn.

Respectfully submitted,

COMMONWEALTH OF MASSACHUSETTS
ANDREA JOY CAMPBELL
ATTORNEY GENERAL

/s/ Turner H. Smith
TURNER H. SMITH
Deputy Bureau Chief
MEGHAN DAVOREN
TRACY TRIPLETT
ALEXANDER WEISS
Assistant Attorneys General
LUCA GRECO
MOLLY TEAGUE
Special Assistant Attorneys General
Energy and Environment Bureau
Office of the Massachusetts Attorney General
One Ashburton Place, 18th Fl.
Boston, MA 02108
(617) 963-2782
Turner.Smith@mass.gov
Meghan.Davoren@mass.gov
Tracy.Triplett@mass.gov
Alexander.Weiss@mass.gov
Luca.Greco@mass.gov

STATE OF NEW YORK
LETITIA JAMES
ATTORNEY GENERAL

/s/ Morgan A. Costello
MORGAN A. COSTELLO
Chief, Affirmative Litigation Section
MICHAEL J. MYERS
Senior Counsel for Air Pollution and Climate Change Litigation
RACHEL MAMAN KISH
NATHAN SHULOCK
Assistant Attorneys General
Environmental Protection Bureau
NYS Office of the Attorney General
The Capitol
Albany, NY 12224
(518) 776-2392
Morgan.Costello@ag.ny.gov
Michael.Myers@ag.ny.gov
Rachel.Kish@ag.ny.gov
Nathan.Shulock@ag.ny.gov

STATE OF CALIFORNIA
ROB BONTA
ATTORNEY GENERAL

/s/ Caitlan McLoon
CAITLAN MCLOON
BENJAMIN LEMPERT
THEODORE MCCOMBS
M. ELAINE MECKENSTOCK
Deputy Attorneys General
Natural Resources Law Section

DAVID ZAFT
Acting Supervising Deputy Attorney General
ELIZABETH JONES
KAVITA LESSER
Deputy Attorneys General
Environmental Justice & Protection Section

California Department of Justice
300 S. Spring St., Suite 1702
Los Angeles, CA 90013
Caitlan.McLoon@doj.ca.gov
Benjamin.Lempert@doj.ca.gov
Theodore.McCombs@doj.ca.gov
Elaine.Meckenstock@doj.ca.gov
David.Zaft@doj.ca.gov
Elizabeth.Jones@doj.ca.gov
Kavita.Lesser@doj.ca.gov

STATE OF CONNECTICUT
WILLIAM TONG
ATTORNEY GENERAL

/s/ Matthew I. Levine
MATTHEW I. LEVINE
Deputy Associate Attorney General
BENJAMIN W. CHENEY
WILLIAM E. DORNBOS
Assistant Attorneys General
JESSICA GIBREE
Special Assistant Attorney General
Office of the Attorney General
165 Capitol Ave, Hartford, CT 06106
(860) 808-5250
Matthew.Levine@ct.gov
Benjamin.Cheney@ct.gov
William.Dornbos@ct.gov
Jessica.Gibree@ct.gov

STATE OF ARIZONA
KRIS MAYES
ATTORNEY GENERAL

/s/ Kirsten Engel
KIRSTEN ENGEL
Special Attorney General
Environmental Protection Unit
2005 N. Central Ave
Phoenix, AZ 85085
(520) 209-4020
Kirsten.Engel@azag.gov

STATE OF COLORADO
PHILIP J. WEISER
ATTORNEY GENERAL

/s/Carrie Noteboom
CARRIE NOTEBOOM
Assistant Deputy Attorney General
Ralph L. Carr Judicial Center
Colorado Department of Law
1300 Broadway, 10th Floor
Denver, CO 80203
(720) 508-6285
Carrie.Noteboom@coag.gov

STATE OF DELAWARE
KATHLEEN JENNINGS
ATTORNEY GENERAL

/s/ Vanessa L. Kassab
IAN LISTON
Director of Impact Litigation
RALPH K. DURSTEIN III
VANESSA L. KASSAB
Deputy Attorneys General
Delaware Department of Justice
State Office Building
820 North French Street
Wilmington, DE 19801
(302) 683-8899
Vanessa.Kassab@delaware.gov

