

**COMMENTS OF CALIFORNIA ATTORNEY EDMUND G. BROWN  
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**ADVANCE NOTICE OF PROPOSED RULEMAKING REGULATING  
GREENHOUSE GASES UNDER THE CLEAN AIR ACT  
EPA-HQ-OAR-2008-0318**

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## **Comments of the Attorneys General of California and Connecticut on Advance Notice of Public Rulemaking for Regulating Greenhouse Gas Emissions under Clean Air Act**

Docket ID No. EPA–HQ–OAR–2008–0318

### **Overview**

Global warming is perhaps the most serious environmental challenge we have ever faced. There is an overwhelming scientific consensus that the earth's temperature is warming, that humans are responsible for this increase, and that the harms from global warming will likely be severe and widespread. The effects of climate change are already being felt. We need to take immediate corrective action if we are to avoid the worst projected impacts. The longer we delay, the more difficult, costly and disruptive the challenge becomes.

Congress can and should pass comprehensive climate change legislation. But it may take several years for such legislation to be enacted and implementing regulations put in place. This is time we cannot afford to squander. In order to stabilize global carbon dioxide (“CO<sub>2</sub>”) concentrations at the level necessary to avoid dangerous climate disruption, the U.S. needs to slow, stop and reverse the growth of greenhouse gas (“GHG”) emissions as quickly as possible. The Clean Air Act (“CAA”) or (“Act”)) can be used right now to begin addressing global warming pollution. Its programs for controlling mobile and stationary sources are very well suited for GHG regulation and can be implemented quickly. In addition, EPA has a legal obligation to fulfill: the Supreme Court in *Massachusetts v. EPA*, 127 S. Ct. 1438, 1475 (2007), held that GHGs are air pollutants as defined under the CAA. EPA must respond to the court decision and cannot ignore its obligation to address GHG emissions under the statute.

Action now under the CAA can serve as an effective bridge to a more comprehensive federal climate policy and allow us to begin building the regulatory infrastructure needed to transition to a low carbon economy. It can also provide useful lessons to Congress as it crafts new legislation, and provide for complementary measures to reduce GHG emissions even after new legislation is passed.

The CAA has a proven track record of effectively dealing with complex air pollution problems that implicate a multitude of sources and a wide range of economic activities, and doing so without harming the economy. From 1970 to 2005, aggregate emissions of criteria pollutants fell by about 53 percent, at the same time as Gross Domestic Product increased by 195 percent, energy consumption increased 48 percent, and vehicle miles traveled increased 178 percent.<sup>1</sup> As the Advance Notice of Public Rulemaking (“ANPR”) acknowledges, the Act has encouraged significant technological innovation, in many cases leading to emission reductions achieved at far less cost than originally estimated. 73 Fed. Reg. at 44,407.<sup>2</sup> Reviewing just the

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<sup>1</sup> [http://www.epa.gov/airtrends/2006/emissions\\_summary\\_2005.html](http://www.epa.gov/airtrends/2006/emissions_summary_2005.html).

<sup>2</sup> It lists as examples motor vehicle emission controls, diesel fuel and engine standards to reduce NO<sub>x</sub> and particulate matter emissions, engine idle-reduction technologies, selective catalytic reduction and ultralow NO<sub>x</sub> burners for NO<sub>x</sub> emissions, high-efficiency scrubbers for SO<sub>2</sub> emissions from boilers, CFC-free air conditioners and refrigerators, low or zero VOC paints, and idle-reduction technologies for engines. *Id.*

first 20 years of the Act, EPA valued the total monetized health benefits achieved by regulation through 1990 at \$22.2 trillion and the total compliance costs over the same years at \$0.5 trillion. EPA correctly concluded that “[t]he resulting net monetary benefits of \$21.7 trillion make the CAA one of the most cost effective regulatory programs in American history.”<sup>3</sup>

The ANPR represents a very thoughtful and honest analysis by EPA’s professional staff of the CAA’s possibilities and limitations. We strongly object to the claims of the departing administrator that the act is “outdated” and “ill-suited” to deal with GHGs. 73 Fed. Reg. at 44,355. As the ANPR repeatedly points out, the CAA provides EPA with flexibility to regulate through a variety of approaches, including performance standards, operational controls, trading, market based incentives and other measures, and also to tailor its traditional strategies to suit the particular challenges posed by GHG emissions. Moreover, EPA has the discretion to prioritize its regulatory actions, first focusing on the largest emitters and those areas that will produce the greatest benefit, and crafting responses to avoid burdening smaller sources. While EPA cannot unreasonably delay exercising its GHG authority, EPA need not address all issues under the Act at once. As the Supreme Court noted in *Massachusetts v. EPA*, incremental regulatory steps to address climate change are entirely appropriate: “Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop.” 127 S. Ct., at 1457 (citation omitted).

Moreover, contrary to the unsupported claims of commenting agencies in the ANPR, controlling GHG emissions under the Act can be done in a cost effective manner. For example, a recent economic analysis by the California Air Resources Board (“CARB”) found that implementing the economy-wide reductions called for by California’s AB 32 will result in a net *positive effect* on California’s economic growth through 2020.<sup>4</sup> Moreover, CARB estimates that the cost per ton of the GHG reductions recommended by the plan range from \$-408 (i.e. savings) per ton to \$133/ton, with all but one of the measures costing less than \$55/ton (that one is the Renewable Portfolio Standard).<sup>5</sup> Other studies confirm that there are many GHG reduction measures that can be implemented at relatively low cost or that save money. A major study by McKinsey & Company found that a return to 1990-level emissions by 2030 will cost about \$50 billion each year until 2030, or around 1.5% of the investment that is expected to occur in the U.S economy during that period. Almost 40% of the required GHG reductions can be achieved with strategies that have positive economic returns.<sup>6</sup> And the Center for Climate Strategies has estimated that implementing strategies endorsed in the climate action plans by twenty states on a national level would reduce U.S. GHG emissions to ten percent below 1990 levels by 2020, at a net economy-wide cost *savings* in 2020 of \$ 85 billion.<sup>7</sup> Indeed, California’s experience with building and appliance efficiency standards over the past 30 years provides a compelling illustration of how measures that reduce GHG emissions can save money and promote economic growth. As a result of these standards, since the mid 1970’s the state’s per-capita electricity use has remained almost flat (at the same time that U.S. per capita use increased by 50%) while domestic product per capita increased by 80%. The standards have saved California more than

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<sup>3</sup> US EPA, The Benefits and Costs of the Clean Air Act 1990 to 2010 (1999).

<sup>4</sup> California Air Resources Board, Climate Change Proposed Scoping Plan at 22 (Oct. 2008).

<sup>5</sup> *Id.*, Appendix G-1-6-1-8.

<sup>6</sup> McKinsey & Company, U.S. Greenhouse Gas Emissions: How Much At What Cost? (Dec. 2007).

<sup>7</sup> See Comments of Center for Climate Strategies filed on ANPR; *see also* Thomas D. Peterson, Robert B. McKinstry, Jr., & John C. Dernbach, *Developing a Comprehensive Approach to Climate Change Policy in the United States: Integrating Levels of Government and Economic Sectors*, 25 Va. Env’tl. L. J. 219, 242-243 (2008).

\$56 billion in electricity and natural gas costs since 1978 and increased Gross State Product by 3%, or \$31 billion.<sup>8</sup>

Finally, we wish to reiterate that whatever action is taken by EPA or Congress to address climate change must not preempt the ability of states to adopt programs that are more stringent than federal law. The CAA's "cooperative federalism" structure, in which EPA sets minimum national standards that states can exceed, has worked well to improve the nation's air quality and stimulate innovation through creative experimentation. GHG regulation should be no different. Indeed, states have shown great ingenuity and leadership on climate change to date,<sup>9</sup> and should be allowed to continue with their innovative policy efforts, in partnership with the federal government.

### **Summary of Priority Issues**

Before addressing in more detail some of the specific issues about which EPA requested comments, we would like to highlight the priority actions that should be taken by the next administration:

### **California's GHG Regulations**

EPA should immediately grant a waiver of preemption for California's GHG automobile regulations. The statutory criteria upon which EPA must base its decision regarding a waiver request have clearly been met. California's regulations will decrease GHG emissions from motor vehicles by thirty percent in California and the thirteen other States that have adopted the standards (five other states have committed to adopting or are considering adopting the standards), and can begin immediately. The regulations are cost-effective, with increased costs recouped by consumers several fold through operating savings.

### **Endangerment**

EPA is under order from the U.S. Supreme Court to make an endangerment determination under section 202(a). The Act requires EPA to take a precautionary approach in making this determination. The evidence (including that in the ANPR) is overwhelming that GHG emissions endanger public health and welfare. While the endangerment determination EPA must make in response to *Massachusetts v. EPA* is limited to section 202(a), the ANPR also clearly demonstrates that the same or very closely related endangerment tests have been satisfied for other mobile and stationary sources as well.

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<sup>8</sup> California Energy Commission, *2007 Integrated Energy Policy Report*, at. 2-3 (2007), available at <http://www.energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF.PDF>.

<sup>9</sup> Thirty-six states have climate action plans either completed or in development, *Learning from State Action on Climate Change (December 2007 Update to Climate Change 101: State)*, Pew Center on Global Climate Change, at 11, available at [http://www.pewclimate.org/policy\\_center/policy\\_reports\\_and\\_analysis/state/](http://www.pewclimate.org/policy_center/policy_reports_and_analysis/state/), and states have undertaken or planned over 250 actions in a multiple of sectors to reduce GHG emissions. Robert B. McKinstry, Jr. & Thomas D. Peterson, *The Implications of the New "Old" Federalism in Climate-Change Legislation: How To Function in a Global Marketplace When States Take the Lead*, 20 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 61, 72-87 (2007). For a general discussion, see Center for Progressive Reform, *Cooperative Federalism and Climate Change: Why Federal, State and Local Governments Must Continue to Partner* (2008).

## **Section 111 New Source Performance Standards**

EPA should promptly pursue regulation of major stationary source categories using the New Source Performance Standard (“NSPS”) authorities in section 111 of the Act. EPA has substantial flexibility in designing regulation under this section. EPA should immediately issue and update NSPS for the categories of sources that emit the most GHGs, including power plants; pulp, paper and forest products; cement plants; iron and steel industry; petroleum refineries; oil and gas exploration; and transmission.

