



# The Fertilizer Institute

Nourish, Replenish, Grow

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**VIA UNITED STATES MAIL  
AND ELECTRONIC MAIL**

U.S. Environmental Protection Agency  
EPA Docket Center (EPA/DC)  
Mail Code 6102T  
Attention: Docket ID No. EPA-HQ-OAR-2009-0171  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460  
[GHG-Endangerment-Docket@epa.gov](mailto:GHG-Endangerment-Docket@epa.gov)

***Re: The Fertilizer Institute's Comments on EPA's Proposed  
Endangerment and Cause or Contribute Findings for Greenhouse  
Gases Under Section 202(a) of the Clean Air Act (Docket ID No.  
EPA-HQ-OAR-2009-0171)***

Dear Sir or Madam:

The Fertilizer Institute (TFI), on behalf of its member companies, submits these comments in response to the U.S. Environmental Protection Agency's (EPA's or Agency's) proposed action entitled "Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act," published in the *Federal Register* on April 24, 2009, and appearing at 74 Fed. Reg. 18,886 (the "Proposal").

**Statement of Interest**

TFI represents the nation's fertilizer industry. Producers, wholesalers and, retailers, , which comprise its membership, are served by a full-time Washington, D.C. staff in various legislative, educational and technical areas, as well as with information and public relations programs.

TFI members produce ammonia, urea, nitric acid, and phosphoric acid, manufacturing processes previously identified by EPA as sources of greenhouse gas (GHG) emissions.<sup>1</sup> Many TFI

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<sup>1</sup> See, e.g., 72 Fed. Reg. 8731 (February 27, 2007) (EPA notice regarding the availability of the *Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005*).

members are subject to the Clean Air Act (CAA) (42 U.S.C. § 7401 *et seq.*) and its regulations, and therefore could fall within the scope of those facilities potentially affected by the Proposal. If CAA regulations are adopted as a consequence of the Proposal, TFI members would be subject to those regulations, as many TFI members emit at least some of the six GHGs specifically identified in the proposal as endangering the public health and welfare. As such, TFI and its members have an interest in EPA's solicitation of comments regarding the Proposal. TFI appreciates this opportunity to comment on the Proposal, and provides the following comments in response to EPA's request.

**I. EPA Should Conclude that GHG Emissions Are Not Reasonably Anticipated to Endanger Public Health or Welfare**

On April 2, 2007, the U.S. Supreme Court reversed and remanded EPA's denial of a rulemaking petition to regulate GHGs under CAA § 202(a), which requires EPA to promulgate regulations for air pollutants emitted from new motor vehicles when the EPA Administrator has determined that "the emission of any air pollutant from [new motor vehicles] cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." EPA denied the rulemaking petition on the grounds that it lacked the authority to regulate emissions related to climate change, and even if it did have such authority, that it would not have been appropriate to do so at the time. The Court, in *Massachusetts v. EPA*, held that EPA does have the authority to regulate GHGs, because GHGs meet the broad definition of an "air pollutant" under the CAA, and rejected EPA's rationale for not regulating GHG emissions under the CAA as inappropriate at the time. 549 U.S. 497 (2007).

Importantly, the Court did not conclude that GHG emissions "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare" under CAA § 202(a). Rather, this is the issue remanded to EPA. In doing so, the Court left open the possibility that currently available science does not enable the Agency to make the requisite determination, stating that "EPA can avoid taking further action . . . 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.* at 524.

As such, the *Massachusetts* decision does not require EPA to reach the conclusions in the Proposal. EPA's conclusions should be based on the best available science. Most, if not all, of the studies relied upon by EPA in the Proposal do not evaluate the individual effects of the six GHGs identified in the Proposal nor do they evaluate their effect as emitted from new motor vehicles. Such information must be developed before EPA can finalize any endangerment finding for these GHGs.

The science establishing the nexus between these six GHGs and climate change is inconclusive. The Intergovernmental Panel on Climate Change (IPCC) Likelihood Scale relied upon by EPA in the Proposal to demonstrate causality between anthropogenic sources, GHGs, and climate change is arbitrary and capricious (as discussed below), as is EPA's reliance on such reports (rather than

preparing its own reports) because such reliance precludes any rational review and/or rebuttal of climate change scenarios and thus cannot provide the basis for an endangerment finding. The IPCC reports do not allocate any increment of climate change to the transportation sector or for any specific anthropogenic activity. The IPCC reports (which EPA concedes it relied on heavily as the scientific basis for the Proposal) provide an inadequate basis for an endangerment finding and EPA's reliance on such reports to the exclusion of others (while ignoring legitimate criticisms of these reports) is arbitrary and capricious.

