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July 31, 2008

Honorable Stephen Johnson
Administrator
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Honorable Margo Tsirigotis Oge
Director, Office of Transportation and Air Quality
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

TRANSMITTED BY FACSIMILE AND CERTIFIED MAIL,
RETURN RECEIPT REQUESTED

RE: Notice of Intent to file suit under Clean Air Act Section 304 with Respect to Petitions for Rule Making Seeking the Regulation of Greenhouse Gas Emissions from Ocean-going Vessels, Aircraft and Nonroad Vehicles and Engines
EPA Docket Numbers _____, _____, and _____

Dear Administrator Johnson and Director Oge:

The State of California, acting by and through Governor Arnold Schwarzenegger, Attorney General Edmund G. Brown Jr., the California Air Resources Board and South Coast Air Quality Management District, along with the States of Connecticut, New Jersey and Oregon, the Commonwealth of Pennsylvania Department of Environmental Protection and the City of New York, previously petitioned the U.S. Environmental Protection Agency ("EPA") to regulate greenhouse gas emissions from large marine vessels, aircraft and nonroad vehicles and engines under the Administrative Procedure Act, ("APA") 5 U.S.C. Section 553, subdivision (e).[1] (The

[1] California and other government petitioners submitted their marine vessel petition on October 3, 2007, aircraft petition on November 4, 2007 and nonroad engine and vehicle petition on January 29, 2008.

petitions asked EPA to find that greenhouse gas emissions from these sources endanger public health and welfare, and to propose and adopt regulations limiting such emissions. We requested a response to our petitions within 180 days of their filing. Those 180 days have passed for all three petitions and still we have received no response from the EPA.[2] We have not received either a grant or denial of our petitions requesting an endangerment determination nor an actual notice of rulemaking regarding greenhouse gas emissions from large marine vessels, aircraft or nonroad engines and vehicles. Neither, to our knowledge, has a rulemaking docket been opened on any of our petitions, pursuant to Section 307(d)(1)(R) of the Clean Air Act. If it has, we request the docket numbers.

Instead, the only action taken by EPA was to release, on July 11, 2008, an advanced notice of proposed rulemaking for regulating greenhouse gas emissions under the Clean Air Act. (EPA, *Regulating Greenhouse Gas Emissions under the Clean Air Act*, (proposed July 11, 2008) (to be codified at 40 C.F.R. Chapter 1 "ANPR".) The ANPR, however, does not make the endangerment determination requested in the three petitions, nor does it initiate the rulemaking process for regulating greenhouse gases from marine vessels, aircraft or nonroad vehicles and engines. Rather, the ANPR "describes and solicits comment on petitions the Agency has received to regulate GHG emissions from ships, aircraft and nonroad vehicles such as farm and construction equipment." (*Id*. at 1.) Describing the petitions and soliciting comments does not suffice as a response to petitioners' requests. Moreover, although the ANPR includes various feasible mechanisms for reducing emissions from marine vessels (ANPR at 344-352), aircraft (*Id.* at 364-68) and nonroad vehicles and engines (*Id*. at 326-341), the recommendations are inadequate responses to our petitions. EPA suggests only that these tools are available, but does not recommend that any of the measures be adopted. EPA's unresponsive actions evade the rendering of a judicially reviewable final action on the petitions simply to avoid accusations of delay.

Furthermore, more than six months have passed since we filed the marine vessel, aircraft and nonroad vehicle and engine petitions, yet EPA waited until its July 11, 2008 ANPR to request comments that could have been solicited immediately upon receipt of the petitions. Had the agency requested comments on our petitions, the comment period for that request would have ended by now and rulemaking could be underway. Releasing a request for comments

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[2] In response to our marine vessel petition, we received a letter from Ms. Oge acknowledging receipt of the petition, directing our attention to the United States' submission to the International Maritime Organization (IMO) on conventional air pollutant emissions, and making a vague reference to discussions at the IMO regarding "a global approach to address carbon-dioxide emissions from these vessels." Ms. Oge's letter does not amount to a formal response to the petition.

through the ANPR starts a four-month clock, which requires comments be submitted by November, 2008, more than one year after the marine vessel and aircraft petitions were filed. (ANPR at 2.) Any action that EPA proposes to take in November will go through yet another comment period. Given that the ANPR fails to address any of the petitions' requests, EPA's actions constitute unreasonable delay. Since we have been offered no real administrative remedy from EPA, we are left with only a judicial remedy, which we now start the process of seeking.