STATE OF HAWAI'I
ANNE E. LOPEZ
ATTORNEY GENERAL

/s/ Lyle T. Leonard
LYLE T. LEONARD
Deputy Attorney General
465 S. King Street, #200
Honolulu, HI 96813
(808) 587-3052
Lyle.T.Leonard@hawaii.gov

STATE OF ILLINOIS
KWAME RAOUL
ATTORNEY GENERAL

/s/ Jason E. James
JASON E. JAMES
Assistant Attorney General
MATTHEW J. DUNN
Chief, Environmental Enforcement/Asbestos
Illinois Attorney General's Office
207 W. Pointe Dr., Suite 7
Belleville, IL 62226
(217) 843-0322
Jason.James@ilag.gov

STATE OF MAINE
AARON M. FREY
ATTORNEY GENERAL

/s/ Emma Akrawi
EMMA AKRAWI
Assistant Attorney General
Natural Resources Division
Office of the Maine Attorney General
6 State House Station
Augusta, ME 04333
(207) 626-8800
Emma.Akrawi@maine.gov

STATE OF MARYLAND
ANTHONY G. BROWN
ATTORNEY GENERAL

/s/ Steven J. Goldstein
STEVEN J. GOLDSTEIN
Assistant Attorney General
Federal Accountability Unit
Office of the Attorney General
of Maryland
200 Saint Paul Place, 20th Floor
Baltimore, MD 21202
(410) 576-6414
sgoldstein@oag.state.md.us

FOR THE PEOPLE OF THE STATE OF MICHIGAN
DANA NESSEL
ATTORNEY GENERAL

/s/ Hadley E. Tuthill
HADLEY E. TUTHILL
Assistant Attorney General
Environment, Natural Resources, and
Agriculture Division
6th Floor G. Mennen Williams Building
525 W. Ottawa Street
P.O. Box 30755
Lansing, MI 48909
(517) 335-7664
TuthillH@michigan.gov

STATE OF MINNESOTA
KEITH ELLISON
ATTORNEY GENERAL

/s/ Peter N. Surdo
PETER N. SURDO
Special Assistant Attorney General
Minnesota Attorney General's Office
445 Minnesota Street
Town Square Tower Suite 1400
Saint Paul, MN 55101
(651) 757-1061 (o)
Peter.Surdo@ag.state.mn.us

ATTORNEY GENERAL OF NEVADA
AARON D. FORD

/s/ Heidi Parry Stern
HEIDI PARRY STERN
Solicitor General
Office of the Nevada Attorney General
1 State of Nevada Way, Ste. 100
Las Vegas, NV 89119
HStern@ag.nv.gov

STATE OF NEW JERSEY
MATTHEW J. PLATKIN
ATTORNEY GENERAL

/s/ *Lisa J. Morelli*
LISA J. MORELLI
Deputy Attorney General
New Jersey Division of Law
25 Market Street
Trenton, NJ 08625
(609) 376-2740
Lisa.Morelli@law.njoag.gov

STATE OF NEW MEXICO
RAÚL TORREZ
ATTORNEY GENERAL

/s/ Spenser Lotz
J. SPENSER LOTZ
Assistant Attorney General
Environmental Protection Bureau
201 Third St. NW, Suite 300
Albuquerque, NM 87102
(505) 616-7560
slotz@nmdoj.gov

STATE OF NORTH CAROLINA
JEFF JACKSON
ATTORNEY GENERAL

/s/ Asher Spiller
ASHER P. SPILLER
Senior Deputy Attorney General
RACHEL POSEY
Special Deputy Attorney General
North Carolina Department of Justice
P.O. Box 629
Raleigh, NC 27602
(919) 716-6600
aspiller@ncdoj.gov
rposey@ncdoj.gov

STATE OF OREGON
DAN RAYFIELD
ATTORNEY GENERAL

/s/ Paul Garrahan
PAUL GARRAHAN
Attorney-in-Charge, Natural Resources Section
Oregon Department of Justice
1162 Court Street NE
Salem, Oregon 97301-4096
(503) 947-4540
Paul.Garrahan@doj.oregon.gov

STATE OF RHODE ISLAND
PETER F. NERONHA
ATTORNEY GENERAL

/s/ *Nicholas Vaz*
NICHOLAS VAZ
Special Assistant Attorney General
Environment and Energy Unit Chief Rhode Island Office of the Attorney General 150 South Main Street
Providence, RI 02903
(401) 274-4400 ext. 2297
nvaz@riag.ri.gov

