

BEFORE THE ADMINISTRATOR OF THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

**INTERNATIONAL CENTER FOR
TECHNOLOGY ASSESSMENT,
CENTER FOR FOOD SAFETY,
FRIENDS OF THE EARTH,**

Petitioners,

PETITION FOR RULEMAKING
SEEKING THE REGULATION OF
GREENHOUSE GAS EMISSIONS FROM
NONROAD VEHICLES AND ENGINES

v.

HONORABLE STEPHEN JOHNSON,

In his official capacity as Administrator,
United States Environmental Protection
Agency,

Respondent.

INTRODUCTION

Pursuant to the Clean Air Act (CAA), 42 U.S.C. § 7400, *et seq.* and the Administrative Procedure Act, 5 U.S.C. § 551 *et seq.*, International Center for Technology Assessment and Center for Food Safety hereby petition the Administrator of the Environmental Protection Agency (EPA) to undertake a rulemaking procedure leading to the adoption of emissions standards, expressed either as emissions limitations, work practices or other requirements, to control and limit greenhouse gas (GHG) emissions from new nonroad vehicles and engines and rebuilt heavy-duty engines, excluding aircraft and vessels.¹ Nonroad vehicles and engines are used in the agricultural, construction, commercial, industrial, lawn and garden, recreational, and logging sectors.² These vehicles and engines substantially contribute to atmospheric GHG concentrations. EPA has authority to adopt such standards pursuant to CAA § 202, 42 U.S.C. § 7521, and CAA § 213(a)(4), 42 U.S.C. § 7547(a)(4). Petitioners have a procedural right to petition EPA to undertake the requested rulemaking. 5 U.S.C. § 553(e); *Massachusetts v. EPA*, 127 S.Ct. 1438, 1459 (2007). Petitioners request that EPA act in the shortest possible time, in light of the risk of severe to calamitous climate disruption that threatens public health and welfare.

Petitioner, the International Center for Technology Assessment (ICTA), is located at 660 Pennsylvania Ave., S.E., Suite 302, Washington, D.C. 20003. Formed in 1994, ICTA seeks to assist the public and policy makers in better understanding how technology affects society. ICTA is a non-profit organization devoted to analyzing the economic, environmental, ethical,

¹ Nonroad engines and nonroad vehicles are defined, respectively, at CAA § 216(10) and (11), 42 U.S.C. § 7550(10)-(11).

² Requests for rulemaking leading to GHG emissions limits for aircraft and vessels are the subject of separate requests recently made by the State of California and Friends of the Earth.

political, and social impacts that can result from the application of technology or technological systems.

Petitioner, Center for Food Safety (CFS), is located at 660 Pennsylvania Ave, SE, Suite 302, Washington, D.C. 20003, and 2601 Mission Street, Suite 803, San Francisco, CA 94110. CFS is a nonprofit organization that works to protect human health and the environment by curbing the proliferation of harmful food production technologies and by promoting organic and other forms of sustainable agriculture.

Petitioner, Friends of the Earth (FOE), is headquartered at 1717 Massachusetts Avenue, NW, Suite 600, Washington, D.C. 20036-2002. FOE is a public interest, non-profit advocacy organization whose mission is to defend the environment and champion a just and healthy world by, among other efforts, working to change the current model of economic and corporate globalization and to reduce dependence on fossil fuels.

I. CLIMATE CHANGE IS OCCURRING, THREATENS SEVERE ENVIRONMENTAL AND SOCIAL DISRUPTION, BUT MAY BE MITIGATED BY EFFECTIVE, RAPID ACTION

The International Panel on Climate Change (IPCC) concluded recently that warming of the global climate system is now “unequivocal,” based on observations of the widespread melting of snow and ice, rising sea levels, and increases in average global air and ocean temperatures.³ International Panel on Climate Change (IPCC), Synthesis Report of the IPCC Fourth Assessment Summary for Policymakers, 1 (Nov. 16, 2007), www.ipcc.ch (visited Nov. 18, 2007).⁴ The IPCC is highly confident that global warming is affecting both terrestrial ecosystems (“earlier timing of spring events and poleward and upward shifts in plant and animal ranges”) and marine and freshwater systems (“shifts in ranges and changes in algal, plankton and fish abundance . . . associated with rising water temperatures, as well as related changes in ice cover, salinity, oxygen levels and circulation.”). *Id.* at 2.⁵ The warming is attributable to increasing GHG concentrations, *id.* at 3, with concentrations of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) having increased “markedly as a result of human activities since

³ The IPCC report follows statements by virtually all major U.S. scientific bodies concluding that human activities are heating the planet’s climate system. See Naomi Oreskes, *The Scientific Consensus on Climate Change*, 306 Science 1686 (Dec. 3, 2004).