The Clean Air Act, in Section 304, subdivision (b), and EPA regulations at 40 C.F.R., Part 54, Sections 54.2, subdivision (a), and 54.3, subdivision (a) require that any person intending to file a legal action against the Administrator for unreasonable delay in acting must give 180 days' notice of his or her intention to sue. This letter constitutes that formal notice.

Where, as here, the notice is based on EPA's failure to act, the notice must identify the provisions of the Clean Air Act which require the agency to take action and describe the agency's failure to perform. (40 C.F.R. § 54.3(a).) Section 213 of the Clean Air Act, 42 U.S.C. Section 7547, applies to nonroad vehicles and engines, which include ocean-going vessels. Section 213 subdivision (a)(1), directs EPA "to determine if [] emissions [from nonroad vehicles] cause, or significantly contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." Subsection (a)(2) specifically requires EPA to study and if appropriate, regulate the impacts of oxides of nitrogen, carbon monoxide or volatile organic compounds. (42 U.S.C. § 7547(a)(2), (3).) Under subdivision (a)(4), if EPA determines that nonroad vehicle and engine emissions not referred to in subsection 2 "significantly contribute to air pollution[,]" the Administrator may adopt standards to reduce such emissions. (42 U.S.C. § 7547(a)(4).) Accordingly, Congress has clearly authorized EPA to study and regulate emissions, such as greenhouse gas emissions, from nonroad vehicles and engines. Although our October 3, 2007 and January 29, 2008 petitions for ocean-going vessels and nonroad vehicles and engines requested EPA to make a determination that greenhouse gas emissions from these sources significantly contribute to air pollution that may reasonably be anticipated to endanger public health and welfare and to regulate those emissions, EPA has not acted on our requests.

Under Section 231 of the Clean Air Act, 42 U.S.C. Section 7571, subdivision (a)(1), Congress ordered EPA to undertake a study of air pollutants from aircraft "to determine (A) the extent to which such emissions affect air quality in air quality control regions throughout the United States, and (B) the technological feasibility of controlling such emissions." Pursuant to subdivision (a)(2), if EPA finds that emissions from aircraft and aircraft engines cause or contribute to "air pollution which may reasonably be anticipated to endanger public health or welfare," it "shall" adopt emissions controls on such emissions. Despite our November 4, 2007 petition requesting that EPA make a finding that greenhouse gas emissions from aircraft cause or contribute to air pollution that may reasonably be anticipated to endanger public health and

welfare and that it propose and adopt emissions standards for greenhouse gas emissions from aircraft, its nondiscretionary duty to act under subdivision (a)(2), EPA has taken no action.

Recent Reports on Climate Change Impacts

In the months since we filed the three petitions with the EPA, the scientific community's knowledge of the dangers and damages caused by global warming has expanded. EPA's own ANPR for regulating greenhouse gases under the Clean Air Act, which carefully assesses the current state of climate science, recognizes, "The scientific record shows there is compelling and robust evidence that observed climate change can be attributed to the heating effect caused by global anthropogenic GHG emissions." (ANPR at 194.) In addition, Rajendra Pachauri, Chairman of the Nobel-prize-winning United Nations Intergovernmental Panel on Climate Change ("IPCC") recently declared: "If there's no action before 2012, that's too late. What we do in the next two to three years will determine our future."[3]