In sum, without adequate scientific data on emissions of each individual GHG addressed in the Proposal from new motor vehicles, EPA cannot make a positive endangerment finding as it contemplates in the Proposal. A higher scientific standard is required, and a more inclusive approach addressing legitimate criticisms is essential.

## **II. The Proposal Is Inappropriate at this Time and a Potential GHG Endangerment Finding Should Be Delayed**

The Court, in *Massachusetts*, noted that "EPA no doubt has significant latitude as to the manner, timing, content, and coordination of its regulations with those of other agencies." 549 U.S. at 533. Furthermore, the Court expressly declines to rule on "whether policy concerns can inform EPA's actions in the event that it makes" a CAA § 202(a) finding. The Court therefore clearly left substantial discretion to the Agency on the timing and content of any GHG findings. Given the potential scope of the Proposal's impacts, its highly technical nature, and the evolving understanding of climate change science, EPA should exercise its discretion and delay finalization of any findings as to GHG emission causation or contribution to the endangerment of public health and welfare. Caution is warranted for several reasons.

First, current legislative efforts regarding climate change initiatives may make the Proposal premature at best and unnecessarily redundant and costly at worst. President Barack Obama has expressed a preference for a legislative solution to the effects of climate change rather than EPA action.<sup>2</sup> A legislative approach or even better, a comprehensive international accord would be preferable to CAA regulation because the CAA's framework of "command and control" of end-of-stack emissions is ill-suited for mitigating climate change. GHGs, unlike other pollutants regulated to date under the CAA, are naturally-occurring and ubiquitous and cannot be controlled simply by installing a scrubber or other device into an emission source. Climate change mitigation efforts must be broader than CAA regulation allows, incorporating reductions in energy use, transition to renewable and non-GHG emitting sources, and increase fuel economy. Carbon-sequestration (CCS) measures still must be developed with the underpinning of regulation and financial assurance. In addition, to gather additional comments and research EPA currently has delayed the CCS rulemaking completion until 2011.

By moving forward with this Proposal, EPA may inadvertently alter the policy status quo in a way that makes socially desirable climate change policy much less likely. The Proposal could

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<sup>2</sup> <http://www.nytimes.com/cwire/2009/02/23/23climatewire-obama-prefers-congress-to-epa-when-it-comes-t-9800.html>

result in legislators deciding that the marginal benefit from expending resources to introduce and enact economically and scientifically sound climate change legislation would be unnecessary given EPA's movement toward CAA regulation of GHG emissions. Such a disincentive to action could preclude real long-term solutions better suited to climate change problems than the CAA, including governmental funding of research and development of science-based standards for agricultural practices that can control emissions of GHGs and sequester carbon, the development of alternative fuels and the redirection of foreign aid to fund climate change adaptation in developing and industrializing countries. The Court in *Massachusetts* accorded EPA substantial discretion as to when it should move forward with an endangerment finding. Given the current legislative efforts to address climate change, and the CAA's inadequate regulatory framework for addressing climate change, EPA should delay making any finding with respect to GHG emission endangerment under CAA § 202(a) until federal legislative or international efforts have been enacted or tabled indefinitely.

Second, EPA states in the Preamble to the Proposal that it has relied almost entirely on assessment reports of both the IPCC and the U.S. Climate Change Science Program (CCSP). 74 Fed. Reg. at 18894. These reports provide a problematic scientific basis, at best, for EPA's Proposal, due to the following issues:

- **Unreliable Data:** Temperature data is highly variable over time and space. In the last ten years, data are showing a decrease in temperature, not an increase. This has been largely ignored by the IPCC and others and is not represented or reproduced in any of the models relied upon by the IPCC or CCSP. Local proxy data of uncertain accuracy (such as ice cores and tree rings) must be used to infer past global temperatures. Even over the period during which thermometer data have been available, readings are not evenly spread across the globe and are often subject to local warming from increasing urbanization. As a consequence, the trend over time can be rising, falling, or stable depending on the data sample chosen. The reports relied upon by EPA in the Proposal discount or ignore these valid scientific concerns.
- **Computer Model Problems:** These reports also rely heavily on computer models, but there is no evidence that modeling improves the accuracy of predictions. In many instances, the individual models have produced widely different forecasts from the same initial conditions. For example, the models predict that the Earth should be warmer than actual measurements show it to be. Computer models have not been adequately updated to include advances in the understanding of natural variability in affecting climate change. Climate change models still cannot adequately address the most important atmospheric component affecting the greenhouse effect – water vapor.
- **Forecasting Principles Violations:** Empirically-validated principles for forecast modeling are available in the *Principles of Forecasting* handbook at [www.forecastingprinciples.com](http://www.forecastingprinciples.com). These principles were designed to be applicable to making forecasts about diverse physical, social, and economic phenomena. In an audit of the IPCC *Fourth Assessment Report*, researchers found that the methods

described in the *Fourth Assessment Report* violated 60 of the 127 principles relevant to the IPCC reporting procedures, , an additional 12 forecasting principles appear to be violated, and there is insufficient information in the report to assess the use of 38. Thus, the forecasts in the IPCC *Fourth Assessment Report* are highly suspect, if not invalid.

- **Irrefutability of Observed and Predicted Climate Change:** The IPCC reports go to great lengths to detail observed climate change and predict future potential consequences, but then use an arbitrary “likelihood” scale to confer causality on anthropogenic activities. The scale is described as having “fuzzy boundaries” and is based on either quantitative analysis or an elicitation of expert views. Use of this arbitrary scale with little or no data showing a causal link between anthropogenic activity and observed or predicted outcomes does not allow for a rational review and/or rebuttal of climate change scenarios and is the antithesis of accepted scientific method.

EPA elected to rely on these reports with suspect science rather than take a broad, inclusive approach to reports on climate change and conducting a new assessment of scientific literature. This is particularly troubling given EPA Administrator Lisa Jackson’s statement in her confirmation hearings before Congress that the Agency would operate with “unparalleled transparency and openness” and that “[s]cience must be the backbone of what EPA does.” If transparency and openness are requirements for EPA’s actions, then EPA should allow for inclusion of additional reports and analyses beyond IPCC and CCSP reports, and EPA should address the legitimate criticisms of these reports. Given the importance of any climate change initiatives, EPA should delay finalizing the Proposal or making any GHG endangerment finding until it has conducted an up-to-date, broadly inclusive assessment of scientific literature on GHG emissions and their impact on climate change and public health.

Third, EPA should delay any endangerment finding for GHGs (which would be a precursor to regulation of GHG emissions) to allow more time for recovery from the current nationwide economic recession without imposition of additional costs on small businesses throughout the country and overstretched governmental agency budgets. Regulation of GHGs under the CAA would represent an unprecedented expansion of that statute’s scope, imposing requirements on potentially tens of thousands of small businesses that have never been subject to CAA regulation, at a time when many such businesses are struggling to survive. Direct compliance costs would account for only a portion of the adverse impacts to employers during this recession, as GHG emissions regulation would undoubtedly increase energy costs to all consumers, including small businesses.

The Proposal (and its impetus toward direct GHG regulation under the CAA) has even further reaching economic implications. China now is the world’s largest GHG emitter and accounts for

the greatest growth in global GHG emissions.<sup>3</sup> Undue haste in GHG regulation in the U.S. could lower the future incentive for rapidly industrializing CO<sub>2</sub> emitters (like China) to curb emissions, thus drawing energy-intensive industries and jobs away from the United States while further exacerbating global climate change. In fact, due primarily to rapid increases in natural gas prices, since 1990 26 nitrogen fertilizer producing plants have been permanently closed, and the production moved offshore. EPA should delay any final endangerment finding for GHGs until it has further considered the potentially devastating economic consequences of GHG regulation, particularly during the current recession.

