

**IS CO₂ A POLLUTANT AND DOES EPA HAVE
THE POWER TO REGULATE IT?**

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON NATIONAL ECONOMIC GROWTH,
NATURAL RESOURCES, AND REGULATORY AFFAIRS

OF THE

COMMITTEE ON GOVERNMENT REFORM

AND THE

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

OF THE

COMMITTEE ON SCIENCE

HOUSE OF REPRESENTATIVES

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IS CO₂ A POLLUTANT AND DOES EPA HAVE THE POWER TO REGULATE IT?

WEDNESDAY, OCTOBER 6, 1999

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON NATIONAL ECONOMIC GROWTH, NATURAL RESOURCES, AND REGULATORY AFFAIRS, COMMITTEE ON GOVERNMENT REFORM, JOINT WITH THE SUBCOMMITTEE ON ENERGY AND ENVIRONMENT, COMMITTEE ON SCIENCE,

Washington, DC.

The subcommittees met, pursuant to notice, at 2:39 p.m., in room 2247, Rayburn House Office Building, Hon. David M. McIntosh (chairman of the Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs) presiding.

Present from the Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs: Representatives McIntosh, Barr, and Kucinich.

Present from the Subcommittee on Energy and Environment: Representatives Calvert, Costello, and Ehlers.

Staff present from the Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs: Marlo Lewis, Jr., staff director; Barbara F. Kahlow and Joel Bucher, professional staff members; Jason Hopfer, counsel; Gabriel Neil Rubin, clerk; Elizabeth Munding, minority counsel; and Earley Green, minority staff assistant.

Staff present from the Subcommittee on Energy and Environment: Harlan Watson, staff director; Rob Hood and Jean Fruci, professional staff members; Jeff Donald, staff assistant; and Marty Ralston, minority staff assistant.

Mr. MCINTOSH. The subcommittees shall come to order.

First, let me say thank you to my colleague from California for co-chairing today's hearing. This should be a thought-provoking and indepth hearing, since we will be examining questions that go to the heart of the debate about the Kyoto Protocol and the administration's climate change policies. These questions are: Is carbon dioxide a pollutant, and does EPA have the power to regulate it?

The central premise of both the Kyoto Protocol and the administration's policies is the theory of catastrophic global warming. According to this theory, the buildup of greenhouse gases—principally CO₂ from fossil fuel combustion—will enhance the greenhouse effect, warm the Earth's atmosphere, and, thus, potentially, or even probably, increase the frequency and severity of extreme weather events, accelerate sea level rise, and spread tropical diseases.

More simply put, Kyoto proponents contend that CO₂—a clear, odorless gas and the fundamental nutrient of the planetary food

chain—is, in fact, a pollutant. Administration officials, for example, often say their policies are needed to combat “greenhouse pollution.”

The hypothesis that CO₂ emissions constitute greenhouse pollution draws its strongest support from mathematical simulations of the global climate system, known as the general circulation models. Now, although impressive in their complexity, the models repeatedly fail to replicate current and past climate; and as computing power and modeling techniques have improved, the amount of projected global warming has declined. The empirical side of the issue is much clearer. Hundreds of laboratory and field experiments show that nearly all trees, crops, and other plants raised in CO₂-enriched environments grow faster, stronger, and with greater resistance to temperature and pollution stress.

So, to borrow a well-known phrase from the UN’s Intergovernmental Panel on Climate Change, today’s hearing will consider where the “balance of evidence” lies. Does the balance of scientific evidence suggest that CO₂ emissions are endangering public health, welfare, and the environment?

The subcommittee will also examine whether EPA has the power under the Clean Air Act to regulate CO₂. EPA claims that it does have such authority, most notably in former EPA General Counsel Jonathan Cannon’s April 10, 1998 memorandum, entitled, “EPA’s Authority to Regulate Pollutants from Electric Power Generation Sources.”

The Cannon memorandum was, and remains, controversial. In his appearance before our subcommittee, he reasserted that power to regulate CO₂. Regulating CO₂ to curb greenhouse pollution is the sum and substance of the Kyoto Protocol. So, the Cannon memorandum implies that EPA already has the power to implement Kyoto-style emission reduction targets and timetables, as if Congress, when it enacted and amended the Clean Air Act, tacitly ratified the Kyoto Protocol in advance.

Several questions spring to mind, which I trust we will explore today. First, does the Clean Air Act expressly confer on EPA the power to regulate CO₂? On an issue of longstanding controversy like global warming, is it even conceivable that Congress would have delegated to EPA the power to launch a vast new regulatory program, a program potentially costing hundreds of billions of dollars, without ever saying so in the text of the statute? The Clean Air Act mentions CO₂ and global warming only in the context of non-regulatory activities such as research and technology development. How then can EPA claim that the act clearly and unambiguously provides the authority to regulate CO₂?

Second, does CO₂ fit into any of the regulatory programs already established under the Clean Air Act? The Cannon memorandum suggests, for example, that EPA may regulate CO₂ emissions under the National Ambient Air Quality Standards [NAAQS] program. But that program was designed to address local air quality problems, not a global phenomenon like the greenhouse effect. If EPA were to set a NAAQS for CO₂, for example, that is below the current atmospheric level, the entire United States would be out of attainment. Every community within the United States would be out of attainment if that NAAQS standard were adopted. Even if every

factory and power plant were to shut down, this would continue to be the case because it is a global phenomenon.

Conversely, if EPA were to set a NAAQS standard that is above the current level, the entire country would be in attainment, even if CO₂ emissions suddenly doubled in many of our communities. So NAAQS is not a tool well-crafted to attack the problem of global warming. The attempt to regulate CO₂ through the NAAQS program would appear to be an absurd and futile exercise. This suggests that Congress, when it enacted the program, never intended EPA to regulate CO₂.

The third question that I have, does the legislative history of the Clean Air Act Amendments of 1990 expressly support or, in fact, contradict EPA's claim of authority to regulate CO₂? Some may argue that Congress' deliberate rejection of greenhouse gas regulatory provisions in the 1990 amendments is irrelevant, because declining to mandate such regulation is not the same as prohibiting it. But this is tantamount to saying that EPA has whatever authority Congress does not expressly withhold. That is simply turning the entire principle of administrative law on its head. Under our system of government, agencies only have the powers that Congress specifically delegates to them.

The Clean Air Act is a carefully structured statute with specific titles that create specific regulatory programs to accomplish specific objectives. It is not a regulatory blank check. EPA contends that CO₂ falls within the Clean Air Act's formal or technical definition of "pollutant" as a substance that is "emitted into or otherwise enters the ambient air." But this hardly suffices to settle the question of whether Congress designed and intended any of the Clean Air Act's regulatory programs to encompass CO₂.

Before I turn over the proceedings to Chairman Calvert, I would like to welcome our witnesses. Representing the Clinton administration on the question of EPA's legal authority is EPA General Counsel Gary Guzy. Welcome, Mr. Guzy. I appreciate your willingness to step up to the plate and address these tough questions. Mr. Peter Glaser, of the law firm of Shook, Hardy, and Bacon; Professor James Huffman, who is Dean of the Lewis and Clark Law School; and Professor Jeffrey Miller of Pace University School of Law will also speak to the question of EPA's legal authority. Thank you, gentlemen, for participating in this forum.

I would also like to welcome the members of the scientific panel: Dr. Patrick Michaels, professor of Environmental Sciences at the University of Virginia and senior fellow in Environmental Studies at Cato Institute; Dr. Keith Idso, vice president of the Center for the Study of Carbon Dioxide and Global Change; and Dr. Chris Field, who is a staff scientist at the Carnegie Institution.

With that, let me turn over the opening statement to Mr. Calvert. Welcome. I really appreciate your effort to make this a joint hearing.

[The prepared statement of Hon. David M. McIntosh follows:]

Statement of Chairman David M. McIntosh
Subcommittee on National Economic Growth, Natural Resources and Regulatory
Affairs
on
“Is CO₂ a Pollutant and Does EPA Have the Power to Regulate It?”
October 6, 1999

I would like to thank the gentleman from California for co-chairing today's hearing. This should be a thought-provoking hearing, since we will be examining questions that go to the heart of the debate on the Kyoto Protocol and the Administration's climate change policies. Those questions are: Is carbon dioxide (CO₂) a pollutant and does the Environmental Protection Agency (EPA) have the power to regulate it?

The central premise of both the Kyoto Protocol and the Administration's climate policies is the theory of catastrophic global warming. According to this theory, the atmospheric buildup of greenhouse gases – principally CO₂ from the combustion of fossil fuels – will enhance the natural greenhouse effect, warm the earth's surface and atmosphere, and, thus, potentially (or even probably) increase the frequency and severity of extreme weather events, accelerate sea level rise, and spread tropical diseases.

More simply put, Kyoto proponents contend that CO₂ – a clear, odorless gas and the fundamental nutrient of the planetary food chain – is a pollutant. Administration officials, for example, often say that their policies are needed to combat “greenhouse pollution.”

The hypothesis that CO₂ emissions constitute greenhouse pollution draws its strongest support from mathematical simulations of the global climate system known as General Circulation Models (GCMs). Although impressive in their complexity, the models repeatedly fail to replicate current and past climate; and as computing power and modeling techniques have improved, the amount of projected global warming has declined. The empirical side of the issue is much clearer. Hundreds of laboratory and field experiments show that nearly all trees, crops, and other plants raised in CO₂-enriched environments grow faster, stronger, and with greater resistance to temperature and pollution stress.

So, to borrow a well-known phrase from the UN's Intergovernmental Panel on Climate Change, today's hearing will consider where the “balance of evidence” lies. Does the balance of scientific evidence suggest that CO₂ emissions are endangering public health, welfare, and the environment? Or, does it suggest that such emissions are “greening” the planet, enhancing global food security and biodiversity?

The Subcommittees will also examine whether EPA has the power, under the Clean Air Act, to regulate CO₂. EPA claims that it does have such authority, most notably in former EPA General Counsel Jonathan Cannon's April 10, 1998

memorandum, entitled “EPA’s Authority to Regulate Pollutants from Electric Power Generation Sources.”

The Cannon memorandum was – and remains – controversial. Regulating CO₂ to curb “greenhouse pollution” is the sum and substance of the Kyoto Protocol. The Cannon memorandum implies that EPA already has the power to implement Kyoto-style emission reduction targets and timetables in the U.S. – as if Congress, when it enacted and amended the Clean Air Act, tacitly ratified the Kyoto Protocol in advance.

Several questions spring to mind, which I trust we will explore today. First, does the Clean Air Act expressly confer on EPA the power to regulate CO₂? On an issue of longstanding controversy like global warming, is it even conceivable that Congress would have delegated to EPA the power to launch a vast new regulatory program – a program potentially costing hundreds of billions of dollars -- without ever saying so in the text of the statute? The Clean Air Act mentions CO₂ and global warming only in the context of non-regulatory activities such as research and technology development. How then can EPA claim that the Act clearly and unambiguously provides the authority to regulate CO₂?

Second, does CO₂ fit into any of the regulatory programs established by the Clean Air Act? The Cannon memorandum suggests, for example, that EPA may regulate CO₂ emissions under the National Ambient Air Quality Standards (NAAQS) program. But, that program was designed to address local air quality problems, not a global phenomenon like the greenhouse effect. If EPA were to set a NAAQS for CO₂ that is below the current atmospheric level, the entire United States would be out of attainment – even if every factory and power plant shut down. Conversely, if EPA were to set a NAAQS for CO₂ that is above the current level, the entire country would be in attainment, even if CO₂ emissions suddenly doubled. The attempt to regulate CO₂ through the NAAQS program would appear to be an absurd and futile exercise. This suggests that Congress, when it created the NAAQS program, never intended EPA to regulate CO₂.

Third, does the legislative history of the Clean Air Act Amendments of 1990 expressly support or, in fact, contradict EPA’s claim of authority to regulate CO₂? Some may argue that Congress’ deliberate rejection of greenhouse gas regulatory provisions in the 1990 Amendments is irrelevant, because declining to mandate such regulation is not the same as prohibiting it. But, this is tantamount to saying that EPA has whatever authority Congress does not expressly withhold – and that is turning the central principle of administrative law on its head. Under our system of government, agencies have only those powers that Congress specifically delegates to them.

The Clean Air Act is a carefully structured statute with specific titles that create specific regulatory programs to accomplish specific objectives. It is not a regulatory blank check. EPA contends that CO₂ falls within the Clean Air Act’s formal or technical definition of “pollutant” as a substance that is “emitted into or otherwise enters the

ambient air.” But this hardly suffices to settle the question of whether Congress designed and intended any of the Clean Air Act’s regulatory programs to encompass CO2.

Before I turn over the proceedings to Chairman Calvert, I would like to welcome our witnesses. Representing the Clinton Administration on the question of EPA’s legal authority with respect to CO2 is EPA General Counsel Gary S. Guzy. Mr. Guzy, I appreciate your willingness to step up to the plate and address some tough questions. Mr. Peter Glaser, of the law firm of Shook, Hardy and Bacon; Professor James Huffman, Dean of Lewis & Clark Law School, and Professor Jeffrey Miller of Pace University School of Law will also speak to the issue of EPA’s legal authority under the Clean Air Act. Thank you for participating in this forum.

I would also like to welcome the members of the science panel: Dr. Patrick Michaels, Professor of Environmental Sciences at the University of Virginia and Senior Fellow in Environmental Studies at the Cato Institute; Dr. Keith Idso, Vice President of the Center for the Study of Carbon Dioxide and Global Change; and Dr. Chris Field, Staff Scientist at the Carnegie Institution.

Mr. CALVERT. I would like to thank the gentleman from Indiana, Mr. McIntosh, for his interest and willingness to host this hearing between our two subcommittees. And I want to thank my good friend Mr. Costello from Illinois for attending also. I would also like to thank our witnesses today for their participation in this hearing.

Mr. Chairman, with the number of witnesses before us today, I will keep my remarks brief, in hopes that we will have ample time for questions.

A core premise of the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Clinton-Gore administration's Climate Change Technology Initiative is the theory that atmospheric buildup of greenhouse gases, principally carbon dioxide, caused by burning fossil fuels will destabilize the Earth's climate and trigger all manner of catastrophic events.

The Kyoto Protocol sets specific targets and timetables for a basket of six greenhouse gases, including CO₂, and, if ratified by the United States and entered into force, requires the United States to reduce its net emissions by 7 percent below the 1990 levels in the 2008–2012 timeframe. I might note that the Science Committee has held numerous hearings on this in the past 2 years on the Protocol, and knows its real story—energy use will be more expensive, economic growth will be jeopardized, and American families will pay dearly for a flawed treaty. The administration has tried hard to gloss over the U.N. treaty's fatal flaws, but it cannot sugarcoat the harsh realities that it would inevitably bring to our economy and to our way of life.

The administration has repeatedly stated that it has no intention of implementing the Protocol prior to its ratification, with the advice and consent of the Senate. However, the April 10, 1998 legal opinion by then EPA General Counsel Jonathan Cannon that the Clean Air Act authorizes EPA to regulate CO₂ has triggered concern about a possible “backdoor” implementation of this Protocol, a concern which I share, and I am sure everyone here is concerned about. In fact, EPA's sweeping interpretation of its powers under the Clean Air Act would allow it also to regulate other greenhouse gases, such as methane or even water vapor and clouds, which account for about 96 percent of the greenhouse effect.

The EPA opinion also notes that before it can issue regulations governing a pollutant under the Clean Air Act, the EPA Administrator must make a determination that the pollutant is “reasonably anticipated to cause or contribute to adverse effects on public health, welfare, or the environment.”

I am looking forward to today's testimony from our panel of legal experts on the EPA opinion, as well as from our scientific panel who will address the questions of whether man-made emissions of CO₂ also adversely affect public health, welfare, or the environment.

With that, Mr. Chairman, I would yield back the balance of my time.

[The prepared statement of Hon. Ken Calvert follows:]

COMMITTEE ON GOVERNMENT REFORM
SUBCOMMITTEE ON NATIONAL ECONOMIC GROWTH,
NATURAL RESOURCES AND REGULATORY AFFAIRS
and
COMMITTEE ON SCIENCE
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
U.S. HOUSE OF REPRESENTATIVES

Joint Hearing
on

Is CO₂ a Pollutant and Does EPA Have the Power to Regulate It?

October 6, 1999

STATEMENT OF
CHAIRMAN KEN CALVERT
ENERGY AND ENVIRONMENT SUBCOMMITTEE

I would like to thank the gentleman from Indiana, Mr. McIntosh, for his interest and willingness to host this joint hearing between our two subcommittees. I would also like to thank our witnesses for their participation in this hearing. Mr. Chairman with the number of witnesses before us today, I will keep my remarks brief, in hopes that we will have ample time for questions.

A core premise of the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Clinton-Gore Administration's Climate Change Technology Initiative is the theory that atmospheric buildup of greenhouse gases—principally carbon dioxide (CO₂) caused by burning fossil fuels—will destabilize the Earth's climate and trigger all manner of catastrophic events.

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Z. Cannon, that the Clean Air Act authorizes EPA to regulate CO₂ has triggered concern about possible “backdoor” implementation of the Protocol—a concern which I share. In fact, EPA’s sweeping interpretation of its powers under the Clean Air Act would allow it also regulate other greenhouse gases, such as methane or even water vapor and clouds, which account for about 96 percent of the greenhouse effect.

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I am looking forward to today’s testimony from our panel of legal experts on the EPA opinion, as well as from our scientific panel, who will address the question of whether man-made emissions of CO₂ also adversely effect public health, welfare, or the environment. With that, I thank the Chairman and yield back the balance of my time.

Mr. MCINTOSH. Thank you, Mr. Calvert. Again, I do appreciate your joining us and co-chairing this hearing. And at certain points, because I have a markup over in Education, I will be calling on you to chair this for us. I appreciate that.

Let me now turn to Mr. Costello. Would you like to make an opening statement?

Mr. COSTELLO. Mr. Chairman, I have a brief opening statement. Like you, I will have to leave in just a minute, so I trust that your ranking member will be here shortly.

Mr. Chairman, I thank you and my good friend from California, Chairman Calvert for calling the hearing today. I think by now we are all familiar enough with the Clean Air Act and its many provisions to at least suspect that it provides the EPA with the authority to regulate carbon dioxide. However, at this point, it is less important than the question of whether the information we have at this point in time indicates that carbon dioxide is actually causing harm to humans or to our environment. I do not believe that this test has been met.

The Congress and the administration have both indicated, and I adamantly agree, that the Kyoto Protocol should not be implemented prior to its ratification by the Senate. I believe we are all clear on that point. Therefore, I believe that we should be engaged in more positive pursuits than debating authorities under the Clean Air Act.

It is in our national interest to look for ways to utilize energy resources more efficiently and to develop alternative energy resources that we will need in the future. We also should continue to develop a better understanding of all variables that affect local climate on both short and long-term scales. Increased greenhouse gases may be changing our climate. However, regardless of whether they are changing our climate or not, we need to understand climate phenomenon and their relationship to regional weather patterns and the effect on the frequency and intensity of storms or droughts. This information is vital for disaster preparedness and understanding impacts on weather-dependant sectors, such as agriculture. I hope we can move beyond the climate change debate to working on policies that benefit our constituents.

I thank all of the witnesses for being here today. I look forward to hearing their testimony.

Mr. Chairman, with that, I yield back the balance of my time.

Mr. MCINTOSH. Thank you, Mr. Costello, and thank you for joining us. Undoubtedly, Mr. Kucinich is also over in the Education Committee markup, since we both serve on that committee as well.

Let me call our first panel of witnesses. I would ask each of you to summarize any prepared statement you have in approximately 5 minutes or so, and then we will be able to put your entire remarks into the record.

One of the policies that Chairman Burton has asked all of the subcommittees of the Committee on Government Reform to do is to swear in our witnesses. So, if all of you would please rise.

Do you solemnly swear that the testimony you will give today is the truth, the whole truth, and nothing but the truth?

[Witnesses sworn.]

Mr. MCINTOSH. Thank you. Let the record show that each of the members of the first panel answered in the affirmative.

Mr. Guzy, welcome. Thank you for coming today. Please share with us your testimony.

STATEMENTS OF GARY S. GUZY, GENERAL COUNSEL, U.S. ENVIRONMENTAL PROTECTION AGENCY; JAMES HUFFMAN, DEAN, LEWIS AND CLARK LAW SCHOOL; PETER GLASER, ESQ., SHOOK, HARDY, AND BACON; AND JEFFREY G. MILLER, PROFESSOR OF LAW, PACE UNIVERSITY SCHOOL OF LAW

Mr. GUZY. Thank you, Chairman McIntosh, Chairman Calvert, and members of the subcommittee, for the invitation to appear here today. I am pleased to have the opportunity to explain the U.S. Environmental Protection Agency's views as to the legal authority provided by the Clean Air Act to regulate emissions of carbon dioxide.

Before I do, however, I would like again to stress, as has been noted, that the administration has no intention of implementing the Kyoto Protocol to the United Nations Framework Convention on Climate Change prior to its ratification with the advice and consent of the Senate.

Some brief background information may be helpful to understand the context for the question of legal authority posed by the subcommittee in this hearing. In the course of generating electricity by burning fossil fuels, electric power plants emit into the air multiple substances that pose environmental concerns. Some of these are already subjected to some degree of regulation. EPA has worked with a broad array of interested parties to evaluate multiple pollutant control strategies for this industry, and has also conducted an analysis of the scope of Clean Air Act authority to accomplish these. These have arisen in a series of forums dating back to the Clean Air Power Initiative in the mid-1990's, and in developing the administration's electric utility industry restructuring proposals.

On March 11, 1998, during hearings on EPA's fiscal year 1999 appropriations, Representative DeLay asked Administrator Browner about reports that EPA claimed it had authority to regulate emissions of pollutants of concern from electric utilities, including carbon dioxide. The Administrator replied that the Clean Air Act provides such authority, and agreed to supply to Representative DeLay a legal opinion on that point. Therefore, my predecessor, Jon Cannon, prepared a legal opinion for the Administrator on the question of EPA's legal authority to regulate several pollutants. The legal opinion, which I endorse, requested by Representative DeLay, was completed in April 1998, and it addressed EPA's Clean Air Act authority to regulate emissions of four pollutants of concern from electric power generation—nitrogen oxides, sulfur dioxide, mercury, and carbon dioxide. I will summarize the conclusions only as they relate to carbon dioxide. But let me emphasize that this analysis is largely theoretical. EPA currently has no plans to regulate carbon dioxide as an air pollutant, and, despite statement by others to the contrary, we have not proposed to regulate CO₂.

The Clean Air Act includes a definition of the term "air pollutant" which is the touchstone of EPA's regulatory authority over emissions. Section 302(g) defines air pollutant as "any air pollution

agent, or combination of agents, including any physical, chemical, biological, radioactive "substance or matter which is emitted into or otherwise enters the ambient air." The opinion noted that CO₂ thus would be an air pollutant within the Clean Air Act's definition. Perhaps most telling to me, Congress explicitly recognized emissions of CO₂ from stationary sources, such as fossil fuel power plants, as an "air pollutant" in section 103(g) of the act. That section authorizes EPA to conduct a basic research and technology program to include, among other things, "improvements in non-regulatory strategies and technologies for preventing or reducing multiple air pollutants, including sulfur dioxides, nitrogen oxides, and carbon dioxide," among others.

The opinion explains further that the status of CO₂ as an air pollutant is not changed by the fact that it is found in the natural atmosphere. Congress specified regulation in the Clean Air Act of a number of naturally occurring substances as air pollutants because human activities have increased the quantities present in the air to levels that are harmful to public health, welfare, or the environment. For example, sulfur dioxide is emitted from geothermal sources; volatile organic compounds, which are precursors to harmful ground-level ozone, are emitted by vegetation; and some substances specified by Congress as hazardous air pollutants are actually necessary in trace quantities for human life but are toxic or harmful at levels higher than found ordinarily or through other routes of exposure. Phosphorus, manganese, and selenium, these are examples of such pollutants.

While carbon dioxide as an air pollutant is within the scope of regulatory authority provided by the Clean Air Act, this by itself does not lead to regulation. Before EPA can actually issue regulations through a rulemaking process governing a pollutant, the Administrator first must make a formal finding that the pollutant in question meets specific criteria laid out in the act. Many of these provisions share a common feature, in that the exercise of EPA's authority to regulate air pollutants is linked to a determination by the Administrator regarding the air pollutant's actual or potential harmful effects on public health, welfare, or the environment. This is true for authority under section 109 of the act to establish National Ambient Air Quality Standards.

By the way, section 302(h), a provision dating back to the 1970 version of the Clean Air Act, defines "welfare," for purposes of secondary effects, as including "effects on soil, water, crops, vegetation . . . weather, visibility, and climate," among others. So, that since 1970, the Clean Air Act has included effects on climate as a factor to be considered in the administration's decision as to whether to list an air pollutant under section 108. Analogous threshold findings are required before the Administrator may establish new source performance standards under section 111, or list and regulate a pollutant as hazardous under section 112.

Given the clarity of the statutory provisions defining air pollutants and providing authority to regulate them, there is no statutory ambiguity that could be clarified by reference to legislative history. Nevertheless, Congress' decision in the 1990 amendments not to adopt additional provisions directing EPA to regulate greenhouse gases by no means suggests an intention to limit pre-existing

authority to address any air pollutant that the Administrator determines meets the statutory criteria for regulation under a specific provision of the act.

Let me reiterate one of the central conclusions of the EPA memorandum. "While CO₂, as an air pollutant is within EPA's scope of authority to regulate, the Administrator has not yet determined that CO₂ meets the criteria for regulation under one or more provisions of the Act." That statement remains true today. EPA has not made any of the act's threshold findings that would lead to regulation of CO₂ emissions from electric utilities, or any source. Is it well-crafted, as Chairman McIntosh asked, to this goal? I would just point out the second finding of the EPA memo, that existing authority does not easily lend itself to a cost-effective mechanism, to impose a cap and trade program, and the administration is pledged to consult with Congress on the best mechanisms for doing so.

I also wish to stress once more that while EPA will pursue efforts to address the threat of global warming through the voluntary programs authorized and funded by Congress, and will carry out other mandates of the Clean Air Act, this administration has no intention of implementing the Kyoto Protocol prior to its ratification on the advice and consent of the Senate.

This concludes my prepared remarks. I ask that my full statement be submitted for the record, and would be pleased to answer any questions that the subcommittees may have. Thank you.

[The prepared statement of Mr. Guzy follows:]

**TESTIMONY OF
GARY S. GUZY
GENERAL COUNSEL
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE A JOINT HEARING OF THE
SUBCOMMITTEE ON NATIONAL ECONOMIC GROWTH,
NATURAL RESOURCES AND REGULATORY AFFAIRS
OF THE
COMMITTEE ON GOVERNMENT REFORM
AND THE
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
OF THE
COMMITTEE ON SCIENCE
U.S. HOUSE OF REPRESENTATIVES**

October 6, 1999

Thank you, Chairman McIntosh, Chairman Calvert, and Members of the Subcommittees, for the invitation to appear here today. I am pleased to have this opportunity to explain the U.S. Environmental Protection Agency's (EPA) views as to the legal authority provided by the Clean Air Act (Act) to regulate emissions of carbon dioxide, or CO₂.

Before I do, however, I would like to stress, as EPA repeatedly has stated in letters to Chairman McIntosh and other Members of Congress, that the Administration has no intention of implementing the Kyoto Protocol to the United Nations Framework Convention on Climate Change prior to its ratification with the advice and consent of the Senate.¹ As I indicated in my letter of September 17, 1999 to Chairman McIntosh,

¹See, e.g., Letter from Gary S. Guzy, General Counsel, to Congressman David McIntosh, September 17, 1999; Letter from David Gardiner, Assistant Administrator for Policy, to Congressman David McIntosh, June 23, 1999; Letter from David Gardiner, Assistant Administrator for Policy, to Congressman David McIntosh, August 13, 1988.

there is a clear difference between actions that carry out authority under the Clean Air Act or other domestic law, and actions that would implement the Protocol. Thus, there is nothing inconsistent in assessing the extent of current authority under the Clean Air Act and maintaining our commitment not to implement the Protocol without ratification.

Some brief background information is helpful in understanding the context for this question of legal authority. In the course of generating electricity by burning fossil fuels, electric power plants emit into the air multiple substances that pose environmental concerns, several of which are already subject to some degree of regulation. Both industry and government share an interest in understanding how different pollution control strategies interact. These interactions are both physical (strategies for controlling emissions of one substance can affect emissions of others) and economic (strategies designed to address two or more substances together can cost substantially less than strategies for individual pollutants that are designed and implemented independently). EPA has worked with a broad array of stakeholders to evaluate multiple-pollutant control strategies for this industry in a series of forums, dating back to the Clean Air Power Initiative (CAPI) in the mid-1990s. While the CAPI process focused on SO₂ and NO_x, a broad range of participants, including representatives of power generators, the United Mine Workers, and environmentalists, expressed support for inclusion of CO₂ emissions, along with SO₂, NO_x, and mercury, in subsequent analyses. One conclusion that emerged from these analytical efforts is that integrated strategies using market-based “cap-and-trade” approaches like the

program currently in place to address acid rain would be the most flexible and lowest cost means to control multiple pollutants from these sources.

On March 11, 1998, during hearings on EPA's FY 1999 appropriations, Representative DeLay asked the Administrator whether she believed that EPA had authority to regulate emissions of pollutants of concern from electric utilities, including CO₂. She replied that the Clean Air Act provides such authority, and agreed to Representative DeLay's request for a legal opinion on this point.

Therefore, my predecessor, Jonathan Z. Cannon, prepared a legal opinion for EPA Administrator Carol Browner on the question of EPA's legal authority to regulate several pollutants, including CO₂ emitted by electric power generation sources. The legal opinion requested by Rep. DeLay was completed on April 10, 1998. It addressed the Clean Air Act authority to regulate emissions of four pollutants of concern from electric power generation: nitrogen oxides (NO_x), sulfur dioxide (SO₂), mercury, and CO₂. Because today's hearing is focused exclusively on CO₂, I will summarize the opinion's conclusions only as they relate to that substance.

The Clean Air Act includes a definition of the term "air pollutant," which is the touchstone of EPA's regulatory authority over emissions. Section 302(g) defines "air pollutant" as

any air pollution agent or combination of such agents, including any physical, chemical, biological, [or] radioactive . . . substance or matter which is emitted into or otherwise enters the ambient air. Such term includes any precursors to the formation of any air pollutant, to the extent that the Administrator has identified such precursor or precursors for the particular purpose for which the term "air pollutant" is used.

Mr. Cannon noted that CO₂ is a "physical [and] chemical substance which is emitted

into . . . the ambient air," and thus is an "air pollutant" within the Clean Air Act's definition. Congress explicitly recognized emissions of CO₂ from stationary sources, such as fossil fuel power plants, as an "air pollutant" in section 103(g) of the Act, which authorizes EPA to conduct a basic research and technology program to include, among other things, "[i]mprovements in nonregulatory strategies and technologies for preventing or reducing multiple air pollutants, including sulfur oxides, nitrogen oxides, heavy metals, PM-10 (particulate matter), carbon monoxide, and carbon dioxide, from stationary sources, including fossil fuel power plants." (Emphasis added.)

The opinion explains further that the status of CO₂ as an "air pollutant" is not changed by the fact that CO₂ is a constituent of the natural atmosphere. In other words, a substance can be an "air pollutant" under the Clean Air Act's definition even if it has natural sources in addition to its man-made sources. EPA regulates a number of naturally-occurring substances as air pollutants because human activities have increased the quantities present in the air to levels that are harmful to public health, welfare, or the environment. For example, SO₂ is emitted from geothermal sources; volatile organic compounds (VOCs), which are precursors to harmful ground-level ozone, are emitted by vegetation. Some substances regulated under the Act as hazardous air pollutants are actually necessary in trace quantities for human life, but are toxic at higher levels or through other routes of exposure. Manganese and selenium are two examples of such pollutants. Similarly, in the water context, phosphorus is regulated as a pollutant because although it is a critical nutrient for plants, in excessive quantities it kills aquatic life in lakes and other water bodies.

While CO₂, as an “air pollutant,” is within the scope of the regulatory authority provided by the Clean Air Act, this by itself does not lead to regulation. The Clean Air Act includes a number of regulatory provisions that may potentially be applied to an air pollutant. But before EPA can actually issue regulations governing a pollutant, the Administrator must first make a formal finding that the pollutant in question meets specific criteria laid out in the Act as prerequisites for EPA regulation under its various provisions. Many of these specific Clean Air Act provisions for EPA action share a common feature in that the exercise of EPA’s authority to regulate air pollutants is linked to a determination by the Administrator regarding the air pollutant’s actual or potential harmful effects on public health, welfare or the environment. For example, EPA has authority under section 109 of the Act to establish National Ambient Air Quality Standards for any air pollutant for which the Administrator has established air quality criteria under section 108. Under section 108, the Administrator must first find that the air pollutant in question meets several criteria, including that:

- it causes or contributes to “air pollution which may reasonably be anticipated to endanger public health or welfare;” and
- its presence in the ambient air “results from numerous or diverse mobile or stationary sources”

Section 302(h), a provision dating back to the 1970 version of the Clean Air Act, defines “welfare” and states:

all language referring to effects on welfare includes, but is not limited to, effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants.

Thus, since 1970, the Clean Act has included effects on “climate” as a factor to be considered in the Administrator’s decision as to whether to list an air pollutant under section 108.

Analogous threshold findings are required before the Administrator may establish new source performance standards for a pollutant under section 111, list and regulate the pollutant as a hazardous air pollutant under section 112, or regulate its emission from motor vehicles under Title II of the Act.

Given the clarity of the statutory provisions defining “air pollutant” and providing authority to regulate air pollutants, there is no statutory ambiguity that could be clarified by referring to the legislative history. Nevertheless, I would note that Congress’ decision in the 1990 Amendments not to adopt additional provisions directing EPA to regulate greenhouse gases by no means suggests that Congress intended to limit pre-existing authority to address any air pollutant that the Administrator determines meets the statutory criteria for regulation under a specific provision of the Act.

I would like today to reiterate one of the central conclusions of the Cannon memorandum, which stated: “While CO₂, as an air pollutant, is within EPA’s scope of authority to regulate, the Administrator has not yet determined that CO₂ meets the criteria for regulation under one or more provisions of the Act.” That statement remains true today. EPA has not made any of the Act’s threshold findings that would lead to regulation of CO₂ emissions from electric utilities or, indeed, from any source. The opinion of my predecessor simply clarifies -- and I endorse this opinion -- that CO₂ is in the class of compounds that could be subject to several of the Clean Air Act’s regulatory approaches. Thus, I would suggest that many of the concerns raised about

the statutory authority to address CO₂ relate more to factual and scientific, rather than legal, questions regarding whether and how the criteria for regulation under the Clean Air Act could be satisfied.

I also want to note, however, EPA has strongly promoted voluntary partnerships to reduce emissions of greenhouse gases through the EnergyStar and Green Lights programs and other non-regulatory programs that Congress has consistently supported. These successful programs already have over 7,000 voluntary partners who are taking steps to reduce greenhouse gas emissions, reduce energy costs and help address local air pollution problems. These programs also help the United States meet its obligations under the United Nations Framework Convention on Climate Change, which was ratified in 1992. I would also note, as EPA has indicated in past correspondence with Chairman McIntosh and others, in the course of carrying out the mandates of the Clean Air Act, EPA has in a few instances directly limited use or emissions of certain greenhouse gases other than CO₂. For example, EPA has limited the use of certain substitutes for ozone-depleting substances under Title VI of the Act, where those substitutes have very high global warming potentials. I wish to stress once more, however, that while EPA will pursue efforts to address the threat of global warming through the voluntary programs authorized and funded by Congress and will carry out the mandates of the Clean Air Act, this Administration has no intention of implementing the Kyoto Protocol prior to its ratification on the advice and consent of the Senate.

This concludes my prepared statement. I would be happy to answer any questions that you may have.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 10 1998

OFFICE OF
GENERAL COUNSEL

MEMORANDUM

SUBJECT: EPA's Authority to Regulate Pollutants Emitted by Electric Power Generation Sources

FROM: Jonathan Z. Cannon
General Counsel

TO: Carol M. Browner
Administrator

I. Introduction and Background

This opinion was prepared in response to a request from Congressman DeLay to you on March 11, 1998, made in the course of a Fiscal Year 1999 House Appropriations Committee Hearing. In the Hearing, Congressman DeLay referred to an EPA document entitled "Electricity Restructuring and the Environment: What Authority Does EPA Have and What Does It Need." Congressman DeLay read several sentences from the document stating that EPA currently has authority under the Clean Air Act (Act) to establish pollution control requirements for four pollutants of concern from electric power generation: nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon dioxide (CO₂), and mercury. He also asked whether you agreed with the statement, and in particular, whether you thought that the Clean Air Act allows EPA to regulate emissions of carbon dioxide. You agreed with the statement that the Clean Air Act grants EPA broad authority to address certain pollutants, including those listed, and agreed to Congressman DeLay's request for a legal opinion on this point. This opinion discusses EPA's authority to address all four of the pollutants at issue in the colloquy, and in particular, CO₂, which was the subject of Congressman DeLay's specific question.

The question of EPA's legal authority arose initially in the context of potential legislation addressing the restructuring of the utility industry. Electric power generation is a significant source of air pollution, including the four pollutants addressed here. On March 25, 1998, the Administration announced a Comprehensive Electricity Competition Plan (Plan) to produce lower

prices, a cleaner environment, increased innovation and government savings. This Plan includes a proposal to clarify EPA's authority regarding the establishment of a cost-effective interstate cap and trading system for NO_x reductions addressing the regional transport contributions needed to attain and maintain the primary National Ambient Air Quality Standards (NAAQS) for ozone. The Plan does not ask Congress for authority to establish a cap and trading system for emissions of carbon dioxide from utilities as part of the Administration's electricity restructuring proposal. The President has called for cap-and-trade authority for greenhouse gases to be in place by 2008, and the Plan states that the Administration will consider in consultation with Congress the legislative vehicle most appropriate for that purpose.

As this opinion discusses, the Clean Air Act provides EPA authority to address air pollution, and a number of specific provisions of the Act are potentially applicable to control these pollutants from electric power generation. However, as was made clear in the document from which Congressman DeLay quoted, these potentially applicable provisions do not easily lend themselves to establishing market-based national or regional cap-and-trade programs, which the Administration favors for addressing these kinds of pollution problems.

II. Clean Air Act Authority

The Clean Air Act provides that EPA may regulate a substance if it is (a) an "air pollutant," and (b) the Administrator makes certain findings regarding such pollutant (usually related to danger to public health, welfare, or the environment) under one or more of the Act's regulatory provisions.

