United States Department of Agriculture

United States Department of Commerce

United States Department of Transportation

United States Department of Energy

July 9, 2008

The Honorable Susan E. Dudley
Administrator
Office of Information and Regulatory Affairs
Office of Management and Budget
Washington, D.C. 20503

Dear Administrator Dudley:

The Departments of Agriculture, Commerce, Transportation, and Energy have serious concerns with the draft Advance Notice of Proposed Rulemaking "Regulating Greenhouse Gas Emissions under the Clean Air Act" ("draft") submitted by the Environmental Protection Agency to the Office of Management and Budget on June 17, 2008.

Climate change is a significant issue for both our environment and our economy, and the nations of the world must act together to address greenhouse gas ("GHG") emissions. The United States currently is working with the world's major emitting economies to devise a new international framework to replace the one that expires in 2012. In addition, since 2001 our agencies have committed billions of dollars and have taken other actions to confront climate change through the development and deployment of new technologies; through rulemakings to increase fuel economy, energy efficiency, and the production and use of alternative fuels; and through significantly increased investment in new climate science research. These and other serious efforts to address climate change must continue.

The EPA staff now has prepared a draft suggesting that the Clean Air Act can be both workable and effective for addressing global climate change by regulating GHG emissions from stationary and mobile sources of virtually every kind. Our agencies have serious concerns with this suggestion because it does not fairly recognize the enormous—and, we believe, insurmountable—burdens, difficulties, and costs, and likely limited benefits, of using the Clean Air Act to regulate GHG emissions.

First, the Clean Air Act is fundamentally ill-suited to the effective regulation of GHG emissions. Indeed, the draft acknowledges that "the [Clean Air Act] was not specifically designed to address GHGs." Instead, the Clean Air Act is premised on the idea that controlling emissions in the United States will improve air quality in the United States, and that a State or region can improve its air quality by controlling emissions in that area. This is not true in the case of GHGs. Controlling GHG emissions in the United States will reduce atmospheric concentrations of those gases only if our emissions reductions are not simply replaced with emissions increases elsewhere in the world. Moreover, under the Clean Air Act, emissions requirements generally are related to a health-based or public-welfare-based air quality standard. Yet there is no such

standard for GHGs in the Act or elsewhere, and thus the draft seems to take the approach of seeking emissions reductions with no precise idea of exactly what goal is being pursued or what GHG concentration-level objective is to be achieved.

Second, the use of the Clean Air Act to regulate GHG emissions unilaterally as envisioned in the draft would harm America's international competitiveness. Applying Clean Air Act regulations to U.S. businesses in order to address global climate change—outside of any international framework that brings together all of the world's major economies, both developed and developing—would simply export economic activity and emissions to less-regulated countries and might not generate any net reduction in worldwide GHG emissions. According to the Energy Information Administration, carbon dioxide emissions in non-OECD (Organization for Economic Cooperation and Development) nations already surpass those of OECD nations and are estimated to exceed them by 72 percent in 2030. The draft does not take account of these realities, and instead builds a regime that would impose enormous costs on U.S. consumers, workers, and businesses without addressing the fundamental shift in emissions growth from the developed world to the developing world.

Third, while acknowledging that "the complexity and interconnections inherent in [Clean Air Act] regulation of GHGs" has caused EPA staff to "not believe that all aspects of the Act are well designed for establishing the kind of comprehensive GHG regulatory program that could most effectively achieve the GHG emission reductions that may be needed over the next several decades," the draft nevertheless suggests that regulating GHGs under the Clean Air Act would be workable. We disagree. The draft offers a number of legal constructs to support its position, but there is no certainty of how those theories will work in actuality, or whether they would be upheld by the courts. Such legal uncertainty simply emphasizes the risk to the Nation's energy, economic, and environmental security of seeking to shoehorn a GHG regulatory program into the Clean Air Act. Moreover, some might read the draft's discussion of an array of GHG regulatory constructs to prejudge the question of endangerment, even though there are critical open issues that must be addressed and resolved in making that legal determination and which must be decided before GHG emissions can be regulated under the Clean Air Act.

Even if the Act could support all of the legal theories outlined in the draft, the suggested permitting regimes would be extraordinarily intrusive and burdensome. In fact, the draft recognizes that regulation of GHG emissions under the Clean Air Act would likely extend permitting requirements and emissions controls to many sources not previously subject to Clean Air Act regulation, such as large buildings heated by natural gas. This could lead to EPA exercising de facto zoning authority through control over thousands of what formerly were local or private decisions, impacting the construction of schools, hospitals, and commercial and residential development.

Fourth, although the draft sets forth data and analysis that could be useful in the overall debate about GHGs, our agencies disagree with many of the assumptions in the draft about the costs of controlling GHGs, the technologies currently available and potentially available in the future, the timeline for the development of some of those technologies, and the potential harm from and benefits of controlling GHG emissions from specific sources. Moreover, there are important

differences between the draft and the peer-reviewed reports recently issued by the U.S. Climate Change Science Program—an interagency program in which EPA has been a key participant.

Finally, the draft suggests approaches to control GHG emissions that would needlessly duplicate newly passed laws and effectively ignore regulatory initiatives currently underway. For example, the Department of Transportation is already conducting a rulemaking to update fuel economy standards for light trucks and automobiles, pursuant to the recently enacted Energy Independence and Security Act of 2007. The draft suggests the possibility of an overlapping regulatory mandate using the Clean Air Act, potentially creating inconsistent regulatory mandates and uncertainty for U.S. industries and consumers, with minimal if any improvements in U.S. greenhouse gas emissions.

In sum, global climate change presents a serious challenge, and a workable and meaningful approach must be crafted to address that challenge. Unfortunately, using the Clean Air Act is not such an approach, as the draft sometimes acknowledges, but does not realistically address. In the enclosures with this letter, our respective agencies have provided brief analyses of some of the key technical, economic, and analytical difficulties with the draft, and our agencies may supplement these comments at a later date.

Sincerely,

Edward T. Schafer
Secretary
U.S. Department of Agriculture

Carlos M. Gutierrez
Secretary
U.S. Department of Commerce

Mary E. Peters
Secretary
U.S. Department of Transportation

Samuel W. Bodman
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Enclosures

U.S. Department of Transportation
U.S. Department of Energy
U.S. Department of Commerce
U.S. Department of Agriculture

DEPARTMENT OF TRANSPORTATION

The Department of Transportation ("the Department" or "DOT") hereby submits the following preliminary comments on the Environmental Protection Agency ("EPA") staff's draft Advance Notice of Proposed Rulemaking "Regulating Greenhouse Gas Emissions under the Clean Air Act," which was submitted to the Office of Management and Budget on June 17, 2008 ("June 17 draft" or "draft"). In view of the very short time the Department has had to review the document, DOT will offer a longer, more detailed response by the close of the comment period.

General Considerations

In response to *Massachusetts v. EPA* and multiple rulemaking petitions, the EPA must consider whether or not greenhouse gases may reasonably be anticipated to endanger public health or welfare, within the meaning of the Clean Air Act. Such a determination requires the resolution of many novel questions, such as whether global or only U.S. effects should be considered, how imminent the anticipated endangering effects are, and how greenhouse gases are to be quantified, to name just a few. Without resolving any of these questions, let alone actually making an endangerment finding, the June 17 draft presents a detailed discussion of regulatory possibilities. In other words, the draft suggests an array of specific regulatory constructs in the transportation sector under the Clean Air Act without the requisite determinations that greenhouse gas emissions endanger public health or welfare and that regulation is feasible and appropriate. In fact, to propose specific regulations prejudices those critical determinations and reveals a predilection for regulation that may not be justified.

Policymakers and the public must consider a broader question: even if greenhouse gas regulation using a law designed for very different environmental challenges is legally permissible, is it desirable? We contend that it is not. We are concerned that attempting to regulate greenhouse gases under the Clean Air Act will harm the U.S. economy while failing to actually reduce global greenhouse gas emissions. Clean Air Act regulation would necessarily be applied unevenly across sources, sectors, and emissions-causing activities, depending on the particular existing statutory language in each section of the Act. Imposing Clean Air Act regulations on U.S. businesses, without an international approach that involves all of the world's major emitters, may well drive U.S. production, jobs, *and emissions* overseas, with no net improvement to greenhouse gas concentrations.

The Department believes that the Nation needs a well considered and sustainable domestic climate change policy that takes into account the best climatological, technical and economic information available. That policy – as with any significant matter involving Federal law and regulation – should also reflect a national consensus that the actions in question are justified and effective, and do not bring with them substantial unintended consequences or unacceptable economic costs. Reducing greenhouse gas emissions across the various sectors of our economy is an enormous challenge that can be met effectively only through the setting of priorities and the efficient allocation of resources in accordance with those priorities.

It is an illusion to believe that a national consensus on climate policy can be forged via a Clean Air Act rulemaking. Guided by the provisions of a statute conceived for entirely different purposes – and unconstrained by any calculation of the costs of the specific regulatory approaches it contemplates – such a rulemaking is unlikely to produce that consensus.

Administrator Johnson of the EPA said in a recent speech, "now is the time to begin the public debate and upgrade [the Clean Air Act's] components." Administrator Johnson has called for fundamental changes to the Clean Air Act "to consider benefits, costs, risk tradeoffs and feasibility in making decisions about how to clean the air." This, of course, is a criticism of the Clean Air Act's ability to address its *intended* purposes, let alone purposes beyond those Congress contemplated. As visualized in the June 17 draft, the U.S. economy would be subjected to a complex set of new regulations administered by a handful of people with little meaningful public debate and no ability to consider benefits, costs, risk tradeoffs and feasibility. This is not the way to set public policy in an area critical to our environment and to our economy.

As DOT and its fellow Cabinet departments argue in the cover letter to these Comments, using the Clean Air Act as a means for regulating greenhouse gas emissions presents insurmountable obstacles. For instance, Clean Air Act provisions that refer to specific pollutants, such as sulfur dioxide, have been updated many times over the past three decades. In contrast, the language referring to unspecified pollutants, which would apply to greenhouse gases, retains, in fossil form, the 1970s idea that air pollution is a local and regional scale problem, with pollution originating in motor vehicles and a few large facilities, for which "end of pipe" control technologies exist or could be invented at acceptable cost. Greenhouse gas emissions have global scale consequences, and are emitted from millions of sources around the world. If implemented, the actions that the draft contemplates would significantly increase energy and transportation costs for the American people and U.S. industry with no assurance that the regulations would materially affect global greenhouse gas atmospheric concentrations or emissions.

Transportation-Related Considerations

As the Nation's chief transportation regulatory agency, the Department has serious concerns about the draft's approach to mobile sources, including, but not limited to, the autos, trucks, and aircraft that Section VI of the draft considers regulating.

Title II of the Clean Air Act permits the use of technology-forcing regulation of mobile sources. Yet Section VI of the draft appears to presume an endangerment finding with respect to emissions from a variety of mobile sources and then strongly suggests the EPA's intent to regulate the transportation sector through an array of source-specific regulations. Thus, much of Section VI is devoted to describing and requesting information appropriate to setting technology-forcing performance standards for particular categories of vehicles and engines based on an assessment of prospective vehicle and engine technology in each source category.

In its focus on technology and performance standards, the draft spends almost no effort on assessing how different regulatory approaches might vary in their effectiveness and compliance costs. This despite the fact that picking an efficient, effective, and relatively unintrusive regulatory scheme is critically important to the success of any future program -- and far more important at this stage than identifying the cost-effectiveness of speculative future technologies.