⁴ The IPCC analysis released in 2007 fails to account for peer-reviewed scientific information released in late-2006 and all of 2007, much of which provides reason for additional concern. Accordingly, the analysis by IPCC summarized here likely understates the degree to which human-generated GHG emissions have pressed the global climate system to a crisis point. See publications cited by the National Environmental Trust, *Indications that Climate Is Changing Faster than Anticipated: A Sample of Peer-Reviewed Studies From 2007*, at www.net.org/warming/docs/recent-science-factsheet.pdf (visited Nov. 23, 2007).

⁵ Scientists express medium confidence that climate change has already impacted agricultural practices, altered forest disturbance regimes, impacted aspects of human health, “such as heat-related mortality in Europe, changes in infectious disease vectors in some areas, and allergenic pollen in Northern Hemisphere high and mid-latitudes,” and disrupted “human activities in the Arctic (e.g. hunting and travel over snow and ice) and in lower-elevation alpine areas (such as mountain sports).” *Id.* at 3-4.

1750.” *Id.* at 4. GHG concentrations have climbed most rapidly in recent years, with global emissions increasing 70% between 1970 and 2004. *Id.* Emissions of CO₂ – the most important GHG – grew by 80% in that period, resulting in atmospheric CO₂ concentrations that presently exceed “by far the natural range over the last 650,000 years.” *Id.*⁶

The IPCC states with very high confidence that the “net effect of human activities since 1750 has been one of warming,” *id.*, noting that most of the increase in global temperatures since the mid-20th century is due to increases in GHG concentrations resulting from human activity. *Id.* at 5. Furthermore, absent human activity, simulations taking into account only “natural forcings” from solar and volcanic activity show the past 50 years would have been a cooling period. *Id.*

Human produced, GHG-induced, atmospheric warming and sea-level thermal expansion will likely continue for centuries even if GHG concentrations were to stabilize at present levels, due to the feedback effects of the climate-carbon cycle and the long timescales required for removal of CO₂ from the atmosphere. *Id.* at 6-7, 13.⁷ If GHG emissions continue at or above present rates, induced changes in the global climate system during the 21st century “would very likely be larger than those observed during the 20th century.” *Id.* at 10. These likely will include a sea-level rise up to 0.59 meters, even without taking into account the full impacts possible from changes in ice sheet flow.⁸ *Id.* at 7-8.

Significant public health consequences from climate change are projected this century, including increased mortality, morbidity, and injuries attributable to the increasing frequency of heat waves, greater intensity of hurricanes and cyclones and associated flooding, and risks of food and water shortages. *Id.* at 12. Climate change induced impacts on natural ecosystems are projected to be predominately negative, *id.* at 7-8, with an estimated species extinction of 20-30% associated with a warming of 1.5-2.5°C above 1980-1999 levels, and “significant extinction” of 40-70% of species with a temperature increase exceeding 3.5°C. *Id.* at 13. Polar, island, and high mountain communities and ecosystems are among the most vulnerable to climate change induced impacts, while the IPCC notes “increasing evidence of greater vulnerability of specific groups such as the poor and elderly” in both developing and developed countries.” *Id.* at 20.

⁶ See also *Mass. v. EPA*, 127 S.Ct. 1438, 1447, n. 10 (Citing data recorded at the National Oceanic & Atmospheric Administration’s Mauna Loa observatory, the court noted that “[i]n 2006 carbon dioxide levels reached 382 parts per million.”). In May 2007, the CO₂ concentration at Mauna Loa reached 386 ppm. See www.esrl.noaa.gov/gmd/webdata/ccgg/trends/co2_mm_mlo.dat (visited Nov. 20, 2007). See also, World Meteorological Organization, Greenhouse Gas Bulletin: The State of Greenhouse Gases in the Atmosphere Using Global Observations through 2006 (November 23, 2007) at www.wmo.ch/pages/prog/arep/gaw/ghg/documents/ghg-bulletin-3.pdf (visited Nov. 23, 2007).