## **Mobile Source Controls**

EPA should expeditiously develop regulations to reduce GHG emissions from the mobile sector, including cars and light duty trucks, medium and heavy duty trucks, ocean-going vessels, aircraft, nonroad vehicles and locomotives. As the ANPR points out, the CAA provides EPA with ample tools and authority to do so. As it also notes, there is cost-effective and available technology that can be deployed to reduce emissions from all of these sources.

## **Regulation of Fuels**

EPA should enact, under Section 211 of the Act, a national low-carbon fuel standard that accounts for all lifecycle emissions and indirect impacts of all mobile source fuels including petroleum, conventional and advanced bio-fuels, electricity and hydrogen. This standard would go beyond the renewable fuel standard authorized in the Energy Independence and Security Act of 2007 (“EISA”) and help us transition to a low carbon fuel economy.

## **BACT Permitting**

EPA should immediately require Best Available Control Technology (“BACT”) for permits issued under section 165 of the Act for large stationary sources, such as new coal-fired power plants. Indeed, based on *Massachusetts v. EPA* and the language of the CAA, BACT requirements arguably already are required for GHG emissions under section 165, and EPA should abandon the contrary interpretation that it has taken in ongoing permit proceedings.

We now turn to comments on the specific issues raised by the ANPR, in the order in which they appear in the notice

## **Challenges for Economic Analysis of Potential Regulation**

We are attaching as part of our submission (Exhibit A) the comments of Dr. Frank Ackerman of Tufts University and the Stockholm Environment Institute on EPA’s discussion of the analytic challenges involved in economic analysis of potential GHG regulation. As Dr. Ackerman notes, the ANPR and supporting Technical Support Document (“TSD”) outline many of the most important issues concerning the economics of climate change, including the need for a very low discount rate for intergenerational analyses, the centrality of low-probability, catastrophic risks, and the inherent uncertainty in evaluating these threats, the impossibility of monetizing all benefits, and the resulting indeterminacy in any cost-benefit calculations, and the

inappropriateness of evaluating U.S. climate policy on the basis of U.S. impacts alone, as opposed to global impacts. But as Dr. Frank Ackerman also explains, the TSD and ANPRM include only a very partial review of quantitative estimates of the costs and benefits of GHG mitigation policies that have appeared in the economics literature, relying primarily on the work of one economist Richard Tol, who advocates a very low carbon tax (TSD section 4, pp. 10-18; 73 Fed. Reg. 44,415-16). There are many other authorities in the climate economics debate whose work also should be discussed, including the extremely thorough and carefully researched Stern Review, which is entirely omitted. Additionally, we urge EPA to give careful consideration to Dr. Ackerman's suggestion (also raised in the TSD, pp. 7-8) that in light of the great uncertainties in quantifying many aspects of climate change and climate change impacts, a risk management framework is better suited for guiding climate policy than the traditional cost/benefit approach.

### **Endangerment Analysis and Regulation of Light-Duty Vehicles**

EPA is under order from the U.S. Supreme Court to make an endangerment determination under CAA section 202(a). *See Massachusetts v. EPA*, 127 S. Ct. at 1463. The endangerment question is straight-forward: whether GHG emissions from cars and trucks "contribute to[] air pollution which may reasonably be anticipated to endanger public health or welfare." *See* 42 U.S.C. § 7521(a)(1). The Supreme Court ruled that EPA must decide whether this is or is not so, or decide whether "the scientific uncertainty is so profound that it precludes EPA from making a reasoned judgment as to whether GHGs contribute to global warming." *Massachusetts v. EPA*, 127 S. Ct. at 1463.

By all accounts, EPA is ready to make an endangerment determination, and has been ready to do so for some time. An oversight investigation by the U.S. House of Representatives revealed that EPA had sent a positive endangerment determination to the Office of Management and Budget in December 2007, almost one year ago.<sup>10</sup>

There is no doubt that global warming is occurring and that GHG emissions contribute to such warming. As EPA says:

Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. Global mean surface temperatures have risen by 0.74°C (1.3°F) over the last 100 years. The average rate of warming over the last 50 years is almost double that over the last 100 years. Global mean surface temperature was higher during the last few decades of the 20<sup>th</sup> century than during any comparable period during the preceding four centuries.

Most of the observed increase in global average temperatures since the mid-20<sup>th</sup> century is very likely due to the observed increase in anthropogenic GHG concentrations. Global observed temperatures over the last century can be

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<sup>10</sup> See Letter from Henry A. Waxman, Chairman, House Committee on Oversight and Government Reform, to EPA Administrator Stephen P. Johnson, Mar. 12, 2008.

reproduced only when model simulations include both natural and anthropogenic forcings, i.e., simulations that remove anthropogenic forcings are unable to reproduce observed temperature changes. Thus, the warming cannot be explained by natural variability alone.

Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases. Observations show that changes are occurring in the amount, intensity, frequency and type of precipitation. There is strong evidence that global sea level gradually rose in the 20<sup>th</sup> century and is currently rising at an increased rate. Widespread changes in extreme temperatures have been observed in the last 50 years. Globally, cold days, cold nights, and frost have become less frequent, while hot days, hot nights, and heat waves have become more frequent.

73 Fed. Reg. at 44,425. Moreover, the ANPR makes clear that global warming endangers public health and welfare:

Projected global warming is anticipated to lead to effects in the U.S. For instance, all of the U.S. is very likely to warm during this century, and most areas of the U.S. are expected to warm by more than the global average. The U.S., along with the rest of the world, is projected to see an increase in the intensity of precipitation events and the risk of flooding, greater runoff and erosion, and thus the potential for adverse water quality effects.

Severe heat waves are projected to intensify in magnitude, frequency, and duration over the portions of the U.S. where these events already occur, with likely increases in mortality and morbidity, especially among the elderly, young, and frail. Warmer temperatures can also lead to fewer cold-related deaths. It is currently not possible to quantify the balance between decreased cold-related deaths and increased heat-related deaths attributable to climate change over time.

The Intergovernmental Panel on Climate Change (“IPCC”) projects with virtual certainty (i.e., greater than 99% likelihood) declining air quality in cities due to warmer days and nights, and fewer cold days and nights, and/or more frequent hot days and nights over most land areas, including the U.S. Climate change is expected to lead to increases in regional ozone pollution, with associated risks for respiratory infection, aggravation of asthma, and potential premature death, especially for people in susceptible groups. Climate change effects on ambient PM are currently less certain.

Additional human health concerns include a change in the range of vector-borne diseases, and a likely trend towards more intense hurricanes (even though any single hurricane event cannot be attributed to climate change) and other extreme weather events. For many of these issues, sensitive populations, such as the elderly, young, asthmatics, the frail and the poor, are most vulnerable.

Moderate climate change in the early decades of the century is projected to increase aggregate yields of rainfed agriculture in the United States by 5–20%. However, as temperatures continue to rise, grain and oilseed crops will increasingly experience failure, especially if climate variability increases and precipitation lessens or becomes more variable. How climatic variability and extreme weather events will continue to change under a changing climate is a key uncertainty, and these events also have the potential to offset the benefits of CO<sub>2</sub> fertilization and a longer growing season.

Climate change is projected to constrain over-allocated water resources in the U.S., increasing competition among agricultural, municipal, industrial, and ecological uses. Rising temperatures will diminish snowpack and increase evaporation, affecting seasonal availability of water.

Disturbances like wildfire and insect outbreaks are increasing and are likely to intensify in a warmer future with drier soils and longer growing seasons. Overall forest growth in the U.S. will likely increase by 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. Although recent climate trends have increased vegetation growth in parts of the United States, continuing increases in disturbances are likely to limit carbon storage, facilitate invasive species, and disrupt ecosystem services.

The U.S. will be affected by global sea level rise, which is expected to increase between 0.18 and 0.59 meters by the end of the century relative to around 1990. These numbers represent the lowest and highest projections of the 5 to 95% ranges for all scenarios considered collectively and include neither uncertainty in carbon cycle feedbacks nor rapid dynamical changes in ice sheet flow. U.S. coastal communities and habitats will be increasingly stressed by climate change interacting with development and pollution. Sea level is already rising along much of the coast, and the rate of change is expected to increase in the future, exacerbating the impacts of progressive inundation, storm-surge flooding, and shoreline erosion.

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 (including coastal roads, railways, transit systems and runways) and institutional infrastructures. Climate change will likely interact with and possibly exacerbate ongoing environmental change and environmental pressures in some settlements, particularly in Alaska where indigenous communities are facing major environmental and cultural impacts.

73 Fed. Reg. at 44,426-27.

EPA's decision on California's waiver request under Section 209(b) likewise supports an endangerment determination. *See* 73 Fed. Reg. 12,156 (Mar. 6, 2008). The evidence in the

assessments of the IPCC also make clear that global warming is endangering public health and welfare, and will continue to do so. So, too, do the official federal government reports of the U.S. Climate Change Science Program. See, e.g., Climate Change Science Program, *Scientific Assessment of the Effects of Global Change on the United States* 8 (May 2008) (acknowledging that it is very likely that climate change is already affecting U.S. water resources, agriculture, land resources, biodiversity, and human health and will continue to have significant effects for decades).

Based on this overwhelming evidence, it is simply inconceivable that EPA could not find that public health and welfare are being endangered. It is time for EPA to act. Any further delay is unnecessary and will only compound the difficulties in addressing global warming.

EPA makes some interesting, but largely inconsequential, inquiries about the specifics of this endangerment determination. We believe it would be wise for EPA to include all GHG emissions in that determination, rather than limiting it to CO<sub>2</sub> (and perhaps hydrofluorocarbons). The task at hand is enormous, and EPA should evaluate the efficacy of reductions of all pollutants. Moreover, including all emissions in global-warming-potential-weighted fleet-wide average requirements will provide automobile manufacturers with added flexibility.

In other parts of the ANPR, EPA also raises concerns about the endangerment determination mandating regulations under other statutory provisions (as to, for example, heavy duty trucks, airplanes, marine vessels, etc.). This is the natural consequence of the system set up by Congress; it is not a reason to avoid taking action to protect public health and welfare. Rather, it is evidence that Congress intended that EPA undertake a suite of actions when public health or welfare is at risk. EPA should prioritize its actions, obtaining the most significant and easiest reductions first.

### **Light Duty Vehicles**

The most effective immediate action that EPA can take on cars and trucks is to reverse its denial of a waiver of federal preemption for California's GHG emission standards. See 73 Fed. Reg. 12,156. As California has shown in its challenge pending in the U.S. Court of Appeals for the District of Columbia Circuit, and has been widely reported in the press, that decision is not based on valid legal grounds or on sound science. California needs these regulations to meet compelling and extraordinary conditions, both for its program as a whole and specifically to meet the challenge of global warming. California should have received a waiver of federal preemption long ago.