A. Definition of Air Pollutant

Each of the four substances of concern as emitted from electric power generating units falls within the definition of "air pollutant" under section 302(g). Section 302(g) defines "air pollutant" as

any air pollution agent or combination of such agents, including any physical, chemical, biological, [or] radioactive . . . substance or matter which is emitted into or otherwise enters the ambient air. Such term includes any precursors to the formation of any air pollutant, to the extent that the Administrator has identified such precursor or precursors for the particular purpose for which the term "air pollutant" is used.

This broad definition states that "air pollutant" includes any physical, chemical, biological, or radioactive substance or matter that is emitted into or otherwise enters the ambient air. SO₂, NO_x, CO₂ and mercury from electric power generation are each a "physical [and] chemical . . .

substance which is emitted into . . . the ambient air," and hence, each is an air pollutant within the meaning of the Clean Air Act.¹

A substance can be an air pollutant even though it is naturally present in air in some quantities. Indeed, many of the pollutants that EPA currently regulates are naturally present in the air in some quantity and are emitted from natural as well as anthropogenic sources. For example, SO₂ is emitted from geothermal sources; volatile organic compounds (precursors to ozone) are emitted by vegetation; and particulate matter and NO_x are formed from natural sources through natural processes, such as naturally occurring forest fires. Some substances regulated under the Act as hazardous air pollutants are actually necessary in trace quantities for human life, but are toxic at higher levels or through other routes of exposure. Manganese and selenium are two examples of such pollutants. EPA regulates a number of naturally occurring substances as air pollutants, however, because human activities have increased the quantities present in the air to levels that are harmful to public health, welfare, or the environment.

B. EPA Authority to Regulate Air Pollutants

EPA's regulatory authority extends to air pollutants, which, as discussed above, are defined broadly under the Act and include SO₂, NO_x, CO₂, and mercury emitted into the ambient air. Such a general statement of authority is distinct from an EPA determination that a particular air pollutant meets the specific criteria for EPA action under a particular provision of the Act. A number of specific provisions of the Act are potentially applicable to these pollutants emitted from electric power generation.² Many of these specific provisions for EPA action share a common

¹ See also section 103(g) of the Act (authorizes EPA to conduct a basic research and technology program to develop and demonstrate nonregulatory strategies and technologies for air pollution prevention, which shall include among the program elements "[i]mprovements in nonregulatory strategies and technologies for preventing or reducing multiple air pollutants, including sulfur oxides, nitrogen oxides, heavy metals, PM-10 (particulate matter), carbon monoxide, and carbon dioxide, from stationary sources, including fossil fuel power plants.").

² See, e.g., section 108 (directs Administrator to list and issue air quality criteria for each air pollutant that causes or contributes to air pollution that may reasonably be anticipated to endanger public health or welfare and that is present in the ambient air due to emissions from numerous or diverse mobile or stationary sources); section 109 (directs Administrator to promulgate national primary and secondary ambient air quality standards for each air pollutant for which there are air quality criteria, to be set at levels requisite to protect the public health with an adequate margin of safety (primary standards) and to protect welfare (secondary standards)); section 110 (requires states to submit state implementation plans (SIPs) to meet standards); section 111(b) (requires Administrator to list, and set federal performance standards for new sources in, categories of stationary sources that cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare); section 111(d) (states must establish performance standards for existing sources for any air pollutant (except criteria

feature in that the exercise of EPA's authority to regulate air pollutants is linked to a determination by the Administrator regarding the air pollutants' actual or potential harmful effects on public health, welfare or the environment. See, e.g., sections 108, 109, 111(b), 112, and 115. See also sections 202(a), 211(c), 231, 612, and 615. The legislative history of the 1977 Clean Air Act Amendments provides extensive discussion of Congress' purposes in adopting the language used throughout the Act referencing a reasonable anticipation that a substance endangers public health or welfare. One of these purposes was "[t]o emphasize the preventative or precautionary nature of the act, i.e., to assure that regulatory action can effectively prevent harm before it occurs; to emphasize the predominant value of protection of public health." H.R. Rep. No. 95-294, 95th Cong., 1st Sess., at 49 (Report of the Committee on Interstate and Foreign Commerce). Another purpose was "[t]o assure that the health of susceptible individuals, as well as healthy adults, will be encompassed in the term 'public health,'" *Id.* at 50. "Welfare" is defined in section 302(h) of the Act, which states:

[a]ll language referring to effects on welfare includes, but is not limited to, effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants.³

EPA has already regulated SO₂, NO_x, and mercury based on determinations by EPA or Congress that these substances have negative effects on public health, welfare, or the environment. While CO₂, as an air pollutant, is within EPA's scope of authority to regulate, the Administrator has not yet determined that CO₂ meets the criteria for regulation under one or more

pollutants or hazardous air pollutants) that would be subject to a performance standard if the source were a new source); section 112(b) (lists 188 hazardous air pollutants and authorizes Administrator to add pollutants to the list that may present a threat of adverse human health effects or adverse environmental effects); section 112(d) (requires Administrator to set emissions standards for each category or subcategory of major and area sources that the Administrator has listed pursuant to section 112(c)); section 112(n)(1)(A) (requires Administrator to study and report to Congress on the public health hazards reasonably anticipated from emissions of listed hazardous air pollutants from electric utility steam generating units, and requires regulation if appropriate and necessary); section 115 (Administrator may require state action to control certain air pollution if, on the basis of certain reports, she has reason to believe that any air pollutant emitted in the United States causes or contributes to air pollution that may be reasonably anticipated to endanger public health or welfare in a foreign country that has given the United States reciprocal rights regarding air pollution control); Title IV (establishes cap-and-trade system for control of SO₂ from electric power generation facilities and provides for certain controls on NO_x).

³ The language in section 302(h) listing specific potential effects on welfare, including the references to weather and climate, dates back to the 1970 version of the Clean Air Act.

provisions of the Act. Specific regulatory criteria under various provisions of the Act could be met if the Administrator determined under one or more of those provisions that CO₂ emissions are reasonably anticipated to cause or contribute to adverse effects on public health, welfare, or the environment.

C. EPA Authority to Implement an Emissions Cap-and-Trade Approach

The specific provisions of the Clean Air Act that are potentially applicable to control emissions of the pollutants discussed here can largely be categorized as provisions relating to either state programs for pollution control under Title I (e.g., sections 107, 108, 109, 110, 115, 126, and Part D of Title I), or national regulation of stationary sources through technology-based standards (e.g., sections 111 and 112). None of these provisions easily lends itself to establishing market-based national or regional emissions cap-and-trade programs.⁴

The Clean Air Act provisions relating to state programs do not authorize EPA to require states to control air pollution through economically efficient cap-and-trade programs and do not provide full authority for EPA itself to impose such programs. Under certain provisions in Title I, such as section 110, EPA may facilitate regional approaches to pollution control and encourage states to cooperate in a regional, cost-effective emissions cap-and-trade approach (see Notice of Proposed Rulemaking: Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 62 F.R. 60318 (Nov. 7, 1997)). EPA does not have authority under Title I to require states to use such measures, however, because the courts have held that EPA cannot mandate specific emission control measures for states to use in meeting the general provisions for attaining ambient air quality standards. See *Commonwealth of Virginia v. EPA*, 108 F.3d 1397 (D.C. Cir. 1997). Under certain limited circumstances where states fail to carry out their responsibilities under Title I of the Clean Air Act, EPA has authority to take certain actions, which might include establishing a cap-and-trade program.⁵ Yet EPA's ability to invoke these provisions for federal action depends on the actions or inactions of the states.

Technology-based standards under the Act directed to stationary sources have been interpreted by EPA not to allow compliance through intersource cap-and-trade approaches. The

⁴ Title IV of the Act provides explicit authority for a cap and trade program for SO₂ emissions from electric power generating sources.

⁵ For example, section 110(c) requires EPA to promulgate a Federal implementation plan where EPA finds that a state has failed to make a required submission of a SIP or that the SIP or SIP revision does not satisfy certain minimum criteria, or EPA disapproves the SIP submission in whole or in part. In addition, section 126 provides that a State or political subdivision may petition the Administrator for certain findings regarding emissions from certain stationary sources in another state. If the Administrator grants the petition, she may establish control requirements applicable to sources that were the subject of the petition.

Clean Air Act provisions for national technology-based standards under sections 111 and 112 require EPA to promulgate regulations to control emissions of air pollutants from stationary sources. To maximize the opportunity for trading of emissions within a source, EPA has defined the term "stationary source" expansively, such that a large facility can be considered a "source." Yet EPA has never gone so far as to define as a source a group of facilities that are not geographically connected, and EPA has long held the view that trading across plant boundaries is impermissible under sections 111 and 112. *See, e.g., National Emission Standards for Hazardous Air Pollutants for Source Categories; Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry*, 59 Fed. Reg. 19402 at 19425-26 (April 22, 1994).

III. Conclusion

EPA's regulatory authority under the Clean Air Act extends to air pollutants, which, as discussed above, are defined broadly under the Act and include SO₂, NO_x, CO₂, and mercury emitted into the ambient air. EPA has in fact already regulated each of these substances under the Act, with the exception of CO₂. While CO₂ emissions are within the scope of EPA's authority to regulate, the Administrator has made no determination to date to exercise that authority under the specific criteria provided under any provision of the Act.

With the exception of the SO₂ provisions focused on acid rain, the authorities potentially available for controlling these pollutants from electric power generating sources do not easily lend themselves to establishing market-based national or regional cap-and-trade programs, which the Administration favors for addressing these kinds of pollution problems. Under certain limited circumstances, where states fail to carry out their responsibilities under Title I of the Act, EPA has authority to take certain actions, which might include establishing a cap-and-trade program. However, such authority depends on the actions or inactions of the states.

Mr. McINTOSH. Thank you, Mr. Guzy. And there being no objection, your full statement will be included in the record, as will the full statements of all our witnesses.

Our second witness will be Mr. Glaser.

Mr. GLASER. Thank you, Mr. Chairman. My name is Peter Glaser. I am an attorney in the Washington, DC office of the law firm of Shook, Hardy, and Bacon. I have represented clients on the subject of potential global climate change over the last 10 years.

My testimony today examines the question: Does the U.S. Environmental Protection Agency currently have authority to regulate carbon dioxide emissions under the Clean Air Act or other statute? My analysis is set forth in the written version of my testimony, and, in more detail, my analysis is reflected in opinion of the National Mining Association dated October 12, 1998, and available on NMA's website.

Based on my analysis, I would conclude that Congress did not delegate authority to EPA to regulate carbon dioxide emissions. EPA, of course, takes the opposite view. It seems to be EPA's thesis that because CO₂ is emitted into the air, it must be an air pollutant, and that if the Administrator finds that carbon dioxide endangers the public health or welfare or the environment, then various provisions of the act, none of which mention carbon dioxide, could be invoked to regulate the substance. But the factual or technical issue of whether carbon dioxide endangers health, welfare, or the environment is only the beginning of the analysis of the legal question of whether EPA has the regulatory authority that the Agency claims. I defer to members of the Science Panel to present the case that carbon dioxide emissions are not a threat to America or the globe. If such threat does not exist, then even EPA would agree it has no authority to regulate greenhouse gas emissions.

My analysis shows that even assuming for the sake of argument that carbon dioxide emissions do present a danger to health, welfare, or the environment, EPA nevertheless could not regulate those emissions. Why not? Because Congress, very simply, did not give EPA the power to do so in the Clean Air Act or other statute. Given the far-reaching consequences carbon dioxide regulation poses to our society, and given the uncertain science of global warming, Congress reserved the power to itself to determine in the future whether or not to authorize restrictions on CO₂ emissions.

In brief, my analysis includes the following elements. We first examined the language of the Clean Air Act and found no explicit authorization to regulate carbon dioxide emissions. Such emissions are addressed only in non-regulatory portions of the act. Given that regulation of carbon dioxide would have major consequences for all sectors of the economy, the fact that Congress never expressly gave EPA the authority to regulate such emissions is highly convincing of Congress' intent not to do so.

I next examined various sections of the Clean Air Act to determine whether Congress may have implicitly given EPA authority to regulate carbon dioxide emissions. No such authority exists. There is simply no rational way that I can figure out to regulate a global phenomenon such as global climate change under the National Ambient Air Quality Standards. EPA admits that the NAAQS do not, I think the testimony was, "do not easily lend

themselves to regulation.” I would say that the NAAQS do not in any way lend itself to regulation, and that reflects Congress’ intent not to regulate carbon dioxide under the NAAQS.

Similarly, the regulation of carbon dioxide does not fit within the sections of the act dealing with new source performance standards, hazardous air pollutants, or transboundary air pollution.

We then examined the legislative history of the Clean Air Act. As we know, Congress rejected a provision to regulate carbon dioxide emissions when enacting the Clean Air Act Amendments of 1990. As the Supreme Court has emphasized, “few principles of statutory construction are more compelling than the proposition that Congress does not intend *sub silentio* to enact statutory language that it has earlier discarded.”

Finally, we examined other congressional activity dealing with potential global climate change to attempt to discern an intent to regulate or not to regulate carbon dioxide emissions. Congress has dealt with climate change issues at least since the late 1970’s and has enacted a number of items of legislation dealing with this subject. Yet, all of the legislation enacted has been non-regulatory, including Senate ratification of the purely voluntary Framework Convention on Global Climate Change, and, of course, the Framework Convention on Climate Change Amendment, the Kyoto Protocol proposed amendment has not been submitted to the Senate for ratification. It is just not possible to square this long history of congressional rejection of greenhouse gas restrictions with EPA’s claim today of discretion to issue far-reaching regulations.

In conclusion, there is no more axiomatic provision of administrative law than that the authority of government agencies is limited to the authority granted them by Congress. This principle was confirmed recently by the U.S. Court of Appeals for the D.C. Circuit in the American Trucking Associations case, striking down EPA’s recently promulgated NAAQS for ozone and particulate matter. EPA’s claim that it may regulate carbon dioxide is an extraordinary attempt by the Agency to arrogate to itself power to control virtually all facets of the American economy. It is simply not believable that Congress would have granted EPA this power without ever explicitly having said so.

That concludes my oral remarks, Mr. Chairman. I do have written remarks for the record.

[The prepared statement of Mr. Glaser follows:]

**SUBCOMMITTEE ON NATIONAL ECONOMIC GROWTH,
NATURAL RESOURCES AND REGULATORY AFFAIRS OF THE
HOUSE COMMITTEE ON GOVERNMENT REFORM
AND
SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT OF THE
HOUSE COMMITTEE ON SCIENCE**

JOINT HEARINGS - OCTOBER 6, 1999

TESTIMONY OF PETER GLASER, SHOOK, HARDY & BACON, L.L.P.

I. INTRODUCTION

My name is Peter Glaser. I am an attorney in the Washington, D.C. office of Shook, Hardy & Bacon, L.L.P. I have represented clients on the subject of potential global climate change over the last ten years.

My testimony today examines the question: Does the U.S. Environmental Protection Agency (EPA) currently have authority to regulate carbon dioxide under the Clean Air Act (CAA)¹ or other statute. My analysis is based on the rules of statutory construction established by the Supreme Court for discerning the scope of agency authority under Congressional enactments.² I first examine the language of the relevant statutory text in context of the overall purpose of the statute. I next examine legislative history. Finally, I examine related Congressional activity. Based on this analysis, I conclude that Congress did not delegate authority to EPA to regulate carbon dioxide emissions.³

¹ 42 U.S.C. §§ 7401-7671.

² *E.g., Adams Fruit Co. v. Barrett*, 494 U.S. 638, 649 (1990).

³ Given space limitations, my analysis here is necessarily brief. A considerably more detailed legal analysis is provided in an opinion prepared for the National Mining Association dated October 12, 1998 and available at www.nma.org.

EPA takes the opposite view. In a memorandum to the Administrator dated April 10, 1998, former EPA General Counsel Jonathan Z. Cannon opined that there are a number of provisions of the CAA that are “potentially applicable” to regulation of carbon dioxide emissions. Unfortunately, the Cannon memorandum was short on analysis. It seemed to be the thesis of the memorandum that if the EPA Administrator finds that carbon dioxide endangers the public health or welfare or the environment, then various provisions of the CAA, none of which mention carbon dioxide, could be invoked to regulate the substance.

The factual or technical issue of whether carbon dioxide endangers health, welfare or the environment, however, is only the beginning of the analysis of the legal question of whether EPA has the regulatory authority that EPA claims. I defer to members of the science panel to present the case that carbon dioxide emissions are not a threat to America or the globe. If such threat does not exist, then even EPA would agree it has no authority to regulate greenhouse gas emissions.

My analysis shows that, even assuming for the sake of argument that carbon dioxide emissions do present a danger to health, welfare or the environment, EPA nevertheless could not regulate them. Why not? Because Congress did not give EPA the power to do so in the CAA or other enactment. Given the far reaching consequences carbon dioxide regulation poses to our society, and given the uncertain science of global warming, Congress reserved the power to itself to determine in the future whether or not to authorize restrictions on carbon dioxide emissions.

II. ANALYSIS

A. **THE LANGUAGE OF THE CLEAN AIR ACT DEMONSTRATES THE ABSENCE OF AGENCY AUTHORITY TO REGULATE CARBON DIOXIDE.**

We begin our analysis with an examination of the statutory language. A proper examination of the statutory text includes not only the language itself but the context of the language as it appears in the overall regulatory scheme created by Congress.⁴ Toward this end, a review of the detailed regulatory provisions of the CAA reveals that none of them mention carbon dioxide emissions or global warming.

Where the CAA does explicitly refer to carbon dioxide or global warming, it does so solely in the context of non-regulatory activities such as research and technology programs. For example, CAA Section 103(g) lists carbon dioxide as one of several items to be considered in EPA's conduct of a "basic engineering research and technology program to develop, evaluate and demonstrate nonregulatory strategies and technologies."⁵ Global warming is mentioned in CAA Section 602(e), which directs EPA to examine the global warming potential of certain listed substances that contribute to stratospheric ozone depletion.⁶ However, this provision -- the only one in the statute that mentions global warming -- is accompanied by an express admonishment that it "shall not be construed to be the basis of any additional regulation under [the CAA]." Accordingly, the text and

⁴ United Savings Ass'n of Texas v. Timbers of Inwood Forest Assoc., Ltd., 484 U.S. 365, 371 (1988).

⁵ 42 U.S.C. § 7403.

⁶ 42 U.S.C. § 7671a(e).

structure of the CAA reveal Congress' deliberate choice to confine EPA's CAA endeavors on carbon dioxide to non-regulatory activities.

In contrast to Congressional silence on the subject of regulation of carbon dioxide and global warming, the CAA expressly provides authority to regulate numerous substances specifically referenced in the statute. For example, Sections 108 and 109 authorize EPA to regulate so-called "criteria pollutants," which, after almost three decades of CAA regulation, are now explicitly listed and placed in the context of a specific scheme for their regulation.⁷ Section 112 directs EPA to designate and regulate hazardous air pollutants ("HAPs"), and lists no less than 190 HAPs Congress determined are the most important to regulate.⁸ Similarly, Title VI of the CAA authorizes EPA to list and regulate substances which deplete the stratospheric ozone layer, and designates 53 substances to be so regulated.⁹ But neither global warming generally, nor carbon dioxide specifically, are mentioned anywhere in this prolific regulatory scheme developed by Congress.

Given this context, Congressional silence on carbon dioxide in the regulatory sections of the CAA provides an unmistakable indication of its intent not to regulate the substance.

⁷ See, e.g., Subparts II-V of Part D of CAA Title 1, containing detailed authority to regulate groundlevel ozone, carbon monoxide, particulate matter, sulfur oxides, nitrogen dioxide and lead.

⁸ CAA § 112(b), 42 U.S.C. § 7412.

⁹ CAA § 602, 42 U.S.C. § 7671a.

B. THE REGULATION OF CARBON DIOXIDE AS A POLLUTANT DOES NOT FIT WITHIN THE REGULATORY SCHEME CREATED BY CONGRESS.

We now examine whether specific regulatory provisions of the CAA, cited in the Cannon memorandum as “potentially applicable” to carbon dioxide regulation, could impliedly authorize such regulation even though they do not explicitly reference that substance.

1. There is No Authority in the CAA to Regulate Carbon Dioxide as a Criteria Pollutant.

The EPA Administrator is authorized to establish National Ambient Air Quality Standards (NAAQS) for “criteria pollutants,” which are those substances which, in the judgment of the EPA Administrator, “cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare” and which are produced by “numerous or diverse mobile or stationary sources.”¹⁰ Once NAAQS are established, a complex regulatory structure is triggered that mandates reductions of criteria pollutants in the ambient air to levels which protect the public health and welfare as set forth in the applicable NAAQS.¹¹ Areas of the country that have air quality that meets the NAAQS are designated as attainment areas, and areas of the country where air quality is worse than the NAAQS are designated as non-attainment.¹² States are required to adopt implementation plans (SIPs), subject to EPA approval, that provide for measures that will assure that air quality in

¹⁰ CAA §§ 108 and 109, 42 U.S.C. §§ 7408 and 7409.

¹¹ As explained in Train v. NRDC, 421 U.S. 60, 78 (1974) and Union Electric v. EPA, 427 U.S. 246, 249-50 (1975).

¹² CAA § 107, 42 U.S.C. § 7407.

non-attainment areas meets the NAAQS on a set timetable.¹³ Severe sanctions are provided for in the CAA if a state fails to adopt a valid SIP or if a state adopts a SIP but fails to enforce it.¹⁴

This criteria pollutant regulatory structure is designed to apply to local ambient air quality conditions in the sense that ambient concentrations of the pollution will differ from locality to locality, causing some localities to be designated as attainment areas and others as nonattainment areas.¹⁵ All of the substances which EPA has designated as criteria pollutants meet this framework. Lead, sulfur oxides, nitrogen dioxide, carbon monoxide, particulate matter and ozone concentrations in the air all present local air pollution problems that have resulted in discrete portions of the country being designated as nonattainment for each. To be sure, there are issues as to regional causes of local ambient pollution levels. Some pollutants are blown downwind, causing EPA to seek to exercise authority in the CAA to require modifications in SIPs to prevent ozone formation in downwind states.¹⁶ But even pollutants that are subject to regional transport ultimately present local air pollution problems in that ambient concentrations differ from locality to locality, resulting in the designation of discrete nonattainment areas.

Emission controls implemented under the CAA criteria pollutant regulatory structure described above are designed to cure the specific cause of the local nonattainment problem. States

¹³ CAA § 110, 42 U.S.C. § 7410.

¹⁴ CAA §§ 113, 179, 42 U.S.C. §§ 7413, 7509.

¹⁵ See, e.g., *General Motors Corp. v. United States*, 496 U.S. 530, 533-34 (1990).

¹⁶ See, e.g., USEPA, "Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Association Group Region for Purposes of Reducing Regional Transport of Ozone," September 24, 1997.

in their SIPs select those types of controls “as may be necessary” to achieve attainment in designated nonattainment areas, and these types of controls may differ from state to state and from nonattainment area to nonattainment area depending on the particular problem being addressed.¹⁷

This statutory structure has no rational application whatsoever to a substance such as carbon dioxide, which is fundamentally different than any of the substances that EPA regulates as a criteria pollutant. Although groundlevel and lower atmospheric ambient concentrations of carbon dioxide may differ slightly from locality to locality owing to differing sources and sinks, the greenhouse effect results from overall greenhouse gas concentrations in the troposphere rather than at groundlevel. Tropospheric levels of carbon dioxide over any particular locality are not influenced by emissions of carbon dioxide locally or upwind. Carbon dioxide mixes in the troposphere globally through the natural processes of atmospheric circulation and air movement. Thus, ambient tropospheric carbon dioxide levels in any one part of the world are roughly the same as in any other part of the world.¹⁸ As a result, one ton of carbon dioxide emitted in Washington, D.C., has the same effect on ambient tropospheric concentrations of carbon dioxide over Washington as a ton of carbon dioxide emitted in, for instance, China.¹⁹

¹⁷ CAA § 110(a)(2)(A). Indeed, it is a matter of state discretion to determine the specific emission controls that will be selected as a part of a SIP to achieve and maintain attainment. Train, 421 U.S. at 86-87.

¹⁸ IPCC 1990, p. 9.

¹⁹ EPA’s own definition of “ambient air” for purposes of the NAAQS program is “that portion of the atmosphere, external to buildings, to which the general public has access.” 40 C.F.R. § 50.1(e). As can be seen, this definition has no application to a tropospheric phenomenon such as the greenhouse effect of carbon dioxide.

The United States itself is a leading source worldwide of anthropogenic carbon dioxide emissions. However, the United States contributes only about 22% of all anthropogenic emissions of greenhouse gases,²⁰ and that number is projected to decline dramatically as the Third World industrializes.²¹ U.S. anthropogenic emissions of carbon dioxide thus are, and will continue to be, only a tiny fraction of the total sources - - both anthropogenic and natural - - of greenhouse gases in the atmosphere.

For these reasons, it is not even theoretically possible to meaningfully affect ambient concentrations of carbon dioxide in the troposphere through a program of designating nonattainment areas and requiring the submission of state-by-state SIPs. There is nothing a state could do, individually or in concert with every other state, that would be effective in reducing tropospheric carbon dioxide concentrations.

Thus, it is obvious that the statutory scheme established by Congress for the regulation of criteria pollutants was never intended, and cannot rationally be applied, to regulate carbon dioxide emissions. Under elementary principles of statutory construction, therefore, that statutory structure cannot be interpreted as providing authority to regulate carbon dioxide. It is axiomatic, for instance, that Congress should not be presumed to provide regulatory authority to an agency "to impose

²⁰ Marland, G., Andres, R., J., T.A. Boden, C. Johnson, and A. Brenkert, 1988. *Global, regional, and national CO2 emission estimates from fossil fuel burning, cement production, and gas flaring: 1751-1995*. Carbon Dioxide Information and Analysis Center, Electronic Database NDP-030, Oak Ridge, TN.

²¹ IPCC 1992, p. 81.

restrictions that [are] somehow calculated to serve [an] unattainable goal.”²² Courts may even look beyond the plain meaning of legislative language “[w]hen that meaning has led to absurd or futile results.”²³

Similarly, it has been held that Congress cannot have intended to create regulatory jurisdiction where “the operative provisions of the Act simply cannot accommodate” the object of the asserted regulatory authority.²⁴ And this principle applies even where an agency is given a broad mandate to protect the public health and welfare.²⁵ As stated by the Supreme Court, “[i]n our anxiety to effectuate the congressional purpose of protecting the public, we must take care not to extend the scope of the statute beyond the point where Congress indicated it would stop.”²⁶ Regulation of carbon dioxide emissions is plainly beyond the point that Congress indicated EPA’s regulatory authority under the NAAQS provisions of the CAA would stop.

2. **EPA Does Not Have Authority to Regulate Emissions of Carbon Dioxide through the Imposition of Technology-Based Controls under CAA Section 111.**

CAA Section 111 provides EPA with authority to establish “new source performance standards,” or “NSPS,” for categories of sources which emit air pollutants that EPA determines are

²² Huffman v. Western Nuclear, Inc., 486 U.S. 663, 673 (1988).

²³ United States v. American Trucking Ass’n., 310 U.S. 534, 543 (1939); see also Public Citizen v. Department of Justice, 491 U.S. 440, 454 (1988).

²⁴ Brown & Williamson Tobacco Corp. v. Food & Drug Administration, 153 F.3d 155 (4th Cir. 1998).

²⁵ Id.

²⁶ 62 Cases of Jam v. United States, 340 U.S. 593, 600 (1951).

a danger to the public health or welfare.²⁷ NSPS requirements are direct emissions limitations that any plant to which such controls apply must meet as a condition of operation.²⁸ Unlike the NAAQS, NSPS standards cannot be set at whatever level the Administrator determines is reasonably necessary to protect human health and welfare. The NSPS limitation must be set at a level that is “achievable” through “the best system of emission reduction which . . . has been adequately demonstrated.”²⁹

Section 111 does not authorize EPA to regulate carbon dioxide emissions for several reasons in addition to the general intent of Congress not to regulate carbon dioxide under the CAA. First, there are no cost-effective systems of emissions control, either commercially available at the present time or even projected to be commercially available in the foreseeable future, for controlling carbon dioxide emissions from stationary sources that could conceivably meet the standards of CAA Section 111. Second, carbon dioxide emissions do not endanger the public health or welfare. And lastly, NSPS requirements can be applied only to new or modified stationary sources. Any program to affect global warming limited to controlling carbon dioxide emissions from only new and modified stationary sources would obviously exclude most sources of such emissions and be completely ineffective.

²⁷ 42 U.S.C. § 7411.

²⁸ CAA § 111(e).

²⁹ CAA § 111(a)(1).

3. **EPA Does Not Have Authority to Regulate Carbon Dioxide Emissions as a Hazardous Air Pollutant.**

An argument that carbon dioxide may be regulated as a hazardous air pollutant (HAP) under CAA Section 112 would border on the frivolous. Both the language³⁰ and legislative history³¹ of CAA Section 112 confirm this conclusion. Unlike carbon dioxide, each of the 190 substances listed as HAPs under CAA Section 112 is a poison, producing toxic effects by direct exposure in small dosages. Moreover, if Congress had really intended that carbon dioxide be regulated as a HAP, it would have been exceedingly strange for it to have specifically named 190 of the presumably most obvious and important HAPs in CAA Section 112 while omitting carbon dioxide, which is by many orders of magnitude more ubiquitous in the environment than any of the substances expressly listed.

4. **EPA Does Not Have Authority to Regulate Carbon Dioxide Emissions under CAA Section 115.**

Attempts to regulate carbon dioxide under CAA Section 115,³² which gives the EPA Administrator authority to regulate emissions in the U.S. which endanger the health or welfare of a foreign country, would be similarly unavailing. CAA Section 115 is self-evidently designed to apply only to situations where wind borne pollution from the United States is deposited in a near-by

³⁰ See CAA § 112(b) defining HAPs as producing effects which are “carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic.”

³¹ Report of the House Committee on Energy and Commerce on H.R. 3030, H. Rep. No. 101-490 Part I, 101st Cong., 2d Sess. (1990) at 350.

³² 42 U.S.C. § 7415.

country.³³ It stretches the provision beyond its intended scope to say that it applies to a phenomenon such as the greenhouse effect, where emissions anywhere on the globe contribute equally to tropospheric levels of carbon dioxide that are roughly the same anywhere else on the globe.

C. **THE LEGISLATIVE HISTORY OF THE CAA AMENDMENTS OF 1990 CONFIRMS THAT EPA DOES NOT HAVE AUTHORITY TO MANDATE RESTRICTIONS OF CARBON DIOXIDE EMISSIONS.**

During Congressional consideration of the 1990 Amendments there was a sharp dispute between those who believed that the time had come for the United States to impose mandatory reductions on carbon dioxide emissions and those that did not. In particular, the version of the Senate bill that emerged from committee contained a Title VII entitled the “Stratospheric Ozone and Climate Protection Act” which would have provided explicit authority to regulate what was deemed by some to be the twin problems of ozone depletion and global climate change.³⁴ But the carbon dioxide regulatory provisions were rejected in the final legislation. As noted, the only carbon dioxide/global warming provisions adopted were non-regulatory.

As the Supreme Court has emphasized, “[f]ew principles of statutory construction are more compelling than the proposition that Congress does not intend sub silentio to enact statutory

³³ See, e.g., Her Majesty the Queen in Right of Ontario v. United States Environmental Protection Agency, 912 F.2d 1525 (D.C. Cir. 1990), which arose in the context of acid deposition in Canada assertedly caused by emissions in the United States.

³⁴ As stated in the Senate Committee report on S.1630, Title VII was based on Senators Chafee’s and Baucus’ S. 491, entitled the Stratospheric Ozone and Climate Protection Act of 1989, which had also been considered by the Committee. S. Rep. No. 228, 101st Cong., 1st Sess. (1989) at 385. S. 491, in turn, was based on a similar bill, S. 571, introduced in the previous Congress by Senator Chafee. *Id.*

language that it has earlier discarded.”³⁵ The fact that Congress considered and rejected an amendment authorizing EPA to regulate carbon dioxide emissions compels a conclusion that EPA cannot now claim such authority.

D. OTHER CONGRESSIONAL ENACTMENTS REGARDING POTENTIAL GLOBAL CLIMATE CHANGE, INCLUDING SENATE RATIFICATION OF THE RIO TREATY, DEMONSTRATE CONGRESS’ INTENT NOT TO REGULATE CARBON DIOXIDE EMISSIONS.

Courts have consistently ruled that “[i]n determining the meaning of a statute, the courts look not only at the specific statute at issue, but at its context of related statutes.”³⁶ Congress’ rejection of greenhouse gas regulation in the 1990 CAA Amendments has a detailed context stretching back to the late 1970s when the issue first arose and continuing to the present day. During this time, Congressional committees have held dozens of hearings on the subject, and Congress has enacted a number of major items of legislation dealing with potential global climate change both before and after the 1990 CAA Amendments.

In all of this time, and with all of this intensive consideration, Congress has consistently rejected measures to restrict greenhouse gas emissions. As seen, Congress rejected efforts to amend the CAA to adopt such measures. It also rejected efforts to adopt such measures in the omnibus Energy Policy Act of 1992 (“EPAct”),³⁷ and it did not include mandatory carbon dioxide restrictions

³⁵ INS v. Cardozo-Fonseca, 480 U.S. 421, 442-43 (1987). See also Arizona v. California, 373 U.S. 421, 442-43 (1987).

³⁶ ABC Rentals of San Antonio, Inc. v. Commissioner of Internal Revenue, 97 F.3d 392, 399 (10th Cir. 1996).

³⁷ Compare the Cooper-Synar legislation as introduced (H.R. 5966, 101st Cong., 2d Sess., 136 Cong. Rec. 37088 (1990) and H.R. 2663, 102d Cong., 1st Sess., 137 Cong. Rec. H4611 (daily ed. (continued...))

in other legislative vehicles dealing with potential global warming.³⁸ Instead, Congress has adopted legislation for various Executive Branch agencies to study the matter and report back to Congress.³⁹ It has also declared it to be U.S. policy to participate in international negotiations regarding climate change that may eventually lead, if Congress so determines in the future, to a decision to authorize restrictions on U.S. emissions of greenhouse gases.⁴⁰ In the meantime, pending further action, Congress has explicitly determined, through the Senate's ratification of the Rio Treaty, that the United States will not adopt binding or mandatory restrictions on greenhouse gas emissions.⁴¹

Of course, the Administration through its negotiation of the Kyoto Protocol would commit the U.S. to significant reductions of carbon dioxide emissions. But the Protocol has not yet been

³⁷(...continued)

1991)), which provided for mandatory regulation of carbon dioxide emissions, with the provision that ultimately became Section 1605 of EPA Act. Section 1605 provides for purely voluntary reporting of greenhouse gas emissions and was enacted only after its sponsors had assured Congress that any provisions of a binding or regulatory nature had been removed. 138 Cong. Rec. S1132 (daily ed. Feb. 6, 1992); 138 Cong. Rec. S17627 (daily ed. Oct. 8, 1992). See also omnibus energy legislation introduced by Senator Wirth but rejected by Congress in the 100th and 101st Congresses, S. 2667, 100th Cong., 2d Sess., 134 Cong. Rec. 19391 (1988) and S. 324, 101st Cong., 1st Sess., 135 Cong. Rec. 1473 (1989).

³⁸ See, e.g., National Climate Program Act, Pub. L. No. 95-367, codified at 15 U.S.C. § 2901 *et seq.*; Global Change Research Act, Pub. L. No. 101-606 (1990); Title XXIV of the Food and Agriculture Act of 1990, Pub. L. No. 101-606 (1990).

³⁹ *Id.*

⁴⁰ Exec. Rep. No. 102-55 on the United Nations Framework Convention on Climate Change, 102d Cong., 2d Sess. (1992) at 14. See also Senate Committee Hearings at 22 (prepared statement of Sen. McConnell) and Senator McConnell's statement on the Senate Floor to the same effect at 138 Cong. Rec. S17150 (daily ed. October 7, 1992).

⁴¹ Hearing Before the Senate Committee on Foreign Relations on the U.N. Framework Convention on Climate Change, 100th Cong., 2d Sess. (Sept. 18, 1992) at 93.

submitted to the Senate, and in the meantime Congress has indicated its intent that there be no “backdoor” implementation.⁴²

It is simply not possible to square this history of Congressional rejection of greenhouse gas restrictions with EPA’s claim today of discretion to issue far-reaching regulations.

III. CONCLUSION

There is no more axiomatic provision of administrative law than that the authority of government agencies is limited to the authority granted them by Congress.⁴³ This principle was confirmed recently by the United States Court of Appeals for the D.C. Circuit in the American Trucking Associations case striking down EPA’s recently promulgated NAAQS for ozone and particulate matter.⁴⁴ EPA’s claim that it may regulate carbon dioxide is an extraordinary attempt by the agency to arrogate to itself power to control virtually all facets of the American economy. It is simply not credible to argue that Congress granted EPA this power without ever explicitly saying so.

⁴² E.g., FY 1999 appropriations for EPA Environmental Programs and Management, P.L. 105-276, Title III.

⁴³ E.g., Bowen v. Georgetown Univ. Hosp., 488 U.S. 204, 298 (1988).

⁴⁴ American Trucking Ass’ns v. U.S. Environmental Protection Agency, 175 F.3d 1027 (D.C. Cir. 1999).

Mr. MCINTOSH. Thank you very much, Mr. Glaser. Your remarks will be included in the record.

Our third witness will be Mr. Miller.

Mr. MILLER. Thank you, Mr. Chairman. I am pleased to be here, and thank the two Chairs and the Members for inviting me. I have very little to add to what Mr. Guzy has said with regard to whether CO₂ is a pollutant or could be a pollutant under the Clean Air Act. The definition is very broad, almost anything can fit within it. The definition contains no limitations; it does not exclude CO₂, and nothing anywhere else in the act excludes it.

I should mention that those broad types of jurisdictional provisions were not unusual in the legislation of the early 1970's. In the Clean Water Act, for instance, there is a very broad definition of pollutant as well. The courts have held "pollution" there to include sand, dead fish, natural material from streambeds and banks, and even chlorine that is added to drinking water reservoirs for purification purposes.

Under the Clean Water Act, it is a little worse than under the Clean Air Act from the polluter's perspective, because the discharges of a pollutant without a permit are illegal without any regulatory activity on EPA's part. Under the Clean Air Act, pollutants may be emitted into the air unless EPA takes regulatory action to regulate them, which it has not done for CO₂. So the two-part determination that EPA must make to regulate under the Clean Air Act—the first being that we're dealing with an air pollutant, and the second, that the pollutant has adverse effects on health or welfare—the first I think is almost pro forma, the second is far more difficult and EPA has not attempted that here.