Climate change impacts ecosystems and species. According to the U.S. Climate Change Science Program ("CCSP"), the effects of climate change on ecosystems include changes in the timing and length of the growing season, primary production, and species distributions. (Scientific Assessment of the Effects of Global Change on the U.S., *A Report of the Committee on Environment and Natural Resources*, National Science and Technology Council, (May 2008) at 191, "CENR Report" at 9 (citing,U.S. Climate Change Science Program, (CCSP), *Strategic Plan for the U.S. Climate Change Science Program*, (2003)).) Among its findings, the CCSP noted, "In an analysis of 866 peer-reviewed papers exploring the ecological consequences of climate change worldwide, nearly 60% of the 1,598 species studied exhibited shifts in their distributions and/or timing of their annual cycles that correspond to recent large-scale climate change patterns." (*Id.*)

Climate change is affecting and has the potential to seriously impact human health. According to the CENR Report, "In studies holding pollution emissions constant, climate change was found to lead to increases in regional ground-level ozone pollution in the United States and other countries. It is well-documented that breathing air containing ozone can reduce lung function, increase susceptibility to respiratory infection, and contribute to premature death in people with heart and lung disease." (CENR Report at 15.) In addition to health effects

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[3] Rosenthal, Elizabeth, *U.N. Chief Seeks More Leadership on Climate Change*, N.Y. Times, (November 18, 2007). We ask that all reports referred to in this letter be included in any rulemaking docket EPA may establish for regulations governing greenhouse gas emissions from marine vessels, aircraft and nonroad vehicles and engines. For your convenience, a compact disc containing the referenced reports accompanies this letter.

associated with poor air quality, increases in extreme weather such as storms and flooding and accompanying events, including wildfires resulting from prolonged drought, could lead to increases in deaths, injuries, infectious diseases, interruptions of medical care for chronic disease treatment, and stress-related disorders. (*Id.*)

In July 2008, the U.S. Climate Change Science Program and Subcommittee on Global Warming released its *Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems*. (A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research (July 2008) "CCSP 2008".) The Assessment examines potential impacts of climate change on human society and opportunities for adaptation. Among its findings are that population growth and economic development are occurring in those areas that are likely to be vulnerable to the effects of climate change. It also finds that "Approximately half of the U.S. population, 160 million people, will live in one of 673 coastal counties by 2008. Coastal areas – particularly those on gently-sloping coasts and zones with gradual land subsidence – will be at risk for sea level rise, especially related to severe storms and storm surges." (*Id*. at ES-9).

Western U.S. / California

The Western United States, including California, continues to suffer from the effects of global warming. Since we filed our petitions with the EPA, for example, the Rocky Mountain Climate Organization has issued a report entitled "Hotter and Drier: the West's Changed Climate", which shows, among other things:

- The Western United States is experiencing more warming than the rest of the nation, with the 11 western states averaging 1.7 degrees Fahrenheit warmer temperatures than this region's average over the 20th century. (Saunders, et al., *Hotter and Drier: The West's Changed Climate*, Rocky Mountain Climate Organization and Natural Resource Defense Council, (2008) at 2-3, available at http://rockymountainclimate.org.) That trend is expected to continue.

- This increase in Western temperatures has occurred more at high altitudes than low ones, contributing to lessening snowpack, the depletion of which is expected to worsen. (*Id.* at 5, 8-10.)

- The Colorado River Basin, a water source upon which many Western states, including California, depend, has warmed more than any other region in the nation; with the five most recent years averaging 2.2 degrees Fahrenheit hotter than the 20th average for this Basin. (*Id.* at 15.) As a result, Lake Mead is now down to about 50% of its capacity. (*Id.*

at 18.)

•Warming temperatures at Glacier National Park have caused the Grinnell Glacier to lose 9 percent of its acreage. Similarly, in the North Cascades National Park in Washington State, "the total area covered by glaciers has fallen by 13 percent since 1971." (*Id.* at 26.)