California's regulations will decrease GHG emissions from motor vehicles by thirty percent in California and in the thirteen other States that have adopted the standards (five others have committed to adopting or are considering adopting the standards). They are cost-effective, with increased costs recouped by consumers several fold through operating savings. While the regulations increase in stringency through model year 2016, emission reductions can begin immediately, serving as a down payment for a more robust regulatory program. As it has done

for forty years, EPA can use those regulations as model for its own regulations, an approach recently praised by the National Academy of Science.<sup>11</sup>

With respect to EPA's own light duty regulations, by all accounts, EPA has done a lot of work to develop proposed federal GHG emission standards for cars and trucks. Based on our extensive work in this area, we wholeheartedly agree with EPA's assessment that "there are significant reductions of GHG emissions that could be achieved for passenger cars and light-duty trucks up to 2020 and beyond that would result in large net monetized benefits to society." 73 Fed. Reg. at 44,441. EPA estimates that benefits *just due to fuel savings* are "on the order of \$340 to \$830 billion," a size that matches the recent financial bailout package approved by Congress. *Id.* These improvements "could be accomplished by many of the most advanced technologies we know of today." *Id.*

Our understanding is that EPA in fact had drafted a notice of proposed rulemaking in 2007. EPA should quickly update this analysis, and issue it. All interested parties can then comment on the specifics of the proposal at that time. As President-elect Obama has indicated, this is no time to delay action.

We encourage EPA to establish a very long time horizon for these standards. It is generally accepted that we need to reduce emissions by 80% by 2050 to avoid the most severe climate impacts, and EPA itself admits that 2050 is a "key reference point." 73 Fed. Reg. at 44,436. We believe there is reason for EPA to set standards that far out with mobile sources, and certainly EPA should the standards as far out as 2025. EPA acknowledges that this is permissible. *See id.* at 44,437. The CAA is meant to be a technology-forcing statute, *Train v. Natural Resources Defense Council*, 95 S. Ct. 1470, 1487 (1975); *Whitman v. American Trucking Assn.* 121 S. Ct. 903, 922 (2000) (Breyer, J., concurring); *see* legislative history of the 1970 Act and 1977 amendments.<sup>12</sup> Looking out forty years would allow EPA to be especially technology-forcing, without imposing tremendous burdens on automobile manufacturers. Setting a long-term goal would force manufacturers to start planning and conducting research and development with that kind of time horizon in mind. If the technology does not develop quite as fast – or develops faster – EPA can then incrementally adjust the standards as time passes. Thus, we endorse the approach laid out in the ANPR (*see id.* at 44,441-42), though encourage EPA to look even further into the future.

Because of the CAA's technology forcing nature, we believe EPA should not set up trading systems between the mobile source categories. This would allow manufacturers to avoid forcing technologies.

### **Heavy Duty Vehicles and Motorcycles**

Emissions from heavy duty vehicles and motorcycles also should be promptly regulated, given the need for dramatic reductions from all sectors. In fact, given the long useful life of

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<sup>11</sup> Nat'l Research Council, Comm. on State Practices in Setting Mobile Source Emission Standards, [State and Federal Standards for Mobile-Source Emissions](#), 264-265 (2006).

<sup>12</sup> *See, e.g.*, Conf. Report, p. 604, in U.S. Code Cong. and Admin. News, 1970, at p. 5,381, and 123 Cong. Rec. H 8,662, US Code Cong. & Admin. News 1977, 1,570.

heavy duty vehicles, it is all the more important to ensure that vehicles produced now are as efficient as possible. While there are some difficult issues involved, EPA should start working through them now, so that not too much time elapses before regulations can be adopted.

## **Regulation of Fuels**

As noted by the ANPR, CARB is on the verge of issuing the world's first low carbon fuel standard ("LCFS"). The goal of the LCFS is to reduce the carbon content of transportation fuel by at least 10 percent by the year 2020. Adoption of a national LCFS, in tandem with EPA's renewable fuel volumetric mandates under the EISA, would be a critical step towards reducing GHGs from transportation fuels and transitioning from petroleum-based fuels to a new generation of low carbon fuels for transportation. We urge EPA to adopt a national LCFS by the end of 2009.

Adopting a national LCFS, in conjunction with the EISA's volumetric mandates presents EPA with a great opportunity. The EISA ensures that fuel providers will be making substantial, additional investments in renewable fuel production in the near future. While the renewable fuel mandates are a good start, they do not themselves provide an incentive for producers to maximize the GHG reduction potential of transportation fuels. By adopting a national LCFS, which would apply to the carbon content of all transportation fuel, not just the fraction of renewable transportation fuels consumed nationally, producers will have the incentive to invest in research, development and production of fuels that have the lowest carbon footprint. Put another way, it rewards those who maximize the carbon content reduction of any fuel. This will stimulate innovation of low carbon fuels across the board. In order to fully seize this opportunity EPA should initiate an LCFS rulemaking either on a parallel track with or better yet, in advance of, its upcoming rulemaking on the new renewable fuel standards under the EISA.

The benefits from a national LCFS are many. First, it sets a performance standard that allows the market to determine the most cost-effective low-carbon fuels. Second, it provides an incentive on the fuels side, as opposed to the vehicle technology side, to develop the best performing low-carbon fuels. Third, it will lead to the development of an infrastructure with which to deliver those fuels to the new alternative fuel-capable vehicles that automakers are producing and will produce in the coming years. Fourth, it will provide an economic opportunity for us to become a world leader in new fuel technology and production. Fifth, it provides an opportunity to develop a reliable and diversified domestic fuel supply which would serve to enhance our national security.

CARB released the draft LCFS in October 2008 for public comment.<sup>13</sup> California has already confronted many of the issues that would face EPA in its own rulemaking, including: setting fuel specific carbon content targets for both gasoline and diesel, establishing a proposed phase-in compliance schedule, and proposing how compliance will be administered and how fuel will be tracked. CARB has also researched the critical issues of the full life cycle GHG emissions of each of the potential transportation fuels, and is in the process of compiling its extensive research on the impacts of land use changes, particularly from biofuels. EPA can rely on California's extensive research to get a head start on drafting a national standard.

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<sup>13</sup> [http://www.arb.ca.gov/fuels/lcfs/101008lcfsreg\\_draft.pdf](http://www.arb.ca.gov/fuels/lcfs/101008lcfsreg_draft.pdf)

We now address some of the specific questions asked by EPA in this section. For many of the reasons expressed above, we support the push behind the renewable fuel standard. While the goals of the RFS program are ambitious, the development of renewable sources must be done in a responsible manner. We must not replace our reliance on petroleum with a reliance on an alternative supply that has greater life cycle GHG emissions. For example, corn-based ethanol, while important both as a fuel oxygenate and as an interim step to developing ethanol powered vehicles and fuel infrastructure, can result in land use changes that limit its effectiveness in reducing GHG emissions. Cellulosic ethanol, however, holds more promise as a renewable biofuel, and will likely be more sustainable in the long term. In order to provide incentives to maximize the reductions of GHG emissions, it is essential that EPA's regulation of transportation fuels takes into account the respective GHG reduction potential of different renewable sources of fuel.

While an emphasis on the development of alternative transportation fuels is important, it must be administered in a manner that is consistent with the primary goal of reducing lifecycle GHG emissions. Fuels such as petroleum from tar or oil sands and coal to liquids have the potential to significantly increase emissions over gasoline. These types of fuels are both not renewable and require tremendous energy consumption in their production. Moreover, these alternative petroleum fuels have significant land use changes associated with their production. As in the biofuels context, these land use changes must be taken into account in any EPA regulation. A regulation that results in encouraging the development of these types of alternative fuels is a step backward in the fight against climate change.

As recognized in both section 211(c) and 211 (o) of the CAA, EPA clearly has the authority to regulate the GHG emissions associated with transportation fuels. We urge EPA to exercise its authority and structure both its renewable fuels program and its emission control program to maximize the reduction of GHG emissions from transportation fuels. Regardless of the source of authority, the lifecycle GHG performance of a given fuel should be the most significant factor in EPA's regulation of transportation fuel.

### **Other Mobile Source Categories**

The California Attorney General's Office and other state and local governments have filed three petitions with EPA over the past year requesting that EPA regulate GHGs from ocean-going vessels, aircraft, and nonroad vehicles. After EPA failed to take action in response to the petitions, in July, 2008, California, Connecticut, and others filed a 180-day notice of intent to sue EPA. These mobile sources all are regulated under sections of the Act (sections 213(a)(4) and 231(a)(2)) that contain endangerment language very similar to that in section 202. As noted in our discussion above of section 202(a), it is inconceivable that EPA would refuse to make an endangerment determination. As explained below, EPA should promptly grant each of the petitions and regulate GHG emissions from these categories of mobile sources.

## Control of GHGs from Nonroad Vehicles and Engines

As the ANPR notes, the California and Connecticut Attorneys General (and others) filed a petition for rulemaking for nonroad vehicles and engines in January, 2008. Although the ANPR does not take the steps requested in the petition, it does recognize the significant CO<sub>2</sub> emissions associated with this equipment and it offers examples of feasible technological and regulatory approaches to curb these emissions. First, the ANPR notes that nonroad engines emitted 249 million metric tons of CO<sub>2</sub> in 2006, 12% of the total mobile source emissions. 73 Fed. Reg. at 44,462. And EPA anticipates that CO<sub>2</sub> emissions from the nonroad sector will significantly increase in the future, by approximately 46% between 2006 and 2030. *Id.* Although EPA does not state that these emissions significantly contribute to air pollution, the ANPR indicates the manner in which it might make such a determination:

In the past the Administrator has looked at emissions of air pollutants in various ways to determine whether they ‘cause or contribute’ to the relevant air pollution. For instance, in some mobile source rulemakings, the Administrator has looked at the percent of emissions from the regulated mobile source category compared to the total mobile source inventory for that air pollutant. *See, e.g.*, 66 Fed. Reg. 5001 (2001) (heavy duty engine and diesel sulfur rule). In other instances the Administrator has looked at the percent of emissions compared to the total nonattainment area inventory of the air pollution at issue. *See, e.g.*, 67 Fed. Reg. 68,242 (2002) (snowmobile rule). EPA has found that air pollutant emissions that amount to 1.2% of the total inventory ‘contribute.’ 73 Fed. Reg. at 44,423, citing *Bluewater Network v. EPA*, 370 F.3d 1, 15 (2004). Given that nonroad engines emit 12% of the total mobile source emissions and that this figure is predicted to rise substantially in the coming years, there is no question that these emissions significantly contribute to air pollution that may reasonably be anticipated to endanger public health and welfare.