Fourth, because the endangerment criterion under CAA § 202 is based on an “air pollutant,” EPA should defer any endangerment finding until such time that it possesses scientifically sound data on all six GHGs addressed in the Proposal as emitted from motor vehicles on an individual basis, in lieu of the generic approach which combines all six as contained in the Proposal. EPA does not possess sufficient information (based on the problems with the reports underlying the Proposal discussed above) on the nexus between GHG emissions and climate change to evaluate whether GHGs, in general, endanger public health or welfare, let alone possess the requisite peer reviewed, scientific data to support such a finding as to each individual GHG addressed in the Proposal. CAA § 202 requires addressing an “air pollutant” (in the singular). As such, EPA should develop information on each individual GHG in the Proposal before proceeding with an endangerment finding.

### **III. EPA Fails to Consider Potential Benefits of Climate Change in the Proposal**

As noted above, CAA regulation in connection with this Proposal could impose significant costs on small businesses and to the national economy. EPA has failed to consider these costs in its Proposal. EPA has similarly failed to consider any benefits of global climate change in making its endangerment finding. Such a determination is critical to a finding that the net effect of GHG emissions endangers public health and welfare. Importantly, as EPA notes in the Proposal’s Preamble, the Court in *Massachusetts* “was not dictating EPA’s action on remand, and was not deciding whether or not EPA must find that greenhouse gases endanger public health or welfare.” 74 Fed. Reg. 18889. As such, EPA may find that GHGs do not endanger public health and welfare, consistent with the Court’s ruling. While the Court in *Massachusetts* held that GHGs are “air pollutants” for purposes of CAA § 202(a), that holding alone is insufficient to require an endangerment finding. The air pollutant must “reasonably be anticipated to endanger public health and welfare.”

Significantly, EPA admits in the Preamble that GHGs “whether at current levels or at projected ambient levels under scenarios of high emissions growth over time, do not cause direct adverse health effects. . . . All public health risks and impacts described here as a result of elevated atmospheric concentration of greenhouse gases occur via climate change.” 74 Fed. Reg. at

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<sup>3</sup> Jay S. Gregg et al., “China: Emissions Patter of the World Leader in CO<sub>2</sub> Emissions from Fossil Fuel Consumption,” *Geophysical Res. Letters*, April 2008, at L08806; *see also* Richard T. Carson, *Forecasting the Path of China’s CO<sub>2</sub> Emissions Using Province-Level Information*, 55 *J. Envtl. Econ. & Mgmt.* 229 (2008).

18901. As such, in order to demonstrate “endangerment,” EPA must demonstrate that the adverse effects of climate change outweigh any benefits, because it has conceded that GHGs pose no direct endangerment of public health and welfare.

The term “endanger” is not defined in the CAA. However, the term must encompass some cost-benefit analysis. Otherwise, virtually any “air pollutant” could be deemed to “endanger public health and welfare” in some way, and EPA would be required to establish standards for noise (with their inherent danger of headaches), electromagnetic fields (and their interruption with signal reception), or smells wafting from restaurants (and their impact on obesity levels). Common sense demands some cost-benefit analysis. If the “air pollutant” has a net benefit to public health and welfare, it cannot be said to “endanger” public health and welfare, despite some adverse effects. EPA acknowledges in the Preamble that climate change “may bring about some health benefits.” 74 Fed. Reg. at 18901. But EPA fails to analyze whether these benefits outweigh anticipated costs or “danger.”

#### **IV. EPA Fails to Explain Why Endangerment of Public Health and Welfare is “Reasonably Expected”**

Not only must EPA demonstrate that the net effect of GHG emissions endanger public health and welfare (as discussed above), EPA must also identify why such endangerment (if any) is “reasonably expected” under CAA § 202(a). EPA states in the Preamble that it “*must exercise reasoned decision making, and avoid speculative or crystal ball inquiries.*” 74 Fed. Reg. at 18890. EPA fails in the Proposal to indicate how it draws the line between reasonable projections and crystal ball inquiries. EPA concedes in the Preamble that “[t]here are many inherent uncertainties associated with characterizing both the observed and projected risks and impacts to public health and welfare due to current and projected greenhouse gas concentrations. Both probability and severity are not easy to specify.” 74 Fed. Reg. at 18903. Given these uncertainties, what distinguishes EPA’s Proposal from “crystal ball inquiries,” which EPA concedes are not permitted by the CAA?

