



FACT SHEET

# EPA'S ENDANGERMENT FINDING: THE LEGAL AND SCIENTIFIC FOUNDATION FOR CLIMATE ACTION

In 2009, the U.S. Environmental Protection Agency (EPA) issued its science-based finding that the buildup of heat-trapping greenhouse gases in the atmosphere endangers public health and welfare. The “Endangerment Finding” reflects the overwhelming scientific evidence on the causes and impacts of climate change. It was made after a thorough rulemaking process considering thousands of public comments, and was upheld by the federal courts.

The Endangerment Finding requires the EPA to take action under the Clean Air Act to curb emissions of carbon dioxide, methane, and four other heat-trapping air pollutants from vehicles, power plants, and other industries. The EPA's Endangerment Finding followed the Supreme Court's landmark 2007 decision in *Massachusetts v. EPA* holding that greenhouse gases are air pollutants covered by the Clean Air Act. This law, the Court held, obligates the EPA to curb pollutants that endanger public health and welfare, including by contributing to climate change.

## BASIS IN LAW

More than fifty years ago, President Lyndon B. Johnson asked Congress for legislation to control air pollution, including heat-trapping greenhouse gas emissions. In a special message to Congress, President Johnson cautioned that “[a]ir pollution is no longer confined to isolated places. This generation has altered the composition of the atmosphere on a global scale through radioactive materials and a steady increase in carbon dioxide from the burning of fossil fuels.”<sup>1</sup>

In this message, President Johnson recommended that “the Clean Air Act should be improved to permit [the EPA's predecessor agency] to investigate potential air pollution problems before pollution happens, rather than having to wait until the damage occurs, as is now the case, and to make recommendations leading to the prevention of such pollution.”<sup>2</sup> The modern Clean Air Act, signed in 1970 by President Nixon, and amended in 1977 and 1990, includes broad, forward-looking language authorizing the EPA Administrator to regulate “air pollution which may reasonably be anticipated to endanger public health or welfare.”<sup>3</sup>

In the subsequent decades, scientific evidence of the dangers caused by increasing concentrations of greenhouse gases in the atmosphere continued to accumulate. In 2003, the EPA denied a petition for regulation of greenhouse gases emitted from motor vehicles, claiming that these gases were not “air pollutants” under the Clean Air Act.<sup>4</sup> States, municipalities, and environmental groups challenged the EPA's decision, and prevailed in the landmark 2007 Supreme Court ruling in *Massachusetts v. EPA*. The Supreme Court determined that emissions of greenhouse gases are air pollutants subject to regulation under the Clean Air Act.<sup>5</sup>

In *Massachusetts*, the Supreme Court found that “greenhouse gases fit well within the Clean Air Act's capacious definition of ‘air pollutant,’”<sup>6</sup> and noted that the Act defines “welfare” similarly broadly to include effects on weather and climate.<sup>7</sup> The Court observed that “[w]hile the Congresses that drafted [Clean Air Act Section] 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.”<sup>8</sup> The Supreme Court found that the “clear statutory command” of Clean Air Act Section 202(a)(1) requires the EPA to make a scientific judgment as to “whether greenhouse gas emissions contribute to climate change.”<sup>9</sup>

Pursuant to the *Massachusetts v. EPA* decision, in 2009 the EPA conducted a thorough examination of the scientific evidence of climate change and considered thousands of public comments. The agency made the “Endangerment Finding” that greenhouse gases threaten the public health and welfare of Americans based on the overwhelming scientific consensus reached by decades of peer-reviewed research.<sup>10</sup> The 2009 rulemaking also included the “Cause or Contribute” determination that greenhouse gas emissions from motor vehicles contribute to the dangerous atmospheric build-up of climate pollution. The two findings together provided the legal foundation for the EPA to issue greenhouse gas emission standards for vehicles in 2010 under Section 202 of the Clean Air Act.