Second, although the ANPR does not take steps toward regulating GHG emissions from nonroad sources, EPA examines a number of technologies that could reduce GHG emissions from these sources. The ANPR correctly notes that manufacturers will have very strong incentives to increase the fuel efficiency of their products because this directly benefits consumers’ bottom line, and that there is particularly great potential to do so because efficiency has been far less of a focus in the nonroad sector compared to highway engines. 73 Fed. Reg. at 44,462. EPA acknowledges that the CAA allows the agency to adopt technology-forcing standards for nonroad vehicles and engines. 73 Fed. Reg. at 44,433, citing CAA § 213(a)(4). It also notes that many pathways exist for effectively controlling GHGs from nonroad vehicles, stating that “[D]espite the great diversity in nonroad applications, technology-based solutions exist for every application to achieve cost-effective and substantial GHG emissions reductions.” 73 Fed. Reg. at 44,463 (emphasis added). A number of the measures for reducing GHGs included in the ANPR are the same as those listed in the petition, include the use of hybrid technology, improvements in air conditioning equipment, reduced idling and promoting consumer awareness. *Id.*; see also Petition at 14. In addition to the technological measures listed in the petition, the ANPR includes several additional approaches to reducing GHG emissions from nonroad sources. 73 Fed. Reg. at 44,463-44,464. These include; shifting from two-stroke to four-stroke engines; using regenerative energy recovery; utilizing Continuously Variable Transmission (“CVT”) technology; improving component design (i.e., improving

efficiency in electrical, mechanical, and hydraulic accessories); and switching to less energy-intensive lighting. *Id.* Each of these examples provides a feasible option for reducing GHGs and we encourage EPA to promote manufacturers' use of these technologies through regulation.

In addition to technological solutions, the ANPR includes a number of possible regulatory options for reducing GHG emissions from nonroad sources. 73 Fed. Reg. at 44,464-44,466. EPA asks which of the regulatory options are best; however, we encourage EPA to start with the approach that is easiest to implement and to build on those regulations after they are in place. We support the immediate implementation of the first regulatory option suggested by EPA, which is an extension of the existing criteria pollutant program for nonroad engines. 73 Fed. Reg. at 44,465. As described in the ANPR, "In its simplest form, this approach would be an engine GHG standard that preserves the current regulatory structure for nonroad engines." *Id.* Because this approach would add GHG limits to existing regulations, it would be the easiest to adopt and implement and therefore, could be done promptly. The ANPR notes that this approach, applied to conventional pollutants, has "reduced traditional air pollutants from nonroad sources by 95% . . . accomplished with little sacrifice of products' ability to serve their purpose." 73 Fed. Reg. at 44,462. Curbing GHG emissions is urgent and EPA must take immediate action to begin reducing emissions from the nonroad sector as quickly as possible.

After the GHG engine standards are in place, it would be appropriate for EPA to begin exploring the other regulatory approaches discussed in the ANPR. 73 Fed. Reg. at 44,465-44,466. Specifically, EPA suggests that it could combine an engine-based standard with credit given for the GHG emission reduction potential of new equipment designs. 73 Fed. Reg. at 44,465. As explained in the ANPR:

Under this option, the new technology would be evaluated by measuring GHG emissions from a piece of equipment that has the new technology while performing a standard set of typical tasks. The result would then be compared with data from the same or an identical piece of equipment, without the new technology, performing the same tasks. . . , The percentage reduction in GHG emissions with and without the new equipment technology could then be applied to the GHG emissions measured in certification tests of engines used in the equipment in helping demonstrate compliance with an engine-based GHG standard. *Id.*

Developing these technologies and testing their GHG reduction potential for various types of equipment will require time; however, this process could begin after EPA adopts the engine standards that build on existing criteria pollutant standards.

The ANPR falls short of meeting the requests set out in the petition; however, EPA can build on the information presented in the document to satisfy petitioners' requests for an endangerment determination and prompt regulation of GHGs from nonroad sources.

## Control of GHG Emissions from Ocean-Going Vessels.

Class III, ocean-going vessels present EPA with a unique opportunity to reduce GHG emissions. As California noted in its petition to EPA in October, 2007, these vessels are estimated to emit up to 3% of the total world inventory of GHG emissions.<sup>14</sup> As California also observed in the petition, the International Council on Clean Transportation (“ICCT”) estimates that marine sources emit between 12 and 21% of the total GHGs emitted by the worldwide transportation sector. ICCT, *op. cit.*, p. 29. Vessels form one of the world’s most polluting source categories, per unit of fuel consumed. *Id.*

Given the serious threats posed by global warming, any source that contributes 3 percent of the world’s overall GHG emissions, and up to one-fifth of the emissions from the global transportation sector, clearly satisfies Congress’s authorization in Section 213, subdivision (a)(4) of the CAA for EPA to regulate non-road emissions that “significantly contribute to air pollution reasonably anticipated to endanger public health or welfare.” Such a large contribution by an industry with, comparatively speaking, a very manageable number of sources, presents EPA with a target of GHG controls that is extraordinarily cost-effective. We note that EPA considers the contribution of Category III vessels operating in the U.S.’ Extended Economic Zone (“EEZ”) to NOx (more than 8 percent of U.S. mobile source NOx emissions) and PM<sub>2.5</sub> (15 percent of U.S. mobile source PM<sub>2.5</sub> emissions) to be sufficiently large to justify controls imposed under Section 213 of the CAA<sup>15</sup> (see discussion below). Surely, then, the contribution by these vessels of between 12 percent and 21 percent of the world’s transportation sector GHG emissions also justifies controls under Section 213. The longevity of Category III vessels – up to thirty years – makes it imperative that controls be adopted as soon as possible.

In December, 2007, EPA issued an Advance Notice of Proposed Rulemaking (“ANPR”) that discussed the possible adoption of controls on criteria pollutants emitted by Category III vessels.<sup>16</sup> EPA also recently proposed controls on criteria pollutants for marine vessels other than Category III.<sup>17</sup> Neither set of proposed or conceptual regulations would directly control GHG emissions. California, the state with the ports having the fourth-highest volume of business in the world, and with some of the most severe vessel-caused criteria pollution at those ports, applauds any efforts to reduce NOx and particulate pollution from Class III vessels, and also supports EPA’s proposals to the IMO to somewhat tighten NOx, SOx, and particulate controls on vessels worldwide. However, none of these controls is designed to reduce GHG emissions from U.S.-flagged ships. Nor would either proposal impose controls by EPA on emissions from foreign-flagged vessels, despite EPA’s recognition that the overwhelming majority of port calls in the U.S. are made by foreign-flagged vessels (over 90 % in 1999, according to U.S. Maritime Administration (“MARAD”) data).<sup>18</sup> We also note that EPA is considering allowing its Tier 3 controls, if and when they are adopted, to be turned off when a

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<sup>14</sup> ICCT, Air Pollution and Greenhouse Gas Emissions from Ocean-going Ships: Impacts, Mitigation Options and Opportunities for Managing Growth (2007), p. 26.

<sup>15</sup> 72 Fed. Reg. at 69,526 (December 7, 2007).

<sup>16</sup> 72 Fed. Reg. 69,522 (December 7, 2007).

<sup>17</sup> 73 Fed. Reg. 37,096 (June 30, 2008).

<sup>18</sup> 72 Fed. Reg. 69,522, at 69,536.

vessel is at sea; such an approach is completely antithetical to control of GHG emissions, since GHG emissions cause their deleterious effects no matter where they are emitted.

The ANPR invites comments on how vessel control compares and contrasts with control of highway and non-road mobile sources discussed in that document. 73 Fed Reg. at 44,466. We believe that any such comparison shows the necessity and fairness of imposing controls as quickly as possible on Class III vessels. First, the most obvious point of comparison between Class III vessels and other mobile sources is one of number. There are literally hundreds of millions of on-road and off-road vehicles in the United States, each making small contributions to global warming. It is imperative to control this huge number of small contributions. However, Class III vessels emit GHGs in an amount totally disproportionate to their numbers. There are only about 90,000 vessels in the world's cargo fleet,<sup>19</sup> compared with the hundreds of millions of other vehicles and engines that make up the worldwide transportation sector.<sup>20</sup> The cost-effectiveness of reducing GHG emissions from this sector, where 90,000 sources emit about 3% of world's CO<sub>2</sub>, is inescapable and overwhelming. This is particularly true for this sector, since Class III vessels are almost completely uncontrolled. It is a truism in air pollution control that the first emissions controls are highly cost-effective, achieving much greater emissions reduction per dollar spent on further controls on already controlled sources.

Another obvious point of comparison is that EPA has made very little effort to control emissions of any kind from Category III vessels. It has adopted only the most minimal controls on any pollutants, and its recently proposed regulations do not address GHGs at all. Class III vessels have, so to speak, been given a free ride, imposing the externalities of their huge amounts of pollutants of all kinds on the U.S. public, and the world, for decades.<sup>21</sup> By contrast, other sectors have been subject to controls, some very stringent, for decades. It is not only a matter of cost-effectiveness, but one of fairness, that EPA require Class III vessels to internalize the costs of their pollution, including pollution from GHG emissions.

The ANPR requests comments on various emissions control techniques that could be required for new Category III vessels, and we certainly support such requirements. However, given the long useful life of a typical Category III vessel of thirty years or more, it is imperative that regulations be adopted very quickly that impose controls that can be put into place now, not merely as the existing fleet is very slowly replaced over several decades. While EPA may have felt in the past that global control of vessels is the preferred approach, the imminent threat of global warming is too serious to wait for IMO to enact GHG emissions controls.

California's petition to EPA for control of GHG emissions from Category III vessels, as well as the ANPR itself, show that control of such emissions is feasible immediately. The ANPR correctly states that a shift to distillate fuels, and away from bottom-of-the-barrel residual fuels, would immediately lower GHG emissions from vessels that use it, because of the "lower carbon/hydrogen ratio in distillate fuel." 73 Fed. Reg. at 44,467. Such a shift is immediately feasible for many vessels calling at U.S. ports; Maersk already uses low-sulfur distillate fuel

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<sup>19</sup>ICCT, *op. cit.*, p. 20, citing Corbet, et al. (1999).