The draft fails to identify the market failures or environmental externalities in the transportation sector that regulation might correct, and, in turn, what sort of regulation would be best tailored to correcting a specific situation. Petroleum accounts for 99 percent of the energy use and greenhouse gas emissions in the transportation sector. Petroleum prices have increased fivefold since 2002. Rising petroleum prices are having a powerful impact on airlines, trucking companies, marine operators, and railroads, and on the firms that supply vehicles and engines to these industries. Petroleum product prices have doubled in two years, equivalent to a carbon tax of $200 per metric ton, far in excess of the cost of any previously contemplated climate change measure. Operators are searching for every possible operating economy, and capital equipment manufacturers are fully aware that fuel efficiency is a critical selling point for new aircraft, vehicles, and engines. At this point, regulations could provide no more powerful incentive for commercial operators than that already provided by fuel prices. Badly designed performance standards would be at best non-binding (if private markets demand more efficiency than the regulatory standard) or would actually undermine efficient deployment of fuel efficient technologies (if infeasible or non-cost-effective standards are required).

Light Duty Vehicles

On December 19, 2007, the President signed the Energy Independence and Security Act ("EISA"), which requires the Department to implement a new fuel economy standard for passenger cars and light trucks. The Department's National Highway Traffic Safety Administration ("NHTSA") has moved swiftly to comply with this law, issuing a Notice of Proposed Rulemaking ("NPRM") on April 22, 2008. The comment period for this NPRM closed on July 1, 2008. If finalized in its present form, the rule would reduce U.S. carbon dioxide emissions by an estimated 521 million metric tons over the lifetime of the regulated vehicles.

This NPRM is only the latest in a series of NHTSA Corporate Average Fuel Economy ("CAFE") program rules proposed or implemented during this Administration. Indeed, these proposals together represent the most aggressive effort to increase the fuel economy (and therefore to reduce the emissions) of the U.S. fleet since the inception of the CAFE program in 1975.

In enacting EISA, Congress made careful and precise judgments about how standards are to be set for the purpose of requiring the installation of technologies that reduce fuel consumption. Although almost all technologies that reduce carbon dioxide emissions do so by reducing fuel consumption, the EPA staff's June 17 draft not only ignores those congressional judgments, but promotes approaches inconsistent with those judgments.

The draft includes a 100-page analysis of a tailpipe carbon dioxide emissions rule that has the effect of undermining NHTSA's carefully balanced approach under EISA. Because each gallon

of gasoline contains approximately the same amount of carbon, and essentially all of the carbon in fuel is converted to carbon dioxide, a tailpipe carbon dioxide regulation and a fuel economy regulation are essentially equivalent: they each in effect regulate fuel economy.

In the draft's analysis of light duty vehicles, the external benefits of reducing greenhouse gas emissions account for less than 15 percent of the total benefits of improving vehicle efficiency, with the bulk of the benefits attributable to the market value of the gasoline saved. Only rather small marginal reductions in fuel consumption or greenhouse gas emissions would be justified by external costs in general, and climate change benefits in particular. Thus, the draft actually describes fuel economy regulations, which generate primarily fuel savings benefits, under the rubric of environmental policy.

Though it borrows an analytical model provided by NHTSA, the draft uses differing assumptions and calculates the effects of the Agency's standard differently than does the rule NHTSA proposed pursuant to EISA. The draft conveys the incorrect impression that the summary numbers such as fuel savings, emission reductions, and economic benefits that are presented in the draft are comparable with those presented in NHTSA's NPRM, when in fact the draft's numbers are calculated differently and, in many cases, using outdated information.

The draft does not include the provisions of EISA or past, current, or future CAFE rulemakings in its baseline analysis of light duty vehicle standards. Thus, the draft inflates the apparent benefits of a Clean Air Act light duty vehicle rulemaking when much of the benefits are already achieved by laws and regulations already on the books. The draft fails to ask whether additional regulation of light duty vehicles is necessary or desirable, nor gives any serious consideration how Clean Air Act and EISA authorities might be reconciled.

The draft comprehensively mischaracterizes the available evidence on the relationship between safety and vehicle weight. In the draft, EPA asserts that the safety issue is "very complex," but then adds that it disagrees with the views of the National Academy of Sciences (NAS) and NHTSA's safety experts, in favor of the views of a two-person minority on the NAS panel and a single, extensively criticized article.

Much of the text of this portion of the draft is devoted to a point-by-point recitation and critique of various economic and technological assumptions that NHTSA, the Office of Management and Budget, and other Federal agencies – among them EPA – painstakingly calculated over the past year, but that EPA now unilaterally revises for this draft. It is not clear why it is necessary or desirable to use one set of analytical assumptions, while the rest of the Federal Government uses another.

The public interest is ill-served by having two competing proposals, put forth by two different agencies, both purporting to regulate the same industry and the same products in the same ways but with differing stringencies and enforcement mechanisms, especially during a time of historic volatility in the auto industry and mere months after Congress passed legislation tasking another agency with regulation in this area. The detailed analysis of a light duty vehicle rule in the draft covers the same territory as does NHTSA's current rulemaking – and is completely unnecessary

for the purposes of an endangerment finding or for seeking comment on the best method of regulating mobile source emissions.

Setting Air Quality Standards

The discussion of the process for setting National Ambient Air Quality Standards ("NAAQS") and development of state/Federal implementation plans for greenhouse gases is presented as an option for regulating stationary sources, and is placed in the discussion of stationary sources. The draft describes a scenario in which *the entire country* is determined to be in nonattainment.

Such a finding would reach beyond power plants and other installations to include vital transportation infrastructure such as roads, bridges, airports, ports, and transit lines. At a time when our country critically needs to modernize our transportation infrastructure, the NAAQS that the draft would establish – and the development of the implementation plans that would follow – could seriously undermine these efforts. Because the Clean Air Act's transportation and general conformity requirements focus on local impacts, these procedures are not capable of assessing and reducing impacts of global pollutants without substantial disruption and waste.

If the entire Nation were found to be in nonattainment for carbon dioxide or multiple greenhouse gases, and transportation and general conformity requirements applied to Federal activities, a broad range of those activities would be severely disrupted. For example, application of transportation conformity requirements to all metropolitan area transportation plans would add layers of additional regulations to an already arduous Federal approval process and expand transportation-related litigation without any assurance that global greenhouse gas emissions would be reduced. Indeed, needed improvements to airports, highways and transit systems that would make the transportation system more efficient, and thus help reduce greenhouse gas and other emissions, could be precluded due to difficulties in demonstrating conformity. Though the potential for such widespread impact is clear from even a cursory reading of the draft, it ignores the issue entirely.

For these reasons, we question the practicality and value of establishing NAAQS for greenhouse gases and applying such a standard to new and existing transportation infrastructure across the Nation.

Heavy Duty Vehicles

The draft contemplates establishing a greenhouse gas emissions standard for heavy duty vehicles such as tractor-trailers. The draft's discussion of trucks makes no mention of the National Academy of Sciences study required by Section 108 of EISA that would evaluate technology to improve medium and heavy-duty truck fuel efficiency and costs and impacts of fuel efficiency standards that may be developed under 49 U.S.C. Section 32902(k), as amended by section 102(b) of EISA. This section directs DOT, in consultation with EPA and DOE, to determine test procedures for measuring and appropriate procedures for expressing fuel efficiency performance, and to set standards for medium- and heavy-duty truck efficiency. DOT believes that it is

premature to review potential greenhouse gas emission standards for medium- and heavy-duty trucks in light of this study and anticipated future standard-setting action under EISA, and, in any event, that it is problematic to do so with no accounting of the costs that these standards might impose on the trucking industry.

In the case of light duty vehicles, it can be argued that consumers do not accurately value fuel economy, and regulation can correct this failure. Heavy-duty truck operators, on the other hand, are acutely sensitive to fuel costs, and their sensitivity is reflected in the product offerings of engine and vehicle manufacturers. The argument for fuel economy or tailpipe emissions regulation is much harder to make than in the case of light duty vehicles.

The medium and heavy truck market is more complex and diverse than the light duty vehicle market, incorporating urban delivery vans, on-road construction vehicles, work trucks with power-using auxiliaries, as well as the ubiquitous long-haul truck-trailer combinations. Further, a poorly designed performance standard that pushes operators into smaller vehicles may result in greater and not fewer of the emissions the draft intends to reduce. Because freight-hauling performance is maximized by matching the vehicle to the load, one large, high horsepower truck will deliver a large/heavy load at a lower total and fuel cost than the same load split into two smaller, low horsepower vehicles.

Railroads

The Clean Air Act includes a special provision for locomotives, Section 213(a)(5), which permits EPA to set emissions standards based on the greatest emission reduction achievable through available technology. The text of the draft suggests that EPA may consider such standards to include hybrid diesel/electric locomotives and the application of dynamic braking.

As in other sectors, it is hard to imagine how a technology-forcing regulation can create greater incentives than provided by recent oil prices. And sensible public policy dictates caution against imposing unrealistic standards or mandating technology that is not cost-effective, not reliable, or not completely developed.

Marine Vessels

The International Maritime Organization ("IMO") sets voluntary standards for emissions from engines used in ocean-going marine vessels and fuel quality through the MARPOL Annex VI (International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto ("MARPOL"), Annex VI, Prevention of Air Pollution from Ships). Member parties apply these voluntary standards through national regimes. The IMO is also working to consider ways to address greenhouse gas emissions from vessels and marine transportation, including both vessel-based and operational measures. The U.S. is a participant in these discussions. We believe that the discussion of ways to reduce greenhouse gas emissions from vessels and marine transportation should reference the IMO voluntary measures and discussions, and need not address detailed technological or operational measures.

Aviation

The draft includes a lengthy discussion of possible methods by which to regulate the greenhouse gas emissions of aircraft. For all its detail, however, the draft does not provide adequate information (and in some instances is misleading) regarding aviation emissions related to several important areas: 1) the overwhelming market pressures on commercial airlines to reduce fuel consumption and therefore carbon dioxide emissions and the general trends in aviation emissions growth; 2) expected technology and operational improvements being developed under the interagency Next Generation Air Transportation System ("NextGen") program; 3) the work and role of the International Civil Aviation Organization ("ICAO") in aviation environmental matters; 4) limits on EPA's ability to impose operational controls on aviation emission; and 5) the scientific uncertainty regarding greenhouse gas emissions from aircraft.

First, the draft does not provide the public an accurate picture of aviation emissions growth. Compared to 2000, U.S. commercial aviation in 2006 moved 12 percent more passengers and 22 percent more freight while burning less fuel, thereby reducing carbon output. Further, the draft's projections of growth in emissions are overstated because they do not reflect technology improvements in aircraft or air traffic operations and apparently do not take into account the industry's ongoing contraction or even the sustained increase in aviation jet fuel prices in 2007 and 2008. That increase (in 2008, U.S. airlines alone will spend $60 billion for fuel, compared to $16 billion in 2000) provides an overwhelming economic incentive for a financially troubled industry to reduce fuel consumption. Because reduction of a gallon of jet fuel displaces about 21 pounds of carbon dioxide, that incentive is the single most effective tool for reducing harmful emissions available today. Yet the draft makes no note of the trend.