TFI understands that, as the Supreme Court stated in *Massachusetts*, EPA may act under the CAA “even if the regulator is less than certain that harm is otherwise inevitable.” 549 U.S. at 506. However, EPA has provided no indication of how it distinguishes between being simply “less than certain” and when it is being unlawfully “speculative.” Indeed, in one paragraph, EPA warns of impending droughts and decreased precipitation, and on the same page warns of floods and increased precipitation. 74 Fed. Reg. at 18900. If EPA’s predicted “endangerment” runs the gamut of foreseeable catastrophes, how can the regulated community see its determination as anything but crystal ball gazing? As noted above, EPA has conceded that GHGs pose no direct endangerment of public health and welfare – they endanger the public only via climate change. The regulated community is therefore left to EPA’s interpretation of the “butterfly effect” of emissions as to whether those emissions could be regulated under the CAA. EPA must establish some means of evaluating the likelihood of endangerment in order to meet the requirement to regulate an air pollutant reasonably expected to endanger public health and welfare under CAA § 202(a).

The Proposal states that ambient concentrations of GHGs do not cause direct health effects. 74 Fed. Reg. at 18901. Further, in arguing for “serious risks to public health,” the Agency provides limited qualitative evidence and unsupported conclusions in reference to: (1) temperature-related mortality and morbidity; (2) increases in regional U.S. ozone pollution; (3) the spread of food- and water-borne pathogens; and (4) risks associated with allergenicity of, and increases in, aeroallergens.

To make a positive endangerment finding, EPA must determine that GHGs cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare. The legislative history of Section 202(a) requires that endangerment delineate a significant risk of harm. 42 U.S.C. § 7521(a)(1). As discussed in greater detail below, EPA has failed to meet the applicable legal standard to show significant risk to public health and welfare from climate change.

**A. Purported Significant Risks to Public Health**

**1. Temperature-Related Mortality and Morbidity**

Likely increases in temperature-related mortality and morbidity effects are cited in the Proposal as supporting the endangerment finding for public health. However, the Agency states that “[t]he Administrator does not believe that it is now possible to quantify the various effects;” rather, “[b]ecause the risks from unusually hot days and nights, and from heat waves, are very serious, it is reasonable to find on balance that these risks support a finding that public health is endangered.” 74 Fed. Reg. at 18901. Further, the Agency recognizes that “warming temperatures may bring about some *health benefits*.” *Id.* (emphasis added).

Despite presenting evidence that increases in mortality and morbidity cannot be quantified and that some decrease in cold-temperature mortality and morbidity is expected, the Administrator concludes with no supporting evidence that it is reasonable to find on balance that these risks support a finding that public health is endangered. The literature seems to indicate that populations are likely to be able to successfully adjust to increased temperatures from warming, “with little increase in heat related mortality.” At the same time, all populations showed much greater deaths in winter time, and thus even a small decrease in winter deaths would greatly outweigh a small heat death increase.<sup>4</sup> Overall death rates are higher in winter than in summer, and it is possible that milder winters could reduce deaths in winter months.<sup>5</sup> The Agency has failed to provide any justification supporting a significant risk of harm from predicted temperature increases, and, in fact, the peer reviewed literature seems to reach the opposite conclusion.

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<sup>4</sup> Bjorn Lomborg, *The Skeptical Environmentalist, Measuring the Real State of the World*. 2001. Cambridge University Press.

<sup>5</sup> McGeehin, M.A., Mirabelli, M. 2001. The Potential Impacts of Climate Variability and Change on Temperature-Related Morbidity and Mortality in the United States. *Environmental Health Perspectives* • V. 109, Supplement 2.

## 2. Ozone

EPA's regulation of tropospheric ozone pollution through the National Ambient Air Quality Standards (NAAQS) program has resulted in significant reductions in ozone pollution throughout the country – a 25% decrease in the national average since 1980 and a 14% decrease since 1990.<sup>6</sup> However, EPA ignores its own statutory program and scientific data in presenting tropospheric ozone pollution as a public health threat from anticipated climate change. In the *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act* (April 17, 2009) (hereinafter “TSD”)<sup>7</sup> supporting the endangerment finding Proposal, the Agency states that “most studies to date that have examined potential future climate change impacts on air quality isolate the climate effect by holding precursor air pollutant emissions constant over time.” TSD at 79. The TSD also states that current models and studies cannot reliably predict future ozone impacts, citing IPCC's 2007 conclusion that there are major discrepancies with observed long-term trends in ozone concentrations over the 20th century and that resolving these discrepancies is needed to establish confidence in the models. TSD at 79.