The U.S. Court of Appeals for the D.C. Circuit upheld the EPA’s determinations in 2012, finding that the “body of scientific evidence marshaled by the EPA in support of the Endangerment finding is substantial.”<sup>11</sup> The Supreme Court declined to review that decision.

In 2015, the EPA issued standards limiting carbon pollution from new and existing fossil fuel-fired power plants under Section 111. The new source rule cited the 2009 Endangerment Finding and further scientific assessments, and included a finding that these power plants contribute significantly to the atmospheric greenhouse gas pollution that endangers public health and welfare.<sup>12</sup> The EPA made a similar finding in 2016 regarding oil and gas sector sources of methane, when issuing standards to regulate methane emissions from new oil and gas sources under Section 111.<sup>13</sup> In 2016, the EPA found that greenhouse gas emissions from aircraft engines contribute to dangerous climate-changing air pollution under Section 231.<sup>14</sup> This finding was based on the substantial scientific and technical evidence that supported the 2009 Endangerment Finding, and more recent additional evidence.

## **BASIS IN SCIENCE**

The EPA’s 2009 Endangerment Finding was based on extensive review of decades of scientific research and peer-reviewed assessment reports synthesizing thousands of individual climate science studies.<sup>15</sup> The Agency concluded based on the scientific evidence that “elevated concentrations of heat-trapping greenhouse gases are the root cause of recently observed climate change,” and these changes are “very likely due to the observed increase in anthropogenic greenhouse gas concentrations.”<sup>16</sup> The EPA considered the current and future effects of climate change, and found that climate-changing pollution endangers public health for current and future generations.<sup>17</sup> The public health effects supporting this determination include:

- **Direct temperature effects:** Extremely hot days and heat waves are becoming more frequent, and are projected to intensify. Heat causes the most weather-related deaths in the United States, and projected warming is expected to increase heat-related mortality.
- **Air quality effects:** There is consistent evidence that climate change will increase ground-level ozone pollution (smog), which causes respiratory illnesses and aggravates asthma.
- **Extreme weather events:** Heavy precipitation events and severe storms are expected to become more frequent and intense. The resulting flooding and storm surge will put more people at risk of death or injury and increase risks of infectious diseases.
- **Disease and allergen effects:** Warmer temperatures are likely to increase the spread of food- and water-borne illnesses and insect-borne diseases. Climate change may also affect the prevalence and severity of allergy symptoms by increasing pollen and altering the distribution of aeroallergens and the plants that produce them.

The EPA also concluded that greenhouse gas pollution endangers the public welfare.<sup>18</sup> The environmental and welfare effects supporting this determination include:

- **Food production, agriculture, and forestry:** Although increased carbon dioxide concentrations may benefit certain crops, the body of evidence suggests that climate change impacts—including increased temperatures, changing precipitation patterns, and extreme weather events—will cause net adverse effects on U.S. agriculture. Climate change has already endangered U.S. forestry by increasing the size and frequency of wildfires, insect outbreaks, and tree mortality, and will continue to contribute to these effects.
- **Water resources:** Climate change is reducing snowpack and precipitation, which threatens the adequacy of water supplies across large areas of the United States. Rising water temperatures and more frequent flood events exacerbate water pollution, increasing risks to public health and ecosystems.
- **Sea level rise:** The sea level along much of the U.S. coast is rising, and the rate of change is expected to increase. Sea level rise increases the risk of storm surge and flooding and causes erosion and loss of wetlands, threatening coastal communities.

- **Energy and infrastructure:** Climate change is expected to affect energy demand for heating and cooling, and adversely impact energy production, which relies on water for cooling capacity and hydropower generation. U.S. infrastructure—including energy transmission, water infrastructure, roads, bridges, airports, and homes—is vulnerable to extreme weather events, permafrost melt, sea level rise, and coastal erosion associated with climate change.
- **Ecosystems and wildlife:** Climate change is already affecting natural environments by causing changes in plant life cycles and shifting the habitat ranges and migration patterns of animals. These changes will fundamentally alter U.S. ecosystems and have negative consequences for biodiversity and the ecosystem goods and services on which current and future generations depend.