⁷ See also, IPCC, Climate Change 2007 - The Physical Science Basis, Chapter 10 Global Climate Projections, 824 (2007), at www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter10.pdf (visited Nov. 20, 2007).

⁸ IPCC notes that the added sea level rise from Greenland ice sheet disintegration could be “several metres, and larger than from thermal expansion, should warming in excess of 1.9-4.6°C above pre-industrial be sustained over many centuries.” *Id.* at 21.

According to IPCC projections, climate change likely will impact the United States in several ways. First, all of North America is very likely to experience warming this century, more so than the planet as a whole. IPCC, *Climate Change 2007: The Physical Science Basis*, Chapter 10 Global Climate Projections (887) at www.ipcc.ch/ipccreports/ar4-wg1.htm (visited Dec. 5, 2007). In Northern Regions, including in Alaska, “warming is likely to be largest in winter, and in the southwest USA largest in summer.” *Id.* Warming may also be larger in winter over elevated areas “as a result of snow-albedo feedback.” *Id.* at 889. In Western Mountain Regions, warming will lead to decreased snowpack and produce greater winter flooding, reduced summer flows, and “exacerbated competition for over-allocated water resources.” IPCC, *Climate Change 2007: Synthesis Report, Summary for Policymakers*, 10 at www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf (visited Nov. 30, 2007). In agricultural regions, climate change may at first increase yields of rain-fed crops, but major challenges are projected “for crops that are near the warm end of their suitable range or which depend on highly utilized water resources.” *Id.* In cities, heat waves are anticipated this century to become more numerous, more intense, and more protracted. *Id.* Coastal communities and habitats “will be increasingly stressed by climate change impacts interacting with development and pollution.” *Id.*

The United States previously committed itself, in conjunction with other nations, to achieving “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” United Nations Framework Convention on Climate Change, Art. 2 (1992). Unfortunately, we are now at that level.⁹ Further GHG emissions beyond the earth’s capacity to remove them from the atmosphere may lead to widespread ice sheet melting and “imply metres of sea level rise, major changes in coastlines and inundation of low-lying areas.” *Id.* at 13.¹⁰

Concerted and quick action to cap and reduce GHG emissions may still allow stabilization of CO₂ concentrations at a level below that which renders severe climate change inevitable. The IPCC notes that “[m]any impacts can be reduced, delayed or avoided by mitigation.” *Id.* at 20. On the other hand, delayed emission reductions “significantly constrain the opportunities to achieve lower stabilization levels and increase the risk of more severe climate change impacts.” *Id.*

⁹ See IPCC, *Climate Change 2007 - Mitigation of Climate Change*, Contribution of Working Group III to the Fourth Assessment Report, Chapter 1 Introduction, 99-100, at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter1.pdf> (visited Nov. 23, 2007).

¹⁰ See also Hansen, et al, “Dangerous Human-made Interference with Climate: A GISS ModelE Study,” *Atmos. Chem. Phys.*, 7, 2287, 2299 (2007); University of Melbourne Climate Adaptation Science and Policy Initiative, *Evidence of Accelerated Climate Change* (November 2007) at www.climateinstitute.org.au.

II. GHG EMISSIONS FROM NONROAD VEHICLES AND ENGINES

In 2007, non-transportation mobile vehicles and equipment were responsible for approximately 220 million tons of CO₂ emissions.¹¹ In 2005, the most recent year for which sector-by-sector comparisons were available, non-transportation mobile vehicles and equipment were responsible for approximately 192 Tg of CO₂-equivalent emissions. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005, Annex 3:123-127.¹² This amount exceeds the total GHG emissions generated by aircraft. *Id.* It exceeds, as well, the combined emissions from boats and ships, rail and pipelines. *Id.* GHG emissions from the nonroad sector increased 49% between 1990 and 2005 – a significantly higher rate of emissions increase over the same period than for on-road vehicles (32%), aircraft (3%), boats and ships (36%) and rail (32%). *Id.* at A-126 to 127.

Extrapolating from a simple linear regression of historical data, the EPA projected average annual growth rates through 2010 for nonroad engines ranging from 2.3% annual average growth for construction vehicles and engines to 4.5% for logging equipment. EPA, Nonroad Engine Growth Estimates, NR-008c (April 2004).¹³ For certain recreational engines, EPA projected growth rates within or above that range: 4.3% for snowmobiles, 5.4% for off-highway motorcycles, and 7.5% for all-terrain vehicles.¹⁴ Based on these projections, GHG emissions for the nonroad sector likely will continue to grow and become increasingly greater contributors to severe climate change, unless effective limitations are imposed.