Direct regulation through the ozone NAAQS has achieved significant reductions in ozone pollution in nonattainment areas and will continue to do so by law. Future impacts of tropospheric ozone pollution through modeling studies are speculative, at best. Tropospheric ozone pollution risks from future climate change therefore do not present the significant risk necessary to support an endangerment finding.

## 3. Spread of Food- and Water-Borne Pathogens

EPA states in the Proposal:

There will likely be an increase in the spread of several food and water-borne pathogens (e.g., Salmonella, Vibrio) among susceptible populations depending on the pathogens' survival, persistence, habitat range and transmission under changing climate and environmental conditions. The primary climate-related factors that affect these pathogens include temperature, precipitation, extreme weather events, and shifts in their ecological regimes.

74 Fed. Reg. at 18901.

However, EPA recognizes that the risk of infectious diseases following flooding in developed countries is generally low, and the impact of climate on food and water-borne pathogens is not the only factor determining the risk of human mortality and morbidity. TSD at 74. EPA includes specious reasoning that the likely increase in extreme weather events will increase these pathogens:

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<sup>6</sup> See <http://www.epa.gov/airtrends/ozone.html#oznat>

<sup>7</sup> Docket No. EPA-HQ-OAR-2009-0171, Doc. ID EPA-HQ-OAR-2009-0171-0137.

These potential impacts of climate change have taken on added meaning in light of the risk that hurricanes are likely to become more severe with climate change, and in light of our heightened awareness about how vulnerable the U.S. Gulf Coast can be.

74 Fed. Reg. at 18902.

Neither the Proposal nor the *TSD* provide any scientific literature references to support claims of significantly increased mortality and morbidity resulting from infectious diseases in the U.S. and no evidence that recent extreme weather events have significantly impacted the U.S. Gulf Coast in this manner.

Regardless, the Proposal includes the risk of climate-related disease without any explanation of how disease could impact the U.S. Instead, the *TSD* relies on inferred health effects based on temperature sensitivity as a proxy for public health impacts in the U.S., including unsubstantiated claims of increased risk of malaria and St. Louis encephalitis during La Nina weather events. *TSD* at 74. These claims are in direct conflict with the Proposal's assertion that the impacts to public health and welfare occurring within the U.S. alone warrant a proposed endangerment finding. 74 Fed. Reg. at 18903.

#### **4. Aeroallergens**

The Proposal offers no scientific data regarding the effect of GHG levels on aeroallergen-related health risks. In fact, the Proposal states that "the scientific literature does not provide definitive data or conclusions on how climate change might impact aeroallergens and subsequently the prevalence of allergenic illnesses in the U.S." 74 Fed. Reg. at 18901. There are numerous other factors that affect aeroallergen levels and the prevalence of allergenic reactions, including changes in land use, air pollution, and adaptive responses. *TSD* at 75.

The Agency has failed to provide any justification supporting a significant risk of harm from allergenicity of, and increases in, aeroallergens, and reaches an arbitrary and capricious conclusion.

### **B. Purported Significant Risks to Public Welfare**

EPA also has failed to meet the applicable legal standard to show significant risk to public welfare from climate change.

#### **1. Air Quality**

As detailed above, the Proposal's ozone discussion does not support a health-based endangerment finding. Because they are not adequately supported with scientific data, the Proposal also does not justify a welfare-based endangerment finding. The relationship between climate impacts and particulate matter (PM) impacts is discussed briefly in the *TSD*, but is not addressed in the Proposal. The *TSD* recognizes that there is not sufficient data to reach a

conclusion, stating that “overall directional impact of climate change on PM levels in the U.S. remains uncertain, as too few data exist yet for PM to draw firm conclusions about the direction or magnitude of climate impacts.” *TSD* at 80. The Agency has failed to provide any justification supporting a significant risk to public welfare from decreased air quality and reaches an arbitrary and capricious conclusion.