A recent report by the Scripps Institution of Oceanography explores the drying up of Lake Mead, reporting that computer simulations by two of its climate researchers predicted that under a business-as-usual scenario, Lake Mead could be "effectively drained in little more than a decade, and unable to generate power at Hoover Dam even sooner." (Monroe, R., *Welcome to the New Normal*, Scripps Institution of Oceanography, Explorations, (April 2008).) California depends on the water provided by the Colorado River, as does much of the West. The combination of the lowering of the Colorado and the diminution of California's own snowpack and resulting snowmelt will have serious ramifications for California's water supply.[4]

California's water supply is already suffering from global warming. The California Delta Vision Blue Ribbon Task Force on the San Joaquin River Delta area, a distinguished commission appointed by Governor Arnold Schwartzenegger to study the Delta, an area crucial to California's water supply, issued a report in January, 2008 on the state of the Delta. It reports that "[a]s sea levels rise due to global climate change, the mean high-tide mark will move farther up land in and around the Delta," resulting in potential flooding, breach of levees, inundation of cropland, saline water intrusion on aquifers used for drinking water, and other very serious consequences. (Isenberg et al., *Delta Vision*, California Delta Vision Blue Ribbon Task Force, (January 2008) at 25, available at www.deltavision.ca.gov.) The IPCC's "Technical Paper on Climate Change and Water," cited above, states with "high confidence" that the Western States "are particularly exposed to the impacts of climate change and are projected to suffer a decrease of water resources due to climate change." (Exec. Sum. at 1.)

Reduced water supplies could affect California's energy supply. According to the

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[4] *See*, *IPCC Technical Paper on Climate Change and Water*, Presented at the 28th IPCC Session, Budapest, (April 2008), predicting that if current trends continue, "Colorado River Compact requirements may only be met 60 to 75 percent of the time by 2025." (Citation omitted.) Such a diminution of Colorado River water supplies would be devastating to California. (See also, Howard Frumkin, MD, DrPH, Centers for Disease Control and Prevention, Congressional Testimony, *Climate Change and Public Health*, (April 9, 2008) at 3, available at http://www.cdc.gov/washington/testimony/2008/t20080409.htm ["The West Coast of the United States is expected to experience significant strains on water supplies as regional precipitation declines and mountain snow packs are depleted."])

Report of the Committee on Environment and Natural Resources from the National Science and Technology Council, "In California, where hydropower comprises approximately 15% of in-state energy production, diminishing snowmelt flowing through dams will decrease the potential for hydropower production by up to 30% if temperatures rise to the medium warming range by the end of the century (5.5-8 degrees Fahrenheit or 3.1-4.4 degrees Celcius increase in California) and precipitation decreases by 10-20%." (CENR Report at 191 (citing, California Energy Commission, *Our Changing Climate: Assessing the Risks to California*, (2006)).)

California is also experiencing nearly unprecedented wildfires, burning simultaneously in Northern and Southern California, that had consumed over 1,027,173 acres of land as of July 25, 2008.[5] This is in line with the general observations on correlations between global warming and greater wildfire activity in the Western United States made by a number of experts, including Westerling, et. al., *Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity*, Science**,** vol. 313, no. 5789, at 940-943 (August 2006). These fires continue a recent pattern of unusually fierce wildfires in California, and have the result not only of destruction of forest habitat and human dwellings, but also of releasing more carbon dioxide into the atmosphere. Additionally, wildfires increase eye and respiratory illnesses due to fire-related air pollution. (CCSP 2008 at 2-7.) And according to the CENR Report, wildfires of this sort will continue. "In the last three decades, the wildfire season in the western United States has lengthened and burn durations have increased. Climate change has also very likely increased the size and number of insect outbreaks and tree mortality that help to fuel wildfires in the interior West, the Southwest, and Alaska. These trends are very likely to continue." (CENR Report at 10; *see also*, CCSP 2008 at ES-14, 2-7.)

In addition, a recent Stanford University study details how for each increase in temperature of 1 degree Celsius (1.8 degrees Fahrenheit) caused by climate change, the resulting air pollution would lead to about a thousand additional U.S. deaths annually and many more cases of respiratory illness and asthma.[6] These effects will be most severe in areas where air pollution already is worst, including California.