Greenhouse gas emissions from mobile sources are dominated by CO₂ emissions. Data derived from EPA's Nonroad Emissions model for 2007 show nearly a third of such emissions stem from the construction and mining sector, while a fifth are from agriculture. Figure 1. Within the agricultural, construction, and industrial sectors, the greatest CO₂ emissions are produced by diesel-burning vehicles. Within agriculture, diesel tractors emit 37.7 million (37M) tons of CO₂. Within the construction sector, diesel tire loaders, excavators and crawler tractor/dozers each emit over 9.5M tons. Liquefied Petroleum Gas (LPG) forklifts are responsible for the most emissions (14M tons) in the industrial sector. Gasoline-powered four-stroke commercial turf equipment is responsible for the highest CO₂ emissions (6.7M tons) from the lawn and garden sector, while gas-powered four-stroke residential law and garden tractors (5M tons) run a close second. Two-stroke, gasoline-powered outboard engines (6.5M tons) are responsible for the most emissions from marine pleasure craft engines, while from recreational equipment sources two stroke

¹¹ Non-road CO₂ emissions in 2007 based on Western Environmental Law Center calculations using EPA's nonroad emissions model. See Figure 1, *infra* for details.

¹² One Tg is equivalent to 10¹² grams, 10⁹ kg, and 1 million metric tons.

¹³ EPA projected average annual growth for engines in construction equipment was 2.3%; farm equipment: 2.6%; industrial: 2.7%; lawn & garden: 2.4%; light commercial: 4.0%; logging: 4.5%; railway: 3.4%. For recreational equipment other than for off-road motorcycles, ATVs, or snowmobiles, the project growth rate was 0.7%.

¹⁴ Calculations of annual growth rates are based on 1996 and 2010 data from Nonroad Engine Growth Estimates, Tables 2-4.

gasoline snowmobiles (4.6M tons) and four stroke gasoline ATVs (3M tons) emitted the most CO₂.¹⁵

2007 Emissions: Non-road Sector	CO₂ tons	Percent Total
Construction and Mining Equipment	70,413,126	32.00%
Agricultural Equipment	43,627,556	19.80%
Industrial Equipment	30,645,516	13.90%
Lawn and Garden Equipment	26,212,514	11.90%
Commercial Equipment	18,046,747	8.20%
Pleasure Craft	17,399,940	7.90%
Recreational Equipment	10,347,620	4.70%
Logging Equipment	2,117,651	1.00%
Airport Equipment	1,068,325	0.50%
Railroad Equipment	266,237	0.10%
Total: All Categories	220,145,231	100%

Figure 1: Non-road CO₂ emissions in 2007. Calculations by Western Environmental Law Center using EPA’s nonroad emissions model.

III. LEGAL BASIS FOR ACTION BY EPA

A. The CAA Authorizes EPA Regulation of Greenhouse Gas Emissions from Nonroad Vehicles and Engines.

CAA § 213(a)(1) requires EPA to “conduct a study of emissions from nonroad engines and nonroad vehicles...to determine if such emissions cause, or significantly contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” CAA § 213(a)(2) requires EPA, based on the results of that study, to determine if carbon monoxide (CO), oxides of nitrogen (NO_x) or volatile organic compound (VOC) emissions from nonroad vehicle and engine emissions are significant contributors to non-attainment for ozone (O₃) or CO air quality standards in at least two regions. If so, EPA was required to promulgate regulations limiting such emissions. CAA § 213(a)(3).

EPA completed the CAA § 213-required study in 1991.¹⁶ On the basis of that study, EPA determined that nonroad vehicle and engine emissions significantly contribute to O₃ or CO levels in more than one non-attainment area. 59 Fed. Reg. 31306, 31307 (June 17, 1994). EPA proceeded to adopt standards for criteria pollutant emissions from compression-ignition vehicles and engines in 1994, 1998, and 2004,¹⁷ and from spark-ignition engines in 2002.¹⁸

¹⁵ Other significant sources from the recreational sector include gasoline golf carts (0.97M tons of CO₂) and off-road gasoline motorcycles (0.83M tons).

¹⁶ EPA, “Nonroad Engine and Vehicle Emission Study,” No. 460/3-91-02 (Nov. 1991) at 116.