Second, the draft does not adequately address the multi-agency NextGen program, one of whose principal goals is to limit or reduce the impact of aviation emissions on the global climate. This includes continued reduction of congestion through modernization of the air traffic control system, continued research on aircraft technologies and alternative fuels, and expanded deployment of operational advances such as Required Navigation Performance that allow aircraft to fly more direct and efficient routes in crowded airspace. Through NextGen, the Department's Federal Aviation Administration (FAA), in cooperation with private sector interests, is actively pursuing operational and technological advances that could result in a 33 percent reduction in aircraft fuel burn and carbon dioxide emissions.

Third, the draft gives short shrift to the Administration's efforts to reduce aviation emissions through a multilateral ICAO process, and it contemplates regulatory options either never analyzed by EPA or the aviation community for aircraft ("fleet averaging"[1]) or previously

[1] The concept of "fleet averaging," though used for automobiles, has never been applied to aviation or considered by either ICAO or FAA as a basis for standard setting. The draft offers little indication of why the concept would be worth serious consideration, and it is difficult to understand how that could be, given that manufacturers turn out only several hundred commercial airplanes for "averaging" annually, compared to over a million light duty vehicles per year built by large manufacturers. In any event, if

rejected by ICAO itself (flat carbon dioxide standards). The FAA has worked within the ICAO process to develop guidance for market-based measures, including adoption at the 2007 ICAO Assembly of guidance for emissions trading for international aviation. ICAO has established a Group on International Aviation and Climate Change that is developing further recommendations to address the aviation impacts of climate change.[2] The FAA's emphasis on international collaboration is compelled by the international nature of commercial aviation and the fact that performance characteristics of engines and airframes – environmental and otherwise – work best when they maximize consistency among particular national regulations.[3]

Fourth, the draft invites comments on potential aviation operational controls that might have emissions benefits. But proposals for changes to airspace or air traffic operational procedures usurp the FAA's responsibility as the Nation's aviation safety regulator and air traffic manager. It is inappropriate for the EPA to suggest operational controls without consideration of the safety implications that the FAA is legally required to address.

Finally, the draft does not accurately present the state of scientific understanding of aviation emissions and contains misleading statements about aviation emissions impacts. The report of the Intergovernmental Panel on Climate Change (cited in the draft but often ignored) more clearly conveys cautions about underlying uncertainties associated with regulating aviation emissions. For instance, the IPCC specifically concludes that water vapor is a small contributor to climate change, yet the draft focuses on condensation trails produced by water vapor and includes an inaccurate statement that carbon dioxide and water vapor are "the major compounds from aircraft operations that are related to climate change." Further, the draft does not convey the significant scientific uncertainty associated with measuring particulate matter (PM) emissions from aircraft engines. That understanding needs to be significantly improved before any "tailpipe" PM standard could sensibly be considered.

Conclusion

The EPA has made an enormous effort in assembling the voluminous data that contributed to the draft as published today. However, because the draft does not adequately identify or discuss the

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further analysis supports the viability of fleet averaging, the appropriate venue for pursuing this would be through ICAO – so that aviation experts from around the world can assess the concept.

[2] In this context, we note that the draft invites comment on proposals in the European Union regarding an emissions trading scheme to be imposed by the EU on all Europe-connected commercial operations. The U.S. Government, led by the Department of State, has repeatedly argued that any of these proposals, if enacted, would violate international aviation law and has made clear its opposition to the proposals in ICAO and other international fora. It is curious that the EPA would solicit comments on the benefits of proposals that the United States (along with numerous other nations) opposes as unlawful and unworkable.

[3] The draft is potentially misleading in suggesting that the fuel flow rate data reported for the ICAO landing and takeoff cycle engine emissions certification process, and the carbon dioxide emissions concentrations data collected for calculation and calibration purposes may be used as the basis for a carbon dioxide standard.

immense difficulties and burdens, and the probable lack of attendant benefits, that would result from use of the Clean Air Act to regulate GHG emissions, DOT respectfully submits these preliminary comments to point out some of the problematic aspects of the draft's analysis regarding the transportation sector. We anticipate filing additional comments before the close of the comment period.

DEPARTMENT OF ENERGY

I. Introduction

The U.S. Department of Energy (Department or DOE) strongly supports aggressively confronting climate change in a rational manner that will achieve real and sustainable reductions in global greenhouse gas (GHG) emissions, promote energy security, and ensure economic stability. In support of these goals, DOE believes that the path forward must include a comprehensive public discussion of potential solutions, and the foreseeable impacts of those proposed solutions – including impacts on energy security and reliability, on American consumers, and on the Nation's economy.

The Department supports the actions taken by the United States to date to address global climate change and greenhouse gas emissions, and believes these efforts should be continued and expanded. These actions have included a broad combination of market-based regulations, large increases in funding for climate science, new government incentives for avoiding, reducing or sequestering GHG emissions, and enormous increases in funding for technology research. The Department has played a significant role in implementing many of these initiatives, including those authorized by the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007.

The Department believes that an effective and workable approach to controlling GHG emissions and addressing global climate change should not simply consist of a unilateral and extraordinarily burdensome Clean Air Act (CAA or the Act) regulatory program being layered on top of the U.S. economy, with the Federal Government taking the position that energy security and indeed the American economy will just have to live with whatever results such a program produces. Rather, the United States can only effectively address GHG emissions and global climate change in coordination with other countries, and by addressing how to regulate GHG emissions while considering the effect of doing so on the Nation's energy and economic security. Considering and developing such a comprehensive approach obviously is enormously difficult.

Unfortunately, and no doubt due in part to the limitations of the Clean Air Act itself, the draft Advance Notice of Proposed Rulemaking prepared by the staff of the Environmental Protection Agency (EPA) does not take such an approach. That draft Notice, entitled "Regulating Greenhouse Gas Emissions under the Clean Air Act" ("draft"), which was submitted to the Office of Management and Budget on June 17, 2008, instead seeks to address global climate change through an enormously elaborate, complex, burdensome and expensive regulatory regime that would not be assured of significantly mitigating global atmospheric GHG concentrations and global climate change. DOE believes that once the implications of the approach offered in the draft are fully explained and understood, it will make one thing clear about controlling GHG emissions and addressing global climate change – unilaterally proceeding with an extraordinarily burdensome and costly regulatory program under the Clean Air Act is not the right way to go.

DOE has had only a limited opportunity to review the June 17 EPA staff draft, and therefore anticipates providing additional comments at a later date. Based on the limited review DOE has been able to conduct so far, it is apparent that the draft reflects extensive work and includes valuable information, analyses and data that should help inform the public debate concerning global climate change and how to address GHG emissions.

However, DOE has significant concerns with the draft because it lacks the comprehensive and balanced discussion of the impacts, costs, and possible lack of effectiveness were the United States, through the EPA, to use the CAA to comprehensively but unilaterally regulate GHG emissions in an effort to address global climate change. The draft presents the Act as an effective and appropriate vehicle for regulating GHG emissions and addressing climate change, but we believe this approach is inconsistent with the Act's overarching regulatory framework, which is based on States and local areas controlling emissions of air pollutants in order to improve U.S. air quality. Indeed, the Act itself states that Congress has determined "air pollution prevention . . . and air pollution control at its source is the primary responsibility of States and local governments," CAA § 101(a)(3); that determination is reflected in the Act's regulatory structure. The CAA simply was not designed for establishing the kind of program that might effectively achieve global GHG emissions controls and emissions reductions that may be needed over the next decades to achieve whatever level of atmospheric GHG concentration is determined to be appropriate or necessary.

Although the draft recognizes that the CAA does not authorize "economy-wide" cap and trade programs or emission taxes, it in essence suggests an elaborate regulatory regime that would include economy-wide approaches and sector and multi-sector trading programs and potentially other mechanisms yet to be conceived. The draft has the overall effect of suggesting that under the CAA, as it exists today, it would be possible to develop a regulatory scheme of trading programs and other mechanisms to regulate GHG emissions and thus effectively address global climate change. It is important to recognize, however, that such programs have not yet been fully conceived, in some cases rely on untested legal theories or applications of the Act, would involve unpredictable but likely enormous costs, would be invasive into virtually all aspects of the lives of Americans, and yet would yield benefits that are highly uncertain, are dependent on the actions of other countries, and would be realized, if at all, only over a long time horizon.

The draft takes an affirmative step towards the regulation of stationary sources under the Act – and while it is easy to see that doing so would likely dramatically increase the price of energy in this country, what is not so clear is how regulating GHG emissions from such sources would actually work under the CAA, or whether doing so would effectively address global climate change. Other countries also are significant emitters of GHGs, and "leakage" of U.S. GHG emissions could occur – that is, reduced U.S. emissions simply being replaced with increased emissions in other countries – if the economic burdens on U.S. GHG emissions are too great. In that regard, CAA regulation of GHG emissions from stationary sources would significantly increase costs associated with the operation of power plants and industrial sources, as well as increase costs

associated with direct energy use (*e.g.* natural gas for heating) by sources such as schools, hospitals, apartment buildings, and residential homes.

Furthermore, in many cases the regulatory regime envisioned by the draft would result in emission controls, technology requirements, and compliance costs being imposed on entities that have never before been subject to direct regulation under the CAA. Before proceeding down that path, EPA should be transparent about, and there should be a full and fair discussion about, the true burdens of this path – in terms of its monetary cost, in terms of its regulatory and permitting burden, and in terms of exactly who will bear those costs and other burdens. These impacts are not adequately explored or explained in the draft. What should be crystal clear, however, is that the burdens will be enormous, they will fall on many entities not previously subject to direct regulation under the Act, and all of this will happen even though it is not clear what precise level of GHG emissions reduction or atmospheric GHG concentration level is being pursued, or even if that were decided, whether the CAA is a workable tool for achieving it.

In the limited time DOE has had to review the draft, DOE primarily has focused on the extent to which the draft addresses stationary sources and the energy sector. Based on DOE's review, we briefly discuss below (1) the inadequacy of CAA provisions for controlling greenhouse gas emissions from stationary sources as a method of affecting global GHG concentrations and addressing global climate change; (2) the potential costs and effects of CAA regulation of GHG emissions on the U.S. electric power sector; and (3) considerations for U.S. action to address GHG emissions from stationary sources in the absence of an effective global approach for addressing climate change and worldwide GHG emissions.

II. The Ineffectiveness and Costs Associated with CAA Regulation of Greenhouse Gas Emissions from Stationary Sources

The draft states that it was prepared in response to the decision of the United States Supreme Court in Massachusetts v. EPA, 549 U.S. ___, 127 S. Ct. 1438 (2007). In that case, the Court held that EPA has the authority to regulate GHG emissions from new motor vehicles because GHGs meet the Clean Air Act's definition of an "air pollutant." *Id.* at 1460. As a result, under section 202(a) of the Act, the EPA Administrator must decide whether, "in his judgment," "the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines" "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." If the EPA Administrator makes a positive endangerment finding, section 202(a) states that EPA "shall by regulation prescribe . . . standards applicable to the emission of" the air pollutant with respect to which the positive finding was made.

The Supreme Court stated that it did not "reach the question whether on remand EPA must make an endangerment finding, or whether policy concerns can inform EPA's actions in the event that it makes such a finding." Instead, the Court said that when exercising the "judgment" called for by section 202(a) and in deciding how and when to

take any regulatory action, "EPA must ground its reasons for action or inaction in the statute."