I would like to just mention a few of the points which have been made which may be a little misleading. It has been contended, for instance, that sections 108 and 109 would not authorize CO₂ to be regulated under the National Ambient Air Quality Standard provisions because it is not mentioned. If that is the case, EPA has no authority to regulate anything under those provisions because they do not mention any pollutants. Second, it has been said that the fact that most of the pollutants that EPA regulates as National Ambient Air Quality Standards are particularly mentioned or listed in sections 171 to 193, which is a congressional direction for EPA to regulate those pollutants. This is a little miscast as well. Those sections did not come about until EPA had already listed those pollutants as criteria pollutants and had regulated them for years. Sections 171 to 193 nowhere hint that CO₂ is not a pollutant or should not be regulated by EPA.

It has been argued that the SIP process is not appropriate for controlling CO₂ because CO₂ is a global rather than a local pollutant. That is an interesting point. I think we need to step back and recognize that the pollutants that are regulated from this system are on a spectrum, from very local pollutants like carbon monoxide, to very long-range pollutants like ozone or sulfur oxides, which are international. The SIP process has been best at controlling local pollution and has not been nearly as good at controlling transboundary pollution, which is why Congress has had to grant additional authority, for instance, for controlling acid rain. But that

does not mean that the SIP process is useless in addressing long-range pollutants. Indeed, it has been.

Of course, EPA, if it undertakes listing of CO₂, or any other pollutant, as a criteria pollutant, must accompany that with information about what the States can do about it, what industry can do about, how emissions can be curtailed. Unless it can do that, it would not be appropriate for EPA to go down that route. The fact that there is not a lot of technology available right now to control emissions of CO₂ is perhaps not entirely true or entirely relevant. There are technologies which increase the efficiency of electric generation, for instance. That has the direct effect of controlling CO₂ emissions. If you produce more kilowatt hours out of burning the same number of BTUs, you have produced the same number of BTUs with lesser emissions of CO₂. It should not be forgotten that the Clean Air Act, as it was originally conceived, was a technology-forcing statute. When it was enacted in 1970, the automobile companies, under oath before Congress, said that there was no technology to address curtailment of emissions from automobiles. Well, guess what? It did not take very long to come up with that technology when their feet were held to the fire. So it may well be possible that appropriate technologies could be developed here.

Finally, the argument that the Congress rejected a 1970 Senate bill requiring EPA to take a variety of measures to curtail greenhouse gases does seem to be a bit of a non sequitur. Since it did require EPA to take action on a broad array of pollutants, not just CO₂, its defeat does not necessarily tell us what Congress would have done with a narrow CO₂ bill. Defeating a requirement for EPA to take action is not the same thing as saying EPA cannot take action. I think, with regard to that, we should remember the admonitions of Justice Scalia, who is one of our leading thinkers these days on statutory interpretation. He tells us that we must start with the text and that is where we should end up. The legislative history is not a good guide to what the text of a statute tells us. Rejected legislation tells us very little about the meaning of enacted legislation, and the failure of the legislature to enact legislation in a different era tells us very little about what was intended by the Congress that enacted the legislation. We are talking, in the terms of 108, 109, 110, 111, these other basic provisions, about things that were enacted back in 1970. Congress might not enact them the same way today, but we are dealing with what was enacted in 1970.

Thank you very much.

[The prepared statement of Mr. Miller follows:]

TESTIMONY OF
JEFFREY G. MILLER
PROFESSOR OF LAW
PACE UNIVERSITY SCHOOL OF LAW
BEFORE A JOINT HEARING OF THE
SUBCOMMITTEE ON NATIONAL ECONOMIC GROWTH,
NATURAL RESOURCES AND REGULATORY AFFAIRS
OF THE
COMMITTEE ON GOVERNMENT REFORM
AND THE SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
OF THE COMMITTEE ON SCIENCE
UNITED STATES HOUSE OF REPRESENTATIVES

October 6, 1999

Thank you, chairman McIntosh, Chairman Calvert, and Members of the Subcommittees, for inviting me to appear here today. I am pleased to address the question of whether the opinion of the Environmental Protection Agency that it has authority to regulate carbon dioxide as an air pollutant under the Clean Air Act is supported by the wording, structure and history of the statute. I am convinced that traditional methods of statutory interpretation support EPA's position. I note, however, that such authority alone is insufficient for EPA to regulate carbon dioxide under the statute. To do so, EPA would have to make specific findings relating to such diverse matters as health and welfare consequences of carbon dioxide and measures available to control carbon dioxide emissions before it could promulgate standards for the pollutant.

Justice Scalia admonishes us that if the words and structure of a statute are unambiguous, we should look no further to interpret the statute. Here the words are unambiguous. Section 302(g) defines "air pollutant" broadly as a "physical, chemical...substance...which is emitted into the...ambient air." Carbon dioxide fits easily within this definition. If there was any

question on that, Congress answered the question in section 103(g)(1) by listing carbon dioxide as an air pollutant. Indeed, the other substances on the list already are criteria pollutants for which EPA has promulgated primary air quality standards to protect public health and secondary standards to protect public welfare under section 108. I note that section 302(h) defines effects on welfare, quite logically, to include effects on climate. This would be authority for EPA to establish a secondary standard for carbon dioxide, if EPA could make the requisite showing that carbon dioxide emissions had sufficient effects on climate.

The analysis and conclusion that carbon dioxide is an air pollutant for purposes of national air quality primary and secondary standards under section 108 also means that it is an air pollutant for purposes of new source performance standards under section 110. Of course, EPA could not promulgate a new source performance standard for carbon dioxide for any category of sources unless it could establish that a system of emissions reduction had been adequately demonstrated for such category.

I understand that the National Mining Association argues that the failure of Congress to take various actions from 1990 to the present somehow establishes that EPA does not have authority to regulate carbon dioxide as an air pollutant under the Act. Congress' failure to amend the statute, of course, does not amend its definition of air pollutant or the regulatory authority that it has given EPA over air pollutants. Returning to Justice Scalia's admonitions, the statute is unambiguous and therefore we don't turn to legislative history at all. Even if we did, Justice Scalia reminds us that the failure of Congress to enact an amendment tells us nothing about what an earlier Congress enacting the original statute intended. And, if we are interested in legislative intent at all, it is the intent of the enacting Congress that is relevant in interpreting

the statute. Justice Scalia reminds us, however, that the search for legislative intent is a chimera, best avoided altogether.

By comparison, I should mention a similar issue has arisen repeatedly under the Clean Water Act. It has a similarly broad definition of water pollutant. Courts have held water pollutants to include sand, natural vegetation, natural material from streambeds and banks, native soil excavated during ditching, dead fish, and chlorine added to a drinking water reservoir for water purification. Most of these materials are natural, are naturally found in water, and normally have no adverse effects on water quality. Yet when found in water at the wrong time, the wrong place, the wrong concentration, or the wrong amount, they may very well have adverse effects on water quality, which is what justifies their regulation. Much the same observation may be made of carbon dioxide.

Mr. MCINTOSH. Thank you for your testimony, Mr. Miller.

Our final witness on this panel is Mr. Huffman.

Mr. HUFFMAN. Thank you, Mr. Chairman. My name is James Huffman. I am professor of law and Dean at Lewis and Clark Law School in Portland, OR. I have taught constitutional law and natural resources law for 25 years.

My conclusion on the subject of these hearings is that EPA regulation of carbon dioxide pursuant to the Clean Air Act is unauthorized and would constitute a clear violation of the fundamental constitutional principle of separation of powers.

Assuming, for the sake of argument, that regulation of carbon dioxide emissions is a good idea from a policy perspective, it does not follow that EPA has the authority to enact such regulations. While the framers of our Constitution undertook to create a government that could provide for the public welfare, they were even more concerned to create a government that was constitutionally limited and constrained. Pursuant to the principle of separation of powers, only Congress has the authority within clearly defined constitutional limits to determine which good ideas will become government policy in law. Absent expressed statutory authorization, there are important and, indeed, fundamental constitutional reasons to insist that EPA does not have authority to regulate carbon dioxide.

We are not concerned here with an isolated toxic substance which Congress might have overlooked in the construction of its regulatory scheme. To the contrary, we are concerned with one of the most plentiful compounds in the Earth's atmosphere, the regulation of which will have dramatic and long-reaching effects for all Americans. Under these circumstances, the core values of our constitutional democracy require that Congress make the monumental decision, which the EPA would, if it regulated CO₂, appropriate to itself.

In the current administration, some departments of the government have been particularly aggressive in reaching beyond their enabling legislation to pursue an agenda which Congress has not embraced. The Department of Interior has claimed authority to implement ecosystem management in legislation enacted before the idea of ecosystem management was even conceived. The Department of Agriculture has just this week issued proposed regulations which, in the words of their press release, would "create a new vision for national forest planning." EPA's regulation of carbon dioxide would be a similar over-reaching.

Notwithstanding Mr. Guzy's protestations to the contrary, there seems little doubt that the administration's objective is to move the United States toward compliance with the objectives, if not the explicit standards, of the Kyoto Protocol, and I would note the statements from the two leading figures in the administration to my left. Treaties do not become the law of the land without the consent of two-thirds of the members of the U.S. Senate. The super majority is required because the framers believed that committing the United States to agreements with foreign nations is of particular moment. It is, therefore, doubly offensive to the principle of separation of powers for the Executive who has negotiated a treaty to propose regulations designed to implement that treaty without the

Senate's consent and without any implementing legislation approved by the Congress.

Every Member of Congress, including those Members of the Senate favoring ratification of the Kyoto Protocol, should be resolute in their opposition to unauthorized EPA regulations designed to implement standards of that unratified international agreement. It is horn book constitutional law that our government is one of limited and divided powers.

The recent D.C. Circuit Court of Appeals decision in *American Trucking*, which Mr. Glaser has mentioned, is of central relevance to the question before these committees. At issue in *American Trucking* was whether or not EPA had acted within its authority in setting new standards for particulate and ozone ambient air quality. The court acknowledged in that opinion that, unlike carbon dioxide, EPA has expressed statutory authority to regulate ozone and particulates, but concluded that "EPA has failed to state intelligibly how much is too much." "It was," said the court, "as if Congress commanded EPA to select big guys, and EPA announced that it would evaluate candidates on height and weight but revealed no cutoff point." EPA's regulation of carbon dioxide would be even less well-rooted in the language and legislative history of the Clean Air Act. To paraphrase the *American Trucking* opinion, it is as if Congress commanded EPA to protect health, and EPA announced that it would regulate anything which might affect health but revealed no standards for assessing whether the net effects were positive or negative. The court's decision in *American Trucking* is surely correct.

The Congress should not depend upon the courts to protect its constitutionally defined power from usurpation by administrative agencies. The *American Trucking* opinion is something of an aberration in nearly three-quarters of a century of judicial deference to expanding power in the Federal bureaucracy. Indeed, critics of the circuit court's decision have been quick to suggest that the non-delegation doctrine was generally thought to have gasped its last breath in *Schechter Poultry* in 1935. Perhaps *American Trucking* marks the beginning of the revival of the non-delegation doctrine. But even in that event, Congress has a responsibility to jealously guard its authority, not for the sake of power, but for the sake of the liberties of Americans which depend upon adherence to the principle of separation of powers. Separation of powers is not just a simple matter of government organization or of convenience. It is a fundamental principle of American constitutional law, as important to the protection of private and public liberty as the Bill of Rights.

It is surely fair to assume that EPA is motivated to serve the public good in everything it does, including its proposed regulation of carbon dioxide. But good intentions do not satisfy the standards of the Constitution. If carbon dioxide emissions are of sufficient concern to warrant Federal regulation, it is not asking too much that Congress provide the authorization required by the Constitution. Thank you.

[The prepared statement of Mr. Huffman follows:]

**SUBCOMMITTEE ON NATIONAL ECONOMIC GROWTH,
NATURAL RESOURCES AND REGULATORY AFFAIRS OF THE
HOUSE COMMITTEE ON GOVERNMENT REFORM
AND
SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT OF THE
HOUSE COMMITTEE ON SCIENCE**

JOINT HEARINGS - OCTOBER 6, 1999

**TESTIMONY OF JAMES L. HUFFMAN
LEWIS AND CLARK LAW SCHOOL**

I. INTRODUCTION

My name is James Huffman. I am Professor of Law and Dean at Lewis and Clark Law School in Portland, Oregon. I have taught constitutional law and natural resources law for twenty five years.

The question on which I have been asked to testify is: Does the United States Environmental Protection Agency have existing authority to regulate carbon dioxide emissions under the Clean Air Act? My conclusion is that EPA regulation of carbon dioxide pursuant to the Clean Air Act or any other extant statute is unauthorized and would constitute a clear violation of the fundamental constitutional principle of separation of powers.

Assuming, for the sake of argument, that regulation of carbon dioxide emissions is a good idea from a policy perspective, it does not follow that EPA has

the authority to enact such regulations. While the framers of our Constitution undertook to create a government that could provide for the public welfare, they were even more concerned to design a constitutional structure capable of limiting that government to its constitutionally defined sphere. Pursuant to the principle of separation of powers, which is reflected in the first three articles of the Constitution, only Congress has the authority, within clearly defined constitutional limits, to determine which good ideas will become government policy and law.

II. ANALYSIS

A. The Basis of EPA's Asserted Authority

In a memorandum dated April 10, 1998, EPA General Counsel Jonathan Z. Cannon advised EPA Administrator Carol M. Browner that EPA has authority to regulate carbon dioxide as an air pollutant pursuant to section 302(g) of the Clean Air Act which defines an air pollutant as "a physical [and] chemical . . . substance which is emitted into . . . the ambient air." (at page 2-3) Mr. Cannon reaches this conclusion notwithstanding that the Clean Air Act expressly identifies hundreds of substances subject to EPA regulation, that the only references in the Clean Air Act to carbon dioxide are in the context of non-regulatory activities, and that Congress previously rejected a proposal to regulate carbon dioxide in the "Stratospheric

Ozone and Climate Protection Act of 1990."

I will leave it to others to address in detail the provisions of the Clean Air Act. However, absent express statutory authorization or unmistakable evidence of Congressional intent to include carbon dioxide among substances to be regulated pursuant to other language of the Clean Air Act, there are important, indeed fundamental, constitutional reasons to insist that EPA does not have authority to regulate carbon dioxide. We are not concerned here with an isolated, toxic substance which Congress might have overlooked in the construction of its regulatory scheme. To the contrary, we are concerned with one of the most plentiful compounds in the earth's atmosphere, the regulation of which will have dramatic and long-reaching effects for all Americans. Under these circumstances, the core values of our constitutional democracy require that Congress make the monumental decision which the EPA proposes to appropriate for itself.

It is not unusual for a federal agency to seek to expand its power. Indeed it is that tendency among all government officials which gave birth more than three centuries ago to the concept of the separation of powers. The idea of checks and balances, of the immense powers of government being divided among legislative, executive and judicial functions, has been a central tenant of American constitutional law since the founding of the nation. As James Madison wrote in

Federalist 51: "Ambition can be made to counteract ambition both within and between the two governments, offering a `double security' to the rights of the people."

In the current administration, some departments of the government have been particularly aggressive in reaching beyond their enabling legislation to pursue an agenda which Congress has not embraced. The Department of Interior has claimed authority to implement ecosystem management in legislation enacted before the idea of ecosystem management was conceived. The Department of Agriculture has just this week issued proposed regulations which "create a new vision" for National Forest planning focusing on, in the words of Undersecretary Jim Lyons, "sustainability, public participation, and improved use of science." It is the same Jim Lyons who, at an Ecology Law Quarterly conference in 1997, objected that Congress' appropriation riders were interfering with the Forest Service's ability to manage the national forests.

EPA's proposed regulation of carbon dioxide is a product of the same over-reaching by an administration frustrated by a Congress of the opposing party. It is no mystery that the administration's objective is to move the United States toward compliance with the standards of the Kyoto Protocol. But that international agreement has not even been submitted to the United States Senate for ratification.

Treaties do not become the law of the land without the consent of two-thirds of the members of the United States Senate. A super-majority is required because the framers believed that committing the United States to agreements with foreign nations is of particular moment. It is therefore doubly offensive to the principle of separation of powers for the executive who has negotiated a treaty to propose regulations designed to implement that treaty without the Senate's consent and without any implementing legislation approved by the Congress. Every member of the Congress, including those members of the Senate favoring ratification of the Kyoto Protocol, should be resolute in their opposition to unauthorized EPA regulations designed to implement the standards of that unratified international agreement.

B. The Constitutional Basis of the Clean Air Act

The constitutional authority for the Clean Air Act is the commerce clause. Under the "affecting commerce test" developed by the Supreme Court during the New Deal era, there is little doubt that Congress has the authority to regulate air pollution which derives from interstate commerce or which has negative effects of interstate commerce. The regulation of carbon dioxide would surely come within the authority granted by the commerce clause.

However, concluding that Congress has the authority to regulate carbon dioxide emissions is a very different matter from concluding that EPA has that authority. EPA's assertion of authority is based on the fact that Congress has authorized, in the Clean Air Act, the regulation of other pollutants which have an effect on human health. But just as the constitutional framers thought it important to enumerate the legislative powers, Congress should insist, as did the D.C. Circuit in *American Trucking*, that EPA limit its regulations to those clearly authorized by statute.

The importance of Congressional authorization should be particularly apparent where a proposed commerce clause regulation would have large and pervasive impacts on the national economy. In our system of government, Congress is the voice of the people. It is an awesome responsibility when human health and economic welfare are at stake. It is a responsibility which Congress should not evade nor bureaucrats be permitted to usurp.

C. A Government of Limited and Divided Powers

It is hornbook constitutional law that our federal government is one of limited and divided powers. But from the New Deal until the Supreme Court's decision in *United States v. Lopez*, 514 U.S. 549 (1995), the concept of limited

power was eroded in the name of doing what needed to be done. The many programs of the New Deal became the foundations of our modern bureaucracy. Much good has been done, but at considerable expense to the constitutional powers of state and local governments and to the liberties protected by the divided powers of the federal system. The most recent term of the Supreme Court has built upon *Lopez* and subsequent federalism decisions, but what of the limits intended by the separation of powers within the federal government?

The recent D.C. Circuit Court of Appeals decision in *American Trucking Associations, Inc. v. EPA*, 175 F.3d 1027 (1999), is of central relevance to the question before these subcommittees. At issue in *American Trucking* was whether or not the EPA had acted within its authority in setting new standards for particulate and ozone ambient air quality. The Court acknowledged that (unlike carbon dioxide) EPA has express statutory authority to regulate ozone and particulates, but concluded that EPA "failed to state intelligibly how much is too much." (at page 1034) It was, said the Court, as if "Congress commanded EPA to select 'big guys,' and EPA announced that it would evaluate candidates based on height and weight, but revealed no cut-off point." (at page 1034) Accepting EPA's justification for its 1997 ambient air quality standards for ozone and particulate matter would leave the agency with the discretion to "pick any point between zero and a hair below the

concentrations yielding London's Killer Fog."

EPA's proposed regulation of carbon dioxide is even less well rooted in the language of the Clean Air Act. Heretofore, EPA has regulated pollutants listed in the Act, and has exercised discretion in assessing when these pollutants pose health risks and what regulatory measures are appropriate in light of those risks. The problem with the regulations at issue in *American Trucking* is that EPA failed to demonstrate that the permitted level of emissions was reasonable in light of the risks to health. The proposed carbon dioxide regulations would extend EPA discretion even further. To paraphrase the *American Trucking* opinion, it is as if Congress commanded EPA to protect health and EPA announced that it would regulate anything which might affect health, but revealed no standards for assessing whether the net effects were positive or negative.

The problem which the D.C. Circuit faced in *American Trucking* is not unusual. Our federal statutes often contain vague commands to federal agencies to take action in the public interest, with little or no guidance about what the public interest is. We have come to this state of legislative affairs over many decades of expanding executive government rooted in the progressivist belief in scientific management, bureaucrats anxious to implement their notions of the public good, and a Congress willing to avoid the hard political choices. But it is not the

constitutional role of the executive agencies to make political choices. That is the point of the D.C. Circuit's decision.

In the environmental and health areas we are particularly prone to reliance on agencies because of the often complex and difficult scientific and technical questions involved. These agencies have a "special expertise," in the words of the Court of Appeals, but not on the subject of how much risk is too much. The scientists at EPA have much to tell us about the severity and certainty of pollution effects and the size of population affected, but that is the limit of their expertise. EPA may have relied on distinguished scientists in concluding that carbon dioxide warrants regulation, but as the *American Trucking* Court stated, "the question of whether EPA acted pursuant to lawfully delegated authority is not a scientific one." Nor is the question of what risks, or what tradeoffs between health and economy, are acceptable.

The Court's decision in *American Trucking* is surely correct, but Congress should not depend upon the courts to protect its constitutionally defined power from usurpation by administrative agencies. The *American Trucking* opinion is something of an aberration in nearly three quarters of a century of judicial deference to expanding power in the federal bureaucracy. Indeed critics of the Circuit Court's decision have been quick to suggest that the nondelegation doctrine

was generally thought to have gasped its last breath in *Schechter Poultry Corp. v. United States*, 295 U.S. 495 (1935). Perhaps *American Trucking* marks the beginning of the revival of the nondelegation doctrine, but even in that event, Congress has a responsibility to jealously guard its authority--not for the sake of power, but for the sake of the liberties of Americans which depend upon adherence to the principle of separation of powers.

III. CONCLUSION

A central principle of administrative law is that the authority of administrative agencies is limited to that which has been granted by Congress. This principle derives from the constitutional doctrine of separation of powers. Separation of powers is not just a simple matter of government organization or of convenience. It is a fundamental principle of American constitutional law as important to the protection of private and public liberty as the Bill of Rights.

It is surely fair to assume that EPA is motivated to serve the public good in everything it does including its proposed regulation of carbon dioxide. But good intentions do not satisfy the standards of the Constitution. If carbon dioxide emissions are of sufficient concern to warrant federal regulation, it is not asking too much that Congress provide the authorization required by the Constitution.

Mr. MCINTOSH. Thank you, Mr. Huffman. I appreciate your remarks. As I said, the complete written text of all of your testimony will be put into the record.

I have a couple of questions and then we will recognize my fellow panelists. First, Mr. Guzy, you had mentioned the general provision on pollutants in section 302(g), and then to bolster a very broad interpretation of what that is in the Cannon legal memorandum you cite section 103(g) as proof that CO₂ is a pollutant within the meaning of the Clean Air Act because it is listed there. But in that same section Congress put into law "Nothing in this subsection shall be construed to authorize the imposition on any person of pollution control requirements." Similarly, the provision in the Clean Air Act mentioning global warming, section 602(e) stipulates "The preceding sentence shall not be construed to be the basis of any additional regulation under this chapter."

How do you interpret these congressional restrictions in using those subsections to bolster your argument about the general text?

Mr. GUZY. Mr. Chairman, it is important to keep in mind why the memorandum cites 103(g)(1). It does not cite it, and I want to be very clear about this, as in and of itself statutory authority for regulation of CO₂.

Mr. MCINTOSH. I understand that it cites it to bolster the argument about section 302.

Mr. GUZY. But what it does absolutely clearly is indicate that Congress regarded carbon dioxide as "an air pollutant." And the limiting provisions that you have cited here, which basically say that nothing in this subsection shall be construed to authorize the imposition on any person of pollution control requirements, go to the question of do we have authority to draw from a technology and research program particular control requirements that could be imposed on sources.

That's not the issue that we're citing 103(g) for. What we're citing it for is the clear congressional understanding that carbon dioxide from sources such as electric generating utilities, stationary sources such as that, can properly be regarded as an air pollutant and should be regarded as an air pollutant under the definitions of the act. That then gives rise to the next set of questions under the particular regulatory provision, the particular statutory provisions that we then would face were the administration to decide to move forward with that kind of an action.

The question that you asked about section 602 also is not referenced in the memorandum as a source of authority for the general understanding of Congress that, in fact, carbon dioxide should, or could, be regarded as an air pollutant.

And if I may, Mr. Chairman, make a few more general points. While Congress specified certain substances that are widespread in recognizing that there could be regulation as under the provisions for National Ambient Air Quality Standards, Congress also recognized that knowledge would change, knowledge would evolve. And so it also gave authority to the Administrator to designate new types of pollutants, as Ambient Air Quality Standards, as criteria air pollutants, the most fundamental that could be subject to a regulatory scheme. It also provided, I might add, a very elaborate regulatory process that the agency would need to go through were it

to commence that type of work. And those standards constitute quite clear limiting principles for any future agency action.

Mr. MCINTOSH. It strikes me as somewhat self-serving to select those parts where Congress explicitly says we don't intend to create regulatory authority, and then discount an explicit provision where regulatory authority was in fact rejected by Congress.

Is there any substance that you know of that does not fit the definition of air pollutant that you are putting before us in section 302?

Mr. GUZY. Again, I would refer the chairman also to the sort of next set of requirements that—

Mr. MCINTOSH. No, no, no, no. Getting to that initial step, which is where you say we are at with carbon dioxide, is there any substance that would not meet that test?

Mr. GUZY. I will concede that it is a very broad definition and there is an argument for just about any substance that it could be regarded as an air pollutant under that definition.

Mr. MCINTOSH. That's what I thought. In which case, you are reading the act to be a general mandate for EPA to provide for health and welfare, because any substance qualifies under the first step, and you are saying Congress created, in the name of a Clean Air Act, a general regulatory authority for all substances if it affects health and welfare.

Mr. GUZY. I would like to be a little bit more precise about it, Mr. Chairman. First of all, I was assuming that by your question you were referring to any substance which gets into the air, and I take that as a given. But that would be necessary to qualify under the definitional section in 302. But then the question that is faced, which is a fundamental question that EPA has not yet faced, is what regulatory scheme is it then potentially subject to. And there are very clear limitations in the act that would rule out all sorts of substances. I particularly refer you to section 108, where the substance has to cause or contribute to air pollution which may reasonably be anticipated to endanger, not just affect, endanger public health or welfare, and the presence has to result from numerous or diverse mobile or stationary sources. In other words, it is susceptible to the kind of regulatory scheme that Congress set forward in the 1970 act, and then again ratified in the later amendments.

Mr. MCINTOSH. Let me ask Mr. Glaser, do you want to comment on this discussion?

Mr. GLASER. Yes, absolutely. I think the focus on whether a substance is an air pollutant within this incredibly broad definition of anything emitted into the ambient air is somewhat of a red herring, for a number of reasons. First of all, it ignores some very, very basic principles of statutory construction, including that we do not make a fortress out of the dictionary, we don't engage in over-literalism, but in construing statutory language we try to view the language in light of the overall context and regulatory program in which the language is used. So it is not enough simply to say, well, it is emitted to the ambient air, therefore it must be an air pollutant, and therefore we can go ahead and regulate it if it causes danger.

The question is, is it the type of air pollutant, is it the type of emission that Congress designed this statute to deal with? And we know what kinds of air pollutants this statute was designed to deal with. They are pollutants that are emitted to the air and are deposited and are breathed in by people and have a direct effect either on people or the environment. It is not fair, it is not correct to say that this statute was designed to deal with the type of emission, like carbon dioxide, which is emitted into the atmosphere and circulates globally in the troposphere and creates an indirect environmental impact in that sense. For that type of environmental impact, this act has no provisions that can deal with that. And that is the whole problem here.

We heard an earlier witness say the act does not just deal with local pollution, it deals with regional transport or long-range transport. It is absolutely true, the Clean Air Act has provisions that deal with wind-borne air pollution that blow pollutants downwind 50, 100, 200 miles. But that is not anything like carbon dioxide. Carbon dioxide is not an emission that goes in the air and it is blown downwind, in the sense that it is emitted in one area of the country and it is blown downwind and has an effect in another area of the country. One ton of carbon dioxide emitted in Kansas has the same overall impact on international global warming as a ton emitted in Bangladesh. So there is therefore no way that this structure created in this act can deal with it.

The NAAQS, for instance, every State has to submit an implementation plan and that implementation plan has to provide how the State is going to get into attainment for the particular NAAQS. The State is required, mandated to come up with an attainment plan that will meet the NAAQS. Now, it is true that there are regional transport issues so that upwind States have to include in their implementation plans provisions to eliminate any contribution the upwind State may be making to downwind non-attainment. But that system has no rational application whatsoever to carbon dioxide. An earlier witness said it would be useful in some way. It is not even a question of being useful. It just does not fit. It is a round peg in a square hole and you cannot presume that Congress would have intended to provide a system of regulation that just cannot possibly work.

So, in conclusion, I would simply say that to engage in this debate on what is or what may not be an air pollutant strictly within the terms of the Clean Air Act is pretty fruitless. The real question is what does the substance of the act say about dealing with a substance like carbon dioxide. And it is just not in there.

Mr. GUZY. Mr. Chairman, may I just respond very quickly?

Mr. MCINTOSH. Yes. And while you are doing that, I have got another quick question for you, which is, did you reevaluate the Cannon opinion in light of the American Trucking Association decision?

Mr. GUZY. Yes. Let me just respond very quickly, if I may, to Mr. Glaser. I would just refer the subcommittees to a provision which has been in the act since 1970, was ratified again in 1977, remained in the act after the 1990 amendments, and that is section 302(h), which recognizes that welfare, the subject of secondary ambient air quality standards, can include effects on "soils, water, crops, vegetation, man-made materials, animals, wildlife, weather,

visibility, and climate, damage to and deterioration of property and hazard to transportation, as well as effects on economic values and personal comfort and well-being, whether caused by transformation, conversion, or in combination with other air pollutants," not necessarily purely inhalation routes of exposure, as Mr. Glaser suggests.

We did look at the ATA decision. One thing that I will say, that Dean Huffman and I are very much in agreement on, is that the ATA decision is an aberration, as he said. As you well know, Mr. Chairman, we have sought rehearing before the D.C. Circuit of that decision and requested a rehearing en banc before the full court. But despite our fundamental disagreement with it, that is the prevailing precedent in the Circuit at this time and we obviously want to conform our activities to it.

We have looked at that decision. Were it to stand, our sense is that there is enough clear guidance, limiting principles in this statutory construct that would suggest that in fact there is not an unconstitutional delegation of authority were EPA to go forward with some kind of regulatory approach to limiting carbon dioxide. But, again, I want to get back to my basic point, which is that EPA has not made that kind of decision and currently has no plans to do so.

Mr. MCINTOSH. Right. I would have to say for the record I would disagree with your reading of that case. To me it would read more like an unconstitutional usurpation of authority by EPA that the courts were trying to prevent when they struck down those rules.

Let me turn now to Mr. Calvert for questions he might have.

Mr. KUCINICH. Are we going back and forth, Mr. Chairman?

Mr. MCINTOSH. We were going to have the two chairmen speak first, then go back and forth. Does that work for you, Dennis? I will try to get you in before we go back to the votes.

Mr. KUCINICH. I just wanted to see what the ground rules are. I am ready to play, I just wanted to know what the rules are.

Mr. MCINTOSH. Great. We were going to do each committee back and forth.

Mr. KUCINICH. OK. And we have 10 minutes? No problem.

Mr. CALVERT. I thank the chairman. There is a lot of discussion about the intent of Congress at the time of the implementation of the Clean Air Act. I would ask the chairman, there are not too many Members still here, but Congressman Dingell is here and I would ask that he would submit his testimony or letter to the record. I am sure the gentleman from Michigan would submit testimony on the intention of Congress at that time. I think it would be interesting to have in the record, especially from the minority position. So if that is not objectionable, Mr. Chairman.

Mr. MCINTOSH. There being no objection, we will hold the record open for shall we say 10 days.

Mr. CALVERT. I would ask that that be done. Ten days is fine with me.

[The information referred to follows:]

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U.S. House of Representatives
 Committee on Commerce
 Room 2123, Rayburn House Office Building
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October 5, 1999

The Honorable David M. McIntosh
 Chairman
 Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs
 Committee on Government Reform
 Room B-377 Rayburn House Office Building
 Washington, D.C. 20515

Dear Mr. Chairman:

I understand that you have asked, based on discussions between our staffs, about the disposition by the House-Senate conferees of the amendments in 1990 to the Clean Air Act (CAA) regarding greenhouse gases such as methane and carbon dioxide. In making this inquiry, you call my attention to an April 10, 1998 Environmental Protection Agency (EPA) memorandum entitled "EPA's Authority to Regulate Pollutants Emitted by Electric Power Generation Sources" and an October 12, 1998 memorandum entitled "The Authority of EPA to Regulate Carbon Dioxide Under the Clean Air Act" prepared for the National Mining Association. The latter memorandum discusses the legislative history of the 1990 amendments.

First, the House-passed bill (H.R. 3030) never included any provision regarding the regulation of any greenhouse gas, such as methane or carbon dioxide, nor did the bill address global climate change. The House, however, did include provisions aimed at implementing the Montreal Protocol on Substances that Deplete the Ozone Layer.

Second, as to the Senate version (S. 1630) of the proposed amendments, the October 12, 1998 memorandum correctly points out that the Senate did address greenhouse gas matters and global warming, along with provisions implementing the Montreal Protocol. Nevertheless, only Montreal Protocol related provisions were agreed to by the House-Senate conferees (see Conf. Rept. 101-952, Oct. 26, 1990).

However, I should point out that Public Law 101-549 of November 15, 1990, which contains the 1990 amendments to the CAA, includes some provisions, such as sections 813, 817 and 819-821, that were enacted as free-standing provisions separate from the CAA. Although

the Public Law often refers to the "Clean Air Act Amendments of 1990," the Public Law does not specify that reference as the "short title" of all of the provisions included the Public Law.

One of these free-standing provisions, section 821, entitled "Information Gathering on Greenhouse Gases Contributing to Global Climate Change" appears in the United States Code as a "note" (at 42 U.S.C. 7651k). It requires regulations by the EPA to "monitor carbon dioxide emissions" from "all affected sources subject to title V" of the CAA and specifies that the emissions are to be reported to the EPA. That section does not designate carbon dioxide as a "pollutant" for any purpose.

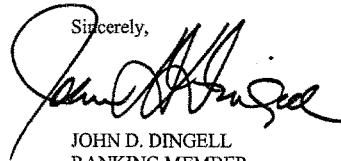
Finally, Title IX of the Conference Report, entitled "Clean Air Research," was primarily negotiated at the time by the House and Senate Science Committees, which had no regulatory jurisdiction under House-Senate Rules. This title amended section 103 of the CAA by adding new subsections (c) through (k). New subsection (g), entitled "Pollution Prevention and Control," calls for "non-regulatory strategies and technologies for air pollution prevention." While it refers, as noted in the EPA memorandum, to carbon dioxide as a "pollutant," House and Senate conferees never agreed to designate carbon dioxide as a pollutant for regulatory or other purposes.

Based on my review of this history and my recollection of the discussions, I would have difficulty concluding that the House-Senate conferees, who rejected the Senate regulatory provisions (with the exception of the above-referenced section 821), contemplated regulating greenhouse gas emissions or addressing global warming under the Clean Air Act. Shortly after enactment of Public Law 101-549, the United Nations General Assembly established in December 1990 the Intergovernmental Negotiating Committee that ultimately led to the Framework Convention on Climate Change, which was ratified by the United States after advice and consent by the Senate. That Convention is, of course, not self-executing, and the Congress has not enacted implementing legislation authorizing EPA or any other agency to regulate greenhouse gases.

I hope that this is responsive.

With best wishes,

Sincerely,



JOHN D. DINGELL
RANKING MEMBER

cc: The Honorable Dennis J. Kucinich
Ranking Minority Member, Subcommittee on National Economic Growth, Natural
Resources and Regulatory Affairs
Committee on Government Reform

The Honorable Ken Calvert
Chairman, Subcommittee on Energy and Environment
Committee on Science

The Honorable Jerry F. Costello
Ranking Minority Member, Subcommittee on Energy and Environment
Committee on Science

Mr. CALVERT [presiding]. I would like to ask Mr. Guzy a question. On June 11, 1998, EPA published a proposed rulemaking regarding the protection of stratospheric ozone, refrigerant recycling, substitute refrigerants in the Federal Register. It is my understanding that this proposed rule may ban certain non-ozone-depleting refrigerants if they have high global warming potentials. The text of the proposed rulemaking states: "EPA recognizes that the release of refrigerants with high global warming potentials could cause a threat to the environment."

This implies to me that under the rulemaking EPA has made a determination that global warming is a threat to the environment. Since CO₂ is considered a major contributor to global warming, then is it not just a small step for EPA to declare CO₂ a threat to the environment and to proceed with regulations? What is your comment on that, Mr. Guzy?

Mr. GUZY. The EPA, under a series of long-standing commitments that actually preceded this administration, has expressed concern about the potential for greenhouse gases to cause a global climate change. In fact, the preceding administration negotiated and signed on the Nation's behalf the Rio Declaration. That gives rise to a series of domestic obligations—

Mr. CALVERT. So the administration is determined to start regulating various gases based upon potential agreements; is that your testimony, Mr. Guzy?

Mr. GUZY. No. In fact, that agreement, the Rio Agreement was ratified by the Senate and is binding upon the United States. Now it does not call for the same kinds of targets and timetables that the Kyoto Protocol does. Nonetheless, the Clean Air Act has a number of authorities that compel EPA to look at environmental effects and we would regard climate change effects as among those.

Mr. CALVERT. For all the witnesses, on any major controversial issue—and I think everyone on this panel would agree that this is controversial—of long-standing debate, with enormous economic implications like global warming, is it even conceivable that Congress would authorize EPA to launch a vast new regulatory program without expressly saying so? As far as I know, this Congress has not said so. Is Congress in the habit of delegating far-reaching powers to agencies just by mere silence? Anyone have any comment about that?

Mr. Huffman.

Mr. HUFFMAN. Yes. It is to me a peculiar notion of American Government that problems that arise that are new problems are to be solved by searching around in existing legislation for authority. It seems to me that our constitutional system is fairly clearly separated into three parts, not with clear dividing walls between them, but the policymaking function is clearly the legislature's. It seems to me in recent years, particularly in the current administration, there has been a tendency to have an agenda which by-passes Congress and is sought to be implemented through existing legislation.

Mr. CALVERT. Are you saying, Mr. Huffman, that I did run for election for a purpose?

Mr. HUFFMAN. I would hope so. And I would say that the most condemning thing that I have heard said today was my friend, Professor Miller's comment, that this legislation fits almost anything.

Any piece of legislation about which that can be said, where that argument can be used to justify regulation, is a piece of legislation which delegates more authority than Congress can delegate. I think even the U.S. Supreme Court, which has been reticent to overturn legislation on the non-delegation theory, would find that argument problematic in support of regulating CO₂.

Mr. MILLER. Of course, I think I completed my sentence by saying that the first test, whether it is an air pollutant, fits almost anything that is emitted into the air, but that the second test, which is necessary before EPA does anything, is that it finds that it is an endangerment to health and welfare and that something can be done about it.

But the tradition of searching around in existing statutes to meet a present problem is one of long-standing tradition. I remember in the Nixon administration when the Environmental Protection Agency, or its predecessor actually, and the Justice Department resurrected an 1898 statute having to do with dredging harbors and rivers to begin a water pollution permitting program. That was eventually struck down, not because it was not authorized, but it was struck down because it did not comply with NEPA.