Since 2009, additional scientific evidence has continued to improve our understanding of climate systems, and has reinforced the EPA’s conclusion that greenhouse gas emissions pose a grave danger to current and future generations.<sup>19</sup>

## **AMERICANS BENEFIT—HEALTH, CONSUMER SAVINGS, ENVIRONMENT**

The Endangerment Finding authorizes the EPA to regulate greenhouse gas emissions from the nation’s largest sources. These regulations provide enormous benefits:

- The EPA’s emissions standards for passenger cars and trucks sold in model years 2012-2025 are expected to cut 6 billion metric tons of greenhouse gases over the lifetimes of the vehicles, save more than \$1.7 trillion in fuel costs, and reduce oil consumption by more than 2 million barrels per day in 2025.<sup>20</sup>
- The first phase of the EPA’s standards for commercial trucks and buses manufactured in model years 2014-2018 are projected to reduce carbon pollution by about 270 million metric tons and save about 530 million barrels of oil over the life of vehicles, generating \$49 billion in net program benefits and \$50 billion in fuel savings for vehicle owners. The second phase standards for model years 2021-2027 are expected to reduce carbon dioxide emissions by 1.1 billion metric tons and lower oil consumption by up to two billion barrels over the lifetime of the vehicles, saving vehicle owners fuel costs of about \$170 billion.<sup>21</sup>
- Aircraft—for which the EPA made a separate endangerment finding—are the largest remaining transportation-sector source of greenhouse gas emissions not yet subject to emissions standards. They contribute 12 percent of U.S. greenhouse gas emissions from the transportation sector, and 3 percent of all U.S. greenhouse gas emissions.<sup>22</sup>
- Carbon pollution standards for new fossil fuel-fired power plants and the Clean Power Plan guidelines for existing power plants will help clean up our air by reducing unhealthy particulate matter, sulfur dioxide, and nitrogen oxides that contribute to soot and smog.<sup>23</sup> As a result, the Clean Power Plan could prevent up to 3,600 premature deaths, 1,700 heart attacks, 90,000 asthma attacks, and 300,000 missed workdays and schooldays each year. The Clean Power Plan is projected to yield up to \$20 billion in climate benefits, plus public health benefits of \$14 to \$34 billion each year. These massive benefits outweigh the Plan’s total projected cost of compliance of \$5 to \$8 billion per year.
- The EPA’s methane emission standards for the oil and gas industry are projected to reduce 510,000 short tons of methane in 2025, equivalent to reducing 11 million metric tons of carbon dioxide, yielding net climate benefits of approximately \$170 million in 2025. The standards will also reduce other pollutants, including approximately 210,000 tons of VOCs and 3,900 tons of air toxics in 2025, which will alleviate health effects related to fine particle pollution, smog, and air toxics and improve visibility.<sup>24</sup>

## **BROAD PUBLIC SUPPORT**

Now, some are encouraging the Trump administration to withdraw the Endangerment Finding and roll back the climate protections it requires. But not only would rescinding the Endangerment Finding require disavowal of the massive foundation of peer reviewed science on which the finding was based, it would also be against the will of the American public.