As a result, and based on the text of section 202(a) of the Clean Air Act, any EPA "endangerment" finding must address a number of issues that involve interpretation of statutory terms and the application of technical or scientific data and judgment. For example, an endangerment determination must involve, among other things, a decision about the meaning of statutory terms including "reasonably be anticipated to," "cause, or contribute to," "endanger," and "public health or welfare." Moreover, because the Act refers to "air pollutant" in the singular, presumably EPA should make any endangerment finding as to individual greenhouse gases and not as to all GHGs taken together, but this also is a matter that EPA must address and resolve. There are other issues that must be resolved as well, such as: whether the "public health and welfare" should be evaluated with respect to the United States alone or, if foreign impacts can or should or must be addressed as well, what the statutory basis is for doing so and for basing U.S. emissions controls on foreign impacts; what time period in the future is relevant for purposes of determining what is "reasonably anticipate[d]"; whether and if so how EPA must evaluate any beneficial impacts of GHG emissions in the United States or elsewhere in making an endangerment determination; and whether a particular volume of emissions or a particular effect from such emissions from new motor vehicles must be found before EPA may make a "cause or contribute" finding, since the Act explicitly calls for the EPA Administrator to exercise his "judgment," and presumably that judgment involves more than simply a mechanistic calculation that one or more molecules will be emitted.

If EPA were to address these issues and resolve them in favor of a positive endangerment finding under section 202(a) of the Act with respect to one or more greenhouse gases and in favor of regulating GHG emissions from new motor vehicles, then the language similarities of various sections of the CAA likely would require EPA also to regulate GHG emissions from stationary sources. A positive endangerment finding and regulation of GHGs from new motor vehicles likely would immediately trigger the prevention of significant deterioration (PSD) permit program which regulates stationary sources that either emit or have the potential to emit 250 tons per year of a regulated pollutant or, if they are included on the list of source categories, at least 100 tons per year of a regulated pollutant. Because these thresholds are extremely low when considered with respect to GHGs, thousands of new sources likely would be swept into the PSD program necessitating time consuming permitting processes, costly new investments or retrofits to reduce or capture GHG emissions, increasing costs, and creating vast areas of uncertainty for businesses and commercial and residential development.

In addition to the PSD program, it is widely acknowledged that a positive endangerment finding could lead to three potential avenues of stationary source regulation under the CAA: (1) the setting of national ambient air quality standards (NAAQS) under sections 108 and 109; (2) the issuance of new source performance standards (NSPS) under section 111; and/or (3) the listing of one or more greenhouse gases as hazardous air pollutants (HAP) under section 112. Each of these approaches,

and their associated deficiencies with respect to GHG emissions and as a method of addressing global climate change, are briefly discussed below.

a. Sections 108-109: NAAQS

Section 108 of the CAA requires EPA to identify and list air pollutants that "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare." For such pollutants, EPA promulgates "primary" and "secondary" NAAQS. The primary standard is defined as the level which, in the judgment of the EPA Administrator, based on scientific criteria, and allowing for an adequate margin of safety, is requisite to protect the public health. The secondary standard is defined as the level which is requisite to protect the public welfare. Within one year of EPA's promulgation of a new or revised NAAQS, each State must designate its regions as non-attainment, attainment, or unclassifiable. Within three years from the NAAQS promulgation, States are required to adopt and submit to EPA a State implementation plan (SIP) providing for the implementation, maintenance, and enforcement of the NAAQS.

At least three major difficulties would be presented with respect to the issuance by EPA of a NAAQS for one or more greenhouse gases: (1) the determination of what GHG concentration level is requisite to protect public health and welfare; (2) the unique nature of GHGs as pollutants dispersed from sources throughout the world and that have long atmospheric lifetimes; and (3) GHG concentrations in the ambient air are virtually the same throughout the world meaning that they are not higher near major emissions sources than in isolated areas with no industry or major anthropogenic sources of GHG emissions.

While much has been said and written in recent years about the need to reduce greenhouse gas emissions to address climate change, there is far less agreement on the acceptable or appropriate atmospheric concentration level of CO2 or other GHGs. As the draft states, "[d]etermining what constitutes 'dangerous anthropogenic interference' is not a purely scientific question; it involves important value judgments regarding what level of climate change may or may not be acceptable." While the Department agrees with this statement, the courts have held that when setting a NAAQS, EPA cannot consider important policy factors such as cost of compliance. This limitation inhibits a rational balancing of factors in determining and setting a GHG NAAQS based on the science available, the availability and cost of emission controls, the resulting impact on the U.S. economy, the emissions of other nations, etc.

Unlike most pollutants where local and regional air quality, and local and regional public health and welfare, can be improved by reducing local and regional emissions, GHGs originate around the globe, and are mixed and dispersed such that there is a relatively uniform atmospheric GHG concentration level around the world. There is little or nothing that a single State or region can do that will appreciably alter the atmospheric GHG concentration level in that particular State or region. Thus, it is hard to see how a GHG NAAQS, which required States to take action to reduce their emissions to meet a particular air quality standard, would actually work. A GHG NAAQS standard would

put the entire United States in either attainment or non-attainment, and it would be virtually impossible for an individual State to control or reduce GHG concentrations in its area and, thus, to make significant strides towards remaining in or reaching attainment with the NAAQS.

Whatever level EPA might eventually establish as an acceptable NAAQS for one or more GHGs, EPA's setting of such a level would immediately implicate further issues under the NAAQS regime, including the ability of States and localities to meet such a standard. If the GHG NAAQS standard for one or more gases is set at a level below the current atmospheric concentration, the entire country would be in nonattainment. All States then would be required to develop and submit State Implementation Plans (SIPs) that provide for meeting attainment by the specified deadline. And yet, as the draft states, "it would appear to be an inescapable conclusion that the maximum 10-year horizon for attaining the primary NAAQS is ill-suited to pollutants such as greenhouse gases with long atmospheric residence times...[t]he long atmospheric lifetime of...greenhouse gases...means that atmospheric concentrations will not quickly respond to emissions reduction measures...in the absence of substantial cuts in worldwide emissions, worldwide concentrations of greenhouse gases would continue to increase despite any U.S. emission control efforts. Thus, despite active control efforts to meet a NAAQS, the entire United States would remain in nonattainment for an unknown number of years."

As the draft also recognizes, if the NAAQS standard for GHGs is set at a level above the current atmospheric concentration, the entire country would be in attainment. In a nationwide attainment scenario, the PSD and new source review (NSR) permitting regimes would apply and States would have to submit SIPs for the maintenance of the primary NAAQS and to prevent interference with the maintenance by other States of the NAAQS; tasks, that as applied to GHGs, are entirely superfluous given the inability of any single State to change through its own unilateral action the global or even local concentration level of GHGs.

As the difficult choices and problematic results outlined above demonstrate, the inability of a single State to appreciably change atmospheric GHG concentrations in its own area through its own emission reduction efforts is inconsistent with a fundamental premise of the Clean Air Act and of the NAAQS program – that States and localities are primarily responsible for air pollution control and maintaining air quality, and that State and local governments can impose controls and permitting requirements that will allow the State to maintain or attain air quality standards through its own efforts.

b. Section 111: NSPS

Section 111 of the CAA requires the EPA Administrator to list categories of stationary sources if such sources cause or contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare. The EPA must then issue new source performance standards (NSPS) for such sources categories. An NSPS reflects the degree of emission limitation achievable through the application of the "best system of emission reduction" which the EPA determines has been adequately

demonstrated. EPA may consider certain costs and non-air quality health and environmental impact and energy requirements when establishing NSPS. Where EPA also has issued a NAAQS or a section 112 maximum achievable control technology (MACT) standard for a regulated pollutant, NSPS are only issued for new or modified stationary sources. Where no NAAQS has been set and no section 112 MACT standard issued, NSPS are issued for new, modified, and existing stationary sources.

Regulation of GHGs under section 111 presents at least two key difficulties. First, EPA's ability to utilize a market system such as cap and trade has not been confirmed by the courts. EPA's only attempt to establish a cap and trade program under section 111, the "Clean Air Mercury Rule," was vacated by the U.S. Court of Appeals for the District of Columbia Circuit, though on grounds unrelated to EPA's authority to implement such a program under section 111. DOE believes EPA does have that authority, as EPA previously has explained, but there is legal uncertainty about that authority, which makes a GHG market-oriented program under section 111 uncertain.

Second, EPA's regulation of small stationary sources (which account for a third of all stationary source emissions) would require a burdensome and intrusive regulatory mechanism unlike any seen before under the CAA. If EPA were to determine that it cannot feasibly issue permits to and monitor compliance for all of these sources, a section 111 system presumably would cover only large stationary sources, which would place the compliance burden completely on electric generators and large industrial sources, and reduce any overall effect from the GHG control regime.

However, there are questions about whether it would be permissible for EPA to elect not to regulate GHG emissions from small stationary sources. Section 111(b)(1) indicates that the Administrator must list a category of sources if, in his judgment, it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health and welfare. Given the volume of greenhouse gases that are emitted from small stationary sources in the aggregate, it is uncertain whether, if EPA makes a positive endangerment finding for emissions of one or more GHGs from new motor vehicles, EPA could conclude that small stationary sources do not cause "or contribute significantly" to air pollution that endangers the public health or welfare. This might well turn on the interpretation and application of the terms in CAA section 202(a), noted above. Regardless, it is uncertain whether, and if so where, EPA could establish a certain GHG emission threshold for determining what sources or source categories are subject to GHG regulations under section 111. What does seem clear is that regulating GHG emissions under section 111 would entail implementation of an enormously complicated, costly, and invasive program.

c. Section 112: HAP

Section 112 contains a list of hazardous air pollutants subject to regulation. A pollutant may be added to the list because of adverse health effects or adverse environmental effects. DOE believes it would be inappropriate for greenhouse gases to be listed as HAPs given, among other things, EPA's acknowledgment that ambient GHG concentrations present no health risks. Nevertheless, if one or more GHGs were listed

under section 112, EPA would have to list all categories of "major sources" (defined as sources that emit or potentially emit 10 tons per year of any one HAP or 25 tons per year of any combination of HAPs). For each major source category, EPA must then set a maximum available control technology (MACT) standard.

It is entirely unclear at this point what sort of MACT standard would be placed on which sources for purposes of controlling GHG emissions, what such controls would cost, and whether such controls would be effective. However, complying with MACT standards with respect to GHG emission controls likely would place a significant burden on States and localities, manufacturing and industrial facilities, businesses, power plants, and potentially thousands of other sources throughout the United States. As the draft explains, section 112 "appears to allow EPA little flexibility regarding either the source categories to be regulated or the size of sources to regulate.... EPA would be required to regulate a very large number of new and existing stationary sources, including smaller sources...we believe that small commercial or institutional establishments and facilities with natural gas fired furnaces would exceed this major source threshold; indeed, a large single family residence could exceed this threshold if all appliances consumed natural gas."

Compliance with the standards under section 112 is required to be immediate for most new sources and within 3-4 years for existing sources. Such a strict timeline would leave little to no time for emission capture and reduction technologies to emerge, develop, and become cost-effective.

d. Effects of CAA Regulation of GHGs on the U.S. Energy Sector

While the Department has general concerns about the portrayal of likely effects of proposals to regulate GHGs under the CAA on all sectors of the U.S. economy, DOE is particularly concerned about the effects of such regulation on the energy sector. The effects of broad based, economy-wide regulation of GHGs under the CAA would have significant adverse effects on U.S. energy supplies, energy reliability, and energy security.