<sup>20</sup> There currently are over 600 million cars worldwide, with the number projected to increase substantially in the next decade. <http://www.worldometers.info/cars/>.

<sup>21</sup>EPA recognizes this as to vessel emissions of NOx, SOx, and PM. 72 Fed. Reg. 69,526.

voluntarily when docking at the Ports of Los Angeles and Long Beach. A shift to low-sulphur distillates will be required by the IMO by 2020, and will be mandated if the U.S. proposal to establish an Emissions Control Area for U.S. waters is accepted by the IMO. Regulations that can best be complied with by a shift to distillate fuels would speed up production of distillates. Such technology-forcing regulations are consistent with the underlying purposes of the CAA, which, as explained above, was intended to be a technology-forcing statute.

Similarly, as California's Air Resources Board has documented, emissions of all kinds can be reduced if vessels simply slow down.<sup>22</sup> If EPA required vessels to reduce speed within United States waters (at least within the contiguous zone, and preferably within the exclusive economic zone), fuel consumption and GHG emissions would immediately go down. CARB estimates that if all vessels reduced their speed to 12 knots within 24 nautical miles of California's shoreline, they could reduce their CO<sub>2</sub> emissions by about 14 percent, with a doubling of that reduction if the vessels reduced their speed within 40 nautical miles of shore.<sup>23</sup> The ANPR estimates that a ten percent reduction in speed by ocean-going vessels could result in more than a 20 percent reduction in fuel consumption (and therefore, presumably, in CO<sub>2</sub> emissions). This is a simple control method that can be put into place very quickly.

The ANPR requests comments on the use of shoreside power for vessels when they dock. California's experience demonstrates its practicality and efficiency. California's Ports of Long Beach and Los Angeles are currently proving the feasibility of using shoreside power for vessels when they dock; we refer EPA to their clean air plan web page at <http://www.cleanairactionplan.org>, and to the settlement reached between the California Attorney General's office and Trapac shipping company, at [www.ag.ca.gov/globalwarming](http://www.ag.ca.gov/globalwarming). Shoreside power is a feasible technique for reducing emissions from currently uncontrolled or under-controlled main and auxiliary engines on Category III vessels in the present. For a cost analysis, we refer EPA to CARB's evaluation of shoreside power for control of criteria pollutants, found at <http://www.arb.ca.gov/ports/shorepower/feasibilityreport/feasibilityreport.htm>. While that report focuses on particulate control, the cost estimates should be relevant to CO<sub>2</sub> control as well.

California's petition also listed other control techniques, including ones that focus on NOx control and reduced fuel consumption, including:<sup>24</sup>

- NOx reduction techniques, such as selective catalytic reduction and exhaust gas recirculation: NOx reduction up to 95%
- Optimal machinery operation: 2-12% fuel savings, depending on engine speed
- Optimal operating parameters, such as optimal trim, minimum ballast, propeller pitch, and optimal rudder: 1-5% fuel savings

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<sup>22</sup> See CARB staff presentations and workshop materials at [www.arb.ca.gov/ports/marinevess/vsr/workshops.htm](http://www.arb.ca.gov/ports/marinevess/vsr/workshops.htm).

<sup>23</sup> *Id.*

<sup>24</sup> Some of these techniques are discussed in EPA's December 7, 2007 proposal, and we urge their immediate adoption

- Improved fleet deployment planning: 5-15%.<sup>25</sup>

We also support development by EPA of controls for new Category III vessels whose potential fuel savings are not yet quantified, including changed vessel design (e.g. optimal hull design for lowered water resistance), lighter vessel materials (lighter ships use less fuel for propulsion), as well as the phase-in of a complete ban on high-sulphur and residual fuels.

We reserve other comments for actual, specific proposals for control of GHG emissions from Category III vessels.

## **Control of GHG Emissions from Aircraft**

As the ANPR notes, California, Connecticut, and other parties filed a petition for rule-making for GHG emissions from aircraft with EPA in December of 2007. Since then, the case for prompt control of GHGs from aircraft has only become stronger.

Section 231 of the CAA is a mandatory section, allowing EPA no discretion as to whether or not to set emissions standards for “any air pollutant from any class or classes of aircraft engines which in his judgment causes, or contributes to, air pollution which may reasonably be anticipated to endanger public health or welfare.” As discussed above, GHGs clearly pose such a danger. And aircraft emissions clearly are a very significant source of GHG pollution.

EPA has been aware since at least 1997 that “NO<sub>x</sub> at cruise altitudes from subsonic aircraft is considered to be a precursor of tropospheric ozone and a contributor to GHG.”<sup>26</sup> The IPCC, Special Report—Aviation and the Global Atmosphere, Summary for Policymakers (1999) made an updated and stronger case for considering NO<sub>x</sub> and water vapor emissions from aircraft at altitude to pose a greater danger of global warming than such emissions at ground level. The 1999 IPCC report estimates that, per unit of fuel burned, radiative forcing from aircraft is double that of land-based use of fossil fuels, and that aviation was responsible for 3.5 percent of the “anthropogenic forcing of the climate in 1992.”<sup>27</sup> Very recent research by Dressler, et al. at Texas A&M University, using NASA satellite data, indicates that the presence of water vapor in the atmosphere contributes to global warming to a previously unsuspected degree.<sup>28</sup> It may develop that emissions of water vapor at altitude is an even more potent forcer of global warming than we currently know. Taking into account both CO<sub>2</sub> emissions and the non-CO<sub>2</sub> effects of aviation, aviation will account for around 5 percent of anthropogenic radiative forcing worldwide in 2050. In 2006, aircraft emissions were responsible for 12 percent of carbon dioxide emissions from the transportation sector in the U.S. and four percent of carbon dioxide emissions from all U.S. sources. 73 Fed. Reg. at 44,469. The ANPR acknowledges that the energy use of aircraft

<sup>25</sup> Study of Greenhouse Gas Emissions From Ships: Final Report to the IMO. All techniques listed here are discussed in Chapter 5.

<sup>26</sup> See EPA rulemaking at 62 Fed. Reg. 25,356, 25,358, citing the IPCC’s 1994 report, “Radiative Forcing of Climate Change,” and the United Nations Environment Programme/World Organization’s 1994 report, “Scientific Assessment of Ozone Depletion.”

<sup>27</sup> IPCC Special Report, at 8

<sup>28</sup> NASA/GODDARD SPACE FLIGHT CENTER, WATER VAPOR CONFIRMED AS MAJOR PLAYER IN CLIMATE CHANGE, November 18, 2008, available at [http://www.nasa.gov/topics/earth/features/vapor\\_warming.html](http://www.nasa.gov/topics/earth/features/vapor_warming.html).

will increase by about 60 percent by 2030. 73 Fed. Reg. at 44,469. The FAA expects air traffic to double by 2025, and the IPCC projects air travel to contribute 5% of global forcing by 2050. Given the current and projected contribution of aircraft to global and domestic GHG emissions, and the disproportionate contribution of these emissions to radiative forcing of the climate, there can be no question that aircraft emissions “cause or contribute” to GHG pollution.

Further, according to a report from the International Civilian Aviation Organization (“ICAO”), the U.S. airline industry uses roughly four times the amount of aviation fuel as the next highest consuming nation, China.<sup>29</sup> The report also shows that the U.S. uses more than twice as much fuel for cargo service as the next highest consuming nation (China), nearly twice as much fuel for international passenger service as the next highest consuming nation (the United Kingdom), and roughly six times as much fuel for domestic passenger service as the next highest consuming nation (China).<sup>30</sup> This disproportionate consumption creates a greater urgency for the U.S. to control GHG emissions from its share of the world’s aviation.

The ANPR describes in some detail the historical process by which EPA and the Federal Aviation Administration (“FAA”) have adopted aircraft emissions standards, working with the ICAO to adopt emissions, with ICAO often or usually taking the lead in adopting such standards. However, this approach is not mandated or even suggested by the CAA. While EPA must consult with the FAA in adopting aircraft emissions standards, nothing in federal law requires either agency to wait for ICAO to act first. Since ICAO is not committed to even presenting a program for developing international GHG emissions goals until late 2009 or 2010,<sup>31</sup> with actual standards unknown years in the future, waiting for ICAO to lead is not consistent with the need for immediate reduction in GHG emissions or with the mandate of the CAA. In any case, the U.S. should push ICAO to speed up its process, and adopt international standards sooner than it now plans.

There is no reason for EPA to delay adopting GHG emissions standards for domestic aircraft. First, our knowledge of current emissions is sound. CO<sub>2</sub> emissions for the landing and take-off cycle are already recorded and reported in emissions test procedures,<sup>32</sup> and airlines already report their fuel consumption each year to ICAO (fuel consumption being a way to estimate CO<sub>2</sub> emissions). ICAO’s Carbon Calculator can also be used. Thus, EPA would have an unusually good emissions inventory from which to work, and also a solid basis upon which to assess compliance with new standards.

Second, as we noted in our petition to EPA, and as EPA notes in the ANPR, there exist a multiplicity of control techniques that already exist and can be used in the short-run to reduce GHG emissions. See 73 Fed. Reg. at 44,470 (“There are both technological controls and

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<sup>29</sup> Written Submission of International Civilian Aviation Organization to the Third Session of the Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention (Accra, 21- 27 August, 2008), p. 6, Fig. 3, available at [www.icao.int](http://www.icao.int).

<sup>30</sup> ICAO, *Op.cit.*, p. 6, Fig. 4.

<sup>31</sup> Statement of the International Civil Aviation Organization to the First Part of the Sixth Session of the Ad Hoc Working Group on Further Commitments for Annex I Parties Under the Kyoto Protocol (Accra, Ghana, 2008), describing the plans of the Group on International Aviation and Climate Change (GIACC), available at [www.icao.int](http://www.icao.int).