¹⁷ EPA, “EPA Diesel Milestones Since the Clear Air Amendments of 1990,” No. 420-F-04-034 (May 2004).

¹⁸ 67 Fed. Reg. 68242 (Nov. 8, 2002).

The CAA further provides that if, after making its endangerment determination as to criteria pollutants, EPA assesses that pollutants other than NO_x, CO, or VOCs also cause or contribute to air pollution that endangers health or welfare, then EPA is authorized to regulate such other emissions. CAA § 213(1)(4).

The Supreme Court has established that vehicle GHG emissions are air pollutants that may be regulated under the Clean Air Act. *Mass. v. EPA*, 127 S.Ct. at 1462. In light of recent scientific reports, it is even more apparent than at the time of the Court's decision in *Mass. v. EPA* that continued GHG emissions endanger public health. It has become clear, as well, that climate change induced by anthropogenic GHG emissions threatens impairment of virtually every facet of human "welfare," as Congress defined the term in the statute, including "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." CAA § 302(h), 42 U.S.C. § 7602(h); *Mass. v. EPA* at 1447.¹⁹

GHG emissions from nonroad vehicles and engines endanger health and welfare in the same way as emissions from other vehicles and engines; accordingly, EPA retains authority to render the relevant determination of endangerment and adopt regulations to effectively limit such emissions and reduce the danger.

Accordingly EPA should render the determination sought by this petition – that GHG pollutants emitted by nonroad vehicles and engines endanger health or welfare – and proceed to issue regulations limiting such emissions. CAA § 213(1)(4).

B. EPA's Discretion under CAA Section 213(a)(4) Should be Interpreted in Light of the Supreme Court's Decision in *Mass. v. EPA*, the Structure and Purpose of the CAA, and EPA's Fundamental Responsibilities as a Guardian of the Public Trust.

In *Mass. v. EPA*, the Supreme Court stressed that CAA § 202 requires the EPA to regulate GHG emissions from motor vehicles²⁰ if it determines that such emissions endanger public health or welfare. 127 S.Ct. at 1459-1461. EPA's authority under CAA § 213(a)(4) to regulate GHG emissions from nonroad vehicles and engines in relevant respects closely tracks the language of CAA § 202. Specifically, both sections grant authority to the Administrator to regulate emissions upon his or her determination that the emissions "may reasonably be anticipated to endanger

¹⁹ EPA previously determined that nonroad vehicle and engine emissions "significantly contribute to regional haze and visibility impairment in Federal Class I areas and where people live, work and recreate." 67 Fed. Reg. 68242, 68243. That determination and consequent regulation of nonroad large spark-ignition and recreational engines illustrates that EPA rightly interprets CAA § 213(a)(4) to authorize regulation for purposes other than attainment of national ambient air quality standards.

²⁰ § 202 (a) authorizes the Administrator to regulate emissions from motor vehicles and "motor vehicle" is defined to mean "any self-propelled vehicle designed for transporting persons or property on a street or highway." CAA § 216(2); 42 U.S.C. § 7550 (2).

public health or welfare.”²¹ The Court’s reasoning that GHG emissions constitute air pollutants that may be regulated under CAA § 202 therefore applies with equal force to EPA action under CAA § 213. In particular, the Court’s holdings that GHG emissions are air pollutants is valid without respect to whether those emissions flow through the tailpipe of passenger automobiles and light trucks, or from heavy duty off-road trucks or all-terrain vehicles. *Id.*; CAA § 302(g); 42 U.S.C. § 7602(g).

Sections 202 and 213(a)(4) differ in one important respect. In the event that EPA makes an endangerment determination with respect to certain pollutants, CAA § 213 establishes that the Administrator “*may* promulgate” standards applicable to such emissions from new nonroad vehicles and engines, whereas CAA § 202(a)(1) establishes that EPA “*shall*” prescribe regulations to limit such emissions from new cars and light trucks. (Emphases added.) *See also* CAA § 202 (a)(3)(B) (“Administrator *may* promulgate regulations ...revising any standards...[for] heavy-duty vehicles or engines.”). However, the varying level of discretion that these terms imply are relevant only to the question whether regulations must issue following the determination, not to the question whether an endangerment determination is required. As to that, EPA must render the determination or else provide an explanation that is reasonable under the terms of the CAA for “why it cannot or will not exercise its discretion to determine whether” GHG emissions contribute to climate change. *Mass. v. EPA*, 127 S.Ct. at 1462.