Coal is used to generate about half of the U.S. electricity supply today, and the Energy Information Administration (EIA) projects this trend to continue through 2030. (EIA AEO 2008, at 68) At the electricity generating plant itself, conventional coal-fired power stations produce roughly twice as much carbon dioxide as a natural gas fired power station per unit of electricity delivered. Given this reality, the effect of regulating emissions of GHGs from stationary sources under the CAA could force a drastic shift in the U.S. power sector. As Congressman John D. Dingell, Chairman of the U.S. House of Representatives Committee on Energy and Commerce, explained in a statement issued on April 8, 2008:

> "As we move closer to developing policies to limit and reduce emissions, we must be mindful of the impact these policies have on the price of all energy commodities, particularly natural gas. What happens if efforts to expand nuclear

power production and cost-effectively deploy carbon capture and storage for coal-fired generation are not successful? You know the answer. We will drive generation to natural gas, which will dramatically increase its price tag. We don't have to look too far in the past to see the detrimental effect that high natural gas prices can have on the chemical industry, the fertilizer industry, and others to know that we must be conscious of this potential consequence."

Chairman Dingell's view is supported by studies of the climate bill recently considered by the United States Senate. EIA's analysis of the Lieberman-Warner bill stated that, under that bill, and without widespread availability of carbon capture and storage (CCS) technology, natural gas generation would almost double by 2030. *See* Energy Information Administration, *Energy Market and Economic Impacts of S. 2191, the Lieberman-Warner Climate Security Act of 2007* at 25.[1]

If CAA regulation of GHG emissions from stationary sources forces or encourages a continued move toward natural gas fired electric generating units, there will be significantly increased demand for natural gas. Given the limitations on domestic supplies, including the restrictions currently placed on the production of natural gas from public lands or from areas on the Outer Continental Shelf, much of the additional natural gas needed likely would have to come from abroad in the form of liquefied natural gas (LNG). This LNG would have to be purchased at world prices, currently substantially higher than domestic natural gas prices and generally tied to oil prices (crude or product). To put this into perspective, natural gas closed on June 27, 2008, at about $13.20/mcf for August delivery, about twice as high as last year at this time, despite increasing domestic natural gas production. The reason is that unlike last year, the U.S. has been able to

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[1] DOE's Energy Information Administration (EIA) prepared an analysis of the proposed Lieberman-Warner Climate Security Act of 2007 and projected that if new nuclear, renewable and fossil plans with carbon capture and sequestration are not developed and deployed in a time frame consistent with emissions reduction requirements, there would be increased natural gas use to offset reductions in coal generation, resulting in markedly higher delivered prices of natural gas. *See Energy Market and Economic Impacts of S. 2191, the Lieberman-Warner Climate Security Act of 2007* (EIA, April 2008) EIA estimated price increases from 9.8 cents per kilowatthour in 2020 to 14.5 cents per kilowatthour in 2030, ranging from 11 to 64 percent higher by 2030. *Id., p. 27, Figure 16.* EPA's analysis of the proposed legislation similarly projected electricity prices to increase 44% in 2030 and 26% in 2050 assuming the growth of nuclear, biomass or carbon capture and storage technologies. *See EPA Analysis of the Lieberman-Warner Climate Security Act of 2008* (March 14, 2008), pp. 3, 57. If the growth of nuclear, biomass, or carbon capture and storage technologies was constrained, EPA projected that electricity prices in 2030 would be 79% higher and 2050 prices would be 98% higher than the reference scenario prices. Other analyses of the legislation also projected substantial increases in energy costs for consumers. *See, e.g. Analysis of the Lieberman-Warner Climate Security Act (S. 2191) Using the National Energy Modeling* System (A Report by the American Council for Capital Formation and the National Associate of Manufacturers, conducted by Science Applications International Corporation (SAIC))(study finding increases in energy prices for residential consumers by 26% to 36% in 2020, and 108% to 146% in 2030 for natural gas, and 28% to 33% in 2020, and 101% to 129% in 2030 for electricity). Further, in its analysis o the bill the Congressional Budge Office estimated that costs of private sector mandates associated with the legislation would amount to more than $90 billion each year during the 2012-2016 period, most of which cost would ultimately be passed on to consumers in the form of higher prices for energy and energy-intensive goods and services. *See Congressional Budget Office Cost Estimate, S.* 2191 (April 10, 2008), pp. 2, 19.

import very little LNG this year, even at these relatively high domestic prices. United States inventories of natural gas in storage currently are about 3% below the five year average, and are 16% below last year at this time. Among other effects, a large policy-forced shift towards increased reliance on imported LNG would raise energy security and economic concerns by raising domestic prices for consumers (including electricity prices) and increasing U.S. reliance on foreign sources of energy.

In order for coal to remain a viable technology option to help meet the world's growing energy demand while at the same time not addressing GHG emissions, CCS technologies must be developed and widely deployed. While off-the-shelf capture technologies are available for coal power plant applications, current technologies are too costly for wide scale deployment for both new plant construction and retrofit of the existing fleet of coal-fired power plants. DOE studies (e.g., DOE/NETL Report: "Cost and Performance Baseline for Fossil Energy Plants," May 2007) show that capturing and sequestering CO2 with today's technology is expensive, resulting in electricity cost increases on the order of 30%-90% above the cost of electricity produced from new coal plants built without CCS.

The impact of a policy that requires more production of electricity from natural gas will be felt not just in the United States but in worldwide efforts to reduce GHG emissions. Unless U.S. policy supports rapid development of CCS technologies to the point that they are economically deployable (i.e., companies are not forced to switch to natural gas fired electric generating facilities), CCS will not be installed as early as possible in the China or other developing nations. In a global climate sense, most of the benefit from new technology installation will come from the developing countries, and much of the international benefit would come from providing countries like China and India with reasonable-cost CCS options for development of their massive coal resources, on which we believe they will continue to rely.

III. Energy Policy Considerations for Addressing Climate Change

The Department is concerned that the draft does not properly acknowledge collateral effects of using CAA regulation to address global climate change, particularly in the absence of a regime that actually will effectively address global climate change by addressing global GHG emissions. DOE strongly supports efforts to reduce GHG emissions by advancing technology and implementing policies that lower emissions, but doing so in a manner that is conscious of and that increases, rather than decreases, U.S. energy security and economic security. With these goals in mind, DOE believes policymakers and the public should be mindful of the considerations briefly described below as the United States seeks to effectively address the challenge of global climate change.

Secretary Bodman has stated that "improving our energy security and addressing global climate change are among the most pressing challenges of our time." This is particularly true in light of the estimate by the International Energy Agency that the world's primary energy needs will grow by over 50% by 2030.

In order to address these challenges simultaneously and effectively, the United States and other countries must make pervasive and long-term changes. Just as the current energy and environmental situation did not develop overnight, neither can these challenges be addressed and resolved immediately.

To ensure that we *both* improve energy security and reduce GHG emissions, rather than address one at significant cost to the other, DOE believes that a number of actions must be taken. None of these actions is sufficient in itself, and none of these actions can be pursued to the exclusion of the others.

Specifically, the United States and other nations must: bring more renewable energy online; aggressively deploy alternative fuels; develop and use traditional hydrocarbon resources, and do so in ways that are clean and efficient; expand access to safe and emissions-free nuclear power, while responsibly managing spent nuclear fuel and reducing proliferation risks; and significantly improve the efficiency of how we use energy. In all of these things, the Department believes that technological innovation and advancement is the key to unlocking the future of abundant clean energy and lower GHG emissions. Therefore, this innovation and advancement – through government funding, private investment, and public policies that promote both of these – should be the cornerstone of any plan to combat global climate change.

In recent years, DOE has invested billions of dollars to advance the development of technologies that advance these objectives. For example, in 2007 DOE funded the creation of three cutting-edge bioenergy research facilities. These facilities, which are already showing progress, will seek to advance the production of biofuels that have significant potential for both increasing the Nation's energy security and reducing GHG emissions. Since the start of 2007, DOE has invested well over $1 billion to spur the growth of a robust, sustainable biofuels industry in the United States.

DOE also has promoted technological advancement and deployment in other renewable energy areas such as wind, solar and geothermal power, and these advancements and policies are producing results. For example, in 2007, U.S. cumulative wind energy capacity reached 16,818 megawatts – more than 5,000 megawatts of wind generation were installed in 2007 alone. The United States has had the fastest growing wind power capacity in the world for the last three years in a row. In addition, DOE recently issued a solicitation offering up to $10 billion in federal loan guarantees, under the program authorized by Title XVII of the Energy Policy Act of 2005, to incentivize the commercial deployment of new or significantly improved technologies in projects that will avoid, reduce or sequester emissions of GHGs or other air pollutants.

DOE strongly believes that nuclear power must play an important role in any effective program to address global climate change. Indeed, we believe that no serious effort to effectively control GHG emissions and address climate change can exclude the advancement and development of nuclear power. DOE continues to seek advancements in nuclear power technology, in the licensing of new nuclear power facilities, and in responsibly disposing of spent nuclear fuel. With respect to new nuclear power plants,

DOE has put in place a program to provide risk insurance for the developers of the first new facilities, and recently issued a solicitation offering up to $18.5 billion in federal loan guarantees for new nuclear power plants.

Significant advancements have been made in recent years toward the development of new nuclear facilities. There now are pending at the Nuclear Regulatory Commission several applications, all of which have been filed in 2007 or 2008, to license new nuclear generating facilities. DOE views the filing of these applications and the interest in licensing and building new nuclear power facilities as very positive developments from the perspectives of the Nation's electric reliability and energy security, as well as the effort to control greenhouse gas emissions. But there still is much to be done, and it will take a sustained effort both by the private sector and by federal, State and local governments, to ensure that these facilities are licensed, built and placed into service.

As noted above, DOE believes that coal can and must play an important role in this Nation's energy future. Moreover, regardless what decisions about coal U.S. policy officials may wish to make, it seems clear that coal will continue to be used by other countries to generate electricity for decades to come. It has been noted that China is building new coal power plant capacity at the incredible rate of one per week. As a result, it is critically important that we develop and deploy cost-effective carbon capture and sequestration technology, both to ensure that we can take advantage of significant energy resources available in the United States, but also to help enable the control of emissions in other countries as well.

DOE believes that cost effective CCS technology must be developed over the next 10-15 years that could be deployed on new plants built to meet increasing demand and to replace retiring capital stock, and retrofitted on existing plants with substantial remaining plant life. DOE is helping to develop technologies to capture, purify, and store CO2 in order to reduce GHG emissions without significant adverse effects on energy use or on economic growth. DOE's primary CCS research and development objectives are: (1) lowering the cost and energy penalty associated with CO2 capture from large point sources; and (2) improving the understanding of factors affecting CO2 storage permanence, capacity, and safety in geologic formations and terrestrial ecosystems.

Once these objectives are met, new and existing power plants and fuel processing facilities in the U.S. and around the world will have the potential to deploy CO2 capture technologies. Roughly one third of the United States' carbon emissions come from power plants and other large point sources. To stabilize and ultimately reduce atmospheric concentrations of CO2, it will be necessary to employ carbon sequestration – carbon capture, separation and storage or reuse. The availability of advanced coal-fired power plants with CCS to provide clean, affordable energy is essential for the prosperity and security of the United States.