<sup>32</sup> ANPR, 73 Fed. Reg. at 44,469, n. 190.

operational measures potentially available to reduce GHGs from aircraft and operations.”). We will list just a few of the well-documented, well-proven techniques already available to reduce GHG emissions. These techniques do not compromise flight safety, many can be used on existing, as well as new, aircraft, and many are endorsed by ICAO.<sup>33</sup> An example is winglets, already being used on some domestic fleets, a cost-effective means of reducing drag and thus reducing fuel consumption and CO<sub>2</sub> emissions.<sup>34</sup> Winglets can be retrofitted on existing aircraft, as they have been on the Boeing 727,<sup>35</sup> and the Air Transport Association of America (“ATA”) supports their use.<sup>36</sup> Replacing fan blades with more efficient ones,<sup>37</sup> and removing primer and paint from aircraft surfaces<sup>38</sup> are other short-term techniques that can be required and put into practice immediately to reduce fuel burn and CO<sub>2</sub> emissions. Again, such technology can either be used to comply with an emission standard or prescribed as a work practice.

As noted above, the CAA was intended by Congress to force the development of new emissions control technology. Accordingly, EPA should enact standards that both take advantage of existing technology and also force the development of new technology, both as applied to new engines and existing engines. Stringent standards for new engines are especially important for aircraft, which may have a useful life of several decades. However, standards that require use of existing technology should be adopted and applied immediately to both new and existing engines and aircraft, to begin an immediate slow-down in the rapid growth in emissions that is predicted for the airline industry.

Third, many techniques exist to reduce aircraft emissions on the ground, including single-engine taxiing, requiring aircraft (both passenger and cargo) to plug into ground-based power and conditioned air while at airport gates, and use of tow vehicles and pushback tractors.<sup>39</sup> We further recommend that such tow vehicles and tractors be powered by electricity or alternate fuels. The California Attorney General’s Office recently negotiated a Memorandum of Understanding with the San Diego Airport, which we attach to these comments (Exhibit B), that includes these techniques to reduce GHG emissions. In addition to adopting several techniques already listed, the San Diego Airport has pledged to perform a study of aircraft movements on the ground, to determine whether fuel consumption, and therefore CO<sub>2</sub> emissions, can be reduced by changes in such movements. We urge EPA to contact the San Diego Airport and follow the progress of this study. The San Francisco Airport has also adopted many techniques for control of aircraft emissions on the ground, and we urge EPA to contact that Airport to study their techniques.<sup>40</sup> Because airports argue that control of emissions from many ground operations are

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<sup>33</sup> See ICAO Circular 303.

<sup>34</sup> See “Concept to Reality” report on winglets, available at <http://oea.larc.nasa.gov>.

<sup>35</sup> *Id.*, pp. 8-9.

<sup>36</sup> “Aviation and the Environment: Emissions and the Commercial Airlines’ Climate Change Commitment, Statement of James C. May, President and CEO, Air Transport Association of America, Inc., Before the Subcommittee on Aviation of the House Committee on Transportation and Infrastructure,” May 6, 2008. (hereafter “James May Statement.”).

<sup>37</sup> *Id.*

<sup>38</sup> March 28, 2007 Letter from ATA President James May to Chairman Dingell and Chairman Boucher Addressing Climate Change. Available at [www.airlines.org/government/letters](http://www.airlines.org/government/letters).

<sup>39</sup> James May Statement.

<sup>40</sup> Controls on Ground Service Equipment (“GSE”) can also reduce GHG emissions; these are covered in our comments on non-road vehicles. Please also see the Memorandum of Understanding between the California

federally preempted (a position with which we do not necessarily agree), it is essential that EPA act to control them as quickly as possible. We note that many of these ground-based controls will produce co-benefits in the form of reduction of criteria pollutants. Since many large airports are in heavily polluted urban areas, these co-benefits will be significant in terms of public health.

Fourth, there are techniques for reducing fuel use, and therefore GHG emissions, by employing more efficient flight techniques. For example, experience with Reduced Vertical Separation, a technique mentioned in the ANPR, has shown it can reduce fuel burn by up to 2.5 percent without compromising flight safety.<sup>41</sup> EPA can collaborate with FAA to improve and adopt improvements in the air traffic control system (e.g., NextGen) that will reduce CO<sub>2</sub> emissions.

Finally, most U.S. airlines will soon be subject to GHG control regimes in any event, since the European Union (“EU”) has acted to include foreign, as well as EU-owned airlines in its GHG trading scheme. The ANPR asks for comment on whether EPA should develop a program for GHG emissions reduction that might qualify U.S. airlines for a waiver of EU trading requirements. We believe that swift regulatory action by the U.S. on all the fronts listed above may assist U.S. airlines in obtaining such a waiver, and will support U.S. airlines’ ability to participate and compete in the European market. We therefore urge EPA to take such action for that reason, as well as to comply with Section 213’s mandate.

Control of aircraft emissions, as the ANPR itself points out, is feasible, with many controls possible in the short term. We urge EPA to grant the petitions filed by California and its co-petitioners, and begin rule-making proceedings.

### **Standards of Performance for New and Existing Stationary Sources**

The ANPR’s discussion of EPA’s ability to regulate GHGs under CAA section 111 is refreshingly positive. We are encouraged that EPA recognizes the “significant flexibility in regulation” that CAA section 111 affords regarding potential regulation of GHG air pollution from new, modified, and existing sources. 73 Fed. Reg. at 44,486. We also agree with EPA that section 111 affords EPA significant discretion to define the categories of stationary sources subject to regulation, to add new categories or modify existing categories, to determine and revise standards of performance, and to adopt standards that distinguish among classes, types, and sizes within categories of new sources. Given the flexibility and discretion afforded under CAA section 111, it is the best-suited provision of the CAA to address GHG emissions from stationary sources promptly and effectively. And in response to one of EPA’s specific queries, the inability of section 111 alone to achieve adequate overall emission reductions does not somehow make it an inappropriate tool for regulating GHG emissions.

EPA also states that it has “significant discretion” to “determine the pollutants for which standards should be developed,” and to “determine the appropriate level for the standards.” 73

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Attorney General’s Office and the San Diego Airport, attached hereto, for the GSE emission reduction measures that the Airport is committed to adopt.

<sup>41</sup> See “Assessment of the impact of reduced vertical separation on aircraft-related fuel burn and emissions for the domestic United States,” Malwitz et al, 2007, Report No. PARTNER-COE-2007-002.

Fed. Reg. at 44,486. While CAA section 111 is a flexible statute, EPA's authority under section 111 does not give it discretion to decline to develop standards for GHGs, or to determine levels for the standards that are not protective of public health and welfare. As described elsewhere in these comments, GHGs are air pollutants that endanger public health and welfare, and there is technology available that can effectively and efficiently reduce emissions of GHGs. Therefore, EPA is required to develop standards for GHG air pollution under CAA section 111, and to include levels in those standards that are protective of public health and welfare.

Below we respond to some of the specific issues about which EPA requested comments.

EPA requested comment about what factors should influence decisions about whether to regulate GHGs in existing source NSPS categories. 73 Fed. Reg. at 44,487. In our view, the magnitude of GHG emissions is one such consideration - the greater the magnitude of GHG emissions from source categories, the greater the need to add GHG standards to existing NSPS for that source category. Whether regulating GHG emissions from the source category would be beneficial is also a factor, and should be evaluated based on the level of achievable reductions in GHG air pollution. Evaluating the benefit based on the estimated effect of the particular regulation on national or global climate change would be inappropriate, given the wide variety of national and global sources of GHG emissions. The availability of information regarding the category's GHG emissions is also an appropriate consideration in prioritizing the source categories to regulate. EPA has considerable information regarding the GHG emissions of the largest source categories, such as fossil fuel-fired boilers and petroleum refineries.

In contrast, "[t]he potency of the particular GHG emitted" should not be a factor that influences EPA's decision whether to add standards to existing NSPS. The primary GHG air pollutants from stationary sources that are referenced in the ANPR - CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, and soot or black carbon - are sufficiently "potent" that the threshold decision whether to add standards to existing NSPS should be based on other considerations. The higher "potency" of certain GHGs would be relevant to the nature and stringency of the added standards for those GHGs, but should not be a consideration in determining whether to add those standards at all.

The issue of whether emissions are "continuous, seasonal, or intermittent" also should not be a factor in determining whether to add standards to existing NSPS. As noted in the ANPR, GHGs have "long atmospheric residence times." 73 Fed. Reg. at 44,401. Accordingly, the adverse effects of those emissions are not dependent upon whether the emissions are continuous, seasonal, or intermittent.

EPA requested comment "on which of the previously regulated categories might be appropriate for GHG regulation and on the information on which such judgments might be based." 73 Fed. Reg. at 44,487-88. The emissions source data in Table ES-2 of EPA's *Inventory of Greenhouse Gas Emissions and Sinks: 1990-2006* suggest that, at a minimum, the following previously regulated stationary source categories comprise or contribute to major source

categories of GHG air pollution and are thus appropriate for GHG regulation (listed in footnote below).<sup>42</sup>

EPA requested comment on what considerations are relevant to determining whether it is appropriate and reasonable to establish subcategories for regulation under section 111. 73 Fed. Reg. at 44,488. Some of EPA's previously existing categories of regulation for certain industry sectors are divided according to different equipment and processes used. Establishing subcategories that similarly separate different equipment and processes based on different GHG emission impacts or regulatory concerns could create efficiencies in regulation.

EPA requested comment on the availability of its legal authority, if any, to prioritize among source categories in the event that regulation under section 111 was pursued. 73 Fed. Reg. at 44,488. An administrative agency has discretion to set its own priorities in a manner that may reasonably affect the timing of rulemaking. *Sierra Club v. Gorsuch*, 715 F.2d 653, 658-59 (D.C. Cir. 1983). "Absent a precise statutory timetable or other factors counseling expeditious action, an agency's control over the timetable of a rulemaking proceeding is entitled to considerable deference. Such deference derives from an agency's discretion to set its own priorities, which may reflect a variety of factors outside the focus of a rulemaking." *Id.* (footnotes omitted); *see also Natural Resources Defense Council, Inc. v. SEC*, 606 F.2d 1031, 1056 (D.C. Cir. 1979) (the agency "alone is cognizant of the many demands on it, its limited resources, and the most effective structuring and timing of proceedings to resolve those competing demands"); *National Congress of Hispanic American Citizens v. Usery*, 554 F.2d 1196, 1200 (D.C. Cir. 1977) (agency has "traditional agency discretion to alter priorities and defer action due to legitimate statutory considerations...").

Furthermore, section 111 of the CAA provides that "[t]he Administrator may distinguish among classes, types, and sizes within categories of new sources for the purpose of establishing such standards." 42 U.S.C. § 7411 (b)(1)(B)(2). While this provision involves prioritizing within source categories, not among them, it gives EPA discretion to regulate the classes, types, and sizes of emissions sources within source categories that are the largest contributors to GHG air pollution.