Polling has repeatedly shown that most Americans think that climate change is happening and consider it to be a serious problem.<sup>25</sup> A majority of Americans think that the United States should reduce its greenhouse gas emissions, and that our government should do more to address climate change.<sup>26</sup> Recent surveys show majorities of Trump voters support taxing and/or regulating climate pollution, upholding or strengthening current climate change policies, or requiring U.S. companies to reduce carbon pollution.<sup>27</sup>

## ENDNOTES

- 1 President Lyndon B. Johnson, Special Message to Congress on Conservation and Restoration of Natural Beauty (Feb. 8, 1965), available at <http://www.presidency.ucsb.edu/ws/?pid=27285>.
- 2 *Id.*
- 3 Clean Air Act § 202(a)(1), 42 U.S.C. §7521.
- 4 U.S. EPA, Control of Emissions From New Highway Vehicles and Engines: Notice of Denial of Petition for Rulemaking, 68 Fed. Reg. 52,922 (Sept. 8, 2003).
- 5 *Massachusetts v. EPA*, 549 U.S. 497, 528-529 (2007).
- 6 *Id.* at 532.
- 7 *Id.* at 506.
- 8 *Id.* at 532.
- 9 *Id.* at 533-34.
- 10 U.S. EPA, 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).
- 11 *Coalition for Responsible Regulation v. EPA*, 684 F.3d 102 (D.C. Cir. 2012).
- 12 U.S. EPA, Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,510, 64,529-30 (Oct. 23, 2015).
- 13 U.S. EPA, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources, 81 Fed. Reg. 35,824 (June 3, 2016).
- 14 U.S. EPA, 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).
- 15 74 Fed. Reg. at 66,497.
- 16 74 Fed. Reg. at 66,518.
- 17 74 Fed. Reg. at 66,524-26.
- 18 74 Fed. Reg. at 66,530-34.
- 19 See, e.g., IPCC, Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2013-2014), <https://www.ipcc.ch/report/ar5/>; USGCRP, Climate Change Impacts in the United States: the Third National Climate Assessment (2014), <http://nca2014.globalchange.gov/>.
- 20 U.S. EPA, Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and>.
- 21 U.S. EPA, Regulations for Greenhouse Gas Emissions from Commercial Trucks & Buses, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks>.
- 22 U.S. EPA, EPA Finalizes First Steps to Address Greenhouse Gas Emissions from Aircraft Engines (July 2016), <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100PIUN.PDF?Dockey=P100PIUN.PDF>.
- 23 U.S. EPA, "Regulatory Impact Analysis for the Clean Power Plan Final Rule," October 23, 2015, [www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf](http://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf).
- 24 U.S. EPA, EPA's Actions to Reduce Methane Emissions from the Oil and Natural Gas Industry (2016), <https://www.epa.gov/sites/production/files/2016-09/documents/nspsoverview-fs.pdf>.
- 25 Quinnipiac University, Two-Thirds Of U.S. Voters Take Climate Personally (Apr. 5, 2017), [https://poll.qu.edu/images/polling/us/us04052017\\_Ubgw27pk.pdf](https://poll.qu.edu/images/polling/us/us04052017_Ubgw27pk.pdf); League of Conservation Voters, Memo: Americans Strongly Support Climate Action (2016), <https://www.lcv.org/wp-content/uploads/2016/10/2016-climate-polling-memo.pdf>; Saint Leo University, Three Out of Four Americans Register Concern Over Global Climate Change (Apr. 1, 2016), <http://polls.saintleo.edu/three-out-of-four-americans-register-concern-over-global-climate-change/>.
- 26 Yale Program on Climate Communication, Politics & Global Warming, November 2016 (Dec. 13, 2016), <http://climatecommunication.yale.edu/publications/politics-global-warming-november-2016/2/>.
- 27 Yale Program on Climate Change Communication, Trump Voters & Global Warming (Feb. 6, 2017), <http://climatecommunication.yale.edu/wp-content/uploads/2017/02/Trump-Voters-and-Global-Warming.pdf>; GPG & Morning Consult, Survey of Trump Voters (Dec. 20, 2016), [https://www.nrdc.org/sites/default/files/media-uploads/trumpvotersurvey-toplinepublicrelease-161220035628\\_0.pdf](https://www.nrdc.org/sites/default/files/media-uploads/trumpvotersurvey-toplinepublicrelease-161220035628_0.pdf).