Mr. GUZY. Mr. Chairman, if I may, we believe that Congress made a fundamental policy choice when it passed the Clean Air Act to protect the public health from endangerment from air pollutants. But it did so in a very far-sighted kind of way. It did not just say here is the problem, these are solutions. It said keep looking at it because the science will evolve, the problems will evolve, you cannot be static in time. In fact, it included provisions that require us to look back every 5 years and assess using the best available science through an independent peer review process whether, in fact, we have got it right.

Mr. CALVERT. Mr. Guzy, I am very interested in clean air. I represent Riverside, CA, and anyone who represents an area in southern California is extremely interested in clean air. What I am concerned about is whether any statutory authority has been given to regulate CO₂. I have heard nothing from this Congress that gives EPA statutory right to regulate CO₂. I go back to the start of my questioning, I am interested in Mr. Dingell's testimony he will submit to this committee for the record as to what the intentions of the Congress was back thirty years ago under the Clean Air Act.

Mr. GLASER, do you have any comment?

Mr. GLASER. Yes. The problem for the notion that there is some mop up authority in the Clean Air Act to deal with new problems as they come along, that is one thing. But we are now almost 30 years into Clean Air Act regulation. Congress has taken a look at this act a number of times and has gone back and included many, many, many more detailed provisions in the act than there used to be.

The notion about whether a substance should be mentioned in the act in order to be regulated gets us into the claim of authority that EPA could potentially regulate carbon dioxide as a hazardous air pollutant under section 112. Well, I think in 1990 Congress added 190—190—substances explicitly referenced as hazardous air pollutants and carbon dioxide is not on the list. Now, does that mean that there might be a 191st substance out there that EPA

is authorized to regulate because this substance, for instance, was not manufactured in 1990 and somebody has just discovered something about it. That may be true. But the notion that Congress in 1990 just sort of missed carbon dioxide is not credible.

Mr. CALVERT. My time has expired, Mr. Glaser. But just as a final point, and well-taken, it seems to me that people were talking about at what point does CO₂ become dangerous or gets over the natural level. I guess the only comment I would have is if you cannot regulate it, it is good CO₂, and if you can regulate it, it is bad CO₂. It is just determined on which type of CO₂ we regulate.

With that, Mr. Chairman, my time has expired.

Mr. MCINTOSH. Thank you, Mr. Calvert.

Let me recognize now our colleague, Mr. Kucinich. Why don't you also feel free to take Mr. Costello's time.

Mr. KUCINICH. I do not think I will need that much time. I want to thank the Chair very much for calling this hearing, and also recognize Mr. Calvert, who I had the pleasure of actually traveling with to the Conference of Parties in Buenos Aires, Argentina to discuss some of these same issues. So, I am glad to have the opportunity to share a panel with you again. I look forward to some of these important issues that are discussed.

From the outset, what I would like to say, and I think many members of this committee are fully aware, including, and perhaps especially Mr. Barr, is that I am a firm believer in Congress exerting its authority. As some of you will recall, I am a co-plaintiff with Mr. Campbell of California in challenging the administration's usurping of congressional authority on Article 1, Section 8 of the Constitution, the ability to declare war. So I am not ready to cede congressional authority on anything. I just wanted to share that with you. And that is why I think that Mr. McIntosh's point is well-taken in asking these questions. But I have some questions that I would like to ask that kind of approach this from a slightly different perspective, as you may expect.

First of all, welcome to all of the panelists. Professor Huffman, I have actually had the opportunity to visit your campus a few times there in Portland, and it is beautiful. It is a short walk from Tom McCall Park, who was a great environmentalist who I admire greatly, who actually influenced my career in some ways. What he did to help reclaim that Oregon coastline I thought was one of the most important contributions that any public official has made in this country. So I have a real affection for Portland and for the area, and it is nice to see you here.

I would like to start with asking Mr. Guzy, I have read Dr. Huffman's written testimony in which he refers to EPA's proposed regulation of carbon dioxide. I came a little bit late so I may have missed something. Has the EPA proposed regulations of carbon dioxide?

Mr. GUZY. No. Not in any way.

Mr. KUCINICH. OK. So, if there is any statement relating to EPA regulation of carbon dioxide, I am reading from Dr. Huffman's testimony, I think it is page 4, "EPA's proposed regulation of carbon dioxide," you are saying that EPA has not proposed such regulation?

Mr. GUZY. As he uses it there, we have not. We have used our authority to—

Mr. KUCINICH. I understand that.

Mr. GUZY. Referenced under some other provisions, where that is appropriate, to address general environmental effects, particularly under title VI. But to address carbon dioxide as carbon dioxide, EPA has not proposed any regulation.

Mr. KUCINICH. Also, I am again looking at Dr. Huffman's testimony where he cites the American Trucking case. Are you familiar with that case?

Mr. GUZY. Yes, I am.

Mr. KUCINICH. This may just be a question of linguistic construction, but maybe you can help me, Mr. Guzy. I am reading this on the section about government of limited and divided powers. At issue in American Trucking was whether or not the EPA had acted within its authority in setting new standards for particulate and ozone ambient air quality. The court acknowledge that, and then in parentheses, "unlike carbon dioxide," EPA has expressed statutory authority to regulate ozone and particulates, and it goes on. I am not that familiar with American Trucking. Did they mention carbon dioxide in any way?

Mr. GUZY. I currently do not remember the court mentioning carbon dioxide.

Mr. HUFFMAN. That is my parenthetical, not the court's.

Mr. KUCINICH. Oh. So maybe brackets would have been better, professor.

Mr. HUFFMAN. Thank you for the correction.

Mr. KUCINICH. My background is in communications. I am not a law professor. I am just a humble Member of the Congress.

Mr. HUFFMAN. I apologize for that. The editors of my law review would have corrected me as well. So, thank you.

Mr. KUCINICH. I do not work out of those lofty environs. I am just trying to figure out what the case said. Thanks.

I would like to know, Mr. Guzy, would you comment on the paper entitled, "CO₂: A Pollutant" which was prepared for the National Mining Association by Mr. Glaser and others.

Mr. GUZY. Well, it does in my estimation draw a number of sweeping conclusions from some fairly thin facts. At times, it, in my view, does not fairly present the statutory text that is presented. For example, in its treatment of 103(g), which is in our memorandum an absolutely critical provision to make clear that Congress was well aware that carbon dioxide could be regarded as an air pollutant, instead of recognizing that Congress regarded it as an air pollutant, it says it is an "item." It says carbon dioxide is an item to be addressed in a technology program, a technology and research development program. That seems to be a fundamental fatal oversight in the analysis of the statutory text that is in there.

Similarly, a number of the arguments on legislative history seem to be fairly sweeping in their conclusions. For example, Congress well knew how to require of EPA that there be a study before it engaged in regulation; mercury, the utility study, the Great Waters Study, all of which require that we study, and submit reports to Congress before engaging in any regulatory steps. That is abso-

lutely absent with respect to carbon dioxide. One would expect giving the proper deference to Congress' intent that—

Mr. KUCINICH. Is it possible that as science evolves and technology evolves, when you look at what might have been the intent at the time, that to put it into the context of advanced science may be somewhat difficult, may present a challenge?

Mr. GUZY. If I understand your question, one of the things that is most striking about the Clean Air Act is how foresighted Congress was in 1970 when it enacted it, that it recognized that the problems may change, that technology may change, that science may change. Not only did it list 188 HAPs, it also provided authority to the Administrator to remove some of those if appropriate, or to add others, if needed. Not only did it say you adopt national ambient air quality standards for fundamental air quality issues, but it gave the Administrator authority to add others if needed, if they endanger public health or welfare.

So, that recognition that action should be premised on the best available science and that that science will change is really embodied in the concept of the Clean Air Act. That is among the fundamental choices that Congress made back then and has ratified every time since when it has passed and reaffirmed the Clean Air Act.

Mr. KUCINICH. OK. I would just like to say again that, as a Member of the Congress of the United States, I am not here to represent administrative opinion, I have constituents who are very concerned about some of these issues relating to air quality and to global climate change and things like that. As a Member of Congress, just as my colleagues here want to insist that Congress plays a role in these things, I want Congress to play a role, too.

Thank you very much. Thanks to the panelists.

Mr. MCINTOSH. Thank you, Mr. Kucinich.

Before turning the questioning over to Mr. Ehlers, let me just make sure I understand what you were just saying, Mr. Guzy. That a flaw in Mr. Glaser's analysis is that he talks about the fact that there is no study, and the fact that there is no study really means that Congress thought it might regulate CO₂ as a pollutant? I do not mean to be at all facetious, but I was not following your argument there.

Mr. GUZY. My argument is that when Congress wanted to require additional scientific assessment before authorizing regulatory action under pre-existing statutory requirements it knew perfectly well how to require that. It did it for mercury, it did it for deposition of air pollutants in the Great Waters, and it did not do it for CO₂. Now, we would not say that in itself provides an indication of statutory authority to move ahead. But combined with the other provisions that we have cited, we believe that it is inappropriate to suggest that there is some limitation on potential EPA action that can be derived from any of the succeeding activities that Congress engaged in on CO₂.

Mr. MCINTOSH. But would you not acknowledge that it is at least an equally plausible interpretation that Congress, by not requiring that study, did not think of regulating CO₂ as a pollutant?

Mr. GUZY. I would find that hard to believe in view of the very clear language in section 103(g) where Congress, in fact, refers to carbon dioxide as an air pollutant. That seems very unambiguous.

Mr. GLASER. Mr. Chairman, if I could just jump in. I actually would reach exactly the opposite conclusion than Mr. Guzy is reaching on the issue of study. As he said, the act did include provisions in 1990 amendments for study and then a decision by EPA whether to regulate. In contrast, there were provisions in the Clean Air Act I believe for study of methane but there was no corresponding provision of the act that said, well, if they determine that methane is a problem, then regulate. That is not in there. It is not in there anywhere.

I would say that the argument about what the act says about studies supports the notion that Congress very, very, very carefully drew the line about what it wanted to do with CO₂, and it did not include regulation.

Mr. MCINTOSH. OK. I apologize to Mr. Ehlers for using some of his time. I just wanted to make sure I understood what the points were there.

Let me recognize Mr. Ehlers for questioning.

Mr. EHLERS. Thank you, Mr. Chairman. Both of us have to go vote in committee immediately. I had a list of questions but I will cut to the chase here and just make a comment.

Mr. Guzy and Mr. Miller, you have both made good cases for the proposition that the EPA has the authority to regulate. These are good cases but they are not convincing. I think the crux of the matter, just speaking as a Member of Congress, is a point that Mr. Huffman made. I might also say that as a scientist, I am very concerned about the increasing amount of CO₂ and what it is likely to do in climate change, not so much global warming but climate change of various sorts. But Mr. Huffman made some basic points and I think they get to the crux of the matter, as I see it as a Member of Congress.

The point is, simply, I do not think the Congress in 1970 really envisioned CO₂ as ever being a problem. I think the Congress in 1990 began to discern that it was a problem, although I recognize that legislation started much earlier than 1990. But if you would say what is the best action that could be taken today to control the increase of CO₂, I would have to give an answer as a Member of Congress that the Congress should look at it, because I am not at all convinced that EPA's activities, if they would operate within their charter, is the most efficient way of dealing with the doubling of CO₂. For example, increasing CAFE standards, which I believe is in the province of the Department of Transportation, and we, of course, legislate that, might be a much more efficient way. To simply say that we have to double the CAFE standards would greatly reduce CO₂ emissions. Or, perhaps we should double the gas tax. And as a Republican, I would have to add I would compensate by lowering the income tax or something else so it is revenue neutral. But, nevertheless, that would be an effective way of reducing CO₂ emissions.

In terms of power production, you could get rid of immense amounts of CO₂ from plants by engaging in a mammoth expansion of our nuclear power program. That would also not be environ-

mentally popular but it would certainly take care of the CO₂ emission problem. And there are a host of other alternatives, all of which would be administered by agencies other than the EPA.

And so my argument from a very pragmatic point is, given the whole argument what Congress intended, what the law says, what the Constitution says, what the intent is of the Constitution and the Congress, I would have to simply go with the fact that I think Congress should revisit the issue and say, OK, we are increasing CO₂ at an alarming rate. What is the problem and what is the best set of solutions that we can come up with.

Having made that statement, I will have to leave and go vote in another committee. So, sorry. You can respond for the record to the chairman, but I do have to leave and I apologize.

Mr. CALVERT. I thank the gentleman's attendance. You are a brave man. Anybody that wants to raise gas taxes and bring on nuclear power, you are a brave guy. [Laughter.]

Mr. EHLERS. I did not say that.

Mr. CALVERT. Any comment from the panel on Mr. Ehlers' comments?

Yes, Mr. Guzy?

Mr. GUZY. If I may, I would just point out that the second part, and a very critical part, of the EPA legal memorandum points out a very similar point, that existing authorities do not easily lend themselves to cost-effective mechanisms to impose a cap and trade program. The administration clearly favors those kinds of emissions trading programs as the most cost-effective means for achieving the needed greenhouse gas reductions. And further, the administration has pledged to work with Congress on finding appropriate legislative proposals to be able to accomplish those means in a cost-effective way. So we would very much agree—not with all of the particular proposals that he may be contemplating, but the general—

Mr. CALVERT. You are not going to resubmit the BTU tax?

Mr. GUZY. Right. But certainly with the general point that the administration and Congress would do well to work together to address these issues.

Mr. CALVERT. I thank the gentleman.

The gentleman from Georgia, Mr. Barr.

Mr. BARR. Thank you, Mr. Chairman. Mr. Chairman, I am always amazed at the imagination possessed by Clinton administration lawyers to find statutory authority wherever they want to find it but to ignore wherever there is a prohibition. Just recently one of your colleagues, Mr. Guzy, from HUD, in answer to a question posed at a hearing trying to establish some basis for the Clinton administration Department of Housing and Urban Development involving itself in suits against manufacturers of firearms, pointed simply to prefatory general language to a statute regarding HUD housing authorities talking about providing an appropriate and safe environment as providing expressed statutory authority for the agency to involve itself in lawsuits against the manufacturer of a lawful product.

A couple of years ago we had an attorney from another department, it may have been State or the FBI, in response to a question that I posed at another hearing asking what was the authority for

the FBI to send its agents overseas to investigate a case not involving a U.S. person or U.S. interest, but to investigate a case involving purely a foreign matter and foreign nationals having nothing to do with the United States, and they pointed to a statute that provided the authority to send agents overseas to investigate cases involving U.S. persons and U.S. interests. And we just got involved in a circular argument.

And here today, I am not quite sure what your position is, but I am sure it is one that careful thought has been given to to try to get around the long-standing rules of statutory construction. Twenty years ago, when I did legislative work for the CIA, it was well-known at that time, and maybe you can cite me some Supreme Court authority that overturns the legislative history notions at that time, it was well-established that if Congress intends to grant a Federal agency power it must do so expressly.

As a matter of fact, also a statutory rule of long standing cites that if a number of specific authorities are granted, there is a clear implication, of which courts will take notice, that anything else is not included by clear implication. And, yet, I think you are now saying that simply because Congress lists a number of areas in which they want EPA to become involved, simply because they did not include something that you now want to include, the implication should be otherwise. I do think that is contrary to general notions of statutory construction.

In a number of instances where EPA has tried to claim authority to regulate carbon dioxide, whether it is section 111 of the Clean Air Act, or 112, I think you are, to put it mildly, on very, very shaky ground. I think you are clearly on wrong ground. It may be that as a policy matter you just want to involve EPA in CO₂. But I do not think that you can do so legitimately based on normal rules of statutory construction because Congress nowhere has granted that expressed authority to EPA. And as a matter of fact, in those instances such as we are talking about here today where Congress has given EPA authority to address as pollutants certain materials in the ambient air, CO₂ is not listed.

So I really am intrigued by your arguments. I would be interested if maybe you could address it once again, because I think your colleagues at the table here have a different understanding of statutory construction as well.

Mr. GUZY. With all due respect, Congressman Barr, our argument is not that we find this authority simply through implication. Rather, our position is that the source of authority is rooted in the statutory text itself, that it is not premised purely upon a desired policy outcome. And I want to be very clear about that.

I ran through it before in my testimony, but I would be happy to—

Mr. BARR. It is not the policy of the Clinton administration through EPA to regulate CO₂?

Mr. GUZY. Let me also be clear, I made this clear before, this is very much a theoretical argument. EPA does not currently have a proposed regulation. We do not have plans to marshall the authorities that Congress provides in the Clean Air Act to address CO₂.

Mr. BARR. OK. Let me then pose you the following two very specific questions, which I think are very consistent if you mean what you just said.

Your testimony seems to reiterate the administration's commitment not to implement the Kyoto Protocol before it is ratified.

Mr. GUZY. That is absolutely correct.

Mr. BARR. But you also seem to be claiming that EPA does have the authority to regulate CO₂ emissions.

Mr. GUZY. We believe that the Clean Air Act does provide that authority, yes.

Mr. BARR. Then notwithstanding that, and based on what you said previously, can you assure the subcommittee that even though EPA believes it already has the authority to regulate CO₂, EPA will not do so until and unless the Protocol is ratified? Will you give us that assurance?

Mr. GUZY. I will assure the subcommittee of the following. We do not intend to implement the Kyoto Protocol before it is ratified and unless and until it is ratified by the Senate.

Mr. BARR. You would certainly not do something that you do not intend to do.

Mr. GUZY. And we have no plans to use our existing authority to regulate carbon dioxide. But to go further than that and try and anticipate all of the ways in which in the future it may be appropriate or not appropriate to use the authority that Congress has provided in the Clean Air Act to EPA would not, in our view, be responsible.

Mr. BARR. Are you saying then that if the EPA determines that CO₂ emissions endanger public health, welfare, or the environment, that the EPA may regulate CO₂ even if the Senate does not ratify the Kyoto Protocol? Are you trying to have it both ways? I admire you if you are trying to do that. I know that you all do that. Is that what you are trying to do here?

Mr. GUZY. You have hit on an important point. I think the critical point is that, although in our opinion there is broad authority to regulate CO₂, the act did cite carbon dioxide to be within the class of substances that could be subject to regulation under the Clean Air Act.

Mr. BARR. Not under section 112 though.

Mr. GUZY. Well, perhaps.

Mr. BARR. Section 112 lists several dozen items, but not CO₂.

Mr. GUZY. I am talking about the general definitional terms of the act for air pollutant. Nonetheless, there would be a series—

Mr. BARR. Which, according to that broad interpretation, the definition could mean anything absolutely that is in the air. Is that how broadly you are interpreting it?

Mr. GUZY. But if I could go on. But then there are a series of provisions that then follow. And were the administration to decide to pursue a regulatory approach, we would have to make through the formal rulemaking process a number of findings, the most critical of which would be that there is endangerment of public health, welfare, or the environment. And we have not commenced that process. We do not have plans to commence that process.

Mr. BARR. Well, with good reason. That would make every one of us a polluter.

Mr. GUZY. It would be for, I presume, a specific chemical or a specific purpose.

Mr. BARR. CO₂.

Mr. GUZY. And really recognizing, for example, in the ambient air quality standard provisions of the act, that there are specific sources that are specified that are required to be found the source of those emissions as well, diverse mobile or stationary sources, and I do not believe that the definition includes an individual breathing there.

Mr. MILLER. If I could interject here. Of course, under the counterpart statute, the Clean Water Act, we are all polluters. Half of the pollution regulated under that statute is liquid and solid waste from humans. So you do not prohibit that. We effectuate different kinds of treatments for it.

Mr. BARR. Do not even suggest that to the administration, please. [Laughter.]

Thank you. Thank you, Mr. Chairman.

Mr. CALVERT. I thank the gentleman.

Just one quick question for Mr. Guzy before we go to the next panel. When is the administration going to submit the treaty for ratification to the Senate? We would like to see it go over there. Are you going to submit it next week, next month?

Mr. GUZY. As the administration says, and other people can probably speak to it far better than I can, we are working hard to address the issues that the Senate raised in the Byrd-Hagel resolution.

Mr. CALVERT. Do you have a timetable for when you are going to submit the treaty for ratification?

Mr. GUZY. It really does depend on the work that is being done in the international negotiations.

Mr. CALVERT. So you do not have a timetable to submit the treaty for ratification. Why is that? Why won't you submit the treaty for ratification to the Senate?

Mr. GUZY. Again, the administration's commitment is to ensure that in fact there are the appropriate flexible mechanisms in place that—

Mr. CALVERT. It has nothing to do with the fact that you may not even have 10 votes over in the Senate for the ratification of the treaty?

Mr. GUZY. Well, I can tell you what the administration's commitment is, which is to work with developing countries and to ensure that there are flexible mechanisms in place.

Mr. CALVERT. We certainly thank this panel for your testimony and for answering our questions. It was of great interest. This panel is adjourned.

We will now move to panel two. We have Dr. Patrick J. Michaels, research professor of Environmental Sciences, University of Virginia; Dr. Christopher B. Field, Carnegie Institution of Washington, Department of Plant Biology, Stanford University, California; and Dr. Keith E. Idso, vice president, Center for the Study of Carbon Dioxide and Global Change, Tempe, AZ.

I want to thank the witnesses. This committee swears the witnesses in. So if you will please rise and raise your right hands. Do

you swear to tell the truth, the whole truth, nothing but the truth, so help you God?

[Witnesses sworn.]

Mr. CALVERT. Let the record show that the witnesses answered in the affirmative.

You may take your seats. We are under the 5-minute rule in this committee, so any testimony that you may have will be submitted for the record. We ask that you try to keep your oral testimony to 5 minutes or less so we can have time for questions and answers.

With that, Mr. Michaels, you may begin.

STATEMENTS OF PATRICK J. MICHAELS, PROFESSOR OF ENVIRONMENTAL SCIENCES, UNIVERSITY OF VIRGINIA, AND SENIOR FELLOW IN ENVIRONMENTAL STUDIES AT CATO INSTITUTE; KEITH E. IDSO, VICE PRESIDENT, CENTER FOR THE STUDY OF CARBON DIOXIDE AND GLOBAL CHANGE; AND CHRISTOPHER B. FIELD, STAFF SCIENTIST, CARNEGIE INSTITUTION OF WASHINGTON, AND PROFESSOR OF BIOLOGICAL SCIENCES, STANFORD UNIVERSITY

Mr. MICHAELS. Thank you, Mr. Chairman. About 100 years ago mankind began in earnest to emit carbon dioxide into the atmosphere, and scientists recognized even 100 years ago there could be consequences. Svante Arrhenius, a Swedish scientist, in 1896 published a paper in the Journal of Philosophical Transactions, in which he calculated that doubling atmospheric carbon dioxide would raise the mean temperature of the planet about 5 degrees celsius. And if you read his paper carefully, for the current concentrations that we have emitted into the atmosphere, he is stating that we should have warmed the temperature about 3.25 degrees celsius.

Through the course of the 20th century, people developed more finely scaled methods to estimate climate change. By 1990, the United Nations, in convening the Intergovernmental Panel on Climate Change, used a suite of climate models that suggested that the planet should have warmed about 1.8 degrees celsius as a result of what human beings have done to the atmosphere.

The actual warming that we have seen is 0.6 degrees celsius, or about one-third of the amount that was estimated by the mean suite of climate models around 1990.

This chart shows temperatures over the course of the last 100 years, and estimated temperatures for the last 400 years, along with solar activity that has been calculated by two NASA scientists, Lean and Rind. The solar activity is the closed dot here. You can see solar activity is as high as it has been in the last 400 years. The conclusion, regardless of all the news stories that we hear, Congressman, is that if this were not the warmest decade in the last 400 years, there would be something wrong with the basic theory of climate, which is that the sun warms the Earth.

Now, when we examine the behavior of the temperature in the last 50 years or so, we see something very interesting emerging that leads one to think that human beings might be changing the climate, because the character of the warming of the last 50 years is different than the character of the warming of the previous 50 years. By and large, it is a warming of the coldest air masses in

the winter. Vital statistics in the United States show these to be the deadliest air masses that we know of.

This is the temperature change since World War II in the winter in both the northern and southern halves of the planet; the seasons are flipped at the equator, it is the cold 6 months of the year. You can see the very, very large warming here in the dead of Siberia in the middle of winter, and in northwestern North America. These are the source regions for these very fatal and cold air masses. Elsewhere there is very, very little warming on this chart. In fact, greenhouse theory predicts that a cold dry atmosphere will warm a lot more than a warm wet atmosphere.

If we take a look at the ratio of winter to summer warming, we see something emerging. More people die in the winter, by the way, from the weather than die in the summer. Since World War II, we see that over two-thirds of the warming that has occurred has occurred in the winter half year rather than the summer half year in the northern hemisphere.

Now getting back to this notion of the warming being mainly concentrated in these very, very cold air masses in Siberia and northwestern North America, the next chart I really would urge you to pay attention to. It shows the average warming trend within these extremely cold air masses. These average about minus 40 degrees celsius; they have warmed to about minus 38 degrees celsius. I do not hear the citizens of Russia clamoring for a return to the climate of the Stalin era. These over here are about minus 30 degrees celsius, maybe have warmed to about minus 29 degrees celsius. Now the average warming in these very cold air masses is shown in the bar chart on the right. It is 0.214 degrees C per decade, or about 2.1 degrees per 100 years. In other words, that is how much it is warming here in these deadly air masses.

In the rest of the northern hemisphere, the average warming in each one of these little boxes that you see, and this is the United Nations Climate Record, is 0.021 degrees celsius per decade. Two-hundredths of a degree celsius per decade in the northern hemisphere cold half year outside of Siberia and northwestern North America.

It works out that three-quarters of the warming of the winter half year is taking place in those very, very cold air masses, and two-thirds of the overall warming of the last 50 years is taking place in the winter. Do the math. Most of the warming is confined to air masses that are inherently deadly and inherently cold.

Now, when I began, and I will be done, mercifully, shortly, when I began I noted that the warming was not as much as was predicted by the models that served as the basis for the United Nations in 1990, the report. The ostensible reason for that is something called sulfate aerosol which does not exist in the southern half of the planet in any significant form. The idea is that sulfate aerosols are cooling the warming that should be occurring. Only look at the satellite temperature history from the southern hemisphere of the planet. It is very obvious that there is no warming in this record whatsoever. It is also very obvious that there was a big El Nino in 1998 and that is over; we are not having monthly press conferences now about the temperature of the planet being warmer than heck.

Well, the sulfate argument probably does not work. And it is doubtless that those satellite temperatures are correct. This record here shows the satellite temperature record, in this shaded area here that is flat, the open circles are weather balloon records from 5,000 to 30,000 feet, and the closed circles are ground-base temperatures. The ground-base records are going up. The atmosphere is not warming above 5,000 feet. Every climate model that we have, and this is typical of them, I will go back, predicts a warming in the range of 0.23 degrees celsius per decade in the entire atmosphere, all the way up to the stratosphere. From the surface all the way to the tropopause, an average of 45,000 feet, to be warming that much. These are the warmings that are occurring between 5,000 and 30,000 feet, depending upon what record you use.

This is a typical computer model—and I am just about to end—this one from the Lawrence Livermore National Laboratory. This is north, this is south. Everywhere where it is orange or yellow it is predicted to have warmed in the last 25 years and then it cools in the stratosphere. There is no warming in the last 25 years in all the records that we can find in that zone.

Now, I am going to turn the tables here and close with what I want to call reverse argument. Let's say that all that money that we have spent on climate change has bought us something; I do not know what, but let us say it has bought us the fact that we know the way the climate changes once it starts to change. This is a series of outputs from various computer models. I would like to draw to your attention that once the planet starts warming, it warms at the same rate that it began to warm. It warms at a constant rate. It does not warm at an increasing exponential rate. There are various assumptions in these models; some of them have sulfates in them, some of them do not, some of them have the real way that CO₂ is changing in the atmosphere, which is the low one down here, others do not, and we have nature since 1968 warming up the surface temperatures of our planet.

I believe nature has already given us the answer on global warming. There is the trend of the last third of this century extended out under the assumptions that all the climate models make, that the warming is a straight line. It works out to 1.3 degrees celsius over the course of the next 100 years. Because of the winter-summer differential, it is about 1.5 degrees in the winter, 1.1 degrees in the summer. Hard to call that a pollutant.

Thank you very much.

[The prepared statement of Mr. Michaels follows:]

Testimony of Patrick J. Michaels, Professor of Environmental Sciences, University of Virginia, and Senior Fellow in Environmental Studies at Cato Institute, to the Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs, U.S. House of Representatives, October 6, 1999.

Thank you for soliciting my testimony on the nature of Carbon Dioxide as a "pollutant" with regard to global climate change. I regard a "pollutant" as something that produces a demonstrable net negative impact on climate and ecosystems.

"Negative" and "positive" impacts on climate are value judgements made by human beings. Within that limitation, I submit the following:

This testimony demonstrates that the observed climate changes that have accompanied the enhancement of the natural greenhouse effect have been considerably smaller than they were originally forecast to be, and that they are likely to remain similarly small. Further, they are inordinately confined into the winter, rather than the summer, and, within the winters, they are inordinately confined to the coldest, deadliest airmasses. There is no overall statistically significant warming in the average temperature of the United States, which is a record of 105 years in length. While the United Nations has stated that during the greenhouse enhancement, "the balance of evidence suggests a discernible human influence on global climate," I cannot view what has happened as a net negative; some might easily argue that it is a net benefit. Under neither interpretation does this qualify carbon dioxide as a climatic "pollutant."

In January, 1989, over ten years ago, I first testified on climate change in this House. I argued that the computerized climate models from that era were dramatically overpredicting future warming, and that the observed history of climate projected a much more moderate warming, of 1.0° C to 1.5° C, over the next century. I further argued that it would eventually be recognized that this moderate climate change would be inordinately expressed in the winter vs. the summer, in the night vs. the day, and that overall it was plausible to argue that these changes conferred a net benefit upon our world.

If I had the perfect vision of knowing what would have happened to the climate in the next ten years, how the scientific literature evolved—in its attempts to explain the lack of warming, and in its refusal to recognize persistent, damaging and pervasive errors in the forecast that continue to this date—I would have changed *not one word*.

This testimony explains why.

In the last ten years, we have learned that:

- Observed surface warming is most consistent with a forecast below lowest statistical range forecast by climate models. Recent observed changes are several *times* beneath what was forecast a mere ten years ago, assuming historical changes in carbon dioxide (see Hansen, et al.,

1998).

- The postwar ratio of winter-to-summer warming is greater than two-to-one (Balling et al., 1998)
- Over three-quarters of the cold half-year warming in the Northern Hemisphere is confined to the very coldest airmasses. The warming outside of these airmasses is a minuscule 0.2° C per century (Michaels et al., 1999).
- The variation, or unpredictability, of regional temperatures has declined significantly on a global basis while there is no change for precipitation (Michaels et al., 1998)
- In the United States, streamflow records show that drought has decreased while flooding has not increased. (Lins and Slack, 1999),
- Maximum winds in hurricanes that affect the United States has significantly *declined* (IPCC, 1995), and there is no evidence for a global increase in damaging storms (Landsea et al., 1996).
- The Kyoto Protocol to the United Nations Framework Convention on Climate Change will have no discernable impact on global climate within any reasonable policy timeframe (Wigley, 1998).

In toto, these findings lead inescapably to the conclusion Carbon Dioxide is not a "pollutant," and plausibly argue that it is a net benefit.

Scientific Background

It has been known since 1872 that water vapor and carbon dioxide are the principal "greenhouse" gases in the atmosphere, and that increasing their concentration should elevate the temperature in the lower atmosphere. What has been a subject of contention ever since, is the amount and character of the warming.

Because of all of the atmospheric greenhouse gases emitted by human activity, we have progressed to roughly a 60% increase in the equivalent natural carbon dioxide greenhouse effect. The earliest climate projections, made by Arrhenius in 1896, indicated this would result in a rise in mean global temperature of approximately 3.25°C. Computer models that served as the basis first Scientific Assessment of Climate Change by the United Nations Intergovernmental Panel on Climate Change were around 1.8°C for current greenhouse changes (Murphy and Mitchell, 1995). These were lower than original estimates largely because of the retardation of direct warming by the ocean.

The 1.8°C figure was typical of the range of most climate models, and led to the scientific bifurcation between the modelling community and the more data-driven empiricists, who argued that the observed 20th century warming of 0.6°C (with half of that before the major greenhouse gas changes) indicated future warming would be around one-third of the mean projected value of 4.2°C over the next century, or around 1.0 to 1.5°C.

The IPCC admitted the validity of this position in its 1995 report, when it wrote that:

"When increases in greenhouse gases only are taken into account...most [climate models] produce a greater mean warming than has been observed to date, unless a lower climate sensitivity [to the greenhouse effect] is used...There is growing evidence that increases in sulfate aerosols are partially counteracting the [warming] due to increases in greenhouse gases."

Are sulfate aerosols responsible for the now-admitted dearth of warming? In previous testimony I have shown how poorly this argument stands the critical test of the data. Suffice it to say that the record of the three dimensional atmospheric temperature in recent decades does not appear at all consistent with this hypothesis. Instead of repeating that argument, I would simply point out that the southern half of the planet is virtually devoid of sulfates, and should have warmed at a prodigious and consistent rate for the last two decades. Unfortunately, we have very few long-term weather records from that half of the planet, and almost all come from the relatively uncommon landmasses. However, we do have over two decades of satellite data (Figure 1), adjusted by John Christy for orbital decay and other drifts; it shows no change in temperature whatsoever, although the prominent spike and retreat from the 1998 El Nino is rather striking.

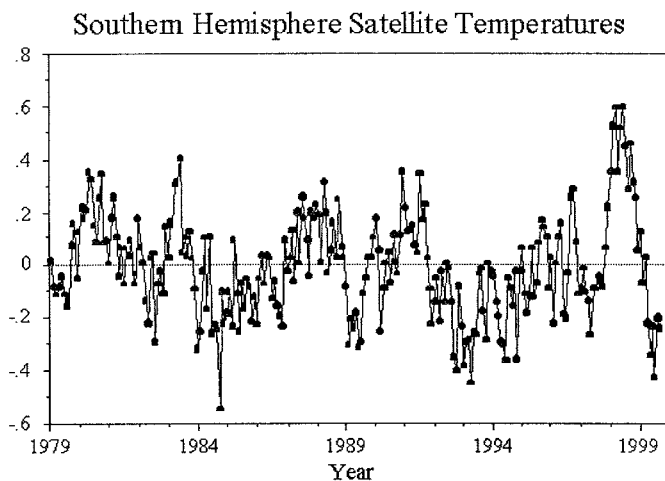


Figure 1. Southern Hemisphere MSU satellite temperatures, drift-adjusted, from John Christy of University of Alabama, 1/1/79-8/31/99. The sulfate hypothesis implies this zone should be warming rapidly.

The failure of the climate models is much more profound than any error that could simply be corrected by reducing the amount of incoming surface radiation, which is what the sulfate "fix" does. Instead, it is a failure in the vertical dimension that has been occurring for nearly a quarter-century.

Figure 2 shows the entire concurrency for our three records of "global" temperature, which is limited by the beginning of the satellite MSU data in January 1, 1979. The record is now completing its 21st year.

Our figure shows satellite temperatures, weather balloon temperatures roughly between 5,000 and 30,000 feet, and surface temperatures measured by thermometers. There is an increase in the surface record of $0.15^{\circ}\text{C}/\text{decade}$. Research by NASA scientist demonstrates that about $0.02^{\circ}\text{C}/\text{decade}$ of this is a result of changes in the sun (Lean and Rind, 1998), leaving a remaining $0.13^{\circ}\text{C}/\text{decade}$ ascribable to human influence or other natural variation. The other two records show no change.

The disparity between the surface, satellite and weather balloon readings is likely to have some basis in reality. The concordance between the satellites and balloons cannot be from chance, so there must be some process occurring in the lowest layers (below 5,000 feet) that is not being picked up in those two records.

Annual Global Temperature Departures
(1999 value based on 8 month mean)

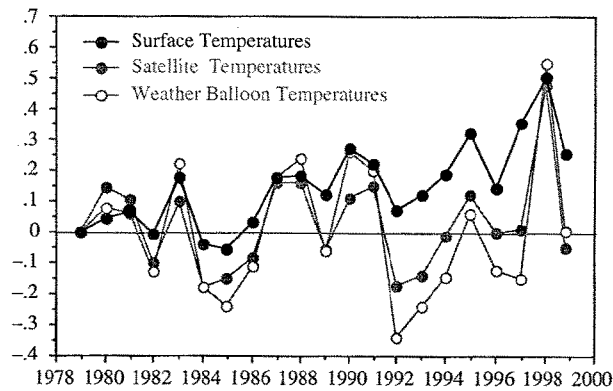


Figure 2. Satellite, weather balloon (5,000-30,000 ft.), and surface temperatures since 1/1/79, the beginning of the satellite record.

My research shows that this warming below 5,000 feet is largely confined to the winter half-year (October-March in the Northern Hemisphere, April-September in the Southern); as Figure 3 shows, the ratio of winter-to-summer warming is greater than two-to-one.

Northern Hemisphere Warming

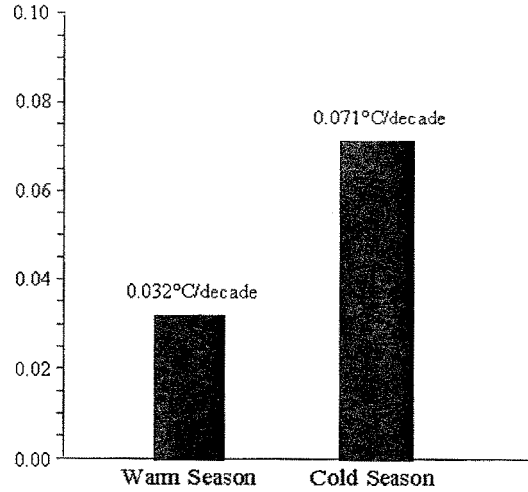


Figure 3. Winter and summer half-year warming since 1945 shows the dominance of winter temperature change.

Now, when we look at the cold half-year temperatures in the Northern Hemisphere since World War II, it is apparent that the warming is inordinately confined to Siberia and northwestern North America (Figure 4). These are the two "source regions" for the coldest continental airmasses on earth. Because of their coldness, they are very dry, and because of their

dryness they have very little "natural" greenhouse effect and are consequently "warmed" (if

changing the temperature from -40°C to -38°C can be called a "warming"! more rapidly than moist, summer air.