However, EPA's request for comment on its legal authority to prioritize among source categories cannot be answered in the abstract. While an administrative agency has discretion to set its own priorities in a manner that may affect the timing of rulemaking, that discretion obviously is not without limits and cannot undermine statutory mandates, or allow an agency to unreasonably delay exercising its authority. Moreover, a delay in agency action that is allowable

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<sup>42</sup> These include the following: Large Municipal Waste Combustors (Subparts Cb, Ea, Eb); Municipal Solid Waste Landfills (Subparts Cc, WWW); Steam Generating Units, especially Electric Utility Steam Generating Units (Subpart D, Da, Db, Dc, GGGG); Portland Cement Plants (Subpart F); Nitric Acid Plants (Subparts G); Petroleum Refineries (Subpart J); Secondary and Primary Lead Smelters (Subparts L, R); Basic Oxygen Process Furnaces and Steelmaking Facilities (Subparts N, Na); Primary Zinc Smelters (Subpart Q); Primary Aluminum Reduction Plants (Subpart S); the Phosphate Fertilizer Industry (Subparts T, U, V, W, X); Coal Preparation Plants (Subpart Y); Ferroalloy Production (Subpart Z); Steel Plants (Subparts AA, AAa); Stationary Gas Turbines (Subpart GG); Lime Manufacturing Plants (Subpart HH); Phosphate Rock Plants (Subpart NN); Solid Waste Incineration Units (Subpart CCCC, DDDD, EEEE, FFFF); Compression Ignition Internal Combustion Engines (Subpart IIII); and Stationary Combustion Turbines (Subpart KKKK).

in one setting may not be acceptable in another. *Sierra Club v. Gorsuch*, 715 F.2d at 659 n.36; *Public Citizen v. Aucter*, 702 F.2d 1150, 1157 (D.C. Cir. 1983) (“Delays that might be altogether reasonable in the sphere of economic regulation are less tolerable when human lives are at stake.”).

We have a similar response to EPA’s request for comments on its available legal authority, if any, to defer action with respect to any ‘class’ of section 111 source categories or subcategories as well as how and under what circumstances EPA could also consider such approaches to the identification of source categories for standards to address GHGs. 73 Fed. Reg. at 44,489. This request cannot be answered in the abstract.

EPA requested comment on whether and how the availability of current information should be considered when considering regulation under section 111, suggesting that it can take up to several years to collect and analyze information about available control technologies for a source category. 73 Fed. Reg. at 44,489. But EPA has pointed to no specific information that is currently unavailable that would support delaying GHG regulation from any source category for “several years.” Each year since 1990, EPA has developed the national GHG inventory to track the national trend in emissions and removals. EPA’s Climate Leaders program is also well established, and already works with companies in a variety of industry sectors to develop comprehensive climate change strategies. According to EPA, “Climate Leaders Partners range from Fortune 100 corporations to small businesses and represent many industries, from manufacturers and utilities to financial institutions and retailers, with operations in all 50 states.”<sup>43</sup>

Information regarding currently available GHG control technologies is extensive and expanding daily. EPA has ample information about the processes of every regulated source category to begin regulating GHG emissions from significant source categories as soon as EPA decides to do so. Furthermore, a number of states have begun developing detailed information about processes and control technologies for various source categories for their own regulatory proceedings.<sup>44</sup>

The ANPR suggests that most reductions in stationary GHG emissions may occur initially as the result of increased energy efficiency, process efficiency improvements, recovery and beneficial use of process gases, and certain raw material and product changes that could reduce inputs of carbon or other GHG generating materials. EPA requested comment on the availability of its legal authority in this area and whether and when it might be appropriate to establish efficiency standards for source categories as a way of reducing GHG emissions. 73 Fed. Reg. at 44,491. The technologies that can be mandated in an NSPS include “design, equipment, work practice or operational standards.” 42 U.S.C. § 7411(h)(1); *see generally New York v. Reilly*, 969 F.2d 1147 (D.C. Cir. 1992) (upholding in part and vacating in part on other grounds proposed NSPS for municipal incinerators that would have required operators to separate out certain batteries and other types of waste before incineration). Similarly, in the debates concerning the CAA Amendments of 1990, Congress noted that the stricter emission

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<sup>43</sup> See <http://www.epa.gov/climateleaders/index.html>.

<sup>44</sup> See, e.g., California Air Resources Board, *Climate Change Proposed Scoping Plan for AB 32*, <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>.

levels considered could be achieved through a variety of means. The Senate Report notes that “[p]ollution can be reduced by (1) improving overall efficiency; (2) changing or cleansing fuels; (3) adopting alternative combustion technologies; (4) installing flue gas cleansing devices; or (5) establishing end-use conservation programs.” S. Rep. No. 228, 101<sup>st</sup> Cong., 1<sup>st</sup> Sess. at 291. Thus, EPA is not limited to consideration of end-of-pipe controls, and establishing efficiency standards for source categories would be an appropriate means of reducing GHG emissions.

EPA requested comment on a detailed set of questions regarding potential regulatory approaches under section 111. 73 Fed. Reg. at 44,491. These “specific questions” regarding potential regulatory approaches are in fact quite broad. We take no position on which of the many avenues that EPA could pursue under section 111 would be most effective. A combination of those many avenues will likely be necessary to address GHG air pollution in a meaningful way. The industry-specific advantages and disadvantages of particular approaches are beyond the scope of this comment. As to available data, we reiterate our view that EPA has ample data to begin promulgating GHG standards of performance for existing source categories. As to differing standards for new and existing sources, certain differences in systems for emissions reductions will likely be necessary, given expected differences between new and existing sources. But all of those standards should be technology-forcing. *Sierra Club v. Costle*, 657 F.2d 298 (D.C. Cir. 1981) (the CAA is a technology-forcing statute). Requiring additional meaningful reductions over time should be a component of the standards.

EPA requested comment about “(1) the extent to which we are limited in our flexibility to regulate GHG as a class if listed individually under other CAA authorities, and (2) whether regulation under section 111 should treat GHG emissions as a class for determining the appropriate systems for emissions reduction and resulting standards.” 73 Fed. Reg. at 44,493. EPA’s ability to regulate GHGs as a class would not be limited if the GHGs were listed individually under other CAA authorities. Section 111 addresses standards of performance for “air pollution,” and does not require separate standards of performance for each air pollutant where greater benefits could be achieved by regulating a class of pollutants. Whether regulation under section 111 should treat GHG emissions as a class will vary by source category. Certain source categories emit larger quantities of more potent GHGs than others, and would likely merit regulation of particular GHGs.

## **Regulating GHGs Under the NAAQS/SIP Process**

As noted above, the CAA’s programs for control of pollutants from mobile and stationary sources provide a very sound regulatory structure for EPA to begin addressing climate change immediately, and should be the priority of the next administration. Regulating GHGs through the NAAQS/SIP process would take more time and present more substantial challenges. A well designed new statutory approach quite arguably would be preferable to a NAAQS/SIP strategy. With the appropriate tailoring and modification, however, we believe that the NAAQS/SIP regime could be adapted to take into account the different challenges presented by GHGs.<sup>45</sup>

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<sup>45</sup> For further discussion of how such tailoring mechanisms could work (and how they would be cost-effective), see the comments submitted on the ANPR by the Center for Climate Strategies.

Moreover, a state planning and implementation process provides a very useful structure for addressing GHG emissions; indeed, existing State Climate Action Plans and regional cap and trade programs are examples of this type of planning process in which states are already engaging. A state planning and implementation process can help target and achieve reductions in areas that are best suited to local control and that indeed may be beyond the authority of the federal government to address, such as reducing transportation emissions through better land use and local transportation decisions; improving energy efficiency and conservation through demand reduction programs, improved building codes and green building ordinances, and influencing consumer behavior through voluntary programs, education and outreach, incentives, and recycling laws.<sup>46</sup> As one recent analysis concluded, “[In] many ways the state planning and implementation framework used to achieve the NAAQS is an excellent fit for addressing global warming. It can engage the states as full partners in addressing the problem, leverage the work they are already doing, provide information needed to tackle aspects of the problem that are not well suited to markets, recognize local variation in challenges and opportunities, take advantage of the special political and practical abilities of the states to deal with behavioral emissions, and help states learn from one another’s successes and failures.”<sup>47</sup>

We respond to some of EPA’s specific requests for comment below.

#### 1. Threshold Questions Regarding Listing Under Section 108

EPA requested comment on the effect of a positive finding of endangerment for GHGs under section 202(a) of the Act on potential listing of the pollutant(s) under section 108. We believe that a positive finding of endangerment for GHGs under Section 202(a) would require EPA to issue air quality criteria under Section 108(a) and, thereafter, to set a NAAQS under Section 109. In other words, Section 108(a)(1)(C) does not provide EPA with discretion to decide whether it is appropriate to apply the NAAQS structure to a global air pollution problem like GHGs.<sup>48</sup> Section 108 does, however, provide EPA with some discretion on the timing of listing GHGs given that statute calls for revision of the list “from time to time.” EPA has the discretion to take steps under other sections of the CAA first (sections 111, 202, 209, 211, 213, and 231), and should do so.

EPA has requested comment on the extent to which it would be appropriate to use the most recent IPCC reports and the U.S. government Climate Change Science Program synthesis reports in issuing “air quality criteria.” We believe that the IPCC reports and U.S. government

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<sup>46</sup> See Center for Progressive Reform, *Cooperative Federalism and Climate Change: Why Federal, State and Local Governments Must Continue to Partner* (2008) at 2 (“Not only are state and local governments able to use legal tools that are unavailable to the national government, they are far better suited to motivate the lifestyle changes among their citizens that will prove essential over the long run”).

<sup>47</sup> Holly Doremus & W. Michael Hanemann, *Of Babies and Bathwater: Why the Clean Air Act’s Cooperative Federalism Framework is Useful for Addressing Global Warming* 50 Ariz. L. Rev. 799, 823 (2008).

<sup>48</sup> As the ANPR notes, in *NRDC v. Train*, 545 F.2d 320 (2nd Cir. 1978), the Second Circuit rejected EPA’s argument that section 108(a)(1)(C) provides it with discretion to decline to establish air quality criteria for a pollutant even though the pollutant meets the criteria of sections 108(a)(1)(A) and (B). We do not believe that the later Supreme Court decision in *Chevron v. Natural Resources Defense Council*, 467 U.S. 837 (1984) does anything to alter the ruling in the *Train* case.