The DOE carbon sequestration program goal is to develop at R&D scale by 2012, fossil fuel conversion systems that offer 90 percent CO2 capture with 99 percent storage permanence at less than a 10 percent increase in the cost of energy services from new

plants. For retrofits of existing facilities, the task will be much harder, and the penalties in terms of increased cost of power production from those plants likely will be much higher. We expect that these integrated systems for new plants will be available for full commercial deployment – that is, will have completed the demonstration and early deployment phase – in the 2025 timeframe. Of course, there are inherent uncertainties in these projections and long-term research, development, demonstration and deployment goals.

In line with the Department's CCS R&D goals, DOE is working with regional carbon sequestration partnerships to facilitate the development of the infrastructure and knowledge base needed to place carbon sequestration technologies on the path to commercialization. In addition, DOE recently restructured its FutureGen program to accelerate the near-term deployment of advanced clean coal technology by equipping new integrated gasification combined cycle (IGCC) or other clean coal commercial power plants with CCS technology. By funding multiple projects, the restructured FutureGen is expected to at least double the amount of CO2 sequestered compared to the concept that previously had been announced in 2003. The restructured FutureGen approach also will focus on the challenges associated with avoidance and reduction of carbon emissions and criteria pollutants through sequestration.

In order to reduce the demand on our power sector and the associated emissions of GHGs and other pollutants, we must continue to support expanded efforts to make our society more efficient, from major power plants to residential homes. DOE has helped lead this effort with, among other things, its Energy Star program, a government-backed joint effort with EPA to establish voluntary efficiency standards that help businesses and individuals protect the environment and save money through greater energy efficiency. By issuing higher efficiency standards for an increasing number of products, the Energy Star program helps consumers make fully-informed and energy-conscious decisions that result in reduced emissions of GHGs and other pollutants. Last year alone, with the help of the Energy Star program, American consumers saved enough energy to power 10 million homes and avoid GHG emissions equivalent to the emissions from 12 million cars – all while saving $6 billion in energy costs.

IV. Conclusion

The Department believes the draft does not address and explain in clear, understandable terms the extraordinary costs, burdens and other adverse consequences, and the potentially limited benefits, of the United States unilaterally using the Clean Air Act to regulate GHG emissions. The draft, while presenting useful analysis, seems to make a case for the CAA being the proper vehicle to meaningfully combat global climate change, but we believe it understates the potential costs and collateral adverse effects of attempting to regulate GHG emissions and address climate change through a regulatory scheme that is forced into the Clean Air Act's legal and regulatory mold.

Any effective and workable approach to controlling GHG emissions and addressing global climate change should not simply consist of a unilateral and

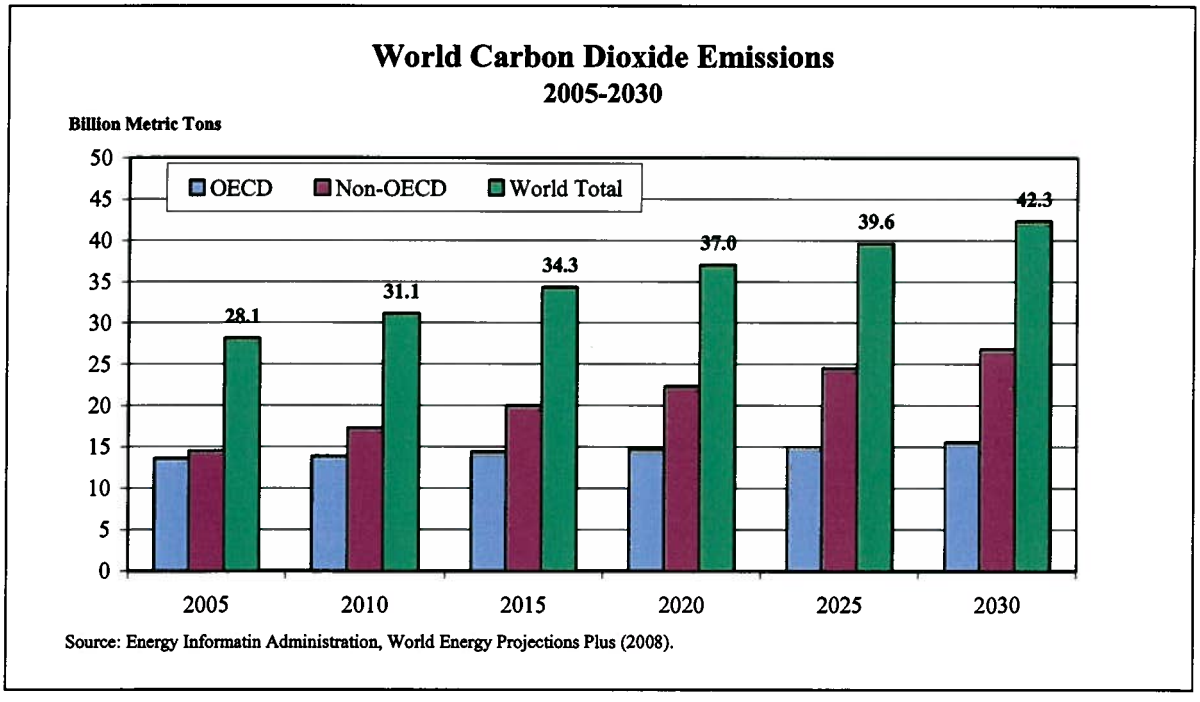
extraordinarily burdensome CAA regulatory program that is placed on top of the U.S. economy with all other existing mandates, restrictions, etc. simply remaining in place and the Government taking the position that U.S. energy security and indeed the American economy will just have to live with whatever results the GHG control program produces. Rather, the Nation can only effectively address GHG emissions and global climate change in coordination with other countries, and by addressing how to regulate GHG emissions while considering the effect of doing so on the Nation's energy and economic security. Considering and developing such a comprehensive approach obviously will be very difficult. But what seems clear is that it would be better than the alternative, if the alternative is unilaterally proceeding with the enormously burdensome, complex and costly regulatory program under the Clean Air Act discussed in the draft, which in the end might not even produce the desired climate change benefits.

U.S. Department of Commerce
Analysis of Draft Advanced Notice of Proposed Rulemaking
"Regulating Greenhouse Gas Emissions under the Clean Air Act"

Overview: This analysis reviews some of the implications of regulating greenhouse gas (GHG) emissions under the Clean Air Act (CAA) as outlined in the draft Advance Notice of Proposed Rulemaking submitted to the Office of Management and Budget on June 17, 2008 (the draft). The Department of Commerce's fundamental concern with the draft's approach to using the CAA to regulate GHGs is that it would impose significant costs on U.S. workers, consumers, and producers and harm U.S. competitiveness without necessarily producing meaningful reductions in global GHG emissions.

Impact on U.S. Competitiveness and Manufacturing: The draft states that competitiveness is an important policy consideration in assessing the application of CAA authorities to GHG emissions. It also acknowledges the potential unintended consequences of domestic GHG regulation, noting "[t]he concern that if domestic firms faced significantly higher costs due to regulation, and foreign firms remained unregulated, this could result in price changes that shift emissions, and possibly some production capacity, from the U.S. to other countries."[1] This is a real issue for any domestic regulation implemented without an international agreement involving the world's major emitters.

However, the draft does not detail the shift in global emissions that is currently taking place. As the chart below shows, the emissions of countries outside of the Organization of Economic Cooperation and Development (OECD) already exceed those of OECD countries. By 2030, non-OECD emissions are projected to be 72 percent higher than those of their OECD counterparts.[2]



[1] EPA draft, pg. 36

[2] EIA International Energy Outlook 2008, http://www.eia.doe.gov/oiaf/ieo/highlights.html

Any climate change regulation must take this trend into account. Greenhouse gas emissions are a global phenomenon, and, as documented in the draft, require reductions around the world in order to achieve lower concentrations in the atmosphere. However, the costs of emissions reductions are generally localized and often borne by the specific geographic area making the reductions. As a result, it is likely that the U.S. could experience significant harm to its international competitiveness if GHGs were regulated under the CAA, while at the same time major sources of emissions would continue unabated absent an international agreement.

Because the draft does not specify an emissions target level, the implications of national regulation for the U.S. economy as a whole and for energy price-sensitive sectors in particular are difficult to forecast. However, recent analysis of emissions targets similar to those cited in the draft provides a guide to the estimated level of impacts.

In April 2008, the Energy Information Administration (EIA) released an analysis of legislation that set emission reduction targets of 30 percent below 2005 levels by 2030 and 70 percent below 2005 levels by 2050. The EIA estimated that in the absence of international offsets and with limited development of alternatives, achieving those emission targets would reduce manufacturing employment by 10 percent below currently projected levels in 2030. Under the same scenario, the EIA estimate indicated the emission targets would reduce the output of key energy-intensive manufacturing industries, such as food, paper, glass, cement, steel, and aluminum, by 10 percent and the output of non-energy intensive manufacturing industries by nine percent below currently projected levels in 2030.[3]

The European Union's experience with implementation of its cap-and-trade system is also instructive from a competitiveness standpoint. Key energy intensive industries in Europe have raised concerns about the competitiveness impacts of the emissions trading system (ETS), arguing that the ETS would force them to relocate outside of Europe. EU leaders have responded to these concerns by considering the possibility of awarding free emissions permits to certain industries, provided the industries also agreed to reduce emissions.[4] This illustrates one of the challenges of crafting an effective national or regional solution to a global problem.

International Trade: In order to address the concern that GHG regulation in the United States will lead to emissions leakage and movement of certain sectors to countries without strict carbon regulations, the draft requests comment on "trade-related policies such as import tariffs on carbon or energy content, export subsidies, or requirements for importers to submit allowances to cover the carbon content of certain products."[5]

Applying tariffs to imports from countries without carbon regulations would have a number of significant repercussions. In addition to exposing the United States to World Trade Organization challenges by our trading partners, unilateral U.S. carbon tariffs could spark retaliatory measures against U.S. exporters, the brunt of which would fall on U.S. workers, consumers, and businesses. For example, a World Bank study found that carbon tariffs applied to U.S. exports to

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[3] Energy Market and Economic Impacts of S. 2191, Figure 28 & 29, http://www.eia.doe.gov/oiaf/servicerpt/s2191/economic.html

[4] *Financial Times*, "Brussels softens line on carbon permits," Andrew Bounds, Jan. 22, 2008

[5] EPA draft, pg. 37.

Europe "could result in a loss of about 7 percent in U.S. exports to the EU. The energy intensive industries, such as steel and cement ... could suffer up to a 30 percent loss."[6]

Moreover, carbon tariffs would actively undermine existing U.S. trade policy. The U.S. Government has consistently advocated for reducing tariffs, non-tariff barriers, and export subsidies. Introducing new tariffs or export subsidies for carbon or energy content would undermine those efforts with respect to clean energy technologies specifically and U.S. goods and services more broadly, as well as invite other countries to expand their use of tariffs and subsidies to offset costs created by domestic regulations.

Two examples of U.S. efforts to reduce tariffs or enhance exports in this area: the United States Trade Representative is actively engaged in trade talks to specifically reduce tariffs on environmental technologies, which will lower their costs and encourage adoption, while the Department of Commerce's International Trade Administration is currently planning its third "Clean Energy" trade mission to China and India focused on opening these rapidly developing economies to U.S exporters of state-of-the-art clean technologies. Rather than raising trade barriers, the U.S. Government should continue to advocate for the deployment of clean energy technologies through trade as a way to address global GHG emissions

The issue of emissions leakage and the potential erosion of the U.S. industrial base are real concerns with any domestic GHG regulation proposal outside of an international framework. Accordingly, the proper way to address this concern is through an international agreement that includes emission reduction commitments from all the major emitting economies, not by unilaterally erecting higher barriers to trade.