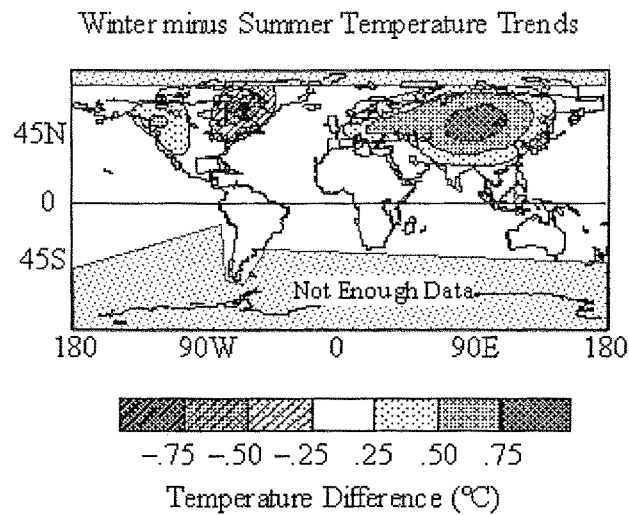


Figure 4. Winter minus Summer warming trends since 1945 show the dominance of warming in Siberia and northwestern North America in winter.

In the winter half-year, these airmasses occupy around 25% of our hemisphere. Recently published research (Michaels et al., 1999; Michaels et al.,

accepted) shows that over three quarters of the winter warming is confined to this very cold air. When we compare the average postwar warming in the statistical gridcells that comprise these airmasses to those that don't, the result is truly stunning. The coldest air is warming up a rate 10 times larger than the remainder of the hemisphere; see Figure 5. That research also proves that the warming is largely confined to the cold air masses, and that *the more severely cold they are,*

the more they warm.

Northern Hemisphere October-March Warming

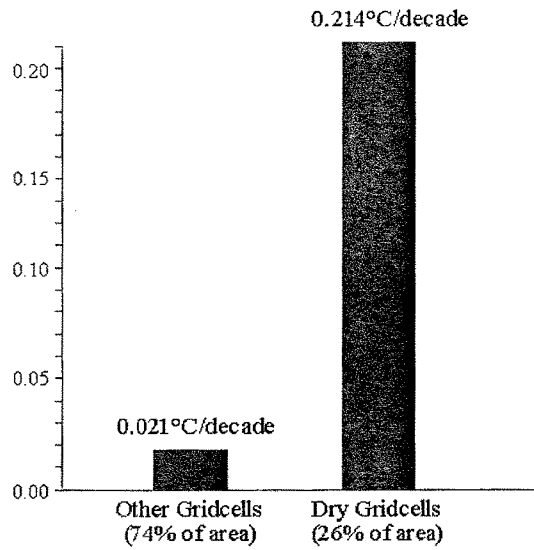


Figure 5. Average warming rate in Northern Hemisphere gridcells that are cold and dry (right) vs. the remainder.

Together, these findings all prove that over the entire concurrency of the surface, satellite and balloon records, there is a warming confined to the bottom 5,000 feet of the atmosphere, but over two-thirds of it is in the winter, and three-quarters of that

is in the most profoundly cold continental air that we know of. If this is the work of carbon dioxide, carbon dioxide is not a pollutant.

Together, these findings also demonstrate a persistent, damaging, and pervasive error in all climate models, including those that serve as the basis for the Kyoto Protocol.

Figure 6 shows the projected quarter-century warming from the Lawrence Livermore National Laboratory (LLNL) climate model incorporating greenhouse warming and sulfate cooling (addition of stratospheric ozone depletion changes the result very little), as originally published by Santer et al. (1996). This finding, more than any other single result, served as the basis for the 1995 IPCC statement that "the balance of evidence suggests a discernible human influence on global climate". However, there is no reason to single out the LLNL model except for its wide availability; every other one behaves in a quite similar fashion.

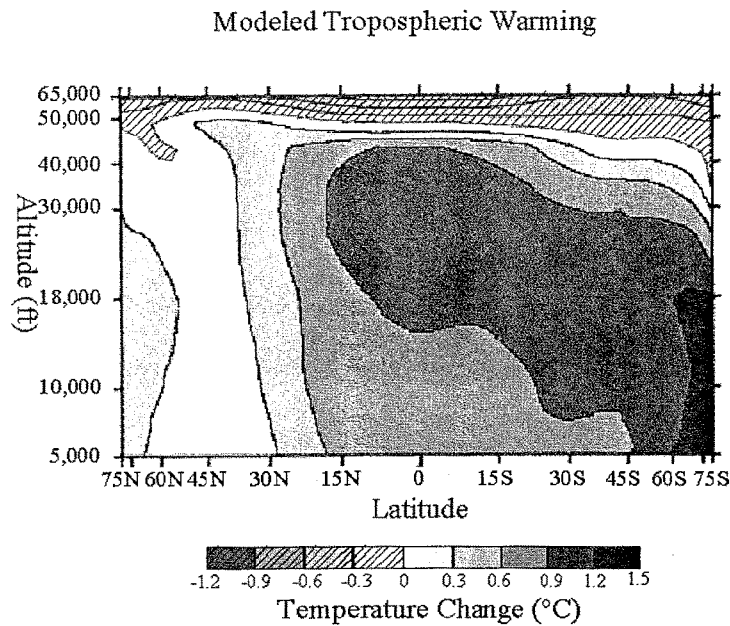


Figure 6. Warming predicted for today's change in greenhouse gases and sulfate aerosols by the LLNL model. Note that the entire zone from 5,000 feet to the stratosphere is predicted to have warmed.

The LLNL model and all others are clearly making an egregious error that renders the magnitude of their predictions of global warming virtually useless: They all have dramatically failed to

predict what happened between 5,000 feet and the bottom of the stratosphere. This comprises over 80% of the troposphere, or the earth's active weather zone.

Our chart shows the observed warming in this zone (as published by Santer et al., 1999) for various upper atmospheric records vs. the average warming predicted the current suite of climate models. *There is no statistically significant warming in the observed data since the satellite/balloon concurrency in 1979*, while the models have an average warming rate of 0.23°C/decade (Figure 7).

Tropospheric (5,000 to 30,000ft) Warming Rates

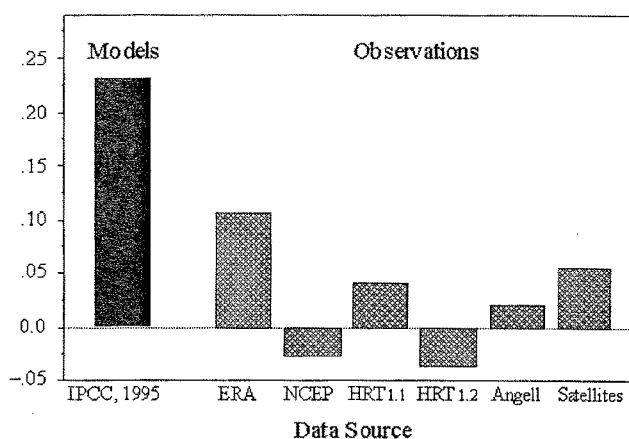


Figure 7. Model-projected average tropospheric warming (left) since 1979 vs. observed values published by Santer et al. (1999).

In other words, the models have been wrong for the last quarter-century—the period of greatest greenhouse gas increase—over 80% of the troposphere.

The atmosphere is a mixed fluid; the behavior in one vertical level depends in part on behavior in others. It is profoundly troubling that, for the last quarter-century, that projections of surface warming are much closer to observed values, than what has been observed in the remaining 80% of the troposphere. This differential calls into question the validity of any projection, surface or otherwise coming from these models. More important, it indicates that the "sulfate-greenhouse" paradigm is so inaccurate that it misspecified almost all of the troposphere.

The Ubiquitous Nature of Observed Changes

The National Oceanic and Atmospheric Administration has also analyzed postwar temperature trends and found similar results; see Figure 8. The largest warming in the last three decades occurs in winter (January through March) which is the time of year in which severity and presence of the cold high pressure systems that form in northwestern North America largely determine the winter departure from normal. Late summer and early fall temperatures actually show a slight decline.

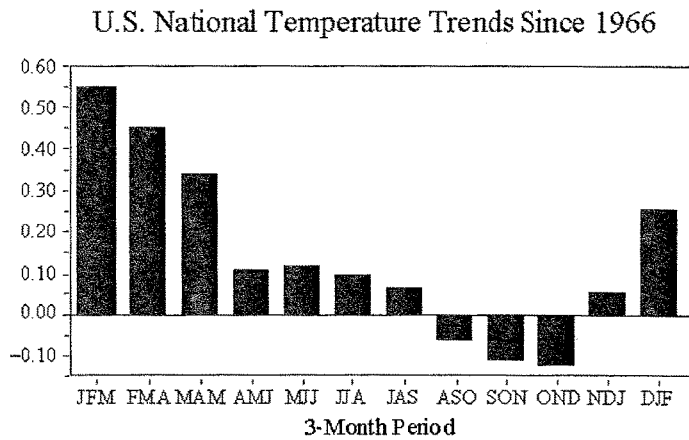


Figure 8. Seasonal changes since 1966 in the U.S. record, according to the U.S. National Oceanic and Atmospheric Administration.

NOAA has also analyzed U.S. temperatures back to 1895. Even though this record contains some large cities with artificial urban warming *there is no statistically significant warming in the overall record* (see figure 9).

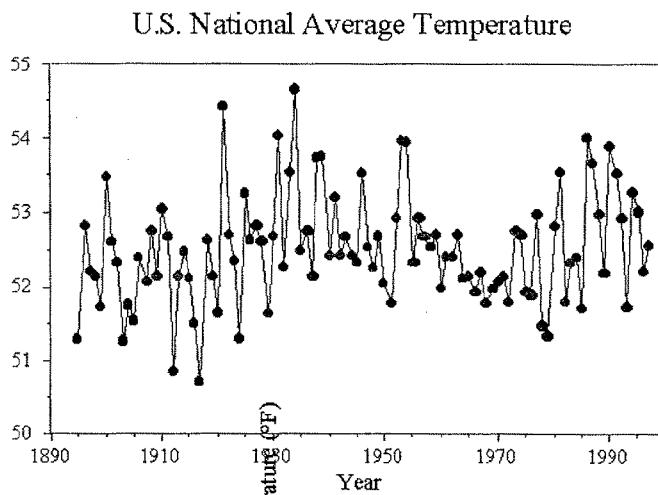


Figure 9. There is no statistically significant overall warming trend in the record of U.S. temperatures, which is 105 years long.

The record can be broken down decadally, i.e., 1895-1997, 1905-1997, 1915-97, etc...Only one of these combinations shows a significant warming that would exceed the Frye Rule disqualification for "junk science" (i.e. at the .05 level), and that is the period 1965-present. The chance that one trend (out of the ten possible ones) would show a warming is statistically common, even at this probability level. It is noteworthy that NOAA, in the report on climate change that served as the basis for figure 9, "chose" the only period (1965-97) in the entire 105-year record that showed statistically significant warming. Later decadal periods (i.e. 1975-97, or 1985-97) do not; and neither does any earlier period. Perhaps an appropriate question would be to ask why the only such period out of the ten possible ones was selected for analysis and publicity.

An Alternative Interpretation

It is hard for me to believe that the billions of dollars that American taxpayers have invested in climate modeling has produced a completely worthless result with regard to human-induced climate change. Rather more intriguing is the notion that at least the models have the functional

form of the warming right, but instead are indecisive about its magnitude.

Figure 10 shows projected warming from a large family of different climate models. Some increase their atmospheric carbon dioxide at 1% per year, effectively. Others use the U.N. standard of 0.7%, and others have been adjusted for the observed lower rate noted by Hansen (1998). Some have sulfate aerosols in them and others do not.

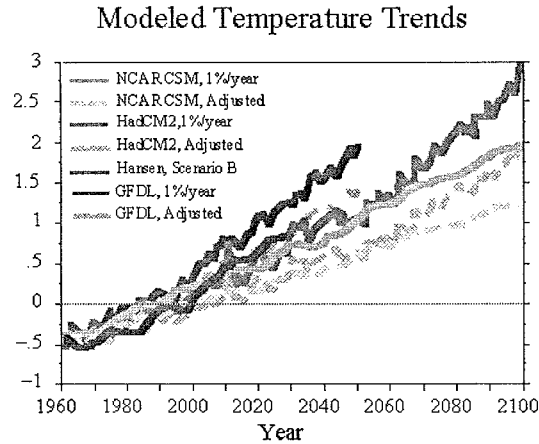


Figure 10. Output from several representative climate models. Once warming starts, it takes place at a constant rate.

Regardless of all of these varying assumptions about differences in the exponential rate of greenhouse forcing or the presence or absence of sulfates, one clear fact

emerges. In general, *they are all straight lines*. Once greenhouse warming starts, it proceeds as straight line, not as an exponential increase.

What differs between the models not their functional form--straight lines--but the *slope* (or rate of increase) in those lines. In fact, the mean and standard error of the warming $0.25^{\circ}\text{C} \pm 0.07^{\circ}\text{C}/\text{decade}$, where the confidence range is at 67%.

Which of these models is likely to be correct? Under the assumption of linearity, nature helps to provide an answer, as global near-surface temperature has risen as a straight line, too, in the last three decades. The slope since 1968, when warming began is $0.15^{\circ}\text{C}/\text{decade}$ (Figure 11). This is slightly below the low confidence limit given by the shown ensemble of models.

Observed Temperature Trend

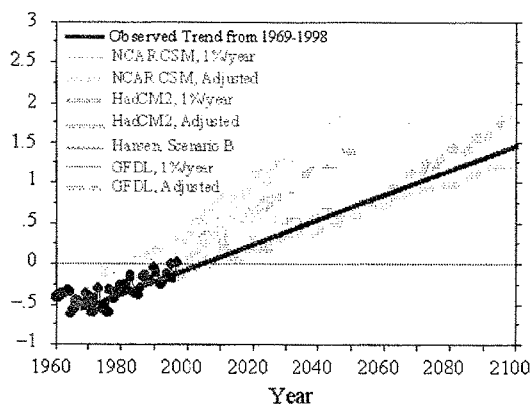


Figure 11. When the observations are compared to the output from several representative climate models, they too warm at a constant rate, except that their rate is below that of the models.

However, Lean and Rind indicate that approximately 0.02°C/decade of recent warming is likely to be caused by solar variation; subtracting away this small amount gives a warming

rate of 0.13° C/ten years.

Assuming linearity, this gives a rise of 1.3°C in the next century—precisely at the midpoint of the range I first testified over ten years ago.

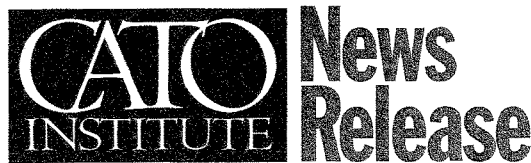
Models are also linear with respect to their cold and warm season warmings. Given the differential that we have seen since 1968, the expected winter and summer half-year warmings work out to 1.45 and 1.15° C, respectively, in the next century.

During this century, we experienced a rise temperature of approximately half of these values. Crop yields quintupled. Life span doubled, in part because of better nutrition. Winters warmed. Growing seasons lengthened. The planet became greener. Increasing carbon dioxide had something to do with each and every one of these. There is simply no logical reason to assume that doing the same, this time in fifty, instead of 100 years, will have any different effect in kind. That kind of improvement in the quality of human life could hardly be caused by a "pollutant."

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TEL: 202-842-0200
 FAX: 202-842-3490
 COMPUSERVE: 76464,505
 INTERNET: cato@cato.org
 WEB SITE: <http://www.cato.org>

1000 Massachusetts Avenue, N.W. • Washington, D.C. • 20001

October 6, 1999

Cato scholar testifies that dangers of carbon dioxide are exaggerated

Findings lead to inescapable conclusion that CO₂ is not a 'pollutant,' and plausibly a net benefit

"Is carbon dioxide a satanic gas? Absolutely not," Patrick J. Michaels, Cato's senior fellow in environmental studies, told a House panel today at a hearing on whether or not carbon dioxide is a pollutant and whether the Environmental Protection Agency has the power to regulate it. Michaels told the Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs of the House Government Affairs Committee that "negative" and "positive" impacts on climate are value judgments made by human beings. Summarizing his testimony, Michaels said:

"This testimony demonstrates that the observed climate changes that have accompanied the enhancement of the natural greenhouse effect have been considerably smaller than they were originally forecast to be, and that they are likely to remain similarly small. Further, they are confined overwhelmingly to the winter, rather than the summer, and, during the winter, they are confined to the coldest, deadliest airmasses. There is no overall statistically significant warming in the average temperature of the United States, for which the record is 105 years in length. While the United Nations has stated that during the greenhouse enhancement, 'the balance of evidence suggests a discernible human influence on global climate,' I cannot view what has happened as a net negative; some might easily argue that it is a net benefit. Under neither interpretation does this qualify carbon dioxide as a climatic 'pollutant.'

"In January 1989, over 10 years ago, I first testified on climate change before the House Committee on Commerce. I argued that the computerized climate models from that era were dramatically overpredicting future warming, and that the observed history of climate projected a much more moderate warming, of 1.0°C to 1.5°C, over the next century. I further argued that it would eventually be recognized that this moderate climate change would be expressed mainly in the winter at night, and that overall it was plausible to argue that the change conferred a net benefit upon our world. If I had the perfect vision of knowing what would have happened to the climate in the next 10 years, how the scientific literature evolved—I would have changed *not one word.*"

Michaels is professor of environmental sciences at the University of Virginia and past president of the American Association of State Climatologists. His recent studies include "Long Hot Year: Latest Science Debunks Global Warming Hysteria" (www.cato.org/pubs/pas/pa-329es.html) and "The Consequences of Kyoto" (www.cato.org/pubs/pas/pa-307es.html).

The complete text of Michaels' testimony can be found at www.cato.org/testimony/ct-pm100699.html.

Contact: Patrick J. Michaels, Cato senior fellow in environmental studies, 202-842-0200
 Julia Williams, director of public affairs, 202-789-5266

The Cato Institute is a nonpartisan public policy research foundation dedicated to broadening policy debate consistent with the traditional American principles of individual liberty, limited government, free markets, and peace.

Mr. CALVERT. I thank the gentleman.

Mr. Field.

Mr. FIELD. Chairman Calvert, members of the committee, I appreciate the opportunity to address this hearing. My remarks today will focus not on the legal issues, but on the plant physiology. I will emphasize three points. First, atmospheric CO₂ is essential for life on Earth; second, the concentration of CO₂ in the atmosphere has increased dramatically over the last century, as a consequence of human actions; and third, increasing atmospheric CO₂ has a mixture of positive and negative effects on plant growth, food security, and natural ecosystems. Adding the prospect of human-caused climate change tends to make the overall impacts more negative. Let me explain each of these points.

First, atmospheric CO₂ is essential for life on Earth. I think we generally agree on that. Plants growth through photosynthesis, a process that uses the energy from sunlight to combine carbon dioxide from the air with water to make carbohydrates plus oxygen. The carbohydrates formed through photosynthesis feed not only the plants, but almost all other organisms on Earth, including those that eat plants and those that eat the animals that eat the plants. Of course, humans are included in the group that depends on the products of photosynthesis.

Second, the concentration of CO₂ in the atmosphere has increased dramatically over the last century, as a consequence of human actions. As Dr. Michaels has already explained, at the beginning of the Industrial Revolution, before the extensive use of fossil fuel by humans, the concentration of CO₂ in the atmosphere was about 280 parts per million, or about 0.28 percent, and it has increased by about 30 percent, so that now a little less than 1 cubic inch of each cubic foot of the atmosphere is composed of CO₂. We know, based on measurements in ice cores, that the current concentration of CO₂ in the atmosphere is higher than it has been at any time in the last 400,000 years.

The third point I want to make is that increasing atmospheric CO₂ has a mixture of positive and negative effects on plant growth, food security, and natural ecosystems. I will comment first on food production.

Most of the world's plants use a mechanism for photosynthesis that is through two sensitives. Photosynthesis, or CO₂ fixation, increases when the CO₂ concentration increases. For many crops, under current conditions this means that crop growth rate also increases. And in large number of experiments, crop growth under doubled atmospheric CO₂ increases by 10 to 50 percent.

The CO₂ sensitivity does not apply uniformly to all crops. Some important crops, most notably corn and sugar cane, use a different photosynthesis pathway called C-4. For these crops photosynthesis does not increase with increasing CO₂, and growth increases only a little bit. In the absence of other factors, the direct effect of increased CO₂ on crop growth would very probably lead to higher global food production. Now whether or not this is a benefit from the perspective of U.S. agriculture will depend on world market conditions.

It is also very short-sighted to think only of the effects of CO₂ on crop photosynthesis. At least three other factors need to be con-

sidered. First is losses to pests. Several studies show that insects fed plant material grown in elevated CO_2 eat more than if fed the same plants grown at normal CO_2 . Thus, losses to pests could potentially increase, or investments in pest control could increase. Second is weeds. Weeds tend to be stimulated as much by elevated CO_2 as the crops, and especially for crops such as corn with the C-4 photosynthesis. Many of the major weeds have normal photosynthesis and would most likely be more stimulated than the crops. Third, and probably most important, is climate. Evaluating effects of CO_2 on food production without considering CO_2 effects on climate is like evaluating DDT based only on its short-term effects on insect control. DDT is a very effective insecticide, but its long-term impacts on other animals is so negative that it would be a big mistake to consider the effects on short-term insect control in isolation. The situation for CO_2 is strongly parallel.

The connection between atmospheric CO_2 and climate is increasingly well-understood, with a vast body of evidence indicating that continued increases in atmospheric CO_2 and other heat-trapping gasses will lead to gradual warming of the Earth, the exact amount is still somewhat uncertain. But the Earth has clearly warmed in the last century. And the consensus of the Intergovernmental Panel on Climate Change, which is the collaborative effort of the world's scientists asked to evaluate climate change for the world governments, is that this warming already has the signature of a human caused component.

With a warming climate, many, or even all, of the stimulatory effects of elevated CO_2 on crop photosynthesis may be eliminated. Recent models of the impacts on U.S. agriculture over the next century, with a combination of elevated CO_2 and warming, indicate that the negative effects of climate change, changes in temperature and precipitation, will approximately cancel stimulatory effects of increased CO_2 .

In natural ecosystems, elevated CO_2 has similar effects to that on crops, increasing photosynthesis in most plants. In experiments where CO_2 is increased, plant growth often increases, though the growth responses tend to be smaller, sometimes even absent in natural ecosystems. Very few experiments have examined the combined effects of elevated CO_2 and climate change. This is an area where additional information is critical. If I could have 1 more minute, please.

But plant growth is not the only important property of natural ecosystems. Features like recreational value, watershed protection, and biological diversity are also important, potentially sensitive to the direct and indirect effects of elevated CO_2 . Changes in these values are difficult to predict and could be highly variable from place to place, but some results are suggestive. In studies of California grasslands exposed to elevated CO_2 , weedy species, with profoundly negative effects on grazing and recreational values, tend to be those that are most strongly stimulated. Many studies report large differences among species and which ones are stimulated and which are not by elevated CO_2 , and, so far, it is really difficult to have any strong predictions of effects on elevated CO_2 on biological diversity. If the winters are weedier introduced species, the effects on biological diversity could be strongly negative.

In sum, atmospheric CO₂ is a critical component of the atmosphere, but increases in concentration resulting from human actions can have both positive and negative impacts on agriculture and on natural ecosystems. Any negative impacts expressed through climate change will, of course, affect sectors other than agriculture and natural ecosystems.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Field follows:]

Christopher B. Field
Department of Plant Biology
Carnegie Institution of Washington
260 Panama Street, Stanford, CA 94305

phone: (650) 325 5121 x 213
fax: (650) 325 3748
email: chris@jasper.stanford.edu

Testimony before:

**The House Committee on Government Reform's Subcommittee on National
Economic Growth, Natural Resources and Regulatory Affairs
and
The House Committee on Science's Subcommittee on Energy and the Environment**

October 6, 1999

Honorable Members of the Committee;

I am a staff scientist with the Carnegie Institution of Washington, a non-profit, private research foundation, and a professor by courtesy in the Department of Biological Sciences at Stanford University, where my research group is located. I have conducted research on the global carbon cycle, effects of elevated CO₂ on plants and ecosystems, and effects of CO₂ on climate for the last 10 years, publishing more than 50 peer-reviewed scholarly papers on these topics, including 5 in the most prestigious scientific journals, "Science" and "Nature". My research is supported mainly through competitive programs administered by federal agencies, including the National Science Foundation, NASA, and the Department of Energy. I have also received funding from private organizations, including the US Electric Power Research Institute. Today, I speak as an individual and not as a representative of any agency or organization.

I appreciate the opportunity to address this meeting on the topic, "Is CO₂ a pollutant, and does EPA have the power to regulate it?" My remarks will focus not on the legal issues, but on plant physiology and physics of CO₂ in the atmosphere. I want to emphasize 4 points.

First, atmospheric CO₂ is essential for life on earth.

Second, the concentration of CO₂ in the atmosphere has increased dramatically over the last century, as a consequence of human actions.

Third, increasing atmospheric CO₂ has a mixture of positive and negative effects on plant growth, food security, and natural ecosystems.

Fourth, the problem of increasing atmospheric CO₂ will almost certainly not be completely solved through increased plant growth.

Let me explain each of these points --

First, atmospheric CO₂ is essential for life on earth. Plants grow through photosynthesis, a process that uses the energy from sunlight to combine carbon dioxide (CO₂) from the air with water to make carbohydrates plus oxygen. The carbohydrates formed through photosynthesis feed not only the plants, but also almost all other organisms on earth, including those that eat the plants and those that eat the animals that eat the plants. Of course, humans are included in the group that depends on products of photosynthesis. Humans and almost all other organisms are also completely dependent on the oxygen that is a by-product of photosynthesis. Essentially all of the oxygen in the atmosphere was put there by photosynthesis. Now, as the atmospheric CO₂ is rising, we are seeing almost parallel decreases in atmospheric oxygen. The oxygen concentration is so much higher than that of CO₂ that the decrease in oxygen from fossil fuel combustion is not a problem, but it demonstrates the connections between these two critically important atmospheric constituents.

Second, the concentration of CO₂ in the atmosphere has increased dramatically over the last century, as a consequence of human actions. CO₂ is not a terribly abundant gas in the atmosphere. The current concentration is about 360 parts per million or 0.036%. In every cubic foot of air, the CO₂ makes up a little less than 1 cubic inch. In contrast, oxygen is about 21% of the atmosphere, making it nearly 600 times as abundant as CO₂.

It is very well established that the concentration of CO₂ in the atmosphere is increasing. We know this based on continuous accurate measurements of the atmosphere since 1958, and we know it for the more distant past from measurements on bubbles trapped in ice. The best ice-core measurements are from glaciers in Antarctica and Greenland, where the ice forms in annual layers, like the rings of a tree. In 1958, the concentration of CO₂ in the atmosphere was about 315 parts per million. The concentration has increased by about 15% since then. At the beginning of the industrial revolution, before extensive use of fossil fuel by humans, the concentration of CO₂ in the atmosphere was about 280 parts per million. It has increased by about 30%. Based on the measurements on ice cores, the concentration of CO₂ in the atmosphere has not been as high as the present value for at least the past 400,000 years. During past ice ages, it was substantially lower, sometimes only half the current value.

The increase in atmospheric CO₂ since the beginning of the industrial revolution is clearly a consequence of human actions, primarily the combustion of fossil fuel (which combines carbon in the fuel with oxygen in the atmosphere), and the clearing of forests. Currently, fossil fuel combustion releases about 6 billion tons of carbon into the atmosphere every year, and forest clearing releases approximately 1.5 billion tons. The fossil fuel carbon has a unique signature on the atmosphere because it has a combination of carbon isotopes (carbon atoms with different numbers of neutrons) that is clearly

distinct from the combination in carbon from modern exchanges with land plants or with the ocean.

The recent increases in atmospheric CO₂ are clearly the result of human emissions. In fact, we have, for many years, received a major subsidy from nature on these emissions. Only about half of the carbon released from fossil fuel combustion and forest clearing remains in the atmosphere. Currently, the other half is taken up or stored, at least temporarily, by the oceans and ecosystems on land. Much of the recent research about carbon has concerned the processes responsible for this storage and whether the storage will increase or decrease in the future. I will return to this point in a couple of minutes. For now, I want to emphasize three points: (1) CO₂ is increasing (2) the increase is due to human actions, and (3) the increase would be even more rapid were it not for current carbon storage in the oceans and terrestrial ecosystems.

Third, increasing atmospheric CO₂ has a mixture of positive and negative effects on plant growth, food security, and natural ecosystems. I will comment first on food production. Most of the world's plants use a mechanism for photosynthesis that is CO₂ sensitive in the concentration range near the current ambient level. That is, photosynthesis or CO₂ fixation increases when the CO₂ concentration increases. For many crops under many conditions, this means that crop growth rate also increases. In many experiments, crop growth under doubled atmospheric CO₂ is increased by 10-50%. This CO₂ sensitivity does not apply to all crops. Some important crops, notably corn and sugarcane use a different photosynthesis pathway, called C₄ photosynthesis, that is CO₂ saturated at concentrations below current ambient levels. For these crops, photosynthesis and growth do not increase with increasing CO₂.

In the absence of other factors, the direct effect of increased CO₂ on crop photosynthesis might lead to higher global food production. Whether not this is a benefit from the perspective of US agriculture will depend on world market conditions. It is also very short-sighted to think only of the effects of CO₂ on the crop photosynthesis. At least 3 other factors need to be considered.

First is losses to pests. Several studies show that insects fed plant material grown at elevated CO₂ eat more than if fed the same plants grown at normal CO₂. The increased consumption appears to be a response to the decreased protein levels in leaves of many plants grown at elevated CO₂.

Second is weeds. Crop plants are not unique in the stimulation of their photosynthesis by elevated CO₂. Weeds tend to be stimulated as much as the crops. For crops with C₄ photosynthesis, many of the major weeds have "normal" photosynthesis and will be stimulated more strongly than the crops.

Third and perhaps most important is climate. The connection between atmospheric CO₂ and climate is increasingly well understood, with a vast body of evidence indicating that continued increases in atmospheric CO₂ and other greenhouse gases will lead to gradual warming of the earth. The earth has clearly warmed in the last century, and the

consensus of the Intergovernmental Panel on Climate Change, the collaborative effort of the world's scientists asked to evaluate climate change for the world's governments, is that this warming already has the signature of a human-caused component. With a warming climate, many or even all of the stimulatory effects of elevated CO₂ on crop photosynthesis may be eliminated. The balance between effects of warming and effects of elevated CO₂ will depend on the amount of warming and on the effects of climate change on precipitation. Changes in temperature and precipitation are both uncertain, but recent models of impacts on US agriculture indicate that negative effects of climate change (temperature and precipitation) will approximately cancel stimulatory effects of increased CO₂. If the climate changes are at the high end of the predicted range, the overall impact on US food production over the next century or so will be negative. If the climate changes are smaller, the overall effect will be positive. Of course, the economic value of US crops is sensitive to world market and agricultural conditions. Recent studies indicate that the most negative impacts of the combination of elevated CO₂ and climate change will be in and near the tropics, where temperatures are already warm and where the risk of drought is severe.

In natural ecosystems, elevated CO₂ has an effect similar to that on crops, increasing photosynthesis in most plants. In experiments where CO₂ is increased, plant growth often increases, though the growth responses tend to be smaller, or even absent, in natural ecosystems. Very few experiments have examined the combined effects of elevated CO₂ and climate change – this is the area where my group is working currently, and it is an area where the need for additional information is critical.

Plant growth is not the only important property of natural ecosystems. Features like recreational value, watershed protection, and biological diversity are also important and potentially sensitive to the direct and indirect effects of elevated CO₂. Changes in these values are difficult to predict and could be highly variable from place to place, but some results are suggestive. In our studies of California grasslands exposed to elevated CO₂, not all plants are equally stimulated. Some of the plants that are most stimulated are weedy species with profoundly negative impacts on recreational and grazing value. Many studies report large differences among species in sensitivity to elevated CO₂, indicating that there will be some winners and some losers. So far, we have insufficient evidence to assess the impacts of this on biological diversity. If the winners are weedy or introduced species, the effects on biological diversity could be strongly negative. Adding climate change is likely to exacerbate the problems for rare species, which often have limited ability to move to new habitats and which may be increasingly poorly adapted as temperature and precipitation change.

Fourth, the problem of increasing atmospheric CO₂ will almost certainly not be completely solved through increased plant growth. As I stated earlier, the release of carbon into the atmosphere through human activities currently receives a subsidy from nature. The most recent estimates are that oceans store, at least temporarily, about 2 billion tons of carbon a year and that land ecosystems store about the same amount. Without this subsidy, the CO₂ concentration in the atmosphere would be increasing more

than twice as rapidly, accelerating the climate change and decreasing the time we have to understand and find solutions to the carbon question.

In the past, some individuals have suggested that the increase in atmospheric CO₂ would eventually slow or even stop, as increased plant growth removed more and more of the carbon emitted from fossil fuel combustion and forest clearing. Now, it is clear that this perspective is not correct. Some of the most compelling evidence comes from recent studies indicating that current carbon storage on land cannot be completely explained as a response to increases in atmospheric CO₂. One line of evidence comes from studies indicating that the rate of storage is inconsistent with the rate of CO₂ increase. Another line of evidence comes from studies indicating that at least some of the current storage is a result of changes in land use, including the regrowth of forests on areas abandoned from agriculture as well as changes in agriculture, like the adoption of high-yield cultivars.

If the current storage of carbon in land ecosystems is not caused solely by elevated CO₂, it is unreasonable to link assumptions of future storage solely to atmospheric CO₂. With a balanced perspective on the whole range of mechanisms likely to be responsible for current carbon storage on land, it is unlikely that terrestrial storage (removal of CO₂ from the atmosphere) will increase dramatically in the future, and it may decrease. As a consequence, the carbon problem is very, very unlikely to be self-correcting.

In sum, atmospheric CO₂ is a critical component of the atmosphere, but increases in its concentration, resulting from human actions, can have both positive and negative impacts on agriculture and natural ecosystems. The negative impacts expressed through climate change will, of course, affect sectors other than agriculture and ecosystems. Overall, increasing CO₂ is likely to cause serious problems, and it is extremely unlikely that terrestrial uptake of CO₂ will be sufficient to prevent these problems, unless the world's nations take additional steps to limit CO₂ emissions.

Mr. CALVERT. I thank the gentleman.

Mr. Idso.

Mr. IDSO. I am going to put a carousel in here. I was unaware that I could use slides today, so I just ran over and grabbed a few from my motel room.

Briefly, I would like to thank the chairmen and the committee members for having me come out today to testify on behalf of carbon dioxide.

Carbon dioxide is not a pollutant, contrary to what some people may tell you. Carbon dioxide is colorless. It is odorless, and it is a trace gas that exists in the atmosphere. Again, you have heard that its current atmospheric concentration is so small, it exists at only 0.036 percent. But, again, because of mankind's industrial activities and consumption of fossil fuels, the amount of carbon dioxide in the air is increasing and probably will double within the next century. So, even if it doubles, big deal. It is still going to be a trace gas. You have already heard the preliminary argument that carbon dioxide is essential to life on the Earth, and I concur with that premise.

Many, many studies have looked at plant responses to increasing carbon dioxide. This study represents nearly 1,100 observations that demonstrates what happens to plant growth when the amount of carbon dioxide in the air is doubled. Basically, with more carbon dioxide in the atmosphere, plant growth is going to increase. And that is exactly what typically occurs. And for a doubling of carbon dioxide, this particular study showed an average increase in plant growth of 52 percent.

There are some individuals that have criticized this positive growth response, saying that it will not be as great due to the fact that out in natural ecosystems there are certain environmental stresses and resource limitations that may decrease the beneficial growth response of plants to higher levels of carbon dioxide. However, in reviewing the literature again, looking at nearly 300 published observations, we find that just the opposite tends to occur. In other words, plants benefit even more in their growth response to carbon dioxide when they are being stressed by resource limitations or certain environmental factors.

That brings us to global warming. There is no compelling reason to believe that increasing atmospheric carbon dioxide levels must be forcing temperatures upward. However, in analyzing 42 peer-reviewed studies, it has been determined that if the amount of carbon dioxide in the air doubles, plants can shift their optimal growth temperature upwards by nearly 6 degrees celsius. Clearly, this upward shift in growth temperature can more than account for any global warming that may happen in the next hundred years, as predicted only by climate models. In other words, plants will not be forced to migrate to cooler regions. Instead, plants will exist at their high temperature boundaries and grow even better than they did before atmospheric CO₂ levels rose or air temperatures increased. So plants will maintain their biodiversity at the warm ends of their temperature boundaries.

However, at the cool end of their temperature boundaries, due to the warming that is happening, plants can actually expand into new regions and begin colonization. When they expand there, bio-

diversity will increase. And as herbivores that feed upon the plants follow them into new areas, herbivore biodiversity also increases. And then carnivores that eat the herbivores follow along. Across the globe many of the ecosystems will experience an increase in biodiversity.

So, in conclusion, I just want to summarize again that carbon dioxide is vital for life on the Earth. Plants do respond favorably when atmospheric carbon dioxide levels increase; they do produce much more yield and fiber. Hence, there is more agronomic production to allow for feeding and clothing—and timber production—to provide fuel and shelter to the increasing population of humanity.

So I would recommend to the chairmen and the panel today that they do whatever they can within their legislative powers to ensure that carbon dioxide levels are not restricted, and that the amount of carbon dioxide in the atmosphere be allowed to continue to increase to provide for the benefit of all humanity and biodiversity as well. Thank you.

[The prepared statement of Mr. Idso follows:]

Testimony of

Keith E. Idso, Ph.D.

Vice President

Center for the Study of Carbon Dioxide and Global Change

Before the

United States House of Representatives Subcommittees on

National Economic Growth, Natural Resources and Regulatory Affairs

and

Science Subcommittee on Energy and the Environment

October 6, 1999

Introduction

I want to thank both Chairmen and the distinguished Members of the two Subcommittees for inviting me to testify about carbon dioxide (CO₂) and the positive effects that its rising atmospheric concentration has on plant growth and ecosystem biodiversity. Contrary to what certain people would have you believe, CO₂ *is not a pollutant*. In fact, it is the absolute antithesis of a pollutant; for this colorless, odorless gas is one of the primary raw materials (the other being H₂O) out of which plants construct their tissues. Hence, CO₂ functions as one of the twin pillars of earth's biosphere, which is vital for supporting nearly all life that exists.

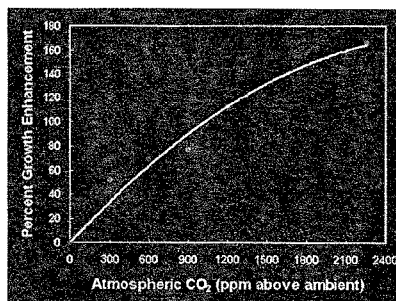
Plant responses to elevated CO₂

Plants respond directly to increasing atmospheric CO₂ concentrations. Kimball (1983a, b) conducted two of the earliest analyses of the peer-reviewed scientific literature dealing with this subject. From reported results of 770 individual plant responses, he determined that a 300 ppm rise in the air's CO₂ content boosts the productivity of most herbaceous plants by approximately 33%. Other reviews conducted by Cure and Acock (1986), Mortensen (1987) and Allen (1990) have produced similar results. In a more detailed study, Poorter (1993) found the average growth stimulation of a 300 ppm increase in atmospheric CO₂ concentration to be 41% for 130 different C₃ plants, 22% for nine C₄ species, and 15% for six different CAM plants. In addition, Poorter (1993), Ceulemans and Mousseau (1994), and Wullschleger et al. (1995, 1997) report the results

of 176 experiments on trees and other woody plants that reveal a mean growth enhancement of 48% for a 300 ppm increase in the air's CO₂ content.