Climate Change Science Program synthesis reports would appropriately serve as the basis for setting air quality criteria.

EPA has also requested comment on whether to list GHGs individually or as a group.<sup>49</sup> Further, if EPA were to list GHGs as a group, EPA inquires as to how to establish an effective metric for capturing the heating effect of all GHGs in a group. We support the listing of GHGs as a group and support EPA's proposal to measure the total atmospheric concentration of a group of GHGs on a CO<sub>2</sub> equivalent basis, by assessing their total radiative forcing. First, as EPA points out, there is precedent for listing air pollutants as a group (e.g. oxides of nitrogen). Second, states and regional groups who are already working on climate change matters have gone this route, establishing a metric of "CO<sub>2</sub>-equivalent" emissions for the entire suite of pollutants.<sup>50</sup> We also believe that EPA can defer issuing information on air pollution control techniques until the time a standard is actually issued.

## 2. Questions Regarding Establishment of NAAQS under Section 109

EPA requests comment on several issues regarding the establishment of NAAQS, including the questions of: 1) whether EPA should set a primary NAAQS, a secondary NAAQS, or both; 2) how to set a level for any NAAQS and whether such level should result in states being in attainment or nonattainment.

We agree with EPA's analysis that the effects of climate change are primarily effects on welfare, and that health impacts are experienced only indirectly. Thus, establishment of only a secondary NAAQS is appropriate. Establishing only a secondary NAAQS removes many of implementation burdens identified by EPA. We believe that the secondary NAAQS should be set at a level designed to "prevent dangerous anthropogenic interference with the climate system," the objective articulated by the United Nations Framework Convention on Climate Change in 1992. Available information indicates that this level could be set such that all states would be in attainment status, again reducing many of the challenges of using the NAAQS/SIP process for addressing climate change.

We also recognize that establishing NAAQS at any particular ambient level presents difficulties given the global nature of GHG emissions. In other words, if GHG emissions outside the U.S. increase, then ambient levels in states within the U.S. may increase, and possibly exceed a NAAQS, despite states' best efforts at implementing plans to maintain ambient levels below a NAAQS. As a result, EPA should consider establishing a NAAQS as an emission target rather than as an atmospheric level target. This emission target approach is at the core of California's Global Warming Solutions Act of 2006, AB 32, under which California has committed to a 30% statewide cut in GHG emissions from "business as usual" by the year 2020.<sup>51</sup> To achieve this goal, California has analyzed the various sources of GHG emissions throughout the state and will

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<sup>49</sup> For this purpose, GHGs include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, perfluorocarbons, hydrofluorocarbons, and such other compounds as may be identified by the IPCC as GHGs whose emission into the ambient atmosphere will lead to anthropogenic climate change.

<sup>50</sup> See, e.g., California's GHG automobile regulations, Cal. Code Regs. Tit. 13, § 1961.1, and the Western Climate Initiative's proposed regional cap and trade program, <http://www.westernclimateinitiative.org>.

<sup>51</sup> Cal. Health & Saf. Code section 38505 et. seq. This target is equivalent to reducing greenhouse gas emissions to 1990 levels by 2020.

establish emission reduction targets for those sources in order to meet the overall target. SIPs designed to meet an emissions target-based NAAQS could use this template.

EPA asks whether it is possible for it to set a GHG NAAQS that calls for protection against risks that are “less egregious” than the ‘dangerous interference’ standard. EPA’s question is premised on the theory that there may be, in the future, an internationally agreed-upon target GHG level. We do not rule out that, considering legal and policy factors, it may be possible to set a NAAQS base upon such an internationally agreed upon level. However, EPA should not wait for such a level to be established and should proceed to establish a NAAQS based on the “dangerous interference’ standard. EPA can always revise a GHG NAAQS if an international agreement on an appropriate level is ever reached.

### 3. Questions Regarding SIPs under Section 110

As noted above, SIPs for GHGs should rely heavily on preexisting state and regional efforts to address climate change. Especially if SIPs are based on emissions targets, they would not require air quality modeling or any analysis of local air quality impacts. As EPA is aware, many states have climate action plans, and also are participants in regional cap and trade programs. These programs can be the building blocks for EPA’s SIP requirements. These existing state climate plans are tailored to the particular strengths, resources, experiences of individual states. They rely on a broad variety of measures and a wide range of legal instruments; this “combination of different actions and mechanisms across all the relevant sectors....provides overall low costs of implementation by allowing the government to balance the costs and savings of individual actions [and] provides an enormously flexible range of choices by which potential conflicts may be resolved.”<sup>52</sup>

As one example, California’s AB 32, which imposes an economy-wide declining emissions standard, has generated a well thought out mix of strategies calling for greater building, appliance and industrial efficiency, more renewable energy, a low carbon fuel standard, increased vehicle efficiency, reduced impacts from land use development, leadership actions by state agencies and market mechanisms to deal with climate change.<sup>53</sup> This type of balanced and comprehensive approach draws on the unique expertise and knowledge of California and highlights the value in a SIP-like planning approach in addressing climate change.

### **Preconstruction Review under the New Source Review Program**

The ANPR very thoughtfully considers many of the issues that are raised with respect to application of the Prevention of Significant Deterioration (“PSD”) provisions of the CAA to GHG emissions.<sup>54</sup> We applaud the EPA’s recognition that applying Best Available Control Technology (“BACT”) requirements offers the opportunity to begin addressing increasing GHG

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<sup>52</sup>Thomas D. Peterson, Robert B. McKinstry, Jr., & John C. Dernbach, *Developing a Comprehensive Approach to Climate Change Policy in the United States that Fully Integrates Levels of Government and Economic Sectors*, 26 Va. Env’tl. L.J. 227, 240-41 (2008).

<sup>53</sup> The Scoping Plan for AB 32 provides a good explanation of California’s sector-by-sector, emission target level control strategy. See, <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>

<sup>54</sup>Like the ANPR, these comments focus on the PSD portion of the New Source Review Program.

emissions right now. As recognized by Congress, the best opportunity to avoid pollution from new or modified facilities is before they are built. Moreover, unlike NSPS which can take several years to develop, these provisions are immediately available, since BACT applies for air pollutants that are “subject to regulation.” 42 U.S.C. § 7545(a)(4). Indeed, based on *Massachusetts v. EPA* and the language of the CAA, GHGs are already “subject to regulation, and EPA should abandon the contrary interpretation that it has taken in ongoing PSD permit proceedings.”<sup>55</sup>

EPA therefore should enact BACT regulations for major stationary sources of GHGs that are already regulated under PSD for criteria pollutants—sources such as power plants, refineries and cement kilns. These are some of the largest emitters of GHGs across all sectors, and involve long-lasting infrastructure and a long timeframe of emissions. Enforcing PSD with respect to these facilities will ensure that the best available control technology for these major emitting facilities is utilized now, that alternatives are thoroughly analyzed, and that we do not lock in unnecessarily high emissions.

As the ANPR acknowledges, there are a number of issues that a meaningful and workable application of the PSD statutory requirements to GHGs would need to address, most notably the prospect of sweeping in a large number of new small sources into the program. We do not agree that PSD is unworkable for GHG emissions simply because such issues exist, or that EPA should consequently delay applying BACT to major sources. EPA can undertake a phased in approach to PSD application and enforcement. For example, by focusing on the largest emitters first, or those facilities that are already subject to PSD regulation for conventional pollutant emissions, or taking some other flexible approach, EPA can require achievable reductions from the largest sources now.

With respect to smaller sources that would not require a PSD permit but for the fact that their GHG emissions levels exceed the statutory thresholds, Congress and EPA, in consultation with state implementing agencies, need to evaluate how best to respond to each category of such sources. As the ANPR notes, Congress could readily restrict the PSD program scope to major GHG sources that are already covered under the PSD program, or to sources that emit GHGs in excess of a threshold crafted to capture major emitters, in order to assure that the program addresses significant sources and achieves significant emission benefits over time. Any such tailoring of the statute should be undertaken to maximize the effectiveness of GHG reductions within particular industries. Moreover, as noted in the ANPR, there are a variety of flexible and streamlined permitting approaches that EPA could use for smaller, generally uniform sources, such as general permitting (such as that used for permitting under Title V and under the storm water provisions of the Clean Water Act) or permit-by-rule. EPA also should consider applying initially a “presumptive BACT” program for certain types of stationary sources, by utilizing available standards such as Energy Star, Leadership in Energy and Environmental Design (“LEED”) and/or Department of Energy efficiency standards.

We do not agree with EPA’s suggestion that regulation of GHGs through PSD could interfere with the efficient operation of a properly designed and calibrated cap and trade market

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<sup>55</sup> We agree with the more detailed discussion of this issue in the comments filed on the ANPR by the New York Attorney General’s Office.

for GHG emissions credits. Nor do we agree that application of PSD to GHGs would not achieve any greater reductions in GHG emissions than a cap and trade program alone. 73 Fed. Reg. at 44,502-44,503. First, PSD offers a mechanism for achieving real reductions in emissions right now, whereas a fully functioning and properly priced cap and trade program likely will be a number of years away. No cap and trade program to date has functioned perfectly, and it could take years to tinker with any enacted program to get the market signals operating as desired to achieve real reductions in emissions. Second, and related, the experience to date is that cap and trade programs generally have not stimulated technological innovation beyond that achieved by traditional regulation.<sup>56</sup> Third, there is no inherent incompatibility between some command and control requirements and a market based emissions reduction mechanism.

In sum, it is not necessary that all of the issues that EPA has raised in the ANPR be solved before action under the PSD program can be taken. Undifferentiated application of the PSD permitting process across all facilities that could conceivably be covered by the statutory language is not reasonable or required.

## **Conclusion**

As the ANPR makes abundantly clear, there is a compelling scientific case for immediate action to address global warming. We cannot continue with a business as usual approach while the quest for a perfect regulatory regime proceeds. Decisive, early regulation of major GHG sources under the CAA is critical and achievable while Congress considers more comprehensive measures.

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<sup>56</sup> David M. Dreisen, *Is Emissions Trading an Economic Incentive Program?: Replacing the Command and Control/Economic Incentive Dichotomy*, 55 Wash. & Lee L. Rev. 289, 325-27 (1998); Holly Doremus & W. Michael Hanemann, *Of Babies and Bathwater: Why the Clean Air Act's Cooperative Federalism Framework is Useful for Addressing Global Warming*, 50 Ariz. L. Rev 799, 810-11 (2008).