Realistic Goals for Reducing Carbon Emissions: Establishing a realistic goal of emissions reduction is an essential aspect of designing policies to respond to climate change. Although the draft does not "make any judgment regarding what an appropriate [greenhouse gas] stabilization goal may be," the document cites, as an example, the Intergovernmental Panel on Climate Change's projection that global CO2 emissions reductions of up to 60 percent from 2000 levels by 2050 are necessary to stabilize global temperatures slightly above pre-industrial levels.[7]

To provide context, it is useful to note that a 60 percent reduction in U.S. emissions from 2000 levels would result in emissions levels that were last produced in the United States during the 1950s (see chart on next page). In 1950, the population in the United States was 151 million people – about half the current size – and the Gross Domestic Product was $293 billion.[8] Without the emergence of technologies that dramatically alter the amount of energy necessary for U.S. economic output, the reduction of energy usage necessary to achieve this goal would have significant consequences for the U.S. economy.

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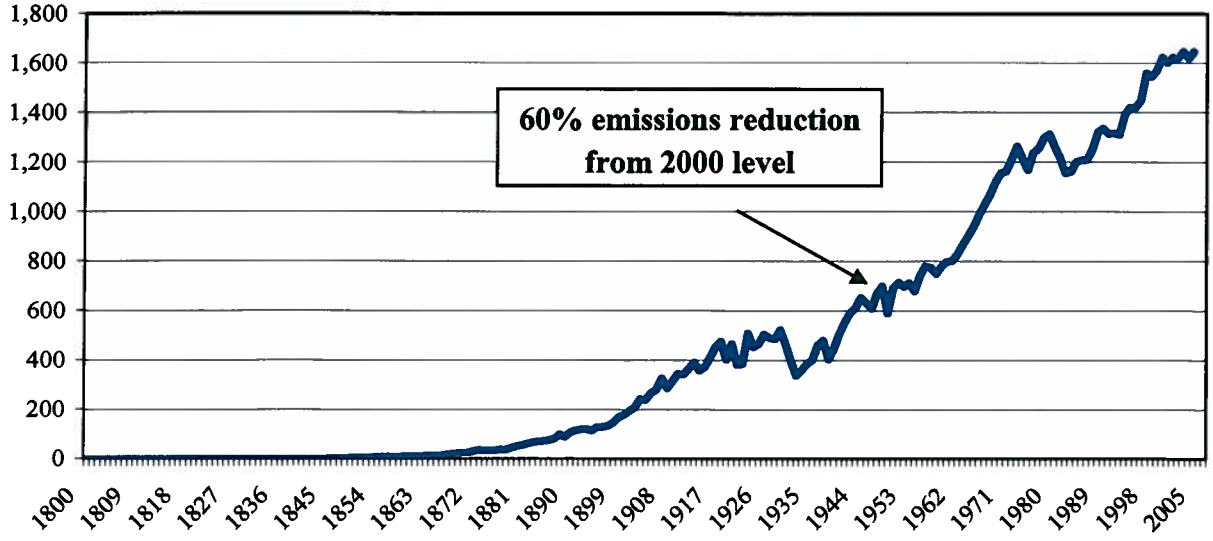
[6]The World Bank, International Trade and Climate Change: Economic, Legal, and Institutional Perspectives, 2008, pg. 12.

[7] EPA draft, pg. 14

[8]U.S. Census Bureau, 1950 Decennial Census; Bureau of Economic Analysis, National Income and Product Accounts Table

United States Total Fossil Fuel CO2 Emissions
Million Metric Tons of Carbon



Source: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, August 17, 2007 (http://cdiac.ornl.gov/ftp/trends/emissions/usa.dat).

Moreover, as the draft acknowledges, initial emissions reductions under the CAA or other mechanism "may range from only [a] few percent to 17% or more in some cases. Clearly, more fundamental technological changes will be needed to achieve deeper reductions in stationary source GHG emissions over time."[9] But the inability, at this time, to identify either a realistic emissions target or the technical feasibility of achieving various levels of reduction is one of the major flaws of using the draft to assess policy changes of this magnitude.

The draft also notes that "[a]n economy-wide, market-oriented environmental regulation has never been implemented before in the U.S."[10] This point is worth underscoring: the CAA has never been applied to every sector in the U.S. economy. Instead, the CAA is generally applied to specific sectors (such as the power sector) or sources of emissions, and it has included initiatives to address regional and multi-state air quality issues. While these examples clearly provide valuable experience in addressing air pollution issues across state boundaries, using the CAA to regulate GHGs is significantly more ambitious in scope than anything previously attempted under the CAA.

Accountability and Public Input: The draft contemplates a dramatic regulatory expansion under the CAA. However, climate policies of this magnitude are best addressed through legislative debate and scrutiny. Examining these issues in the legislative context would ensure that citizens, through their elected representatives, have ample opportunity to make their views known and to ensure accountability for the decisions that are made.

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[9] EPA draft, pg. 209
[10] EPA draft pg. 32

Economic Implications of Applying CAA Authorities: The draft noted numerous issues of economic significance in analyzing the potential application of the CAA to stationary sources of GHGs. The Department of Commerce highlights below some of the most important issues raised in the draft that could impact U.S. competitiveness, innovation, and job creation.

Compliance Costs of Multiple State Regulations under the CAA: The draft describes the various authorities under the CAA that could be applied to GHGs. One such mechanism involves the development of individual state implementations plans (SIPs) in order to meet a national GHG emissions reduction standard. As the draft notes, "[t]he SIP development process, because it relies in large part on individual states, is not designed to result in a uniform national program of emission controls."[11] The draft also raises the potential implications of this approach: "[u]nder the traditional SIP approach, emissions controls on specific source categories would flow from independent state-level decisions, and could result in a patchwork of regulations requiring different types and levels of controls in different states."[12] If this were the result, it could undermine the benefit of having a national standard and significantly raise compliance costs. The implications of this approach should be examined further.

Viability of Technological Alternatives: The draft notes that some of the authorities in the CAA could impose requirements to use technology that is not commercially viable. For example, when discussing Standards of Performance for New and Existing Sources, the draft notes that "the systems on which the standard is based need only be 'adequately demonstrated' in EPA's view ... The systems, and corresponding emission rates, need not be actually in use or achieved in practice at potentially regulated sources or even at a commercial scale."[13] Similarly, in examining the potential application of the New Source Review program to nonattainment areas, the draft outlines the program's required use of the Lowest Available Emissions Rate (LAER) technology which "does not allow consideration of the costs, competitiveness effects, or other related factors associated with the technology ... New and modified sources would be required to apply the new technology even if it is a very expensive technology that may not necessarily have been developed for widespread application at numerous smaller sources, and even if a relatively small emissions improvement came with significant additional cost."[14]

If CAA requirements such as these were used to regulate GHGs, it would impose significant costs on those required to adopt the technology.

Expanding CAA Regulation to Cover Small Businesses and Non-Profits: The draft notes that the use of some CAA authorities could extend regulation to small and previously unregulated emissions sources. For example, the draft states that the use of one authority under the CAA could result in the regulation of "small commercial or institutional establishments and facilities with natural gas-fired furnaces."[15] This could include large single family homes, small businesses, schools, or hospitals heated by natural gas. If the CAA were applied in ways that extended it beyond those traditionally regulated under the Act, it could have significant economic impacts, and the costs of such an application should be further analyzed.

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[11] EPA draft, pg. 181
[12] EPA draft, pg. 187
[13] EPA draft, pg. 196
[14] EPA draft, pg. 232
[15] EPA draft pg. 215

To put this potential expansion in context, in 2003 there were 2.4 million commercial non-mall buildings in the United States that used natural gas, and an estimated 54 percent of these buildings were larger than 5,000 square feet.[16] According to the EIA's 2003 Commercial Building Energy Consumption Survey, a building between 5,001 to 10,000 square feet consumes 408,000 cubic feet of natural gas per year.[17] Based on preliminary calculations using the EPA's Greenhouse Gas Equivalencies Calculator, this translates into annual CO2 emissions of 21 metric tons, which would exceed the allowable threshold under one provision of the CAA.[18]

The table below taken from the EIA's 2003 Commercial Building Energy Consumption Survey shows the number and size of U.S. buildings, providing more detail on the type of structures that could be regulated if the CAA were applied to GHGs. Based on the estimate of 21 metric tons of annual emissions from a building 5,000 –10,000 square feet in size, it is likely that schools, churches, hospitals, hotels, and police stations *heated by natural gas* could be subject to the CAA. Clearly, the costs and benefits of such an approach should be examined in greater detail.

Non-Mall Buildings Using Natural Gas
Number and Floorspace by Principal Building Activity, 2003

	Number of Buildings (thousand)	Total Floorspace (million sq.ft.)	Mean Square Feet per Building (thousand)
All Buildings	2,391	43,468	18.2
Education	213	7,045	33.1
Food Sales	98	747	7.6
Food Service	226	1,396	6.2
Health Care	72	2,544	35.5
Inpatient	7	1,805	257.0
Outpatient	65	739	11.4
Lodging	86	4,256	49.7
Mercantile	245	2,866	11.7
Office	488	8,208	16.8
Public Assembly	146	2,723	18.6
Public Order and Safety	36	637	17.7
Religious Worship	220	2,629	11.9
Service	281	2,496	8.9
Warehouse and Storage	187	5,494	29.4
Other	45	1,252	27.9
Vacant	49	1,176	24.2

Source: from Energy Information Administration, 2003 Commercial Buildings Energy Consumption Survey, Table C23. (http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set11/2003excel/c23.xls)

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[16] Energy Information Agency, 2003 Commercial Buildings Energy Consumption Survey—Overview of Commercial Buildings Characteristics, Table C23.

[17] 2003 Commercial Buildings Energy Consumption Survey.

[18] Calculation done by converting cubic feet of gas consumed to therms, and the number of therms then inserted into the EPA calculator. According to the EPA draft (pg. 214): If GHGs were listed as a Hazardous Air Pollutant (HAP) under the CAA, the HAP standard's "major source thresholds of 10 tons for a single HAP and 25 for any combination of HAP would mean that very small GHG emitters would be considered major sources."

Cost of CAA Permitting: As the draft states, "the mass emissions [of CO2] from many source types are orders of magnitude greater than for currently regulated pollutants," which could result in the application of the CAA's preconstruction permitting requirements for modification or new construction to large office buildings, hotels, apartment building and large retail facilities.[19] The draft also notes the potential time impacts (i.e., the number of months necessary to receive a CAA permit) of applying new permit requirements to projects and buildings like those noted above that were not previously subject to the CAA.[20] The potential economic costs of applying the CAA permitting regimes to these areas of the economy, such as small businesses and commercial development, merit a complete assessment of the costs and benefits of such an approach.

Conclusion: Climate change presents real challenges that must be addressed through focused public policy responses. However, the draft raises serious concerns about the use of the CAA to address GHG emissions. The CAA is designed to reduce the concentration of pollutants, most of which have a limited lifetime in the air, while climate change is caused by GHG emissions that linger in the atmosphere for years. The CAA uses regulations that are often implemented at the state and regional level, while climate change is a global phenomenon. The CAA is designed to regulate major sources of traditional pollutants, but applying those the standards to GHGs could result in Clean Air Act regulation of small businesses, schools, hospitals, and churches.