Perhaps the largest such review ever conducted was that of Idso (1992), which utilized papers published subsequent to the reviews of Kimball, in which a total of 1,087 observations of plant responses to atmospheric CO₂ enrichment were compiled and analyzed. Of this number, 93% of the responses to CO₂ were positive, 5% were negligible, and only 2% were negative.

The mean growth response curve of these many plants is illustrated in the accompanying figure, which shows the percentage increase in plant growth as a function of increases in the air's CO₂ content. It is important to note that the

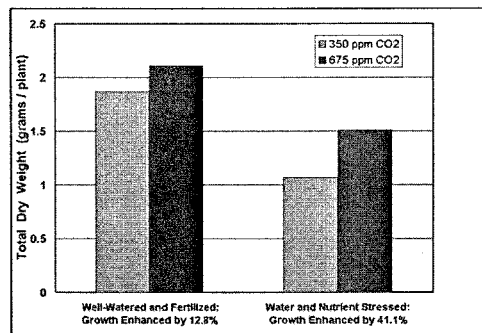


data used to generate this figure were derived from 342 peer-reviewed scientific journal articles authored by 484 scientists residing in 27 foreign countries and 27 American states, representing 24 universities, 30 American government research organizations and 88 foreign institutions. In viewing these comprehensive results, one simple fact stands out clear and unmistakable: the science of atmospheric CO₂ enrichment demonstrates that plants grow better with more CO₂ in the air.

Plant responses to elevated CO₂ when environmental constraints restrict their growth

It is often stated, in cursory reviews of the subject, that plants may not be able to reap the many benefits resulting from an increase in atmospheric CO₂ if they are simultaneously experiencing less-than-optimal growing conditions brought about by environmental stresses or resource limitations. In evaluating this possibility, Idso and Idso (1994) reviewed the scientific literature of the ten-year period 1983-1992, finding that the percentage growth enhancement resulting from atmospheric CO₂ enrichment is typically *greater* when plants are exposed to growth-retarding stresses --such as those imposed by low levels of sunlight, inadequate soil moisture, high soil salinity, elevated air temperatures and the presence of aerial pollutants-- than it is under ideal growth conditions.

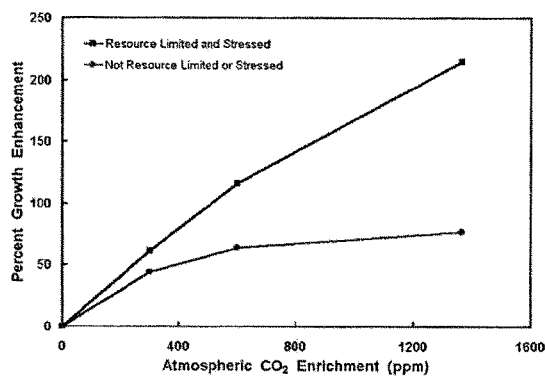
This phenomenon is illustrated in the accompanying figure, which describes the response of Alaska pea plants to atmospheric CO₂ enrichment when water and nutrients are and are not limiting to the



growth of the plants (adapted from Paez et al., 1983). Although these environmental stresses clearly have a negative impact on the plants of both CO₂ treatments, the plants exposed to the higher CO₂ concentration exhibit a greater percentage growth

enhancement due to the extra CO₂ when they are stressed, due to lack of soil water and fertility, than when these resources are present in optimal quantities.

The next figure reduces the findings of all papers reviewed by Idso and Idso (1994) down to a single presentation of two relationships: (1) the percent growth enhancement due to various levels of atmospheric CO₂ enrichment for plants receiving



less than adequate light, water and nutrients or experiencing stresses caused by high levels of soil salinity, air pollution or temperature, and (2) the same relationship for

the same plants when experiencing none of these resource limitations or environmental stresses. These two relationships --each one the mean result of 298 separate experiments-- clearly demonstrate that plants generally experience an even greater CO₂-induced percentage increase in growth when they are under stress than when they are growing under ideal conditions.

In light of these experimental findings, it is clear that the rising CO₂ content of the air will boost global plant productivity and growth under nearly all environmental circumstances, promoting the production of the food, fiber, and timber needed to feed, clothe, and provide shelter for the planet's rising population.

The effects of a positive CO₂ x temperature interaction on biodiversity

Although there is no compelling reason to believe that rising CO₂ levels are responsible for an observed temperature increase of about 0.5°C over the past century, a large body of experimental observations suggests that worries about global warming reducing biodiversity are unfounded --thanks to the rising CO₂ content of the air. In an analysis of 42 different studies, for example, Idso and Idso (1994) discovered that the beneficial effects of atmospheric CO₂ enrichment typically *rise* with an increase in air temperature. In fact, for a 300 ppm increase in the air's CO₂ content, they determined that the mean CO₂-induced growth enhancement in these 42 experiments rose from a value of zero at 10°C to a value of 100% at 38°C.

A major consequence of this phenomenon is that the optimum temperature for plant growth generally rises when the air is enriched with CO₂. For a 300 ppm increase in the air's CO₂ content, biochemical theory suggests that the optimum growth temperatures of C₃ plants will rise by about 5°C (Long, 1991); and this prediction has been verified by several experimental studies in which this parameter has actually risen by approximately 6°C for a 300 ppm increase in the atmospheric CO₂ concentration (Bjorkman et al., 1978; Nilsen et al., 1983; Jurik et al., 1984; Seemann et al. 1984; Harley et al., 1986; Stuhlfauth and Fock 1990; McMurtrie et al., 1992).

These observations are particularly important; for an increase of this magnitude in optimum plant growth temperature is even larger than the largest air temperature rise predicted to result from a 300 ppm increase in atmospheric CO₂ concentration (Houghton et al., 1996). Hence, even the most extreme global warming envisioned by the

Intergovernmental Panel on Climate Change would not adversely affect the vast majority of earth's plants; for fully 95% of them are of the C₃ variety (Drake, 1992). In addition, the C₄ and CAM plants that make up the rest of the planet's vegetation are already adapted to earth's warmer environments, which are expected to warm much less than the other portions of the globe (Houghton et al., 1996); yet even some of these plants experience elevated optimum growth temperatures in the face of atmospheric CO₂ enrichment (Chen et al., 1994). Consequently, in the words of Idso (1995), "a CO₂-induced global warming would *not* produce a massive poleward migration of plants seeking cooler weather; for the temperatures at which nearly all plants perform at their optimum would rise at the same rate (or faster than) and to the same degree as (or higher than) the temperatures of their respective environments."

At even higher temperatures that are normally lethal to plants, atmospheric CO₂ enrichment has also been proven to be of great worth, as it sometimes can mean the difference between a plant's living or dying. High CO₂ levels, for example, can enable plants to maintain positive leaf carbon exchange rates when plants growing under ambient CO₂ concentrations exhibit negative rates that lead to their demise (Kriedemann et al., 1976; Converse and George, 1987; Idso et al., 1989, 1995). Likewise, elevated CO₂ tends to protect plants against the severe desiccation that often accompanies high temperatures (Johnson et al., 1997; Tuba et al., 1998).

All of these considerations, of course, are only of significance in determining the location of the *high*-temperature boundary of a plant's natural range. At its *low*-temperature boundary, global warming would always provide an impetus for the plant to migrate poleward as the earth warmed; and with the high-temperature boundaries of most

species remaining essentially unchanged, due to this positive CO₂ x temperature interaction, the sizes of their ranges would be increased. Consequently, with the increased *overlapping* of ranges that would ensue, ecosystem biodiversity the world over would rise, as more species of plants began to inhabit the same geographical locations.

Experimental observations of animals

The CO₂-induced increases in the sizes of the ranges occupied by earth's various plant species in the face of protracted global warming would logically be expected to provide the same type of opportunity for range expansions in the herbivorous animals that feed upon them; and recent investigations of this phenomenon are beginning to bear out this expectation.

In a study of shifts in the ranges of more than half a hundred European butterfly species over the past century, Parmesan et al. (1999) found that most of them moved northward in response to a regional warming of approximately 0.8°C. However, in the words of the authors, "nearly all northward shifts involved extensions at the northern boundary with the southern boundary remaining stable," so that "most species effectively expanded the size of their range when shifting northwards." And this northward range expansion did not displace other butterflies from the southern portions of their ranges. Hence, butterfly biodiversity in these areas must have increased.

Moving yet another step up the trophic ladder of the food chain, Thomas and Lennon (1999) conducted a similar study of shifts in the ranges of an equally large number of British bird species. From 1970 to 1990, they found that the northern boundaries of species residing in the southern part of Britain shifted northward by an

average of 19 km; while the southern boundaries of species residing in the northern part of the country shifted not at all. Consequently, just as in the case of European butterflies, there has been – not just a *theoretical* increase in the sizes and overlapping of British bird ranges with a concomitant increase in ecosystem biodiversity – but a *real* increase. Furthermore, as recently discovered by Manne et al. (1999) in a study of *all* the passerine (perching) bird species of North and South America, the fraction of endangered species, i.e., those threatened with extinction, drops off significantly as range size increases, in yet another demonstration of the biospheric benefits to be accrued from the species range expansions currently being experienced the world over.

Recommendations

Mr. Chairmen and distinguished Members of the Subcommittees, based on the vast amount of peer-reviewed scientific literature that I have briefly described, I urge you to carefully consider the many real and tangible impacts that the rising atmospheric CO₂ concentration has on plant productivity and ecosystem biodiversity. These proven positive consequences of elevated CO₂ are infinitely more important than the unsubstantiated predictions of apocalypse that are hypothesized to result from global warming, which itself, may not be occurring from rising atmospheric CO₂ levels. The aerial fertilization effect of atmospheric CO₂ enrichment is the only aspect of global environmental change about which we can be certain; and to restrict CO₂ emissions is to assuredly deny the biosphere the many benefits that accrue from this phenomenon. My recommendation, therefore, is that you do what is best for nearly all life on earth, and not interfere with the increasing availability of this absolutely essential, growth-promoting, starvation-averting, biodiversity-enhancing natural resource --carbon dioxide.

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Mr. CALVERT. I thank the gentleman.

Mr. Michaels, I could not help but observe you brought a couple of beakers with you. I thought I would ask what that is all about.

Mr. MICHAELS. Actually, I often travel with these beakers, Congressman. [Laughter.]

Let me change the slide tray, if I could. You have heard that there is some controversy about the projections of climate change versus reality. I would like to examine just for a moment, or illustrate just one of the problems. This is the Lawrence Livermore National Laboratory circulation model. I am not picking on it; it just happens to be one that is readily available. They all do essentially the same thing. This again is north, this is south, and this is going up 5,000 feet, this is the top, what we call the troposphere, about 40,000 feet. You can see that it warms. In fact, it is predicted to warm by the ensemble of climate models serve as the basis for the Kyoto Protocol 0.23 degrees celsius per decade. That whole zone is forecast to warm like that.

Well, this little beaker here can be our whole atmosphere. What I have done here is I have put a little dye in here, I am going to fill this up to 1,000 millibar or 1,000 milliliters, which is the depth of the tropopause, and you can see what is predicted to happen. That is a pretty red cylinder, isn't it? Now what happened in the course of the last two decades is that while this is predicted to happen, we had a warming in the lowest regions of the atmosphere, as I mentioned in my oral testimony. The bottom 5,000 feet warmed up. Not as much as the whole atmosphere was forecast to warm. So this bottom 5,000 feet that is in this beaker is pinker than this.

But our understanding of climate change warms up the entire bottom 50,000 feet. So if you want to see how far off the projections are that serve as the basis for the Kyoto Protocol, I will have to average this warming through the entire atmosphere, which I am going to do right now, average the surface warming, pour in some nice, clean, unpolluted, no CO₂—excuse me, I better not use that word polluted—nice, clean air into our atmosphere. There is what serves as the basis for the Kyoto Protocol, and there is reality, Congressman. I think we have a problem. That is why I brought these cylinders with me.

Mr. CALVERT. I thank the gentleman.

Dr. Idso, you recently completed a study claiming that higher CO₂ levels will reduce world hunger, as you were talking about. Please briefly describe the study and assess the implications for global food security of Kyoto-style policies.

Mr. IDSO. Basically, in the food study, we used United Nations food production data, looking at how much food was produced in the past, and we determined how much food will likely be produced in the future due to mankind's continuing ingenuity and agricultural advances. We also know what the projected human population is going to be. And assuming that we maintain the current standard of living, any additional increase in human population should correlate to an equivalent increase in agricultural yield.

By restricting carbon dioxide levels according to the Kyoto Protocol, we determined that mankind's ingenuity alone will not produce enough agricultural yield to feed the human population. However,

if carbon dioxide levels are allowed to continue to rise unrestricted in the atmosphere, the beneficial growth enhancement resulting from that phenomenon, combined with mankind's intellectual knowledge and agricultural techniques, will make up the difference and the world will be food secure.

Mr. CALVERT. That is interesting. You are almost saying that rather than CO₂ being a pollutant, it is a beneficial gas.

Mr. IDSO. That is precisely correct.

Mr. MICHAELS. With all due respect, Mr. Chairman, those cold air masses kill a lot more than warm air.

Mr. CALVERT. Dr. Field, to what extent does your research show that elevated CO₂ levels in general have the following beneficial effects: increased plant photosynthetic rates, increased plant water use efficiency, increased plant resistance to heat stress, raise the optimum growth temperature for plants?

Mr. FIELD. Congressman, I believe it is fair to say that the sum of approximately 3,000 studies now published in the literature indicate that elevated CO₂ has effects on each of those properties in the direction that you have indicated. Plants generally do better under elevated CO₂; better in terms of growth rate, in terms of the high temperature performance, and in terms of ability to tolerate water limitation.

I will say, however, that that does not necessarily speak directly to the changes in plant production under a future scenario that includes the combination of warming and elevated CO₂. The issue is that elevated CO₂ helps the plants cope with conditions that are otherwise deleterious, but it may or may not overcome the deleterious effects.

Mr. CALVERT. Yes, because it seems Dr. Idso would say, I presume based upon your testimony and the previous question, that rising temperatures would be more likely to enhance the benefits of CO₂ enrichment. Would that be correct, Mr. Idso?

Mr. IDSO. That is correct. Based on the research that I have looked at, the 42 studies, there is a positive interaction between temperature and carbon dioxide, wherein the CO₂-induced growth response is typically greater with higher temperatures.

Mr. CALVERT. Do you have any comment about that, Mr. Field?

Mr. FIELD. The important issue to keep in mind about the interaction between climate change and elevated CO₂ is that climate change is not just warming. Much of the world is projected to suffer increased water shortages under a global scenario. The lack of water and the elevated crop production scenario all tend to depress crop production relative to what you would expect under current conditions. And as I said in my testimony, the current ensemble estimate is that, in general, the beneficial effects of elevated CO₂ will more or less cancel the deleterious effects of the climate changes in the United States. In other parts of the world, particularly in the tropics, the effects of the warming are expected to be greater than the effects of the elevated CO₂, with overall deleterious effects on food production.

Mr. CALVERT. I presume, Mr. Michaels, you want to comment on that?

Mr. MICHAELS. Yes. Carbon dioxide has increased effectively from about 270 parts per million background from the beginning of

the Industrial Revolution to effectively about 450 today with all the greenhouse gases in the atmosphere. We have these projections for increased drought, that I just heard about, interacting with the food supply. Fortunately, we do have a record of this. I thought you might like to see this slide. The area on the bottom is the intense drought history in North America. What you can see is there is no change whatsoever from 1895 to now. If we take a look at the wetness in North America, it has increased. So what we have done is we have not increased the droughtiness, we have increased the moisture in the atmosphere, and, by ameliorating the coldest air masses, we have slightly lengthened the growing season. Well, North America happens to be the world's bread basket.

So I think these arguments deserve a little bit of attention to reality before they are tendered. Thank you.

Mr. CALVERT. Mr. Ehlers.

Mr. EHLERS. I apologize that I had to go to another committee to vote and missed the testimony, although I had read it before coming here.

The question that is being heard today is, is CO₂ a pollutant, and does EPA have the power to regulate it? That was addressed primarily by the attorneys in the first panel. I take it that you are not really addressing that so much as the issue of whether or not the increased CO₂ contributes to global warming or to global climate change. Am I correct? And I have to ask this simply because I was not here.

Mr. FIELD. That is correct.

Mr. EHLERS. That is correct. OK. And from your written testimony, I did not reach any conclusions as to what you were saying, other than increased CO₂ promotes plant growth. Increased CO₂, according to Mr. Michaels, is not that much of a problem. And Mr. Field, you say it may well be a problem. Is that a fair characterization or summary of the testimony?

Mr. FIELD. Yes, I agree.

Mr. EHLERS. OK. Now what I would like to get at, I am not as concerned personally, as I mentioned earlier, about the global warming because I think the jury is out on that one yet. But I think the scientific jury is still open but starting to reach some conclusions about global climate change. By that, I mean the amount of vapor in the air, particularly the number of clouds which have an impact on both the warming of the Earth and the reflection back to space, the increased rain in some locations, increased drought in others. I think one of the key points in my mind, and I would like your comments on this, is that it is going to be quite some time before we really understand these effects well enough to tell what the net impact is, particularly, the greatest difficulty is going to be to state in some fairly precise fashion what the impact is for certain places on the surface of the Earth. It seems to me we are likely to have beneficial effects in a number of places, we are likely to have deleterious effects in a number of other areas.

I am just wondering if any one of you can lay out for me a game plan of how you and other members of the scientific community are going to approach this in terms of trying to pin down, as best you can as time goes on, what these climate change effects are. Not just what climate change takes place, but the effects of that change. As

starting from the most certain, we know that CO₂ is increasing, no question about that, we even have a fairly good idea of the projected rate it will increase. The next level of certainty is what is the impact of this on global warming. The next level, what impact is it on global climate change. And finally, the question I am raising, is what are the specific pluses and minuses of the climate change in various locations of the Earth. Now, what would be the program to determine that? Roughly, what is the time scale of knowing results well enough so that we can take legislative action?

Mr. FIELD. Congressman, I think you have characterized the problem in a very eloquent way. The easiest problem to get a quantitative handle on is the CO₂ rise. The second problem in terms of increasing difficulty is whether or not there has been warming. Dr. Michaels has already addressed that, and, I think importantly, you could see from his results that the actual warming to date is within the range of the climate model predictions. The next most difficult problem that we still have not addressed in a comprehensive way is the whole suite of changes in climate that accompany the warming. And the most difficult challenge is nailing down the spatial locations of the climate variations.

The biggest component of progress in terms of all of those is to get the climate models to work in a way so that they accurately reflect the physical processes in the environment, including a number of feedbacks that have been difficult to represent. There has been tremendous progress over the last 10 years or so, so that climate models are accurately reproducing temperatures. The best models are very, very close to the observed record. But I think the climate community is also very clear about the prospect of rapid increases in the accuracy of regional predictions, which will probably not come within the next few years. I think we are looking out at least a period of a decade until we can be confident about regional changes either in temperature or in precipitation.

Mr. EHLERS. Just a quick question on that. Is that because of the need for larger computers, or is it because of deficiencies in the model, or is it because we have too coarse a grid in many parts of the globe?

Mr. FIELD. There are a number of factors that contribute to it. Part of it is that the climate models are, as you know, very, very complicated computational problems and we have been working at the very limit of the ability of the super computers to process them. Another limitation, however, has been that the observational evidence on the nature of some of the feedback mechanisms that could be very powerful is still incomplete and we need additional observations. Many of those are coming from recent satellites launch by NASA and the European Space Agency. NASA is planning major launches in the next 2 years that should address a number of these mechanisms. And it is really the feedback between the improved observations and advances in the computational power that will let us address the questions over the next few years.

Mr. MICHAELS. Congressman, if I could—

Mr. EHLERS. Yes.

Mr. MICHAELS. Let me just show you something that I showed earlier that I think you are going to find quite interesting. This is a suite of general circulation climate models. You probably recog-

nize some of these acronyms here. That is National Center for Atmospheric Research. That is the British Hadley Center. This is the Geophysical Fluid Dynamics Laboratory. And each one of these models has different assumptions.

This one here, down here, I adjusted for the actual increase in carbon dioxide that has been observed in the last 30 years. These models tend to use too large of an increase; they tend to use 1 percent per year. The actual integrated number allowing for all the trace gases, and this is according to James Hansen from NASA, is actually about 0.4 percent per year over the course of the last couple of decades.

But what I want to draw your attention to, Congressman, as a scientist, what you see here is that the functional form of the response of each of these is the same, isn't it? They are all straight lines. So all that differs between these models is the slope of the line. Now, having established that, I will then submit to you what these models say is that once greenhouse warming begins, it takes place as a straight line. Remember, these models all have exponential forcings in them, Congressman; they have percent per year. So you have an exponential change in the greenhouse forcing but you get a linear change in the temperature.

The United Nations has said that there is a discernible human influence on global climate. Let us assume what people think they said is what they said, that changing the greenhouse effect is altering the climate. The next question is, is the temperature changing in a linear fashion, and, if it is, then nature has decided the slope of this line. And she has. It is this line right down here, at 1.3 degrees celsius per decade. Unless, Congressman, the functional form of every climate model is wrong. So I think we know the answer now. Thank you.

Mr. EHLERS. Let me just ask one related question in terms of the fact that this is a linear—

Mr. MICHAELS. They all are.

Mr. EHLERS. Even though the forcing functions, as you said, are exponential in nature. Now, does this have to do with the fact that CO₂, as an example, is pretty well opaque already and so that it—

Mr. MICHAELS. It eventually saturates for each given wavelength, that is right.

Mr. EHLERS. They are logarithmic because you are just dealing in the wings of the curve, is that correct?

Mr. MICHAELS. Correct.

Mr. EHLERS. So that would explain why you get a linear function.

Mr. MICHAELS. Plus the oceanic thermal lag, also.

Mr. EHLERS. OK.

Mr. CALVERT. Gentlemen, we probably have time for Mr. Barr to ask a couple of questions, and then we have to go for a vote.

Mr. EHLERS. Oh, I am sorry. I thought he had already.

Mr. CALVERT. No, he has not asked.

Mr. EHLERS. In that case, I will withhold the rest of my questions.

Mr. BARR. I will yield you some time since you obviously know more about linear functions, exponential functions, and so forth, all

of which have nothing to do with the real world of politics. [Laughter.]

We have this marvelous exhibit here that seems self-evident. I am sure that if a picture is worth 1,000 words, this was worth, at least to myself and I suspect the chairman, who are not as educated as you are, Professor, in the technicalities of this stuff, it is probably worth about 10,000. But that certainly does not stop politicians from completely ignoring it. It may have something to do with the rose-colored glasses they wear. I think that would cancel out the differences in coloration in the tubes there. [Laughter.]

But it really is very, very interesting. I appreciate, Mr. Chairman, you and Chairman McIntosh bringing these two panels of legal experts and scientific experts here today.

In listening to the different conversations here, I think I understood Dr. Field to contend that a warmer climate may cancel out many, or even all, of the benefits of the CO₂ enrichment that you discussed, I would just ask you, Mr. Idso, would rising temperatures be more likely to negate or enhance the benefit of CO₂ enrichment?

Mr. IDSO. Based on all the literature that I have seen published out there, in the clear majority, rising temperatures would enhance the CO₂ benefit. In cases where it negates some of the benefit, what I have seen, that negating is just very small, so there are still net positive gains in the long run. You just do not have as great an increase, so it would be slightly reduced by the high temperature in those few cases.

Mr. BARR. And I presume that these studies that you are talking about are based on a number of different experts and studying scientific data over long periods of time and with all sorts of variables and so forth?

Mr. IDSO. With respect to temperature, there are 42 studies that I am aware of that I have actually looked at and analyzed. The literature is just now looking at different types of interactions. You saw earlier, I actually put the slide up showing the interactive growth response of plants to elevated carbon dioxide when they lacked water. In those cases where water is limiting plant growth, you do not see a cancellation of the CO₂-induced growth benefit. Typically, the growth benefit is even greater when plants are lacking water in the soil. So you do not see it negating or canceling out their positive growth responses to atmospheric CO₂ enrichment.

Mr. BARR. Was this discussed in that great scientific treatise "Earth in the Balance"?

Mr. IDSO. Probably not.

Mr. FIELD. The answer is, no.

Mr. BARR. I did not think so.

Unfortunately, Mr. Chairman, and this is another reason why it is good to have this hearing today, these findings and these conclusions do not make the headlines of the papers, only the scare stories about global warming and so forth do. So I appreciate all three of you gentlemen bringing your expertise here and, through you, the expertise of many of your colleagues reflected in these studies. Thank you all very much.

Thank you, Mr. Chairman.

Mr. CALVERT. I thank the gentleman.

I thank the witnesses for their testimony today, and those in the audience who attended. It was an interesting hearing. We are adjourned.

[Whereupon, at 4:52 p.m., the subcommittees were adjourned, to reconvene at the call of their respective Chairs.]

[Additional information submitted for the hearing record follows:]

Congress of the United States

Washington, DC 20515

October 14, 1999

BY FACSIMILE

The Honorable Gary S. Guzy
General Counsel
Environmental Protection Agency
401 M Street, S.W.
Washington, DC 20460

Dear Mr. Guzy:

Thank you for testifying on the Environmental Protection Agency's (EPA's) legal authority with respect to carbon dioxide (CO₂) at the October 6, 1999 joint hearing conducted by the Government Reform Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs and the Science Subcommittee on Energy and the Environment.

We are writing not only to follow up on specific issues raised at the joint hearing but also to express our concern about how EPA appears to interpret its authority under the Clean Air Act.


EPA has somehow missed the obvious. The Clean Air Act is a carefully structured statute with specific titles that establish specific regulatory programs to accomplish specific objectives. The Clean Air Act has no subchapter or section on global climate change. There is no greenhouse gas emissions program even remotely comparable to the ambient air quality program, the air toxics program, or the stratospheric ozone protection program. EPA's authority to address "criteria" pollutants is distinct from its authority to address hazardous pollutants, which in turn is distinct from its authority to address ozone-depleting substances. The Clean Air Act is not a regulatory blank check. Yet, that is how EPA appears to interpret the Act -- as a source of generalized authority to control any substance emitted into the air, whether or not Congress intended EPA to regulate it.

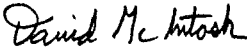
Finally, we find it inconceivable that, on a major controversial issue of longstanding debate like global warming, Congress would authorize EPA to launch a vast new regulatory program -- a program potentially costing hundreds of billions of dollars -- without ever saying so in the text of the statute. Congress is not in the habit of delegating far-reaching regulatory powers to agencies by its mere silence.

Pursuant to the Constitution and Rules X and XI of the United States House of Representatives, please respond to the specific questions enumerated in the enclosure. Your response should be delivered to the Science Subcommittee on Energy and the Environment

majority staff in H2-389 and the Government Reform Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs majority and minority staffs in B-377 and B-350A, respectively, not later than November 5, 1999. If you have any questions about this request, please contact Staff Director Harlan Watson at 225-9816 or Staff Director Marlo Lewis at 225-1962. Thank you for your attention to this request.

Sincerely,


Ken Calvert
Chairman
Subcommittee on Energy
and the Environment


David M. McIntosh
Chairman
Subcommittee on National Economic Growth,
Natural Resources and Regulatory Affairs

Enclosure

cc: The Honorable Dan Burton
The Honorable F. James Sensenbrenner, Jr.
The Honorable Dennis Kucinich
The Honorable Jerry F. Costello
The Honorable John D. Dingell

- Q1. What in your judgment is the significance of the fact that the Clean Air Act refers to carbon dioxide (CO₂) only in reference to non-regulatory activities, such as research and technology development, while it specifically identifies hundreds of other substances to be regulated by the Environmental Protection Agency (EPA)?
- Q2. Your testimony cites Section 103(g) as proof that CO₂ is a “pollutant” within the meaning of the Clean Air Act. Yet, that very section directs the Administrator to develop “non-regulatory” strategies, and concludes with an admonition: “Nothing in this subsection shall be construed to authorize the imposition on any person of pollution control requirements.” Similarly, the only provision of the Clean Air Act to mention global warming, section 602(e), stipulates: “The preceding sentence shall not be construed to be the basis of any additional regulation under this chapter.” How do you interpret these Congressional restrictions?
- Q3. During the hearing, Professor Jeffrey Miller argued that the absence of express statutory authority to regulate CO₂ is not significant because the Clean Air Act authorizes the Administrator to revise or add to the list of regulated substances. However, the Clean Air Act always confers such listing authority in the context of specific regulatory schemes designed to address specific kinds of problems. For example, there is a “criteria” pollutants program to reduce emissions of substances that adversely affect ambient air quality, a “hazardous” pollutants program to control emissions of toxic substances, and a stratospheric ozone protection program to phase out ozone-depleting substances. There is no comparable program to reduce, control, or phase-out emissions of greenhouse gases. What in your judgment is the significance of the fact that the Clean Air Act contains no subchapter or section on global climate change? What is the significance of the fact that the Act nowhere expressly authorizes the Administrator to list and promulgate regulations to control substances that may be reasonably anticipated to cause or contribute to global warming?
- Q4. In section 112 of the Clean Air Act, Congress specifically named 190 hazardous air pollutants (HAPs), but did not include CO₂ in the list. Each of the substances listed is highly toxic and endangers health or the environment through direct exposure, not indirectly through a chain of secondary effects as in the supposed case of greenhouse warming. By what scientific logic or statutory construction could EPA list CO₂ as a HAP?
- Q5. Could EPA have phased out Freon 12 and other non-toxic ozone-depleting substances under its authority to regulate HAPs, or did EPA require new and specific authority such as conferred by Subchapter VI? If the HAPs regulatory framework is unsuited to control substances that deplete the ozone layer, why is it not also unsuited to control substances suspected of enhancing the greenhouse effect?
- Q6. Could EPA have phased out Freon 12 and other ozone-depleting substances under the National Ambient Air Quality Standards (NAAQS) program, or did EPA require new and specific authority such as conferred by Subchapter VI? If the NAAQS regulatory

framework is unsuited to control substances that deplete the ozone layer, why is it not also unsuited to control substances suspected of enhancing the greenhouse effect?

- Q7. EPA contends that the NAAQS program is a potential source of authority to regulate emissions of CO₂. However, as section 107(a) of the Clean Air Act makes clear, “ambient” air is that which surrounds people and communities in particular “geographic” areas or regions. Indeed, EPA’s own definition of “ambient air” is “that portion of the atmosphere, external to buildings, to which the general public has access” (40 C.F.R. section 50.1(e)). In contrast, the supposed enhancement of the greenhouse effect by CO₂ emissions is a global phenomenon of the troposphere, a layer of the atmosphere to which the general public does not normally have access. Furthermore, CO₂ is a clear, odorless gas that is non-toxic at 20 times current atmospheric concentrations. Thus, CO₂ emissions have nothing to do with the “quality” (breathability or clarity) of ambient air. By what logic, then, might EPA ever classify CO₂ emissions as an “ambient air quality” problem? By what logic might EPA ever regulate CO₂ under the same authority that it now regulates soot and smog?
- Q8. As noted, EPA defines “ambient air” for purposes of the NAAQS program as “that portion of the atmosphere, external to buildings, to which the general public has access” (40 C.F.R. section 50.1(e)). The general public does not normally have access to the troposphere, where CO₂ enhancement of the greenhouse effect supposedly occurs. Would EPA have to change this definition in order to promulgate a NAAQS for CO₂?
- Q9. Assume for the sake of argument that EPA decided to publish a NAAQS for CO₂.
- a. Would EPA set the NAAQS above or below the current atmospheric concentrations (360 parts per million) of CO₂?
 - b. If EPA set the NAAQS above current concentrations, would not every area of the country be in attainment, even if U.S. CO₂ production suddenly doubled?
 - c. If EPA set the NAAQS below current concentrations, would not every area of the country be out of attainment, even if all power plants and factories were to shut down?
 - d. Has EPA ever published a NAAQS that, at the time of publication, put every area of the country either in attainment or out of attainment?
 - e. Is it EPA’s contention that the NAAQS provisions of the Clean Air Act authorize designation of nonattainment areas where attainment cannot be achieved without coordinated international action? If the answer is yes, how could EPA assure attainment of a CO₂ NAAQS within the deadlines set forth in section 172(a)(2) if attainment depends on the actions of other countries?

- f. In light of the foregoing questions and your answers to them, does the NAAQS program have any rational application to a global phenomenon of the troposphere, such as the greenhouse effect? If your answer is yes, please describe the actions a State would be required to take in an implementation plan to demonstrate attainment of a CO₂ NAAQS set below current atmospheric concentrations.
- Q10. Rep. John Dingell, in a letter to Rep. McIntosh dated October 5, 1999, states: "While it [section 103 of the Clean Air Act] refers, as noted in the EPA memorandum, to carbon dioxide as a 'pollutant,' House and Senate conferees never agreed to designate carbon dioxide as a pollutant for regulatory or other purposes." Mr. Dingell further states: "Based on my review of this history and my recollection of the discussions, I would have difficulty concluding that the House-Senate conferees, who rejected the Senate regulatory provisions (with the exception of the above-referenced section 821)¹ contemplated regulating greenhouse gas emissions or addressing global warming under the Clean Air Act." Do you agree with Mr. Dingell's account of the legislative history? If not, please explain why.
- Q11. Section 302(j) of the Clean Air Act defines "major stationary source" and "major emitting facility" as any stationary source or facility that emits 100 tons or more per year of any air pollutant. Has EPA estimated how many small- and mid-sized businesses and farms emit 100 tons or more of CO₂ per year? If so, how many? As "major sources" of CO₂ emissions, might not tens or even hundreds of thousands of small entities suddenly become subject to pollution control requirements, were EPA to regulate CO₂?
- Q12. At the hearing, the Subcommittees questioned you about the apparent contradiction between the Administration's commitment not to implement the Kyoto Protocol before ratification and EPA's claim of authority to regulate CO₂. Rep. Bob Barr asked: "Can you assure the Subcommittees that, even though EPA believes it already has the authority to regulate CO₂, EPA will not do so until and unless the Protocol is ratified? Can you give us that assurance?" You replied that "we have no plans to use our existing authority to regulate carbon dioxide." This is not very reassuring, because your response may mean merely that EPA has no plans *at this time* to regulate CO₂. Please confirm or deny the following statements:
- a. "EPA will not propose or issue rules, regulations, decrees, or orders to control emissions of CO₂, or prepare to control such emissions, until and unless the Kyoto Protocol is ratified."
 - b. "EPA will not spend taxpayer dollars to advocate or develop programs or

¹This section requires EPA to monitor -- not control -- CO₂ emissions from certain sources.

initiatives designed to lay the groundwork for possible future regulation of CO2 emissions, until and unless the Kyoto Protocol is ratified.”

- Q13. Rep. Barr also asked: “Are you saying that, if EPA determines that CO2 emissions endanger public health, welfare, or the environment, EPA may regulate CO2, even if the Senate does not ratify the Kyoto Protocol?” Your response did not address this question but rather reiterated EPA’s general position the the Clean Air Act “did cite carbon dioxide to be within the class of substances that could be subject to regulation.” Therefore, please answer this question: Does EPA believe that the Administration’s promise not to implement the Kyoto Protocol prior to ratification is, *inter alia*, a promise not to regulate CO2 emissions prior to ratification?
- Q14. At the hearing, you said that EPA has “not commenced the process” to determine whether CO2 emissions endanger health, welfare, or the environment. This is puzzling. The Administration has said repeatedly that the science underpinning the Kyoto Protocol is “clear and compelling.” Are we now to understand that the basic science issues are not “settled?” The actual test in the NAAQS for regulating a substance is whether, in the Administrator’s “judgment,” emissions of that substance “may reasonably be anticipated to endanger public health or welfare.” Are you saying that, in the Administrator’s judgment, there is no reasonable basis to anticipate that CO2 emissions endanger public health or welfare?
- Q15. Your written testimony refers to CO2 as a substance of environmental “concern.” You also contend that CO2 is a “pollutant” within the meaning of the Clean Air Act. Does EPA not feel obligated to conduct an analysis of pollutants of concern to determine if they should be regulated? Why has EPA not “commenced” the process of making that determination? When will EPA begin that process?
- Q16. Professor Jeffrey Miller states that EPA “could not promulgate a new source performance standard for carbon dioxide” under section 111 for any category of sources unless EPA could establish that a CO2 emissions control technology “had been adequately demonstrated for such category.” To your knowledge, does there exist a commercially available, cost-effective technology to control CO2 emissions from coal-fired power plants?
- Q17. The Clean Air Act expressly requires EPA to set NAAQS for particulate matter and ozone. Nonetheless, the D.C. Appeals Court in *American Trucking Associations, Inc., et. al., v. EPA* held that EPA, in setting new NAAQS for those substances, construed sections of the Clean Air Act “so loosely as to render them unconstitutional delegations of legislative authority.” The Clean Air Act nowhere expressly authorizes EPA to regulate CO2. Do you think EPA regulation of CO2 would be challenged in court? If so, do you think the courts would uphold such regulation or strike it down as a usurpation of legislative power?

- Q18. Your July 26, 1999 letter in response to Rep. McIntosh's letter of July 1st included an "Attachment M," which is marked "Draft" and dated "2/18/99." It is entitled "Summary of Appropriations Restriction" and it is unsigned. It discusses the fiscal year (FY) 1999 VA-HUD and Independent Agencies Appropriations Act restriction and concludes: "EPA may expend funds to propose or issue a regulation for a number of purposes including the reduction of greenhouse gas emissions, as long as the expenditures are in implementation of existing law and not for the purpose of implementing, or in preparation for implementing, the Kyoto Protocol. EPA may also expend funds on authorized nonregulatory activities."
- a. Do the Clean Air Act's regulatory provisions include the term "greenhouse gas emissions"? If so, please identify the specific provisions of the Act.
 - b. Do you interpret the term "air pollutant" to encompass all greenhouse gases including, for example, water vapor?
 - c. If you do not interpret the term "air pollutant" to include all greenhouse gases, what is the basis for the above statement that EPA may expend funds to "propose or issue" regulations for "reduction of greenhouse gas emissions"?
 - d. Which office prepared Attachment M? Did you review it?
 - e. What is the present status of Attachment M? Has it been provided to Congress, other than the Regulatory Affairs Subcommittee?
- Q19. In reply to questions by the House Science Committee about the Administration's new proposal for FY 2000 of a \$200 million "Clean Air Partnership Fund," EPA declared that "CO₂ and other greenhouse gases" are "each" an air pollutant "within the meaning of the Clean Air Act." However, it is our understanding that the United Nations Framework Convention on Climate Change (UNFCCC), which was ratified after the Clean Air Act was last amended, does not classify greenhouse gases as "pollutants." Rather, the UNFCCC defines greenhouse gases as "those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation" (Art. 1.5).
- a. Do you concur that the UNFCCC does not classify greenhouse gases as pollutants?
 - b. Is there a conflict between EPA's classification of CO₂ and other greenhouse gases as "pollutants" and the absence of such classification in the UNFCCC?