Northeast

The Northeast will also be affected by climate change. Average temperatures in the

[5] For updated acreage numbers, please see California Department of Forestry and Fire Protection, Wildland Fire Information, available at http://www.fire.ca.gov/index_incidents.php.

[6] Jacobson, Mark Z., On the casual link between carbon dioxide and air pollution mortality, Geophysical Research Letters, Vol. 35 L03809 (2008).

region are expected to rise 2.5 degrees to 4 degrees Fahrenheit in winter and 1.5 degrees to 3.5 degrees Fahrenheit in summer. (Frumhoff et al., Union of Concerned Scientists, *Confronting Climate Change in the U.S. Northeast; Union of Concerned Scientists - New Jersey* (2007), available at http://www.climatechoices.org/assets/documents/climatechoices/new-jersey_necia.pdf.) Nearly 53 million people live in coastal counties of the Northeast, areas that are at risk of increased coastal flooding, both in extent and frequency, and severe storm-related damage. (*Id.*) Global warming will affect the water resources in the Northeast by increasing winter precipitation, reducing snowpack, increasing the frequency of short-term droughts, increasing the frequency of extremely hot days which can increase water demand, and increasing the risk of salwater intrusion into coastal aquifers due to rising sea levels. (*Id.*)

On July 10, 2008, EPA released the 2007 Interim Report of the U.S. EPA Global Change Research Program, *Assessment of the Impacts of Global Change on Regional U.S. Air Quality: A Preliminary Synthesis of Climate Change Impacts on Ground-Level Ozone*. (73 Fed. Reg. 39695 (July 10, 2008), report available at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=181744.) The report is a preliminary step toward the goal of providing air quality managers with the scientific information and tools to evaluate the implications of global change for their programs and to enhance their ability to consider global change in their decisions. (*Id*. at xii.) In its Assessment, EPA finds that a loosely bounded area encompassing parts of the Mid-Atlantic, Northeast, and lower Midwest tends to show at least some increase in ozone as a result of simulated 2050 climate change. (*Id*. at xix.) The report further states that its findings, "[I]ndicate that, where climate-change-induced increases in [ozone] do occur, damaging effects on ecosystems, agriculture, and health will be especially pronounced, due to increases in the frequency of extreme pollution events." Thus, EPA's report suggests that in areas such as New Jersey, where ozone concentrations throughout the entire state already exceed the current national health-based standards under EPA's 8-hour ozone standard (http://www.epa.gov/ozonedesignations/regions/region2desig.htm), climate change will exacerbate this problem.

New Jersey

New Jersey has 130 miles of highly populated coastline as well as thousands of acres of coastal salt marshes and tidal flats, coastal wetlands, and tidal freshwater wetlands. Rising seas would inundate many acres of New Jersey's remaining coastal salt marshes and tidal flats that provide flood protection, water quality benefits, and habitat for native species; alter flooding and salinity of the State's coastal wetlands, with substantial adverse impacts on wildlife and fisheries; and risk inundation or chronic flooding within this century. (See Richard G. Lathrop

Jr. and Aaron Love, *Vulnerability of New Jersey's Coastal Habitats to Sea Level Rise* (Jan. 2007), available at http://deathstar.rutgers.edu/projects/coastal/sealevel/report/Vulnerability%20of%20New%20Jersey%20coastal%20habitats.pdf; Matthew J.P. Cooper et al., *Future Sea Level Rise and the New Jersey Coast* (Nov. 2005), available at http://www.princeton.edu/~step/people/Oppenheimer%20Future%20of%20Sea%20Level%20Rise.pdf). Climate-related habitat loss could lead to loss of plant and animal species, and eliminate at least 37 species of birds from New Jersey. (Suzanne Leta Liou et al., Environment New Jersey Research & Policy Center, *An Unfamiliar State, Local Impacts of Global Warming in New Jersey* (May 2007), available at http://www.environmentnewjersey.org/uploads/tv/pj/tvpju7CoS7Y5OGLiuuxAlg/An-Unfamiliar-State---Local-Impacts-of-Global-Warming-in-New-Jersey.pdf.)