Using the CAA to address climate change would likely have significant economic consequences for the United States. Regulation of GHG emissions through the CAA would mean that the United States would embrace emissions reductions outside of an international agreement with the world's major emitters. This would put U.S. firms at a competitive disadvantage by raising their input costs compared to foreign competitors, likely resulting in emissions leakage outside of the United States and energy-intensive firms relocating to less regulated countries. Such an outcome would not be beneficial to the environment or the U.S. economy.

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[19] EPA draft, pg. 224,225
[20] EPA draft, pg. 227

DEPARTMENT OF AGRICULTURE

Americans enjoy the safest, most abundant, and most affordable food supply in the world. Our farmers are extraordinarily productive, using technology and good management practices to sustain increased yields that keep up with growing populations, and they are good stewards of the land they depend upon for their livelihoods. Because of their care and ingenuity, the United States is projecting an agricultural trade surplus of $30 billion in 2008.

Unfortunately, the approach suggested by the Environmental Protection Agency ("EPA") staff's draft Advance Notice of Proposed Rulemaking "Regulating Greenhouse Gas Emissions under the Clean Air Act," which was submitted to the Office of Management and Budget on June 17, 2008 ("June 17 draft" or "draft ANPR"), threatens to undermine this landscape. If EPA were to exercise a full suite of the Clean Air Act ("CAA") regulatory programs outlined in the draft ANPR, we believe that input costs and regulatory burden would increase significantly, driving up the price of food and driving down the domestic supply. Additionally, the draft ANPR does not sufficiently address the promise of carbon capture and sequestration, and how a Clean Air Act regulatory framework could address these issues.

Input Costs

Two of the more significant components of consumer food prices are energy and transportation costs, and as these costs rise, they will ultimately be passed on to consumers in the form of higher food prices. As the past several months have demonstrated to all Americans, food prices are highly sensitive to increased energy and transportation costs. From May 2007 to May 2008, the price of crude oil has almost doubled, and the price consumers in the United States paid for food has increased by 5.1%.

We do not attempt here to address the effects on energy and transportation costs that would likely flow from a Clean Air Act approach to regulating greenhouse gases. The expert agencies—the Department of Energy and the Department of Transportation—have each included their own brief assessments of such effects. Our analysis begins with the assumption that these input costs would be borne by agricultural producers.

United States commercial agriculture is a highly mechanized industry. At every stage—field preparation, planting, fertilization, irrigation, harvesting, processing, and transportation to market—modern agriculture is dependent on technically complex machinery, all of which consume energy. Direct energy consumption in the agricultural sector includes use of gas, diesel, liquid petroleum, natural gas, and electricity. In addition, agricultural production relies on energy indirectly through the use of inputs such as nitrogen fertilizer, which have a significant energy component associated with their production.

Crop and livestock producers have been seeing much higher input prices this year. From June 2007 to June 2008, the prices paid by farmers for fertilizer are up 77%, and the prices paid for fuels have risen 61%. The prices paid by farmers for diesel fuel alone have increased by 72% over the past year. In practical terms, these figures mean that it is becoming far more costly for

the producer to farm. Currently, USDA forecasts that expenditures for fertilizers and lime, petroleum fuel and oils, and electricity will exceed $37 billion in 2008, up 15% from 2007.

Depending on the extent to which the Clean Air Act puts further pressure on energy prices, input costs for indispensible items such as fuel, feed, fertilizer, manufactured products, and electricity will continue to rise. A study conducted by USDA's Economic Research Service (Amber Waves, April 2006) found the impact of energy cost changes on producers depends on both overall energy expenditures and, more importantly, energy's share of production costs, with the potential impacts on farm profits from changes in energy prices greatest for feed grain and wheat producers. The study also found that variation in the regional distribution of energy input costs suggests that changes in energy prices would most affect producers in regions where irrigation is indispensable for crop production. Less use of irrigation could mean fewer planted acres or lower crop yields, resulting in a loss of production. In addition to potential financial difficulties, farmers fear that future tillage practices could be mandated and livestock methane management regulated.

However, the impact of higher energy prices on farmers is only part of the story. Only 19% of what consumers paid for food in 2006 went to the farmer for raw food inputs. The remaining 81% covered the cost of transforming these inputs into food products and transporting them to the grocery store shelf. Of every $1 spent on U.S.-grown foods, 3.5 cents went toward the costs of electricity, natural gas, and other fuels used in food processing, wholesaling, retailing, and food service establishments. An additional 4 cents went toward transportation costs. This suggests that for every 10 percent increase in energy costs, retail food prices could increase by as much as 0.75 percent if fully passed onto consumers. The resulting impact to the consumer of higher energy prices will be much higher grocery bills. More important, however, will be the negative effect on our abundant and affordable food supply.

Regulatory Burden on Agriculture

In its draft ANPR, EPA contemplates regulating agricultural greenhouse gas (GHG) emissions under the three primary CAA programs—National Ambient Air Quality Standards ("NAAQS"), New Source Performance Standards ("NSPS"), or Hazardous Air Pollutant ("HAP") standards. Like the Act itself, these programs were neither designed for, nor are they suitable to, regulation of greenhouse gases from agricultural sources. If agricultural producers were covered under such complex regulatory schemes, most (except perhaps the largest operations) would be ill-equipped to bear the costly burdens of compliance, and many would likely cease farming altogether.

The two common features of each CAA program are permitting and control requirements:

Permitting: Operators who are subject to Title V permitting requirements—regardless of which CAA program is applicable—are required to obtain a permit in order to operate. These Title V permits are subject to a public notice and comment period and contain detailed requirements for emission estimation, monitoring, reporting, and recordkeeping. Title V permits may also contain control requirements that limit the operation of a facility. If a producer desired, or were

compelled by changed circumstances (e.g., changing market demand, weather events, or pest infestation) to modify his operational plans, he would be required to first seek a permit modification from EPA or the State.

If GHG emissions from agricultural sources are regulated under the CAA, numerous farming operations that currently are not subject to the costly and time-consuming Title V permitting process would, for the first time, become covered entities. Even very small agricultural operations would meet a 100-tons-per-year emissions threshold. For example, dairy facilities with over 25 cows, beef cattle operations of over 50 cattle, swine operations with over 200 hogs, and farms with over 500 acres of corn may need to get a Title V permit. It is neither efficient nor practical to require permitting and reporting of GHG emissions from farms of this size. Excluding only the 200,000 largest commercial farms, our agricultural landscape is comprised of 1.9 million farms with an average value of production of $25,589 on 271 acres. These operations simply could not bear the regulatory compliance costs that would be involved.

Control: Unlike traditional point sources of concentrated emissions from chemical or manufacturing industries, agricultural emissions of greenhouse gases are diffuse and most often distributed across large open areas. These emissions are not easily calculated or controlled. Moreover, many of the emissions are the result of natural biological processes that are as old as agriculture itself. For instance, technology does not currently exist to prevent the methane produced by enteric fermentation associated with the digestive processes in cows and the cultivation of rice crops; the nitrous oxide produced from the tillage of soils used to grow crops; and the carbon dioxide produced by soil and animal agricultural respiratory processes. The only means of controlling such emissions would be through limiting production, which would result in decreased food supply and radical changes in human diets.

The NAAQS program establishes national ambient concentration levels without consideration of specific emission sources. The determination of which source is required to achieve emission reductions and how to achieve those reductions is specified in the State Implementation Plans ("SIPs") developed by each State. Under a NAAQS regulatory program, agricultural sources may need to employ Reasonably Available Control Measures ("RACM") or, at a minimum, include the use of Reasonably Available Control Technologies ("RACT"). In the past, such control measures were established with a national focus for typical industrial sources. In previously regulated sectors, these control measures and technologies have typically been associated with improved engineering or chemical processes; however, agriculture is primarily dependent upon biological processes which are not readily re-engineered. Given the nature of many agricultural source emissions, RACM and RACT may not exist or may be cost prohibitive.

The NSPS program regulates specific pollutants emitted from industrial categories for new, modified, or reconstructed facilities. EPA, rather than individual States, determines who is regulated, the emission reductions that must be achieved, and the associated control technologies and compliance requirements. Should EPA choose to regulate agriculture under NSPS, control requirements would be established at the national level using a "one-size-fits-all" approach. Differences in farming practices make it difficult to comply with this approach, as variability exists between types of operations and between similar operations located in different regions of the United States.

In addition, regulation of the agricultural sector under a NSPS program would likely trigger the added challenge of compliance with the pre-construction permitting process under the Prevention of Significant Deterioration ("PSD") program. Triggering pre-construction permits could result in a requirement to utilize Best Available Control Technologies ("BACT") or technologies that achieve the Lowest Available Emission Reductions ("LAER"). Given the state of available control methods for agricultural area sources, compliance with these requirements may not currently be achievable in many instances. Should BACT or LAER technologies exist, the ability to utilize them across the variety of farming operations is questionable, and the costs to employ these technologies would be high since they would be relatively new technologies.

Similar to the NSPS program, the HAP program focuses on industrial categories. EPA must list for regulation all categories of major sources that emit one or more HAP at levels that are very low (i.e., 10 tons per year of a single HAP or 25 tons per year of a combination of HAP). Under a HAP program, EPA can regulate both major sources and smaller (i.e., area) sources. In addition to the Title V permit requirement, this program would result in emission control requirements for all agricultural sources regardless of the size of the operation. These requirements are driven by the best-performing similar sources, with EPA determining the similarity between sources. This approach does not lend itself to compliance by agricultural sources whose practices vary farm-by-farm and locality-by-locality. In addition, the cost of controls used by the best-performing sources would increase the operating expenses for all farms regardless of size.

While this discussion only begins to address the practical difficulties that agricultural producers will face if EPA were to regulate GHGs under the CAA, these questions have not been raised in the draft ANPR in the context of agriculture. USDA believes that these issues must be thoroughly considered before a rule is finalized.

Capture and Sequestration

The draft ANPR does not sufficiently address the promise of carbon capture and sequestration, or how a Clean Air Act regulatory framework could address these issues. In describing emissions by sector, the draft ANPR does contain the following brief introductory statement:

> *Land Use, Land-Use Change, and Forestry*: Land use is not an economic sector per se but affects the natural carbon cycle in ways that lead to GHG emissions and sinks. Included in this category are emissions and sequestration of CO_2 from activities such as deforestation, afforestation, forest management and management of agricultural soils. Emissions and sequestration depend on local conditions, but overall land use in the United States was a net sink in 2006 equivalent to 12.5 percent of total GHG emissions.

Thus, the United States Government, as well as private landowners throughout the country, possess land resources that hold potentially tremendous economic and environmental value in a carbon-limited environment.

Unfortunately, in the draft ANPR's extensive discussion of regulatory alternatives, the EPA staff does not even attempt to make the case that the Clean Air Act could or should be used to ensure

that a regulatory scheme maximizes opportunities and incentives for carbon capture and sequestration. Had the draft ANPR raised these issues, it would become evident that there are substantial questions as to whether the CAA could provide an effective vehicle to account for such beneficial actions.

Additionally, any regulatory program should avoid needless duplication and conflict with already existing efforts. The recently enacted Food, Conservation and Energy Act of 2008 ("Farm Bill") requires the Secretary of Agriculture to establish technical guidelines to create a registry of environmental services benefits from conservation and land management activities, including carbon capture and sequestration. USDA is including EPA and other Federal agencies as participants in this process, which we believe holds substantial promise.