## **2. Food Production and Agriculture**

The Proposal cites two IPCC and CCSP studies that predict short-term benefits, but not harm to crop production in many agricultural areas, with significant variability or uncertainty among regions. 74 Fed. Reg. at 18902. The *TSD* cites scientific literature describing a variety of climate-related responses of various crops. The IPCC concluded in 2007 that elevated carbon dioxide (CO<sub>2</sub>) will incrementally benefit crop yields. *TSD* at 85. The Proposal describes mixed impacts of temperature change to support its conclusion that climate affects agriculture:

Higher temperatures will very likely reduce livestock production during the summer season, but these losses will very likely be partially offset by warmer temperatures during the winter season.

74 Fed. Reg. at 18902.

Risks to precipitation that supplies agricultural production are described as having very large uncertainty. *TSD* at 85. The Proposal cites a CCSP conclusion that grain and oilseed crops will experience failure if climate variability increases and precipitation lessens or becomes variable (74 Fed. Reg. at 18902), while stating elsewhere that global mean precipitation is expected to *increase* with global warming. 74 Fed. Reg. at 18900. The *TSD* also states that “[t]here is relatively little information on the response of horticultural crops to CO<sub>2</sub>, and there are few reliable crop simulation models for use in climate change assessments.” *TSD* at 86.

As such, the food production and agricultural considerations section of the Proposal does not support an endangerment finding for public welfare.

## **3. Forestry**

The Proposal recognizes potential benefits to the forestry sector, citing a CCSP report conclusion that “[o]verall forest growth in North America will likely increase modestly (10-20%) as a result of extended growing seasons and elevated CO<sub>2</sub> over the next century, but with important spatial and temporal variation.” 74 Fed. Reg. at 18,902. Other benefits cited include accelerating forest growth in areas where growth has historically been limited by low temperatures and short growing seasons, and a lengthening of the growing season. *Id.*

The Proposal concludes that climate change presents a risk of increased size and number of forest fires, insect outbreaks, and tree mortality. 74 Fed. Reg. at 18,902. However, the *TSD* states that fires and extreme events are not well represented in models (*TSD* at 91) and states that modeling remains limited with respect to risks to forests presented by insects and diseases. *TSD*

at 94. As such, the “Forestry section” of the Proposal does not support a welfare-based endangerment finding.

#### **4. Water Resources and Water Quality**

The Proposal cites selective conclusions from scientific studies to support its assessment of the climate change risks to water resources and water quality. As an example, the Proposal cites the 2007 IPCC report regarding the potential impacts of climate change on water resources and water quality (74 Fed. Reg. at 18902) without regard to the uncertainty (included in the same report) presented by economic development, agriculture and population growth on future risks (*TSD* at 95).

Earlier drafts of the *TSD* cite a CCSP report making the important conclusion that most water quality changes observed so far in the U.S. are likely attributable to causes other than climate change. *Draft Technical Support Document - Endangerment Analysis for Greenhouse Gas Emissions under the Clean Air Act* at 89 (June 21, 2008) (hereinafter “*Draft TSD*”).<sup>8</sup> However, this statement was removed from the final *TSD*, despite the fact that the final *TSD* cites the *same report* for the proposition that water quality is sensitive to both increased water temperatures and changes in precipitation. *Compare Draft TSD* at 89 *with TSD* at 98.

The comprehensive review of the public welfare risks to water resources presented in the current and previous versions of the *TSD* does not support a welfare-based endangerment finding. The selective use of the scientific data in the Proposal is arbitrary and capricious.

#### **5. Sea Level and Coastal Areas**

The Proposal uses specious reasoning to cite sea level rise and coastal inundation as evidence of welfare-related endangerment. The Proposal and *TSD* do not differentiate between climate-driven coastal changes and those changes impacted by non-climate drivers such as human development and subsidence. The *TSD* clearly states that non-climate human impacts have been more damaging to coastal systems over the past century. *TSD* at 101. The *TSD* also states that it remains unclear to what extent erosion and ecosystem loss result from climate change instead of land loss associated with relative sea level rise due to subsidence and other human drivers. *TSD* at 102.