In light of the remand to EPA in *Mass. v. EPA*, the Agency is readying its decision on (1) a determination whether GHG emissions endanger health or welfare, and (2) whether EPA will commence a rulemaking procedure to limit such emissions from new motor vehicles. In light of the overwhelming evidence of harm to health and welfare caused by emissions of GHGs, a part of which has been summarized above, we anticipate that EPA will render a positive determination – as the failure to do so would be arbitrary and capricious. We request that the anticipated positive determination for motor vehicles and engines rendered pursuant to CAA § 202 be deemed also to satisfy the determination required under CAA § 213(a)(4), so as to enable EPA also to undertake, without undue delay, a rulemaking leading to regulations limiting GHG emissions from new nonroad vehicles and engines. We request, as well, that the forthcoming determination also be deemed to satisfy the CAA § 202(a)(3)(D) determination requisite to initiate rulemaking to limit GHG emissions from rebuilt heavy duty engines.

EPA’s discretion to not commence rulemaking aimed at regulations on GHG emissions from nonroad vehicles and engines is limited by the relevant statutory considerations. *Mass. v. EPA* at 1462 (“[O]nce EPA has responded to a petition for rulemaking, its reasons for action or inaction must conform to the authorizing statute.”). This means that, under CAA § 213(a)(4), EPA can decline to regulate nonroad vehicle and engine emissions only if EPA determines reasonably that such emissions do not endanger public health or welfare, or else that, taking into account factors such as cost, noise, safety and energy, no such regulation would be appropriate.

²¹ The two sections, however, are formulated differently with respect to the Administrator’s determination, in that § 202 compels the Administrator to render the determination where the Administrator assesses that such emissions “cause or contribute to” such air pollution, *see* §§ 202(a)(1) and (a)(3)(D), while the § 213 formulation requires the determination upon the Administrator’s initial determination that such emissions “significantly contribute to” such pollution. This difference does not effect the present petition in light of the manifestly significant GHG emissions from the nonroad vehicle and engine sector.

CAA § 213(a)(4).

EPA's discretion to decline to regulate such emissions is further circumscribed by the structure of the CAA. The statute recognizes that air pollution prevention is the primary responsibility of state and local governments. CAA § 101, 42 U.S.C. § 7401; *see also* CAA § 116, 42 U.S.C. § 7416 (states retain authority to adopt or enforce emissions standards and limits except where expressly preempted). But states' ability to fulfill and acquit themselves of their "primary responsibility" with respect to vehicle emissions – including those from nonroad engines – has been limited by Congress in favor of federal regulation. In particular, the CAA bars states from limiting emissions from new construction or farm nonroad vehicles and engines under 175 horsepower, while the statute allows state regulation of emissions from other nonroad vehicles and engines in limited circumstances.²² CAA § 209(e). By restricting states' ability to fulfill their traditional role in regulating pollution from such vehicles, Congress implicitly invested EPA with unique responsibility to act in the states' stead so as to prevent such harmful emissions. In the present context, at the precipice of several tipping points beyond which calamitous climate change will be unstoppable, the failure by EPA to appropriately respond to this petition will countermand Congress's purpose in enacting the CAA, namely to protect "the quality of the Nation's air resources so as to promote the public health and welfare." CAA § 101, 42 U.S.C. § 7401.

Similarly, rendering the endangerment determination and proceeding to rulemaking aimed at limiting GHG emissions from this sector is compelled by EPA's "continuing responsibility" to fulfill its duty "as trustee of the environment for succeeding generations." National Environmental Policy Act § 101(b), 42 U.S.C. § 4331(b). EPA's duty to succeeding generations must be exercised in light of the fact that the CAA limits states' ability to protect those sovereign interests that are "independent of and behind the titles of its citizens, in all the earth and air within its domain." *Georgia v. Tennessee Copper Co.*, 206 U.S. 230, 237 (1907), cited by *Mass. v. EPA* at 1454. Again, the relevant context is that EPA, to date, has declined to impose mandatory limitations on GHG emissions from vehicles, engines and other sources, even in the face of clear evidence that, unabated, these emissions will fundamentally disrupt earth's climate system and render the planet far less hospitable for human civilization and many, perhaps most, animal species. Accordingly, EPA has yet to fulfill its fundamental trust responsibility in this area.²³ Further inaction now would compound and amplify the damage of EPA's prior inaction. To acquit itself of its public trust responsibility, EPA must embrace the discretion it retains to adopt and enforce effective limitations on GHG emissions, including those from the nonroad vehicle and engine sector, as well as from rebuilt heavy-duty engines.