STATE OF VERMONT
CHARITY R. CLARK
ATTORNEY GENERAL

/s/ Hannah Yindra
HANNAH YINDRA
Assistant Attorney General
Office of the Attorney General
109 State Street
Montpelier, VT 05609
(802) 828-3186
Hannah.Yindra@vermont.gov

STATE OF WASHINGTON
NICHOLAS W. BROWN
ATTORNEY GENERAL

/s/ Christopher H. Reitz
CHRISTOPHER H. REITZ
ALEXANDRIA K. DOOLITTLE
SARAH M. REYNEVLED
Assistant Attorneys General
Office of the Attorney General
P.O. Box 40117
Olympia, WA 98504-0117
(360) 586-6769
Chris.Reitz@atg.wa.gov
Alex.Doolittle@atg.wa.gov
Sarah.Reyneveld@atg.wa.gov

STATE OF WISCONSIN
JOSHUA L. KAUL
ATTORNEY GENERAL

/s/ *Gabe Johnson-Karp*
GABE JOHNSON-KARP
Assistant Attorney General
Wisconsin Department of Justice
17 West Main Street
Post Office Box 7857
Madison, WI 53707-7857
(608) 267-8904
Gabe.Johnson-Karp@wisdoj.gov

THE DISTRICT OF COLUMBIA
BRIAN L. SCHWALB
ATTORNEY GENERAL

/s/ Sean Powers
SEAN POWERS
Assistant Attorney General
Office of the Attorney General
for the District of Columbia
400 6th Street, N.W., 10th Floor
Washington, D.C. 20001
Sean.Powers@dc.gov

CITY OF CHICAGO
MARY B. RICHARDSON-LOWRY
CORPORATION COUNSEL

/s/ Gabrielle Sigel
GABRIELLE SIGEL
Assistant Corporation Counsel-Supervisor
BRADLEY RYBA
Assistant Corporation Counsel
City of Chicago Department of Law
2 N. LaSalle Street, Suite 540
Chicago, IL 60602
(312) 744-1438
Gabrielle.Sigel@cityofchicago.org
Bradley.Ryba@cityofchicago.org

CITY OF NEW YORK
MURIEL GOODE-TRUFANT
CORPORATION COUNSEL

/s/ Leia Seereeram
LEIA SEEREERAM
Assistant Corporation Counsel
TESS DERNBACH
Senior Counsel
New York City Law Department
100 Church Street
New York, NY 10007
lseereer@law.nyc.gov

CITY OF OAKLAND
RYAN RICHARDSON
OAKLAND CITY ATTORNEY

/s/ Ryan Richardson
RYAN RICHARDSON
One Frank H. Ogawa Plaza 6th Floor
Oakland, California 94612
(510) 238-3601

MARTIN LUTHER KING, JR. COUNTY, WASHINGTON
LEESA MANION
PROSECUTING ATTORNEY

/s/ Alison Holcomb
ALISON HOLCOMB
Deputy General Counsel to Executive
Chinook Building
401 5th Avenue, Suite 800

CITY AND COUNTY OF DENVER, COLORADO
MICHIKO ANDO BROWN
CITY ATTORNEY

/s/ Kristin Brainerd
KRISTIN BRAINERD
Assistant City Attorney
Denver City Attorney's Office
201 W. Colfax Ave., Dept. 1207
Denver, CO 80202
Kristin.Brainerd@denvergov.org

CITY AND COUNTY OF SAN FRANCISCO, CALIFORNIA
DAVID CHIU
CITY ATTORNEY

/s/ Robb Kapla
ROBB KAPLA
Deputy City Attorney
Office of the City Attorney
City Hall, Room 234
1 Dr. Conrad B. Goodlett Pl.
San Francisco, CA 94102
(415) 554-4647
Robb.Kapla@sfcityatty.org

SANTA CLARA COUNTY, CALIFORNIA
TONY LOPRESTI
COUNTY COUNSEL

/s/ *Cristina Stella*
CRISTINA STELLA
Deputy County Counsel
Office of the County Counsel, County of Santa Clara
70 West Hedding Street, East Wing, 9th Floor
San José, CA 95110
(408) 299-6939
Cristina.Stella@cco.sccgov.org