A July 2008 report by the Center for Integrative Environmental Research at University of Maryland, entitled *Economic Impacts of Climate Change on New Jersey*, finds that the most significant economic and ecological impacts in New Jersey associated with climate change will occur along the state's expansive coast. (*Id*. at 7-9.) The report explains that the state's economy is especially vulnerable because of coastal development and the high rate of coastal erosion and subsequent water elevation, which will also impact coastal shipping, transportation infrastructure, and will likely result in billions of dollars in lost tourism revenue. (*Id.* at 9-11.) In addition, the report notes the health impacts of climate change related to the urban heat island effect and decreases in fresh drinking water quality and quantity. (*Id*. at 13.)

New York City

In May 2008, the New York City Department of Environmental Protection Climate Change Program released a report related to the impacts of climate change on the city. (The New York City Department of Environmental Protection Climate Change Program, *Report 1: Assessment and Action Plan* (May 2008) (hereinafter "NYCDEP Assessment"), available at http://home2.nyc.gov/html/dep/pdf/climate/climate_complete.pdf.) The NYCDEP Assessment finds that over the past 100 years, temperature in the New York City metropolitan region has warmed nearly two degrees Fahrenheit, with four of the warmest years in that period occurring during the last eight years of the record. (*Id*. at 19.) New York City's average temperature is projected to increase from 3.3 to 5.6 degrees Fahrenheit in the winter and from 2.7 to 7.6 degrees Fahrenheit in the summer. (*See* Columbia Earth Institute, *Climate Change and a Global City: The Potential Consequences of Climate Variability and Change* (July 2001) (hereinafter "Climate Change and a Global City"), at Executive Summary ("ES") at 4, available at http://ccsr.columbia.edu/cig/mec/0.1_Front_matter.pdf.)

The NYCDEP Assessment concluded that temperature changes will have important impacts on the operation of New York City's upstate water supply, which provides 9 million consumers with approximately 1.3 billon gallons of water per day. (NYCDEP Assessment at 34.) Climate change may impact the quantity of water in the system as warmer temperatures lead to longer growing seasons in the watershed (with accompanying increases in plant water uptake), increased evapotranspiration, and less storage of water in winter snowpack. (*Id*. at 35.) Thus, the City could experience more frequent and intense droughts as a result of climate change. (*Id*.) Increases in peak demand during hot periods may also tax the water supply system. (*Id*. at 38.)

Furthermore, the NYCDEP Assessment recognizes that temperature can also affect New York City's water quality. Changes in precipitation patterns, particularly the potential for larger and more intense storms, could cause more erosion and more debris in reservoirs, increased loadings of pathogenic bacteria and the parasites Cryptosporidium and Giardia, and stimulation of blooms of blue-green algae which can cause changes in water color and taste. (NYCDEP Assessment at 37.) Increased temperature can also alter the migration habits of waterfowl, such as Canada geese, which can have a major influence on fecal coliform levels in reservoirs and impose serious impacts to water quality that require additional treatment. (*Id*.)

In addition to the NYCDEP Assessment, a report entitled, *The City of New York, PlaNYC: A Greener, Greater New York* (2007) (hereinafter "PlaNYC") available at http://www.nyc.gov/html/planyc2030/html/downloads/the-plan.shtml) acknowledges the vulnerability of New York City's extensive low-lying and below-ground infrastructure, including transportation tunnels, tunnel ventilation shafts, bridge and tunnel access roads, storm sewers, and wastewater processing plants. In Lower Manhattan, the water at the Battery has risen more than a foot during the last century; as a result, what is called a "hundred-year flood" is actually likely to occur every 80 years. (PlaNYC at 133.) Extrapolating from current trends, there is an approximately 75% chance that sea level will rise 8.6 inches or more in New York City by the 2050s, and an approximately 85% chance that sea level will rise nearly 13 inches by the end of the century. (Climate Change in a Global City at 32.) Even a sea level rise of a lower magnitude could have potentially catastrophic consequences for the City because of the increased risk of flooding during coastal storms that accompanies raised sea level.