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 1 1999

OFFICE OF
GENERAL COUNSEL

Honorable David M. McIntosh
Chairman, Subcommittee on National Economic Growth,
Natural Resources and Regulatory Affairs
Committee on Government Reform
U.S. House of Representatives
2157 Rayburn House Office Building
Washington, DC 20515-6143

Dear Mr. Chairman:

I am writing in response to your letter of October 14, 1999, which follows up on certain issues raised at the October 6, 1999, joint hearing conducted by the Government Reform Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs and the Science Subcommittee on Energy and the Environment. Attached are our responses to your questions.

Please let me know if we can be of further assistance, or please have your staff contact Alexandra Teitz of my office at 202/564-5594.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary S. Guzy", with a long, sweeping underline that extends to the right.

Gary S. Guzy
General Counsel

1. What in your judgment is the significance of the fact that the Clean Air Act refers to carbon dioxide (CO₂) only in reference to non-regulatory activities, such as research and technology development, while it specifically identifies hundreds of other substances to be regulated by the Environmental Protection Agency (EPA)?

In certain provisions of the Clean Air Act (CAA), Congress has delegated to EPA authority to regulate any air pollutant if the Administrator finds that the pollutant meets the criteria in the provision. For example, section 108 does not name any specific pollutants, but rather provides the criteria for EPA to use in determining whether to list and regulate a pollutant. In relevant part, the section requires the Administrator to list each air pollutant “emissions of which, ...may reasonably be anticipated to endanger public health or welfare...” Section 112 contains a specific list of hazardous air pollutants, but also authorizes the Administrator to add other air pollutants to that list and provides the criteria for the Administrator to apply in making such determinations. A number of other Clean Air Act provisions are similarly structured. Specific mention of a pollutant in a statutory provision is not a necessary prerequisite to regulation under many CAA statutory provisions.

2. Your testimony cites Section 103(g) as proof that CO₂ is a “pollutant” within the meaning of the Clean Air Act. Yet, that very section directs the Administrator to develop “non-regulatory” strategies, and concludes with an admonition: “Nothing in this subsection shall be construed to authorize the imposition on any person of pollution control requirements.” Similarly, the only provision of the Clean Air Act to mention global warming, section 602(e), stipulates: “The preceding sentence shall not be construed to be the basis of any additional regulation under this chapter.” How do you interpret these Congressional restrictions?

Congress explicitly recognized CO₂ emitted from stationary sources, such as fossil fuel power plants, as an “air pollutant” in section 103(g) of the Act, which authorizes EPA to conduct a basic research and technology program to include, among other things, “[i]mprovements in nonregulatory strategies and technologies for preventing or reducing multiple air pollutants, including ... carbon dioxide, from stationary sources,....” (Emphasis added.) EPA agrees that section 103(g) and section 602(e) do not themselves provide authority to regulate. However, the language that you have cited limiting the authority provided by those sections to research activities does not affect the fact that Congress recognized CO₂ as an air pollutant in section 103(g). Nor does the language in sections 103(g) and 602(e) limit in any way the regulatory authority provided by other provisions of the Clean Air Act.

3. During the hearing, Professor Jeffrey Miller argued that the absence of express statutory authority to regulate CO₂ is not significant because the Clean Air Act authorizes the Administrator to revise or add to the list of regulated substances. However, the Clean Air Act always confers such listing authority in the context of specific regulatory schemes designed to address specific kinds of problems. For example, there is a “criteria” pollutants program to reduce emissions of substances that adversely affect ambient air quality, a

“hazardous” pollutants program to control emissions of toxic substances, and a stratospheric ozone protection program to phase out ozone-depleting substances. There is no comparable program to reduce, control, or phase-out emission of greenhouse gases. What in your judgment is the significance of the fact that the Clean Air Act contains no subchapter or section on global climate change? What is the significance of the fact that the Act nowhere expressly authorizes the Administrator to list and promulgate regulations to control substances that may be reasonably anticipated to cause or contribute to global warming?

To answer your question, it is critical to understand how the structure of the Clean Air Act has evolved over time. The current Clean Air Act is the product of a series of enactments over the last 30 years, most importantly the amendments of 1970, 1977, and 1990. In the 1970 Clean Air Act, for example, Congress provided the Agency general authority to identify and regulate various types of air pollutants or sources (e.g., criteria pollutants under sections 108 and 109, new sources under section 111, or hazardous air pollutants under section 112). These 1970 provisions generally did not name specific pollutants or source types. EPA used those authorities in the following years to identify and set standards for a number of air pollutants (e.g., the National Ambient Air Quality Standards (NAAQS) for such air pollutants as ozone, sulfur dioxide, and particulate matter). After EPA took action under these general authorities, Congress has sometimes provided more specific authority. For example, the 1977 and 1990 amendments included specific mandates to periodically review and update the NAAQS that EPA had already set, and set forth refined approaches to the implementation of those standards. In this context it is not surprising to find 1977- and 1990-vintage provisions that specifically name ozone or other pollutants that EPA had already placed under regulation. In some areas, the 1977 and 1990 amendments include specific provisions mandating the regulation of one or more pollutants as to which EPA had not yet used its general authority. These more specific enactments generally left intact, and in some cases extended, EPA’s general authority to identify and regulate additional air pollutants if they meet the criteria of relevant sections of the Act. Thus, the absence of specific provisions addressing a particular air pollution problem does not mean that EPA lacks authority to address that problem.

Since 1970, the Clean Air Act has contained various provisions authorizing regulation to address air pollutants’ actual or potential harmful effects on public health, welfare or the environment. For example, sections 107, 108, 109, 111(b), 112, 202, and 231, among others, date from the 1970 Act, although they have been modified since. The courts have long recognized that Congress need not address every question that could arise under a statutory scheme for an agency to have authority to act. “The power of an administrative agency to administer a congressionally created . . . program necessarily requires the formulation of policy and the making of rules to fill any gap left, implicitly or explicitly, by Congress. *Chevron v. NRDC*, 467 U.S. 837, 843 (1984), quoting *Morton v. Ruiz*, 415 U.S. 199, 231 (1974).” In *Chevron*, the court discussed the variety of reasons why Congress might not have addressed a particular issue. “Perhaps that body consciously desired the Administrator to strike the balance at this level, thinking that those with great expertise and charged with responsibility for administering the provision would be in a

better position to do so; perhaps it simply did not consider the question at this level; and perhaps Congress was unable to forge a coalition on either side of the question, and those on each side decided to take their chances with the scheme devised by the agency." *Id.* at 865. The court in *Chevron* recognized that Congress' failure to direct an agency on a specific issue, where Congress has given the agency broad power to act, constitutes an explicit or implicit delegation of authority for the agency to decide the issue. Thus, where Congress has provided EPA broad authority, with criteria for exercising such authority, the fact that Congress did not speak to how the Agency should exercise such authority with respect to each individual air pollutant or air pollution issue, does not limit EPA's delegated authority.

4. In section 112 of the Clean Air Act, Congress specifically named 190 hazardous air pollutants (HAPs), but did not include CO₂ in the list. Each of the substances listed is highly toxic and endangers health or the environment through direct exposure, not indirectly through a chain of secondary effects as in the supposed case of greenhouse warming. By what scientific logic or statutory construction could EPA list CO₂ as a HAP?

EPA has not concluded that CO₂ is a hazardous air pollutant. As we have stated, EPA would have authority to regulate CO₂ under section 112 *if* a finding were made that CO₂ presented a threat of "adverse environmental effects," as section 112 uses that phrase. Section 112(a)(7) defines "adverse environmental effect" as "any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas." Furthermore, air pollutants may be added to the list due to adverse environmental effects that occur not only through ambient concentrations, but also "bioaccumulation, deposition or otherwise." Thus, the substances that may be added to the list of hazardous air pollutants under section 112(b) are not limited to those that are "highly toxic and endanger[] health or the environment through direct exposure."

5. Could EPA have phased out Freon 12 and other non-toxic ozone-depleting substances under its authority to regulate HAPs, or did EPA require new and specific authority such as conferred by Subchapter VI? If the HAPs regulatory framework is unsuited to control substances that deplete the ozone layer, why is it not also unsuited to control substances suspected of enhancing the greenhouse effect?

EPA has not evaluated whether it would have had authority to phase out ozone-depleting substances under section 112 of the Act. Congress gave EPA explicit and more detailed authority to address ozone-depleting substances under section 157 of the 1977 Clean Air Act and under Title VI of the Clean Air Act as Amended in 1990. Thus, the issue of whether EPA had authority under other provisions of the Act never arose.

6. Could EPA have phased out Freon 12 and other ozone-depleting substances under the National Ambient Air Quality Standards (NAAQS) program, or did EPA require new and specific authority such as conferred by Subchapter VI? If the NAAQS regulatory framework is unsuited to control substances that deplete the ozone layer, why is it not also unsuited to control substances suspected of enhancing the greenhouse effect?

EPA has not evaluated whether it has authority to phase out ozone-depleting substances under the NAAQS program. Please see the answer to question 5.

7. EPA contends that the NAAQS program is a potential source of authority to regulate emissions of CO₂. However as section 107(a) of the Clean Air Act makes clear, “ambient” air is that which surrounds people and communities in particular “geographic” areas or regions. Indeed, EPA’s own definition of “ambient air” is “that portion of the atmosphere, external to buildings, to which the general public has access” (40 C.F.R. section 50.1(e)). In contrast, the supposed enhancement of the greenhouse effect by CO₂ emissions is a global phenomenon of the troposphere, a layer of the atmosphere to which the general public does not normally have access. Furthermore, CO₂ emissions have nothing to do with the “quality” (breathability or clarity) of ambient air. By what logic, then, might EPA ever classify CO₂ emissions as an “ambient air quality” problem? By what logic might EPA ever regulate CO₂ under the same authority that it now regulates soot and smog?

It is important to note, as a threshold matter, that EPA does not have under active consideration use of the NAAQS provisions to regulate CO₂, as posed by this question. As stated in the April 10, 1998 Cannon memorandum on authority to regulate pollutants from electric power generation prepared for the Administrator and reiterated in my testimony, “[w]hile CO₂, as an air pollutant, is within EPA’s scope of authority to regulate, the Administrator has not yet determined that CO₂ meets the criteria for regulation under one or more provisions of the Act.” I further stated in my testimony that EPA has not proposed and has no current plans to propose to regulate CO₂.

That said, I would like to clarify several apparent misunderstandings regarding EPA’s authority to establish National Ambient Air Quality Standards or take other actions under Title I of the Act.

First, your question appears to be premised on the proposition that the troposphere does not include the air at ground level, to which people ordinarily have access. It is our understanding, however, that the troposphere extends from the earth’s surface up to a boundary layer some miles overhead that demarcates the lower reaches of the stratosphere (the “tropopause”). For example, a standard dictionary definition of the “troposphere” is: “[t]he lowest atmospheric region between the earth’s surface and the tropopause.” Webster’s II New Riverside Dictionary. As you note, global warming is largely attributed to elevated levels of greenhouse gases in the troposphere.

Second, EPA currently regulates under Title I substances that are emitted and/or transported through parts of the troposphere above the height to which the public generally has access. For example, humans generally do not have access to the area immediately surrounding the top of tall

smoke stacks. Nor do people generally have access to the altitudes through which air pollutants travel as they mix and move to areas downwind.

Finally, the authority of sections 108 and 109 is not limited to pollutants that affect the “breathability or clarity...of ambient air.” Sections 108 and 109 refer to adverse effects on public health, without specifying inhalation as the only relevant mode by which adverse health effects may be caused. Further, EPA is authorized to set national secondary ambient air quality standards “to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air.” Section 302(h) provides that “[a]ll language referring to effects on welfare includes, but is not limited to, effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, *weather*, visibility, and *climate*, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants.” (Emphasis added.) Thus, effects on climate would be a valid basis for a secondary NAAQS, and Congress’ considerations were not limited solely to concerns about “breathability” or “clarity” of the air.

8. As noted, EPA defines “ambient air” for purposes of the NAAQS program as “that portion of the atmosphere, external to buildings, to which the general public has access” (40 C.F.R. section 50.1(e)). The general public does not normally have access to the troposphere, where CO₂ enhancement of the greenhouse effect supposedly occurs. Would EPA have to change this definition in order to promulgate a NAAQS for CO₂?

While EPA has not considered any of the specific regulatory language that would be associated with promulgation of a NAAQS for CO₂, the question above appears likely to be an academic question, given the specific properties of greenhouse gases. We understand concentrations of greenhouse gases to be essentially identical between the portions of the troposphere to which the public has access and the portions of the troposphere to which it does not have access. Thus, measures addressed to limiting the concentration of greenhouse gases in the lower reaches of the troposphere would be identical to those intended to limit the concentration in the troposphere as a whole.

9. Assume for the sake of argument that EPA decided to publish a NAAQS for CO₂?

The types of questions posed below are ones that typically would be resolved through an extensive rulemaking process. For issues of this kind, such a process would typically include scientific studies, peer-review processes, legal and policy analyses, economic assessments, stakeholder involvement through meetings and public comments, and a proposed and final rulemaking. EPA has not begun such a rulemaking process, and the assumptions underlying this question and the following hypotheticals are not linked to any current or planned EPA activities. Thus, EPA believes it would be inappropriate for the Agency to speculate with regard to most of these questions before engaging in any rulemaking process. Responses are given below to those questions which can be answered without such speculation.

a. Would EPA set the NAAQS above or below the current atmospheric concentrations (360 parts per million) of CO₂?

Please see the response to question 9, above.

b. If EPA set the NAAQS above current concentrations, would not every area of the country be in attainment, even if U.S. CO₂ production suddenly doubled?

Please see the response to question 9, above.

c. If EPA set the NAAQS below current concentrations, would not every area of the country be out of attainment, even if all power plants and factories were to shut down?

Please see the response to question 9, above.

d. Has EPA ever published a NAAQS that, at the time of publication, put every area of the country either in attainment or out of attainment?

No, none of the NAAQS that EPA has published to date have, at the time of publication, put every area of the country either in attainment or out of attainment.

e. Is it EPA's contention that the NAAQS provisions of the Clean Air Act authorize designation of nonattainment areas where attainment cannot be achieved without coordinated international action? If the answer is yes, how could EPA assure attainment of a CO₂ NAAQS within the deadlines set forth in section 172(a)(2) if attainment depends on the actions of other countries?

EPA has not considered or taken a position on the question of whether the Clean Air Act authorizes designation of nonattainment areas where attainment cannot be achieved without international action. Thus, EPA also is unable to speculate on the second part of your question above. EPA notes, however, that Congress has contemplated that a situation could arise under the Clean Air Act in which an area would be unable to attain a NAAQS because of pollution transported from other countries. Section 179B provides that EPA must approve an implementation plan for such an area if the State establishes that the implementation plan would be adequate to attain and maintain the NAAQS, but for emissions emanating from outside of the U.S., thereby allocating an appropriate portion of responsibility for the air pollution problem to the local area or region.

f. In light of the foregoing questions and your answers to them, does the NAAQS program have any rational application to a global phenomenon of the troposphere, such as the greenhouse effect? If your answer is yes, please describe the actions a State would be required to take in an implementation plan to demonstrate attainment of a CO₂ NAAQS set below current atmospheric concentrations.

EPA agrees that these are issues that would have to be resolved if the Agency were to consider setting a NAAQS for CO₂. As explained above, these issues would be addressed through an extensive rulemaking process, and hence they are not ones to which EPA can respond at this time. EPA also has not specifically evaluated the suitability of the NAAQS framework for regulating greenhouse gases. However, the April 10, 1998 Cannon memo noted that with respect to the control of emissions from electric power generating sources, the authorities potentially available under the Act “do not easily lend themselves to establishing market-based national or regional cap-and-trade programs, which the Administration favors for addressing these kinds of pollution problems.”

10. Rep. John Dingell, in a letter to Rep. McIntosh dated October 5, 1999, states: “While it [section 103 of the Clean Air Act] refers, as noted in the EPA memorandum, to carbon dioxide as a ‘pollutant,’ House and Senate conferees never agreed to designate carbon dioxide as a pollutant for regulatory or other purposes.” Mr. Dingell further states: “Based on my review of this history and my recollection of the discussions, I would have difficulty concluding that the House-Senate conferees, who rejected the Senate regulatory provisions (with the exception of the above-referenced section 821)¹ contemplated regulating greenhouse gas emissions or addressing global warming under the Clean Air Act.” Do you agree with Mr. Dingell’s account of the legislative history? If not, please explain why.

EPA agrees with Congressman Dingell that Congress did not specifically address the question of regulation of CO₂ or greenhouse gas emissions in the 1990 Amendments. However, the relevant question here is whether the 1990 Amendments removed or limited in some way EPA’s pre-existing general authority under various provisions of the Act to regulate air pollutants that meet the criteria for regulation under those specific provisions. The fact that Congress did not enact a proposed provision that would have mandated a pollutant’s regulation on climate change grounds did not limit or revoke the general discretionary authority already contained in the Clean Air Act, prior to the 1990 Amendments.

11. Section 302(j) of the Clean Air Act defines “major stationary source” and “major emitting facility” as any stationary source or facility that emits 100 tons or more per year of any air pollutant. Has EPA estimated how many small- and mid-sized businesses and farms emit 100 tons or more of CO₂ per year? If so, how many? As “major sources” of CO₂ emissions, might not tens or even hundreds of thousands of small entities suddenly become subject to pollution control requirements, were EPA to regulate CO₂?

EPA has not undertaken any estimate of the number of small- and mid-sized business and farms that emit 100 tons or more of CO₂ per year. I would note, however, that some provisions of the Clean Air Act apply to “major stationary sources” and “major emitting facilities,” but others do not.

¹This section requires EPA to monitor – not control – CO₂ emissions from certain sources.

12. At the hearing, the Subcommittees questioned you about the apparent contradiction between the Administration's commitment not to implement the Kyoto Protocol before ratification and EPA's claim of authority to regulate CO₂. Rep. Bob Barr asked: "Can you assure the Subcommittees that, even though EPA believes it already has the authority to regulate CO₂, EPA will not do so until and unless the Protocol is ratified? Can you give us that assurance?" You replied that "we have no plans to use our existing authority to regulate carbon dioxide." This is not very assuring, because your response may mean merely that EPA has no plans *at this time* to regulate CO₂. Please confirm or deny the following statements:

a. "EPA will not propose or issue rules, regulations, decrees, or orders to control emissions of CO₂, or prepare to control such emissions, until and unless the Kyoto Protocol is ratified."

Please see response to 12b. below.

b. "EPA will not spend taxpayer dollars to advocate or develop programs or initiatives designed to lay the groundwork for possible future regulation of CO₂ emissions, until and unless the Kyoto Protocol is ratified."

It would not be responsible for EPA to pledge under all circumstances not to exercise authorities or otherwise discharge responsibilities delegated to EPA by Congress for the purpose of protecting public health and the environment. However, I would like to reassure you again that EPA has no plans to use existing authority to regulate CO₂ emissions.

The Administration has repeatedly stated that it will not implement the Kyoto Protocol prior to Senate advice and consent to ratification. EPA has at all times complied, and will continue to comply, with the Knollenberg appropriations restriction. As discussed in numerous pieces of previous correspondence, there is a clear and sound distinction, however, between implementation of the Kyoto Protocol and any other appropriate actions regarding greenhouse gases under existing authorities for the purposes specified in the Clean Air Act, and in the 1992 Framework Convention on Climate Change, which was ratified by the Senate.

13. Rep. Barr also asked: "Are you saying that, if EPA determines that CO₂ emissions endanger public health, welfare, or the environment, EPA may regulate CO₂, even if the Senate does not ratify the Kyoto Protocol?" Your response did not address this question but rather reiterated EPA's general position the Clean Air Act "did cite carbon dioxide to be within the class of substances that could be subject to regulation." Therefore, please answer this question: Does EPA believe that the Administration's promise not to implement the Kyoto Protocol prior to ratification is, *inter alia*, a promise not to regulate CO₂ emissions prior to ratification?

As noted above, and as we have repeatedly discussed in correspondence with you, there are many regulatory actions that have the effect, or even the purpose, of reducing greenhouse gases (sometimes including CO₂), but not the purpose of implementing the Kyoto Protocol. As we have explained in previous letters, some regulatory actions addressed to conventional air quality objectives (e.g., measures to address emissions of nitrogen oxides or sulfur dioxide) can have the indirect effect of reducing greenhouse gases, depending on technological approaches that individual firms choose for compliance. Some provisions of the Clean Air Act authorize regulatory actions that directly address emissions of greenhouse gases (e.g., certain provisions of Title VI). None of these actions has the purpose of implementing the Kyoto Protocol. The Administration's commitment not to implement the Kyoto Protocol prior to ratification is not a commitment to forego implementing the Clean Air Act. However, as stated above, EPA has no plans to use existing authority to regulate CO₂ emissions.

14. At the Hearing, you said that EPA has "not commenced the process" to determine whether CO₂ emissions endanger health, welfare, or the environment. This is puzzling. The Administration has said repeatedly that the science underpinning the Kyoto Protocol is "clear and compelling." Are we now to understand that the basic science issues are not "settled?" The actual test in the NAAQS for regulating a substance is whether, in the Administrator's "judgment," emissions of that substance "may reasonably be anticipated to endanger public health or welfare." Are you saying that, in the Administrator's judgment, there is no reasonable basis to anticipate that CO₂ emissions endanger public health or welfare?

As explained above in response to Question 9, in setting a new NAAQS, the Administrator exercises her judgment under sections 108 and 109 based on a record for rulemaking that includes a formal scientific review of the risks to public health and welfare. EPA has not commenced, with respect to CO₂, the formal scientific review process that is set forth in sections 108 and 109 regarding the setting of a new NAAQS. EPA believes, as do the other Parties to the ratified U.N. Framework Convention on Climate Change, that the science supporting international action on climate change is clear and compelling.

15. Your written testimony refers to CO₂ as a substance of environmental "concern." You also contend that CO₂ is a "pollutant" within the meaning of the Clean Air Act. Does EPA not feel obligated to conduct an analysis of pollutants of concern to determine if they should be regulated? Why has EPA not "commenced" the process of making that determination? When will EPA begin that process?

As I have stated, EPA has no plans to use existing authority to regulate CO₂ emissions, and hence, has not commenced the actions that would be necessary to regulate CO₂ emissions.

16. Professor Jeffrey Miller states that EPA "could not promulgate a new source performance standard for carbon dioxide" under section 111 for any category of sources unless EPA could establish that a CO₂ emissions control technology "had been adequately

demonstrated for such a category.” To your knowledge, does there exist a commercially available, cost-effective technology to control CO2 emissions from coal-fired power plants?

Standards under section 111 are not limited to the application of “end-of-pipe” pollution control technologies. Rather, they can include requirements as to the design or operation of a source, precombustion cleaning or treatment of fuels, and inherently low-polluting or non-polluting technologies. Regarding coal-fired power plants, one example of commercially available, cost-effective technology to control CO2 emissions is a variety of measures to improve combustion efficiency (“heat rate improvements”). Heat rate improvements are currently being made at many such plants in response to the demand for greater efficiency as the electricity market moves towards competition. To say that controls exist that could be considered for adoption should EPA set NSPS for CO2 is, of course, far from saying that EPA plans to adopt such standards. As outlined above, EPA has no such plans.

17. The Clean Air Act expressly requires EPA to set NAAQS for particulate matter and ozone. Nonetheless, the D.C. Appeals Court in *American Trucking Associations, Inc., et al., v. EPA* held that EPA, in setting new NAAQS for those substances, construed sections of the Clean Air Act “so loosely as to render them unconstitutional delegations of legislative authority.” The Clean Air Act nowhere expressly authorizes EPA to regulate CO2. Do you think EPA regulation of CO2 would be challenged in court? If so, do you think the courts would uphold such regulation or strike it down as a usurpation of legislative power?

In response to the first question, while we cannot precisely predict the litigation strategy of private parties, it seems likely that any regulation of CO2 would be challenged in court.

In order to respond to your second question, allow us to clarify several points regarding the NAAQS for particulate and ozone and the *American Trucking Association (ATA)* case. First, as you know, EPA has requested that the Justice Department appeal the *ATA* case and does not agree with its delegation ruling. Second, as indicated in prior answers, the 1970 Clean Air Act provided EPA with authority to issue NAAQS for particulate matter and ozone without specifically naming those pollutants in the statute. Subsequent amendments specifically require periodic review and revision of the named pollutants, while maintaining EPA’s authority to add other pollutants to the list if the statutory criteria for listing are met. Even if the *ATA* decision were ultimately upheld, EPA believes it would retain the authority to list and regulate additional air pollutants if the appropriate findings were made and supported in a rulemaking record. It does not appear that the listing and regulation of additional pollutants would create any special or additional problems under the theory of the *ATA* case.

18. Your July 26, 1999 letter in response to Rep. McIntosh’s letter of July 1st included an “Attachment M,” which is marked “Draft” and dated “2/18/99.” It is entitled “Summary of Appropriations Restriction” and it is unsigned. It discusses the fiscal year (FY) 1999 VA-HUD and Independent Agencies Appropriations Act restriction and concludes: “EPA may expend funds to propose or issue a regulation for a number of purposes including the

reduction of greenhouse gas emissions, as long as the expenditures are in implementation of existing law and not for the purpose of implementing, or in preparation for implementing, the Kyoto Protocol. EPA may also expend funds on authorized nonregulatory activities.”

a. Do the Clean Air Act’s regulatory provisions include the term “greenhouse gas emissions”? If so, please identify the specific provisions of the Act.

The Clean Air Act sections that provide the generic regulatory authority addressed in the April 10, 1998 Cannon memo and in Attachment M do not include the term “greenhouse gas emissions.” Section 821 of the 1990 Clean Air Act amendments, which required promulgation of regulations requiring monitoring of CO2 emissions from electric power plants, uses the term “greenhouse gases” in the title of the section.

b. Do you interpret the term “air pollutant” to encompass all greenhouse gases including, for example, water vapor?

Water vapor is the most abundant greenhouse gas and it contributes most to the natural greenhouse effect. Considering the abundance of water vapor from natural sources, it has not been concluded that human activities directly add amounts of water vapor to the atmosphere that have significantly changed its atmospheric concentrations. By contrast, human activities have caused atmospheric concentrations of CO2, methane, and nitrous oxide to increase by more than 30%, 145%, and 15%, respectively, since pre-industrial times. The increasing concentrations of these gases are strengthening the greenhouse effect, which is expected to lead to global warming and climatic changes. Thus, emissions of water vapor from human activities have not been a focus of U.S. or international activities to address climate change.

c. If you do interpret the term “air pollutant” to include all greenhouse gases, what is the basis for the above statement that EPA may expend funds to “propose or issue” regulations for “reduction of greenhouse gas emissions”?

Attachment M explains EPA’s interpretation of the distinction between activities barred under the Knollenberg appropriations restriction and activities not barred by that provision. The full text of the sentence that you quote is: “EPA may expend funds to propose or issue a regulation for a number of purposes including the reduction of greenhouse gas emissions, as long as the expenditures are in implementation of existing law and not for the purpose of implementing, or in preparation for implementing, the Kyoto Protocol.” The basis for this statement is that the appropriations restriction only limits the types of expenditures specified in the provision--regulatory activities for the purpose of implementation or in preparation for implementation of the Kyoto Protocol. Attachment M explains that to the extent that existing law authorizes regulation of greenhouse gas emissions and such regulations are not for the purpose of implementing or preparing to implement the Kyoto Protocol, issuance of such regulations would not be barred. Attachment M does not opine on the scope or source of any existing authority to regulate greenhouse gas emissions.

d. Which office prepared Attachment M? Did you review it?

The Office of General Counsel prepared, and after its preparation I had occasion to review, Attachment M.

e. What is the present status of Attachment M? Has it been provided to Congress, other than the Regulatory Affairs Subcommittee?

Attachment M was distributed within the Agency as internal guidance to EPA staff to ensure that they understood the restrictions imposed by the FY 1999 appropriations restriction. In addition to being provided to the Regulatory Affairs Subcommittee, this document was also provided to GAO on March 30, 1999.

19. In reply to questions by the House Science Committee about the Administration's new proposal for FY 2000 of a \$200 million "Clean Air Partnership Fund," EPA declared that "CO2 and other greenhouse gases" are "each" an air pollutant "within the meaning of the Clean Air Act." However, it is our understanding that the United Nations Framework Convention on Climate Change (UNFCCC), which was ratified after the Clean Air Act was last amended, does not classify greenhouse gases as "pollutants." Rather, the UNFCCC defines greenhouse gases as "those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation" (Art. 1.5).

a. Do you concur that the UNFCCC does not classify greenhouse gases as pollutants?

b. Is there a conflict between EPA's classification of CO2 and other greenhouse gases as "pollutants" and the absence of such classification in the UNFCCC?

The UNFCCC is an international agreement under which member states have committed to taking certain actions and pursuing certain goals with respect to climate change. Member states continue to act, however, under domestic authorities, which may differ among member states and from the text of the international agreement. There is no reason why the Clean Air Act's definition and use of the term "air pollutant" should be reflected in the UNFCCC, nor does the absence of such identical language in any way create a conflict. Moreover, as we note above, for Clean Air Act regulatory purposes the significant question is not whether a substance meets the definition of an "air pollutant," but whether it meets the criteria for regulation under a particular provision of the Clean Air Act. To be clear, we have not taken any steps under the Act to "classify" CO2.

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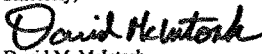
December 10, 1999


BY FACSIMILE
 The Honorable Gary S. Guzy
 General Counsel
 Environmental Protection Agency
 401 M Street, S.W.
 Washington, DC 20460

Dear Mr. Guzy:

Thank you for your letter of December 1, 1999, responding to ours of October 14th regarding the Environmental Protection Agency's (EPA's) authority with respect to carbon dioxide (CO₂) and related matters. Your letter deals with important issues that we want to explore further.

Therefore, pursuant to the Constitution and Rules X and XI of the United States House of Representatives, we request that you address the questions enumerated in the enclosure. Please deliver your response by January 7, 2000, to the majority and minority staffs of the Government Reform Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs in B-377 and B-350A Rayburn House Office Building, respectively, and to the majority staff of the Science Subcommittee on Energy and Environment in H2-389. If you have questions about this letter, please contact Staff Director Marlo Lewis at 225-1962 or Staff Director Harlan Watson at 225-9816. Thank you for your attention to this request.

Sincerely,

 David M. McIntosh
 Chairman
 Subcommittee on National Economic Growth,
 Natural Resources and Regulatory Affairs


 Ken Calvert
 Chairman
 Subcommittee on
 Energy and Environment

Enclosure

cc: The Honorable Dan Burton
 The Honorable Dennis Kucinich

The Honorable F. James Sensenbrenner
 The Honorable Jerry F. Costello

- Q1. Your response to Q1 of our October 14th letter states: "Specific mention of a pollutant in a statutory provision is not a necessary prerequisite to regulation under many CAA statutory provisions." That is correct, as we acknowledge in Q3 of our October 14th letter. Because a law cannot specify in advance all the circumstances to which it may apply, and because science continually brings to light new information regarding the health and environmental effects of particular air emissions, the Clean Air Act (CAA) sensibly allows the Environmental Protection Agency (EPA) *some* discretion to fill in gaps and address unforeseen contingencies as they arise. However, when Congress amended the CAA in 1990, it was quite familiar with the theory that man-made emissions of carbon dioxide (CO₂) cause, or are likely to cause, global warming. Indeed, Congress had already held several hearings and debates on the subject, including some specifically intended to inform its deliberation on the CAA amendments. Thus, is not the fact that the CAA nowhere lists CO₂ as a substance to be regulated, but does list numerous other substances, evidence that Congress, in 1990, decided to reserve to itself the power to determine, at some future date, whether or not EPA should regulate CO₂?
- Q2. Your response to Q2 of our October 14th letter states: "Nor does the language in sections 103(g) and 602(e) limit in any way the regulatory authority provided by other provisions of the Clean Air Act." These two sections are the only CAA provisions that mention CO₂ and global warming, and, as you acknowledge, they "do not themselves provide authority to regulate." Thus, your interpretation is paradoxical, to say the least. To wit: although sections that mention CO₂ and global warming do not provide authority to regulate greenhouse gases, "other provisions" that are completely silent about CO₂ and global warming do provide such authority. We regard this interpretation as not only paradoxical but wrong, because it effectively negates the limitations on EPA's authority set forth in 103(g) and 602(e). After all, if "other provisions" already authorize EPA to regulate greenhouse gases, then the admonitions against assuming such authority in sections 103(g) and 602(e) are a practical nullity. If Congress intended to delegate to EPA the authority to regulate greenhouse gases, why did it admonish EPA not to assume such authority in the only CAA provisions dealing with CO₂ and global warming?
- Q3. We do not find persuasive your response to Q3 of our October 14th letter. We asked: "What is the significance of the fact that the Act nowhere expressly authorizes the Administrator to list and promulgate regulations to control substances that may be reasonably anticipated to cause or contribute to global warming?" You answered that the 1977 and 1990 CAA amendments "generally left intact, and in some cases extended, EPA's general authority to identify and regulate additional air pollutants if they meet the criteria of relevant sections of the Act. Thus, the absence of specific provisions addressing a particular air pollution problem does not mean that EPA lacks authority to address that problem." This response blurs the immense practical difference between the authority to list and regulate "additional air pollutants" within an established regulatory scheme and the authority to create new regulatory schemes.

A "particular air pollution problem" may be very specific (e.g., the impact of carbon monoxide [CO] emissions from automobiles on ambient air quality) or very broad (e.g.,

the impact of all auto and industrial emissions on ambient air quality). Although we agree that EPA could list and control CO without a specific provision mentioning it, we do not agree that EPA could control CO without specific provisions authorizing EPA to protect ambient air quality. To put this in the language of *Chevron v. NRDC*, which you cite, there is a world of difference between EPA filling in a “gap left, implicitly or explicitly, by Congress” in a “congressionally created ... program” and EPA’s arrogating to itself the power to create new programs. Adding a chemical to the list of ambient air pollutants, or the list of hazardous air pollutants, or the list of ozone-depleting substances, is merely filling “gaps” in “congressionally created” programs. However, Congress has never created a greenhouse gas emissions control program; it has never created a regulatory global warming mitigation program. Thus, if EPA were to attempt to bootstrap such a program into existence, citing CAA sections 108, 111, 112, or other provisions, this would not be an exercise in filling “gaps.” It would be a usurpation of legislative power.

Therefore, please answer the following questions:

- (a) Do you acknowledge that there is a vital practical distinction between filling gaps in existing programs and creating new programs?
 - (b) Do you agree that EPA may not create new programs without clear and express Congressional authorization?
 - (c) Do you believe that EPA’s authority to control substances based upon their global warming potential is as clear and certain and unambiguous as EPA’s authority to control substances based upon their impact on ambient air quality, their toxicity, or their potential to damage the ozone layer?
- Q4. Your response to Q4 of our October 14th letter argues that EPA could, in principle, regulate CO₂ as a hazardous air pollutant (HAP), because the class of hazardous air pollutants is “not limited to those that are highly toxic and endanger[] health or the environment through direct exposure.” You contend that all EPA has to do to list a substance as a HAP is determine that it has an “adverse environmental effect,” defined in section 112(a)(7) as “any significant and widespread adverse effect” on “wildlife,” “aquatic life,” “other natural resources,” or “environmental quality over broad areas.” We disagree. Under that interpretation, EPA could regulate all ambient air pollutants and all ozone-depleting substances as HAPs. However, in section 112(b)(2), Congress took care to preclude any such expansive interpretation of EPA’s authority to list and regulate HAPs. Section 112(b)(2) limits EPA’s authority with respect to substances that have adverse environmental effects, and when that limitation is taken into account, it becomes clear that EPA cannot possibly list CO₂ as a HAP.

Section 112(b)(2) does indeed direct the Administrator to add pollutants to the list of HAPs that present a “threat of ... adverse environmental effects,” but with two important exceptions. First, “No [ambient] air pollutant which is listed under section 7408(a) [section 108(a)] of this title may be added to the list under this section,” unless the pollutant “independently meets the listing criteria of this paragraph.” Second, “No substance, practice, process or activity regulated under subchapter VI [on stratospheric ozone protection] of this chapter shall be subject to regulation under this section solely due to its adverse effects on the environment.” In other words, the fact that ambient air pollutants, such as CO, sulfur dioxide (SO₂), and particulate matter, or ozone-depleting substances such as Freon-12, may have a “significant and widespread adverse effect” on the environment is not sufficient warrant to classify them as HAPs. Those pollutants must also meet the independent criteria established by section 112.

Section 112 does not provide an exhaustive description of those criteria, using phrases (“including, but not limited to,” “whether through ambient concentrations, bioaccumulation, deposition, or otherwise”) that give EPA reasonable discretion to address unanticipated health or environmental threats. Nonetheless, section 112 mentions enough criteria to make intelligible the distinction between hazardous air pollutants, on the one hand, and either ambient air pollutants or ozone-depleting substances, on the other. Hazardous air pollutants include those that “are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic.” Furthermore, the actual listing of some 190 HAPs in the statute is strong textual evidence of what Congress meant by “hazardous.” Clearly, “hazardous air pollutants” are the nastiest of the nasties - or, as we said in our October 14th letter, substances that are “highly toxic and endanger[] health or the environment through direct exposure.”

Several questions emerge from the foregoing discussion:

- (a) An ambient air pollutant like SO₂ may not be classified as a HAP unless it “independently meets the listing criteria” of section 112(b)(2). What are the criteria for listing under section 112 that SO₂ and the other ambient air pollutants do not independently meet?
- (b) Under what criteria might EPA list CO₂ as a HAP but not list any of the ambient air pollutants as HAPs?
- (c) Section 112(b)(2) provides that no ozone-depleting substance shall be classified as a HAP “solely due to its adverse effects on the environment.” If no ozone-depleting substance may be listed as a HAP solely due to its adverse environmental effects, does it not stand to reason that no greenhouse gas may be listed solely due to its adverse environmental effects? Indeed, is not the exemption of greenhouse gases from listing under section 112 even stronger than

that for ozone-depleting substances, inasmuch as the CAA nowhere expressly authorizes EPA to regulate greenhouse gases?

(d) Under what criteria might EPA list CO₂ as a HAP but not list Freon-12?