The Proposal also incorrectly cites extreme events when proposing the risks to welfare from climate change. For example, the Proposal states that “[t]he power and frequency of Atlantic hurricanes have increased substantially in recent decades, though North American mainland land-falling hurricanes do not appear to have increased over the past century.” 74 Fed. Reg. at 18899. The *TSD* states that changes in hurricane frequency are currently too uncertain for confident projections. *TSD* at 107. Both the Proposal and *TSD* disregard a wealth of peer reviewed references that refute the hypothesis that climate change has or will increase the frequency and power of extreme weather events.

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<sup>8</sup> Docket No. EPA-HQ-OAR-2008-0318, Doc. ID EPA-HQ-OAR-2008-0318-0082.

EPA cannot base a welfare-focused endangerment finding on the scientific literature presented in the Proposal and *TSD* on sea level rise and coastal erosion.

## **6. Energy Infrastructure and Settlements**

The Proposal states that climate change is likely to affect U.S. energy use (*e.g.*, heating and cooling requirements), and energy production (*e.g.*, effects on hydropower), physical infrastructures and institutional infrastructures. 74 Fed. Reg. at 18902. However, this conclusion is not supported by the *TSD*. The *TSD* states that existing studies do not agree on whether there would be a net increase or decrease in energy consumption with changed climate and that significant uncertainty exists about the potential impacts of climate change on energy production and distribution, in part because the timing and magnitude of climate impacts are uncertain. *TSD* at 106.

The discussion on energy infrastructure and settlements does not support a welfare-based endangerment finding.

## **7. Ecosystems and Wildlife**

The Proposal states that climate change and elevated CO<sub>2</sub> levels will cause ecosystem and species-level impacts. 74 Fed. Reg. at 18,902. However, the Proposal and the *TSD* fail to delineate between climate change impacts and anthropogenic stressors such as development, habitat fragmentation, overfishing, pollution, and invasive species. The Proposal relies on global ecological impacts to support the endangerment finding for wildlife. The *TSD* also includes scientific data supporting increased vegetative growth (*TSD* at 114) and increases in biodiversity (*TSD* at 116).

The Proposal fails to support its conclusion for a welfare-based endangerment to ecosystems and wildlife.

## **V. EPA Should Revise the Proposal to Avoid Describing Agency Actions that Would Be Arbitrary and Capricious**

EPA makes several statements in the Proposal which are problematic, and if representative of Agency policy, could result in Agency actions which would be arbitrary and capricious. For example, EPA states that “any finding of a ‘contribution’ requires some threshold to be met; a truly trivial or *de minimis* contribution might not count as such. The Administrator therefore has ample discretion in exercising reasonable judgment and determining whether, under the circumstances presented, the cause or contribute criterion has been met.” 74 Fed. Reg. at 18892. EPA must provide some basis for determining *de minimis* amounts that fall below the threshold of “contributing” to the endangerment of public health and welfare under CAA § 202(a). For example, as EPA concedes, water vapor represents the GHG with the greatest impact on global warming – all other GHGs represent only approximately 5 percent of all contribution to the climate change phenomenon. 74 Fed. Reg. at 18897. Why is this small percentage not *de minimis*? How is EPA making such determinations?

EPA states in the Preamble that it “may determine that emissions at a certain level or percentage contribute to air pollution in one set of circumstances, while also judging that same level or percentage of another air pollutant in a different circumstance and involving different air pollution does not contribute.” 74 Fed. Reg. at 18892. EPA cannot act arbitrarily by determining that a constituent contributing less than 5 percent to endangerment in one instance is *de minimis* and another contributing the same percentage is endangering public health and welfare. EPA should revise this language in the Preamble to make clear that the regulated community can rely on its past determinations with respect to “contribution” determinations to predict future agency action and should promulgate guidance on how it determines whether a contribution exceeds a *de minimis* level for purposes of CAA § 202(a) before finalizing the Proposal.

### **Conclusion**

TFI is pleased to submit these comments on EPA’s Proposal. TFI appreciates EPA’s consideration of these comments and its cooperation with industry in promoting workable solutions to pressing environmental issues. We urge EPA to delay the Proposal and/or revise the Proposal in accordance with these comments. Please contact me by telephone at (202) 515-2706 or via e-mail at [wcherz@tfi.org](mailto:wcherz@tfi.org) if you would like to further discuss our comments.

Sincerely yours,



William C. Herz  
Vice President, Scientific Programs