These are only a sample of the cascade of recent reports and studies that show that the nation, California, Connecticut, New Jersey, Oregon, Pennsylvania and the City of New York are experiencing adverse effects from global warming now, and will suffer more effects, and more severe effects, in the future.

Petitions

As our original marine vessel petition pointed out, the relatively small fleet of the world's large ocean-going vessels (about 90,000) are responsible for about three percent of the world's total greenhouse gas emissions. As greenhouse gas emissions from other sources are reduced, the relative contribution from ocean-going vessels will increase in importance. EPA's ANPR states that marine vessels and engines that purchased fuel in the U.S. emitted 84.2 million metric tons of CO_2 in 2006, or 3.9% of the total U.S. mobile source CO_2 emissions and that those emissions are expected to increase significantly in the future - more than doubling between 2006 and 2030. (ANPR at 343.) The ANPR further recognizes, "There are significant opportunities to reduce GHG emissions from marine vessels through both traditional and innovative strategies." (*Id.* at 344.)

Additionally, the aircraft petition noted that in 2005, aircraft contributed three percent of the United States' total CO_2 emissions, and 12 percent of the transportation sector emissions. This is more than the emissions attributable to almost any individual nation in the world.[7] Taking into account both CO_2 emissions and the non-CO_2 effects of aviation, aviation will account for approximately 5% of the radiative forcing in 2050. As noted in the ANPR, the Department of Energy projects that the energy use of aircraft will increase by 60% between 2006 and 2030. (ANPR at 355.) The ANPR also acknowledges the opportunities available for reducing these emissions through technology, such as increasing engine efficiency, and operational measures, including air traffic control changes. (*Id.* at 359-368.)

Finally, as explained in the nonroad vehicle and engine petition, according to EPA, in 2007, CO_2 emissions from the nonroad sector, excluding rail, marine vessels and aircraft, totaled 220,145,231 tons/year. Construction and mining equipment accounted for the largest share (32%) of the total CO_2 emissions from nonroad sources, followed by agricultural equipment, industrial equipment and lawn and garden equipment. As the EPA itself noted in relation to a subset of nonroad vehicles and engines known as nontransportation mobile sources, "[T]ogether, these sources emitted more greenhouse gases than boats and ships (domestic travel in the United States), rail, and pipelines combined." (EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005, Annex 3,* A-104, fn. 30 & A-124.) EPA's ANPR acknowledges that nonroad sources emitted 12% of the total U.S. mobile source CO_2 emissions

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[7] United Nations, Department of Economic and Social Affairs, Statistics Division, *Carbon Dioxide Emissions, Thousands of Metric Tons,* available at http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749 (August 1, 2007); based on 2004 data from Carbon Dioxide Information Analysis Center, *National Fossil-Fuel CO_2 Emissions* (2004), available at http://cdiac.ornl.gov/trends/emis/tre_tp20.htm.

in 2006, and that emissions from this sector are expected to increase by approximately 46% between 2006 and 2030. (ANPR at 325.) Reducing emissions from nonroad vehicles and engines can be accomplished through changes in engine design, but the ANPR also notes that reductions can be achieved by redesigning equipment or vehicles that the engine powers so that the nonroad application accomplishes its task while expending less energy. (*Id.* at 326.)

As of this date, you have not responded to our petitions requesting that the EPA determine that greenhouse gas emissions from ocean-going vessels, aircraft and nonroad vehicles and engines contribute to air pollution that may reasonably be anticipated to endanger public health and welfare and adopt regulations to reduce greenhouse gas emissions from these sources. We are therefore providing formal notice of our intent to sue pursuant to Section 304 of the Clean Air Act and EPA regulations at 40 C.F.R. Part 54, Section 54.2 subdivision (a), and 54.3, subdivision (a). Meanwhile, we remain open to discussing this matter with you. If you wish to do so, please contact the undersigned.

Sincerely,

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