²² States can adopt only the federal standard, if any, or one that California may at its discretion adopt, where such receives EPA approval.

²³ *See* Mary Christins Wood, "Atmospheric Trust Litigation," University of Oregon Law School (2007), at www.law.uoregon.edu/faculty/mwood/publications.php.

IV. TECHNOLOGY IS AVAILABLE TO REDUCE GREENHOUSE GAS EMISSIONS FROM NONROAD VEHICLES AND ENGINES

A wide range of technology is available to reduce GHG emissions from nonroad vehicles and engines.²⁴ Some of these include physical controls and operational protocols that are directed toward fuel savings, while others aim at limiting certain pollutants that are indirect GHGs. The technologies, controls and protocols may include, but are not limited to:

1. Auxiliary power unit systems to avoid engine use solely to heat or cool the cab or to power ancillary equipment;
2. Auto-therm engine recovery systems for heating the cab, relying on an electric pump instead of the engine's water pump;
3. Tire inflation systems, to ensure vehicle tire pressure is maintained to manufacturer specifications, including remote sensing and automatic tire inflation devices;
4. Minimum tire efficiency standards, including single wide and low-rolling resistance tires;
5. Anti-idling standards, including automatic engine shutdown systems;
6. Diesel to electric conversion or replacement, including for port support, hauling, goods movement, and ground service vehicles and equipment; truck refrigeration; forklifts; tow tractors/ industrial tugs; urban construction equipment; sweepers/scrubbers; burnishers; carts and lawn and garden equipment; agricultural pump stations;
7. Use of standard hybrid or hydraulic-hybrid technology for large trucks;
8. Decreasing weight of vehicles and powering down of engines;
9. Repowering (outright replacement) of older engines;
10. Use of low-carbon fuels, taking account of whole life-cycle GHG emissions;
11. Use of low viscosity lubricants and onboard oil purification systems;
12. Accelerated replacement of older nonroad vehicles and engines and replacement with fuel efficient vehicles and engines;
13. Use of low GHG refrigerants in air conditioning equipment;

²⁴ Some are discussed in California Air Resource Board, Proposed Early Actions to Mitigate Climate Change in California (April 20, 2007) and Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration (September 2007, both available at <http://www.arb.ca.gov/cc/ccea/ccea.htm> (visited Nov. 20, 2007); U.C. Berkeley Transportation Sustainability Research Center, A Low-Carbon Fuel Standard for California: Part 1: Technical Analysis, 174-78, (May 29, 2007).

14. Evaporative emission controls to reduce ozone precursor emissions;
15. Exhaust emission controls to reduce black carbon and other particulates;
16. Use of cool paints to reduce cab temperature and thus air conditioning demand; and
17. Adoption of a “not to exceed” standard for cold start emissions.

In addition, as the Supreme Court recognized in *Train v. Natural Resources Defense Council*, 421 U.S. 60 (1975), the CAA is intended to be a technology-forcing statute. EPA can and should establish regulations that substantially limit GHG emissions from nonroad vehicles and engines even where those regulations force the development of new technology. EPA has acknowledged that it has authority to adopt technology-forcing standards under § 213. 70 Fed. Reg. at 69677. Given the diversity of nonroad vehicles and engines, EPA’s regulations can promote a wide variety of technological improvements in these sources.

RELIEF REQUESTED

Petitioners Center for International Technology Assessment, et. al. respectfully request that the Administrator:

1. Determine that CO₂ and other GHG emissions from nonroad vehicles and engines, and from rebuilt heavy-duty engines, significantly contribute to air pollution which may reasonably be anticipated to endanger public health and welfare;
2. Propose and adopt regulations specifying emissions standards for CO₂ and other GHG emissions from such vehicles and engines pursuant to CAA § 213(a)(4), 42 U.S.C. § 7547(a)(4), and CAA § 202(a)(3)(D), such standards to take the form either of emissions limitations or of work or operational practices; and
3. Propose and adopt such regulations as are necessary to carry out the emissions limitations adopted pursuant to the requests above.

We request that the Administrator take initial action within six months of receipt of this petition.

Dated: Jan. 29, 2008

Respectfully submitted,

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