- Q5. In Q5 of our October 14th letter, we asked whether EPA could have phased out Freon-12 and other non-toxic ozone-depleting substances under its authority to regulate HAPs, or whether EPA required new and specific authority, such as conferred by subchapter VI. We further asked whether, if the HAPs framework is unsuited to control substances that deplete the ozone layer, it might not also be unsuited to control substances suspected of enhancing the greenhouse effect. You replied, "EPA has not evaluated whether it would have had authority to phase out ozone-depleting substances under section 112 of the Act." We regard that answer as non-responsive. Our question was not whether EPA has or has not conducted an evaluation, but whether it has the authority in question. We think the answer to our question is clear. As noted above, section 112(b)(2) states: "No substance, practice, process or activity regulated under subchapter VI [on stratospheric ozone protection] of this chapter shall be subject to regulation under this section solely due to its adverse effects on the environment." In short, the HAPs framework is unsuited to control substances that deplete the ozone layer. Do you agree?
- Q6. In Q6 of our October 14th letter, we asked whether EPA could have phased out Freon-12 and other ozone-depleting substances under the National Ambient Air Quality Standards (NAAQS) program, or whether EPA required new and specific authority, such as that conferred by subchapter VI. We further asked whether, if the NAAQS framework was unsuited to control ozone-depleting substances, it might not also be unsuited to control substances suspected of enhancing the greenhouse effect. You replied, "EPA has not evaluated whether it has authority to phase out ozone-depleting substances under the NAAQS program." We regard that answer also as non-responsive. Again, our question was not whether EPA has or has not conducted an evaluation, but whether it has the authority in question.

Stratospheric ozone depletion is, by definition, a phenomenon of the stratosphere, not of the ambient air. Furthermore, from the standpoint of protecting the ozone layer, it matters not whether ozone-depleting chemicals such as chlorofluorocarbons are produced and used in California, Indiana, or Japan. In contrast, it matters a great deal where ambient air pollutants are released; and, consequently, the NAAQS program is organized by geographic region. Finally, to protect stratospheric ozone, it is not practical to monitor and control ambient concentrations of ozone-depleting chemicals; rather, it is necessary to phase out and ban the production, trade, and use of such substances. In light of the foregoing considerations, do you believe the NAAQS program has any rational application to the issue of stratospheric ozone depletion?

- Q7. Thank you for pointing out that the “troposphere” begins at the planet’s surface and, thus, includes “ambient air,” as defined by EPA (“that portion of the atmosphere, external to buildings, to which the general public has access”). Nonetheless, we believe that Q7 of our October 14th letter identified a basic problem in EPA’s position. As Peter Glaser testified at the October 6th joint hearing, “Although groundlevel and lower atmospheric ambient concentrations of carbon dioxide may differ slightly from locality to locality owing to differing sources and sinks, the greenhouse effect results from overall greenhouse gas concentrations in the troposphere rather than at groundlevel. Tropospheric levels of carbon dioxide over any particular locality are not influenced by emissions of carbon dioxide locally or upwind.” Similarly, you observe that the troposphere extends upwards “to a boundary layer some miles overhead that demarcates the lower reaches of the stratosphere (‘tropopause’),” i.e., well beyond the portion of the atmosphere to which the public has access. Ambient air is part of the troposphere, but most of the troposphere is not ambient air.

The conclusions we draw from these facts are: (a) the greenhouse effect, and its supposed enhancement by man-made CO₂ emissions, are global phenomena of the troposphere, not local conditions of the ambient air; and, (b) the NAAQS program, because it targets local conditions of the ambient air, is unsuited to address the potential problem of global warming. Do you agree?

- Q8. In your answer to Q7 of our October 14th letter, you argue, citing CAA section 302(h), that EPA may set “secondary” national ambient air quality standards to protect the public welfare from the known or anticipated effects of an air pollutant on “weather, visibility and climate.” However, we understand that this language was adopted in the 1970 CAA amendments -- more than a decade before global warming became a theme of public and Congressional debate. Mr. Glaser informs us that, in 1970, Congress was concerned about the weather and climate impacts of particulate pollution, which, at the local or regional level, can impair visibility, increase precipitation through condensation, and cool ambient air temperatures by reflecting sunlight. We find this a reasonable interpretation of section 302(h), as the NAAQS program is suited to address the local or regional impacts particulates may have on weather, visibility and climate. However, section 302(h) provides no clue as to how the NAAQS program could be applied to CO₂ in the context of the issue of global warming. Do you agree that, when Congress included “weather, visibility and climate” in the 1970 CAA definition of “welfare,” its intent was to address the local and regional effects of particulate pollution? Or, do you believe Congress intended that definition to cover global warming caused by emissions of greenhouse gases? If so, on the basis of what information does EPA reach that conclusion?
- Q9. Q9 of our October 14th letter posed a series of “hypotheticals” designed to test whether the NAAQS program has any rational application to the issue of global warming. You argued that the “types of questions” we posed “are ones that typically would be resolved

through an extensive rulemaking process” involving “scientific studies, peer-review processes, legal and policy analyses, economic assessments, stakeholder involvement through meetings and public comments, and a proposed and final rulemaking.” We disagree. The questions we posed are conceptual, not technical. They are the types of questions that EPA and other policymakers should address and satisfactorily resolve *before* the start of any rulemaking process.

A NAAQS for CO₂ would have to be set either *below*, *above*, or *at* current atmospheric concentrations. There is no other possibility. So, before a single dime of taxpayer money is expended on an “extensive rulemaking process,” policymakers should think through whether setting a NAAQS for CO₂ makes any sense at all. As we see it, setting a NAAQS for CO₂ above current concentrations would put the entire country in attainment, even if U.S. CO₂ production suddenly doubled. Conversely, setting a NAAQS for CO₂ below current concentrations would put the entire country out of attainment, even if all power plants and factories were to shut down. Setting a NAAQS for CO₂ at current concentrations would put the entire country in attainment – but only temporarily. As soon as global concentrations exceeded the NAAQS, the entire country would be out of attainment, no matter how stringent or costly the U.S. emissions control regime might be. From these considerations we conclude that the NAAQS program is fundamentally unsuited to address the issue of global warming. Do you agree?

- Q10. In your answer to Q9e of our October 14th letter, you state that “EPA has not considered or taken a position on the question of whether the Clean Air Act authorizes designation of nonattainment areas where attainment cannot be achieved without international action.” This seems to us a significant admission by EPA, because attainment of a NAAQS for CO₂ would clearly be impossible without extensive international action. Until EPA resolves that question in the affirmative, is it not premature to claim, as EPA does, that section 108 of the CAA is “potentially applicable” to CO₂?
- Q11. CAA section 109(b) requires the Administrator to adopt NAAQS that are “requisite to protect” public health and welfare. However, *unilateral* emissions reductions by the United States would have no measurable effect on global climate change. Therefore, is it not clear that the NAAQS program can have no application to the global warming issue, even theoretically, except in the context of an international regulatory regime, such as that proposed in the Kyoto Protocol? Furthermore, since the CAA requires that NAAQS be “requisite” to protect public health and welfare, does this not imply that any NAAQS for CO₂ established outside the context of an international regulatory regime would be illegal?
- Q12. In your answer to Q11 of our October 14th letter, you state that “EPA has not undertaken any estimate of the number of small- and mid-sized businesses and farms that emit 100 tons or more of CO₂ per year.” We think EPA should undertake such an estimate. One study calculates that one million small- and mid-sized entities individually emit 100 tons

of CO₂ per year and, thus, potentially could be regulated as “major stationary sources” under a CO₂ emissions control regime (Mark P. Mills, “A stunning Regulatory Burden: EPA Designating CO₂ as a Pollutant,” Greening Earth Society, 1999). In any event, you note that “some provisions of the Clean Air Act apply to ‘major stationary sources’ and ‘major emitting facilities,’ but others do not.” Please identify which provisions do or do not apply to such sources. Which, if any, of those provisions are also among those EPA considers “potentially applicable” to CO₂?

- Q13. In your response to Q13 of our October 14th letter, you state, “As noted above, and as we have repeatedly discussed in correspondence with you, there are many regulatory actions that have the effect, *or even the purpose*, or reducing greenhouse gases (sometimes including CO₂), but not the purpose of implementing the Kyoto Protocol” (emphasis added). Similarly, in Attachment M, dated February 18, 1999, you interpreted the Knollenberg funding limitation as follows: “EPA may expend funds to propose or issue a regulation for a number of purposes including the reduction of greenhouse gas emissions, so long as the expenditures are in implementation of existing law and not for the purpose of implementing, or in preparation for implementing, the Kyoto Protocol.” We disagree.

Reducing greenhouse gas emissions is the purpose of the Kyoto Protocol. There is no clear practical difference between issuing regulations to accomplish the purpose of the Kyoto Protocol and issuing regulations “for the purpose of implementing” the Kyoto Protocol. Although we have raised this concern in previous correspondence, we feel it is necessary to do so again. If the Knollenberg limitation allows EPA to issue regulations *for the purpose* of reducing greenhouse gas emissions, does it not effectively allow EPA to implement the Kyoto Protocol, as long as EPA is careful not to mention the Protocol in the rulemaking? Similarly, would it not have been pointless for the Senate to have insisted, in ratifying the Rio Treaty, that the Administration not commit the U.S. to binding emission reductions without the further advice and consent of the Senate, if it were already in EPA’s power to impose such reductions under existing authority?

- Q14. We are puzzled by your response to Q14 of our October 14th letter. You state that “EPA has not commenced, with respect to CO₂, the formal scientific review process that is set forth in sections 108 and 109 regarding the setting of a new NAAQS.” Yet, you go on to state, “EPA believes ... that the science supporting international action on climate change is clear and compelling.” It is difficult to reconcile these statements. Are we to understand that EPA regards the science supporting international action on climate change as “clear and compelling,” yet does not believe the science is strong enough to commence a “formal scientific review process” to determine the appropriateness of domestic regulatory action?



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 16 2000

OFFICE OF
GENERAL COUNSEL

Honorable David M. McIntosh
Chairman, Subcommittee on National Economic Growth,
Natural Resources and Regulatory Affairs
Committee on Government Reform
U.S. House of Representatives
2157 Rayburn House Office Building
Washington, DC 20515-6143

Dear Mr. Chairman:

I am writing in response to your letter of December 10, 1999, regarding EPA authority with respect to climate change, which addresses certain issues from our letter of December 1, 1999, responding to your letter of October 14, 1999. Attached are our responses to your questions.

Please let me know if we can be of further assistance, or please have your staff contact Alexandra Teitz of my office at (202) 564-5594.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gary S. Guzy".

Gary S. Guzy
General Counsel

Attachment

1. Your response to Q1 of our October 14th letter states: “Specific mention of a pollutant in a statutory provision is not a necessary prerequisite to regulation under many CAA statutory provisions.” That is correct, as we acknowledge in Q3 of our October 14th letter. Because a law cannot specify in advance all the circumstances to which it may apply, and because science continually brings to light new information regarding the health and environmental effects of particular air emissions, the Clean Air Act (CAA) sensibly allows the Environmental Protection Agency (EPA) some discretion to fill in gaps and address unforeseen contingencies as they arise. However, when Congress amended the CAA in 1990, it was quite familiar with the theory that man-made emissions of carbon dioxide (CO₂) cause, or are likely to cause, global warming. Indeed, Congress had already held several hearings and debates on the subject, including some specifically intended to inform its deliberation on the CAA amendments. Thus, is not the fact that the CAA nowhere lists CO₂ as a substance to be regulated, but does list numerous other substances, evidence that Congress, in 1990, decided to reserve to itself the power to determine, at some future date, whether or not EPA should regulate CO₂?

Please see in our December 1 letter our responses to Q1 and Q3 of your October 14 letter. In those responses, we discuss the development of the CAA over time and how this history informs our views on the significance of the fact that Congress did not in the 1990 Amendments require EPA to regulate CO₂. As we stated previously, specific mention of a pollutant in a statutory provision is not a necessary prerequisite to regulation under many CAA statutory provisions. Congress did not in 1990 limit the potential applicability of any of the CAA regulatory provisions to CO₂. Thus, in our view, the CAA does not express a decision by Congress not to regulate CO₂ unless it should determine to do so at some future date.

2. Your response to Q2 of our October 14th letter states: “Nor does the language in sections 103(g) and 602(e) limit in any way the regulatory authority provided by other provisions of the Clean Air Act.” These two sections are the only CAA provisions that mention CO₂ and global warming, and, as you acknowledge, they “do not themselves provide authority to regulate.” Thus, your interpretation is paradoxical, to say the least. To wit; although sections that mention CO₂ and global warming do not provide authority to regulate greenhouse gasses, “other provisions” that are completely silent about CO₂ and global warming do provide such authority. We regard this interpretation as not only paradoxical but wrong, because it effectively negates the limitations on EPA’s authority set forth in 103(g) and 602(e). After all, if “other provisions” already authorize EPA to regulate greenhouse gases, then the admonitions against assuming such authority in sections 103(g) and 602(e) are a practical nullity. If Congress intended to delegate to EPA the authority to regulate greenhouse gases, why did it admonish EPA not to assume such authority in the only CAA provisions dealing with CO₂ and global warming?

In section 103(g), Congress directed EPA to establish a program with the purpose of *demonstrating nonregulatory strategies* for pollution prevention. It makes sense that Congress did not intend for this provision to be construed to mandate or authorize a broad new regulatory

program *mandating* pollution prevention. Similarly, section 602(e) is specifically targeted to providing *information* regarding the ozone-depletion potentials and global warming potentials of a variety of substances. Again, Congress did not intend for this information provision to be construed to mandate or authorize a broad new regulatory program to regulate greenhouse gases. Neither of these provisions is structured to direct the exercise of regulatory authority. For example, neither contain criteria specifying the circumstances under which regulation is appropriate. By contrast, the regulatory provisions of the Act do specify such criteria and the structure of the regulations authorized by those provisions. Thus, it makes sense that Congress would not intend the Agency to regulate substances under authorities provided for nonregulatory activities. The language in sections 103(g) and 602(e) does not directly or indirectly limit the regulatory authorities provided to the Agency elsewhere in the Act. Nor does that language negate the fact that Congress explicitly recognized in these provisions that CO₂ was an “air pollutant.”

3. We do not find persuasive your response to Q3 of our October 14th letter. We asked: “What is the significance of the fact that the Act nowhere expressly authorized the Administrator to list and promulgate regulations to control substances that may be reasonably anticipated to cause or contribute to global warming?” You answered that the 1977 and 1990 CAA amendments “generally left intact, and in some cases extended, EPA’s general authority to identify and regulate additional air pollutants if they meet the criteria of relevant sections of the Act. Thus, the absence of specific provisions addressing a particular air pollution problem does not mean that EPA lacks authority to address that problem.” This response blurs the immense practical difference between the authority to list and regulate “additional air pollutants” within an established regulatory scheme and the authority to create new regulatory schemes.

A “particular air pollution problem” may be very specific (e.g., the impact of carbon monoxide (CO) emissions from automobiles on ambient air quality) or very broad (e.g., the impact of all auto and industrial emissions on ambient air quality). Although we agree that EPA could list and control CO without a specific provision mentioning it, we do not agree that EPA could control CO without specific provisions authorizing EPA to protect ambient air quality. To put this in the language of *Chevron v. NRDC*, which you cite, there is a world of difference between EPA filling in a “gap left, implicitly or explicitly, by Congress” in a “congressionally created...program” and EPA’s arrogating to itself the power to create new programs. Adding a chemical to the list of ambient air pollutants, or the list of hazardous air pollutants, or the list of ozone-depleting substances, is merely filling “gaps” in “congressionally created” programs. However, Congress has never created a greenhouse gas emissions control program; it has never created a regulatory global warming mitigation program. Thus, if EPA were to attempt to bootstrap such a program into existence, citing CAA sections 108, 111 112, or other provisions, this would not be an exercise in filling “gaps.” It would be a usurpation of legislative power.

Therefore, please answer the following questions:

- (a) Do you acknowledge that there is a vital practical distinction between filling gaps in existing programs and creating new programs?

As you use the term here, we are not certain what you would consider to constitute a distinct "program." One can identify practical differences between activities such as applying existing requirements to a new set of sources or additional pollutants, and setting up a new control regime to address a previously overlooked environmental problem from previously unregulated sources, as the latter is likely to require greater Agency resources, public education efforts, etc. As long as both types of activities are authorized by law, we do not see a general legal distinction between them, however.

- (b) Do you agree that EPA may not create new programs without clear and express Congressional authorization?

EPA may not act without Congressional authorization. We do not believe that the question of whether a "new program" is authorized by Congress would be addressed any differently from the question of whether any EPA activity is authorized by Congress.

- (c) Do you believe that EPA's authority to control substances based upon their global warming potential is as clear and certain and unambiguous as EPA's authority to control substances based upon their impact on ambient air quality, their toxicity, or their potential to damage the ozone layer?

Whether EPA has authority to control any air pollutant under the CAA depends upon whether EPA finds that the pollutant meets the particular criteria for regulation specified under a provision of the Act. As EPA has no current plans to propose regulations for CO₂, EPA has not evaluated the strength of the technical and legal basis for such findings under any particular provision of the Act. Under section 612 of the Act, EPA has already addressed certain other substances that are substitutes for ozone-depleting substances based on their global warming potentials, and we believe we had clear authority for those steps.

4. Your response to Q4 of our October 14th letter argues that EPA could, in principle, regulate CO₂ as a hazardous air pollutant (HAP) because the class of hazardous air pollutants is "not limited to those that are highly toxic and endanger health or the environment through direct exposure." You contend that all EPA has to do to list a substance as a HAP is determine that it has an "adverse environmental effect," defined in section 112(a)(7) as "any significant and widespread adverse effect" on "wildlife," "aquatic life," "other natural resources," or "environmental quality over broad areas." We disagree. Under that interpretation, EPA could regulate all ambient air pollutants and all ozone-depleting substances as HAPs. However, in section 112(b)(2), Congress took care to preclude any such expansive interpretation of EPA's authority to list and regulate HAPs. Section 112(b)(2) limits EPA's authority with respect to substances that have adverse environmental effects, and when that limitation is taken into account, it becomes clear that

EPA cannot possibly list CO₂ as a HAP.

Section 112(b)(2) does indeed direct the Administrator to add pollutants to the list of HAPs that present a “threat of...adverse environmental effects,” but with two important exceptions. First, “No [ambient] air pollutant which is listed under section 7408(a) [section 108(a)] of this title may be added to the list under this section,” unless the pollutant “independently meets the listing criteria of this paragraph.” Second, “No substance, practice, process or activity regulated under subchapter VI [on stratospheric ozone protection] of this chapter shall be subject to regulation under this section solely due to its adverse effects of the environment.” In other words, the fact that ambient air pollutants, such as CO, sulfur dioxide (SO₂), and particulate matter, or ozone-depleting substances such as Freon-12, may have a “significant and widespread adverse effect” on the environment is not sufficient warrant to [sic] classify them as HAPs. Those pollutants must also meet the independent criteria established by section 112.

Section 112 does not provide an exhaustive description of those criteria, using phrases (“including, but not limited to,” “whether through ambient concentrations, bioaccumulation, deposition, or otherwise”) that give EPA reasonable discretion to address unanticipated health or environmental threats. Nonetheless, section 112 mentions enough criteria to make intelligible the distinction between hazardous air pollutants, on the one hand, and either ambient air pollutants or ozone-depleting substances, on the other. Hazardous air pollutants include those that “are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic.” Furthermore, the actual listing of some 190 HAPs in the statute is strong textual evidence of what Congress meant by “hazardous.” Clearly, “hazardous air pollutants” are the nastiest of the nasties - or, as we said in our October 14th letter, substances that are “highly toxic and endanger[] health or the environment through direct exposure.”

Several questions emerge from the foregoing discussion:

- (a) An ambient air pollutant like SO₂ may not be classified as a HAP unless it “independently meets the listing criteria” of section 112(b)(2). What are the criteria for listing under section 112 that SO₂ and the other ambient air pollutants do not independently meet?

Section 112(b)(2) provides: “No air pollutant which is listed under section 108(a) may be added to the list under this section, except that the prohibition of this sentence shall not apply to any pollutant which independently meets the listing criteria of this paragraph and is a precursor to a pollutant which is listed under section 108(a) or to any pollutant which is in a class of pollutants listed under such section.” (Emphasis added.) Thus, a pollutant already listed as a criteria pollutant under section 108(a) may be listed under section 112 only if it is a precursor to a criteria pollutant and it meets the criteria for listing under section 112(b)(2).

- (b) Under what criteria might EPA list CO₂ as a HAP but not list any of the ambient air pollutants as HAPs?

EPA could list a pollutant as a HAP if the Administrator determined that it was a pollutant that may present, through inhalation or other routes of exposure, adverse human health effects or “adverse environmental effects whether through ambient concentrations, bioaccumulation, deposition, or otherwise.” As noted above, EPA could not list a criteria pollutant listed under section 108 as a HAP unless it (1) was also a precursor to a criteria pollutant listed under section 108, and (2) met the criteria listed above. EPA could list a criteria pollutant as a HAP if it met both of these requirements.

- (c) Section 112(b)(2) provides that no ozone-depleting substance shall be classified as a HAP “solely due to its adverse effects on the environment.” If no ozone-depleting substance may be listed as a HAP solely due to its adverse environmental effects, does it not stand to reason that no greenhouse gas may be listed solely due to its adverse environmental effects? Indeed, is not the exemption of greenhouse gases from listing under section 112 even stronger than that for ozone-depleting substances, inasmuch as the CAA nowhere expressly authorized EPA to regulate greenhouse gases?

It appears that Congress precluded the listing of an ozone-depleting substance “solely due to its adverse effects on the environment” because Congress believed that those substances’ environmental effects would be adequately addressed under Title VI. Congress left open the possibility that EPA could issue regulations under section 112 if an ozone-depleting substance also has effects on public health that were not adequately addressed under Title VI. Since section 112 says nothing precluding the listing of greenhouse gases (or, for that matter, any other pollutants not regulated under Title VI) on environmental grounds alone, EPA does not agree with the conclusion in the last sentence of your question.

- (d) Under what criteria might EPA list CO₂ as a HAP but not list Freon-12?

As noted above, EPA could not list Freon-12, which is an ozone-depleting substance covered by Title VI, as a HAP unless the Administrator determined that Freon-12 was a pollutant that may present, through inhalation or other routes of exposure, adverse human health effects. This limitation on the use of section 112 to address a pollutant covered by Title VI simply does not apply to CO₂.

5. In Q5 of our October 14th letter, we asked whether EPA could have phased out Freon-12 and other non-toxic ozone-depleting substances under its authority to regulate HAPs or whether EPA required new and specific authority, such as conferred by subchapter VI. We further asked whether, if the HAPs framework is unsuited to control substances that deplete the ozone layer, it might not also be unsuited to control substances suspected of enhancing the greenhouse effect. You replied, “EPA has not evaluated whether it would

have had authority to phase out ozone-depleting substances under section 112 of the Act.” We regard that answer as non-responsive. Our question was not whether EPA has or has not conducted an evaluation, but whether it has the authority in question. We think the answer to our question is clear. As noted above, section 112(b)(2) states: “No substance, practice, process or activity regulated under subchapter VI [on stratospheric ozone protection] of this chapter shall be subject to regulation under this section solely due to its adverse effects on the environment.” In short, the HAPs framework is unsuited to control substances that deplete the ozone layer. Do you agree?

Please see our answer above to question 4(c). We also note that Congress included on the section 112(b)(1) list of HAPs several substances that deplete the ozone layer (e.g., methyl bromide, carbon-tetrachloride (CCl₄)).

6. In Q6 of our October 14th letter, we asked whether EPA could have phased out Freon-12 and other ozone-depleting substances under the National Ambient Air Quality Standard (NAAQS) program, or whether EPA required new and specific authority, such as that conferred by subchapter VI. We further asked whether, if the NAAQS framework was unsuited to control ozone-depleting substances, it might not also be unsuited to control substances suspected of enhancing the greenhouse effect. You replied, “EPA has not evaluated whether it has authority to phase out ozone-depleting substances under the NAAQS program.” We regard that answer also as non-responsive. Again, our question was not whether EPA has or has not conducted an evaluation, but whether it has the authority in question.

Stratospheric ozone depletion is, by definition, a phenomenon of the stratosphere, not of the ambient air. Furthermore, from the standpoint of protecting the ozone layer, it matters not whether ozone-depleting chemicals such as chlorofluorocarbons are produced and used in California, Indiana, or Japan. In contrast, it matters a great deal where ambient air pollutants are released; and, consequently, the NAAQS program is organized by geographic region. Finally, to protect stratospheric ozone, it is not practical to monitor and control ambient concentrations of ozone-depleting chemicals; rather, it is necessary to phase out and ban the production, trade, and use of such substances. In light of the foregoing considerations, do you believe the NAAQS program has any rational application to the issue of stratospheric ozone depletion?

Since Title VI adequately addresses stratospheric ozone depletion, EPA has not had any occasion or need to undertake an evaluation of the use of the NAAQS program to address this problem. In the absence of such an evaluation, we do not have anything further we can provide in answer to your question on this subject.

7. Thank you for pointing out that the “troposphere” begins at the planet’s surface and, thus, includes “ambient air,” as defined by EPA (“that portion of the atmosphere, external to buildings, to which the general public has access”). Nonetheless, we believe that Q7 of

our October 14th letter identified a basic problem in EPA's position. As Peter Glaser testified at the October 6th joint hearing, "Although groundlevel and lower atmospheric ambient concentrations of carbon dioxide may differ slightly from locality to locality owing to differing sources and sinks, the greenhouse effect results from overall greenhouse gas concentrations in the troposphere rather than at groundlevel. Tropospheric levels of carbon dioxide over any particular locality are not influenced by emissions of carbon dioxide locally or upwind." Similarly, you observe that the troposphere extends upwards "to a boundary layer some miles overhead that demarcates the lower reaches of the stratosphere ('tropopause')," i.e., well beyond the portion of the atmosphere to which the public has access. Ambient air is part of the troposphere, but most of the troposphere is not ambient air.

The conclusions we draw from these facts are: (a) the greenhouse effect, and its supposed enhancement by man-made CO₂ emissions are global phenomena of the troposphere, not local conditions of the ambient air; and, (b) the NAAQS program, because it targets local conditions of the ambient air, is unsuited to address the potential problem of global warming. Do you agree?

All of the nations of the world contribute to anthropogenic contributions to a global greenhouse effect, which occurs in the troposphere. To be precise, however, the greenhouse effect occurs throughout the troposphere, which includes the ambient air under EPA's definition. In the Memorandum from Jonathan Cannon to Carol Browner, April 10, 1998, my predecessor as General Counsel stated that the NAAQS provisions and other authorities potentially available for controlling four pollutants from electric power generating sources, which include CO₂, "do not easily lend themselves to establishing market-based national or regional cap-and-trade programs, which the Administration favors for addressing these kinds of pollution problems." This is not the same as a conclusion that the NAAQS provisions are totally "unsuited" for use to address CO₂. EPA has not reached any conclusion on this question because, as already noted, the Agency has not proposed and has no current plans to propose regulations for CO₂. Please see also our response to Q7 of your October 14th letter.

8. In your answer to Q7 of our October 14th letter, you argue, citing CAA section 302(h), that EPA may set "secondary" national ambient air quality standards to protect the public welfare from the known or anticipated effects of an air pollutant on "weather, visibility and climate." However, we understand that this language was adopted in the 1970 CAA amendments -- more than a decade before global warming became a theme of public and Congressional debate. Mr. Glaser informs us that, in 1970, Congress was concerned about the weather and climate impacts of particulate pollution, which, at the local or regional level, can impair visibility, increase precipitation through condensation, and cool ambient air temperatures by reflecting sunlight. We find this a reasonable interpretation of section 302(h), as the NAAQS program is suited to address the local or regional impacts particulates may have on weather, visibility and climate. However, section 302(h) provides no clue as to how the NAAQS program could be applied to CO₂ in the context of the issue

of global warming. Do you agree that, when Congress included “weather, visibility and climate” in the 1970 CAA definition of “welfare,” its intent was to address the local and regional effects of particulate pollution? Or, do you believe Congress intended that definition to cover global warming caused by emissions of greenhouse gases? If so, on the basis of what information does EPA reach that conclusion?

There is nothing in the text of section 302(h) and we have found nothing in its legislative history to support Mr. Glaser’s speculation that the scope of that provision was limited to local or regional air pollution problems. Section 302(h) itself indicates that “effects on welfare” are not limited to those listed, and the broad scope of the examples listed indicates that Congress intended to define the term broadly, in order to encompass both problems known at that time and unanticipated, potential problems that could be recognized thereafter. In fact, the legislative history of the 1970 amendments reflected Congressional awareness that there were “many gaps” in the scientific knowledge of welfare effects at the time, and the expectation that research on such effects would be intensified. S. Rep. No. 91-1196, 91st Cong., 2d Sess. 11 (1970). Such research was to extend to welfare effects “in their broadest definition, including . . . visibility, weather, and climate.” S. Rep. No. 91-1196, 91st Cong., 2d Sess. 7 (1970). The words of the statute indicate on their face that Congress was aware of the potential for air pollutants to have adverse effects on the weather and the climate, and not simply to be addressed solely due to inhalation.

9. Q9 of October 14th letter posed a series of “hypotheticals” designed to test whether the NAAQS program has any rational application to the issue of global warming. You argued that the “types of questions” we posed “are ones that typically would be resolved through an extensive rulemaking process” involving “scientific studies, peer-review processes, legal and policy analyses, economic assessments, stakeholder involvement through meetings and public comments, and a proposed and final rulemaking.” We disagree. The questions we posed are conceptual, not technical. They are the types of questions that EPA and other policymakers should address and satisfactorily resolve *before* the start of any rulemaking process.

A NAAQS for CO₂ would have to be set either *below, above, or at* current atmospheric concentrations. There is no other possibility. So, before a single dime of taxpayer money is expended on an “extensive rulemaking process,” policymakers should think through whether setting a NAAQS for CO₂ makes any sense at all. As we see it, setting a NAAQS for CO₂ above the current concentrations would put the entire country in attainment, even if U.S. CO₂ production suddenly doubled. Conversely, setting a NAAQS for CO₂ below current concentrations would put the entire country out of attainment, even if all power plants and factories were to shut down. Setting a NAAQS for CO₂ at current concentrations would put the entire country in attainment – but only temporarily. As soon as global concentrations exceeded the NAAQS, the entire country would be out of attainment, no matter how stringent or costly the U.S. emission control regime might be. From these considerations we conclude that the NAAQS program is fundamentally

unsuited to address the issue of global warming. Do you agree?

Since EPA has no current plans to propose regulations for CO₂, the Agency has not fully evaluated the possible applicability of various CAA provisions for this purpose. At this point in time, your question is entirely hypothetical. Our previous response to Q.9 of your letter of October 14 indicated that certain aspects of your question, such as where EPA would set a NAAQS for CO₂ under this hypothetical rulemaking, would properly be addressed through a rulemaking process. Please see also our response to Q.7 above.

10. In your answer to Q9e of our October 14th letter, you state that “EPA has not considered or taken a position on the question of whether the Clean Air Act authorizes designation of nonattainment areas where attainment cannot be achieved without international action.” This seems to us a significant admission by EPA, because attainment of a NAAQS for CO₂ would clearly be impossible without extensive international action. Until EPA resolves that question in the affirmative, it is not premature to claim, as EPA does, that section 108 of CAA is “potentially applicable” to CO₂?

The April 10, 1998, Memorandum from Jonathan Cannon to Carol Browner states that CO₂ is an air pollutant and hence within the scope of EPA’s authority to regulate. The Cannon Memorandum specifically noted that although EPA’s regulatory authority extends to air pollutants, “[s]uch a general statement of authority is distinct from an EPA determination that a particular air pollutant meets the specific criteria for EPA action under a particular provision of the Act.” Section 108 of the CAA authorizes regulation of air pollutants if the criteria for regulation under that provision are met. EPA has not yet evaluated whether such criteria have been met for CO₂. Thus, at this time, we believe it is accurate to state that section 108 (and other CAA provisions authorizing regulation of air pollutants) are “potentially applicable” to CO₂.

11. CAA section 109(b) requires the Administrator to adopt NAAQS that are “requisite to protect” public health and welfare. However, unilateral emissions reductions by the United States would have no measurable effect on global climate change. Therefore, is it not clear that the NAAQS program can have no application to the global warming issue, even theoretically, except in the context of an international regulatory regime, such as that proposed in the Kyoto protocol? Furthermore, since the CAA requires that NAAQS be “requisite” to protect public health and welfare, does this not imply that any NAAQS for CO₂ established outside the context of an international regulatory regime would be illegal?

The Clean Air Act does not dictate that EPA must be able to address all sources of a particular air pollution problem before it may address any of those sources. Rather, EPA may address some sources that “contribute” to a problem even if it cannot address all of the contributors. For example, EPA was not precluded from addressing airborne lead emissions because there are other sources of lead contamination, some of which may be beyond EPA’s jurisdiction. See

Lead Industries Ass'n v. EPA, 647 F.2d 1130, 1136 (DC Cir. 1980), *cert. denied Lead Industries Ass'n v. EPA*, 449 U.S. 1042 (1980). In this particular case, it is worth noting that the U.S. by itself contributes approximately 25% of today's worldwide emissions of greenhouse gases. Just as noted above, section 109 of the CAA authorizes regulation of air pollutants if the criteria for regulation under that provision are met, and EPA has not yet evaluated whether such criteria have been met for CO₂.

12. In your answer to Q11 of our October 14th letter, you state that "EPA has not undertaken any estimate of the number of small- and mid-sized businesses and farms that emit 100 tons or more of CO₂ per year." We think EPA should undertake such an estimate. One study calculates that one million small- and mid-sized entities individually emit 100 tons of CO₂ per year and, thus, potentially could be regulated as "major stationary sources" under a CO₂ emissions control regime (Mark P. Mills, "a stunning Regulatory Burden: EPA Designating CO₂ as a Pollutant," Greening Earth Society, 1999). In any event, you note that 'some provisions of the Clean Air Act apply to "major stationary sources" and "major emitting facilities," but others do not.' Please identify which provisions do or do not apply to such sources. Which, if any, of those provisions are also among those EPA considers "potentially applicable" to CO₂?

Parts C and D of Title I and Title V of the CAA specifically apply to "major stationary sources" and/or "major emitting facilities." These provisions of the CAA would apply to a source of an air pollutant only if EPA had regulated the pollutant pursuant to other provisions of the CAA (e.g., if it were a criteria pollutant under section 108). The terms "major stationary source" and "major emitting facilities" are also used in subpart II of Part C of Title I, which addresses visibility impairment, but EPA is not aware that CO₂ has ever been associated with visibility concerns.

13. In your response to Q13 of our October 14th letter, you state, "as noted above, and as we have repeatedly discussed in correspondence with you, there are many regulatory actions that have the effect, or even the purpose, of reducing greenhouse gases (sometimes including CO₂), but not the purpose of implementing the Kyoto Protocol" (emphasis added). Similarly, in Attachment M, dated February 18, 1999, you interpreted the Knollenberg funding limitation as follows: "EPA may expend funds to propose or issue a regulation for a number of purposes including the reduction of greenhouse gas emissions, so long as the expenditures are in implementation of existing law and not for the purpose of implementing, or in preparation for implementing, the Kyoto Protocol." We disagree.

Reducing greenhouse gas emissions is the purpose of the Kyoto Protocol. There is no clear practical difference between issuing regulations to accomplish the purpose of the Kyoto Protocol and issuing regulations "for the purpose of implementing" the Kyoto Protocol. Although we have raised this concern in previous correspondence, we feel it is necessary to do so again. If the Knollenberg limitation allows EPA to issue regulations for the purpose of reducing greenhouse gas emissions, does it not effectively allow EPA to implement the

Congress of the United States

Washington, DC 20515

March 10, 2000

BY FACSIMILE

The Honorable Gary S. Guzy
General Counsel
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Guzy:

Thank you for your February 16, 2000 letter responding to our December 10, 1999 letter examining the Environmental Protection Agency's (EPA's) legal authority with respect to carbon dioxide (CO₂). After studying your answers to our questions, we are more convinced than ever that the Clean Air Act (CAA) does not authorize EPA to regulate CO₂. Indeed, we find it amazing that EPA claims authority to regulate CO₂ when the legislative history of the CAA -- particularly in 1990 -- does not support such a claim and when Congress, since 1978, has consistently enacted only non-regulatory laws on climate change and greenhouse gases. Furthermore, some of your answers asserting that EPA has not yet considered certain basic legal issues are not credible.

To make clear why your February 16th letter has only reinforced our conviction that EPA may not lawfully regulate CO₂, we review below each of your answers in the order of the questions posed.

Your response to Q1 of our December 10th letter addresses an argument we pointedly and explicitly did not make and sidesteps the argument we did make. You write: "As we stated previously, specific mention of a pollutant in a statutory provision is not a necessary prerequisite to regulation under many CAA statutory provisions." We agreed with this observation in Q3 of our October 14th letter and again in Q1 of our December 10th letter, where we acknowledge that the CAA sensibly allows EPA to regulate substances not specifically mentioned in the CAA when such regulation is necessary to "fill in gaps" in existing regulatory programs. Yet you repeat that observation as though we had taken the position that EPA may not regulate any substance unless it is listed in a regulatory provision of the CAA.

Our point was different, to wit: Congress was quite familiar with the theory of human-induced global warming when it amended the CAA in 1990; and, consequently, the fact that the CAA nowhere lists CO₂ as a substance to be regulated is "evidence" (note: we did not say *proof*) that Congress chose not to authorize EPA to launch a *regulatory* global warming mitigation program. EPA's assertion, that the *absence* of CO₂ from *all* CAA regulatory provisions furnishes *no* evidence against EPA's claim that it may regulate CO₂, strikes us as unreasonable, especially in light of Congress' practice, in amendment after amendment to the CAA, of specifically designating substances for regulation.

In addition, we are troubled by the apparent implication of your statement, "Congress did not in 1990 limit the potential applicability of any of the CAA regulatory provisions to CO₂." You seem to suggest that, if Congress did not expressly forbid EPA from regulating CO₂, EPA must be presumed to have such power. That implication, we think, contradicts the core premise of administrative law, namely, that agencies have no inherent regulatory power, only that which Congress intentionally and specifically delegates.

We do not find persuasive your response to Q2 of our December 10th letter. We asked, "If Congress intended to delegate to EPA the authority to regulate greenhouse gases, why did it admonish EPA not to assume such authority in the only CAA provisions [sections 103(g) and 602(e)] dealing with CO₂ and global warming?" You answer that those sections are nonregulatory, and that Congress "would not intend the Agency to regulate substances under authorities provided for nonregulatory activities." You then conclude that the admonitory language of those provisions "does not directly or indirectly limit the regulatory authorities provided to the Agency elsewhere in the Act." We agree that the admonitory language does not repeal by implication any existing authority provided elsewhere in the CAA. However, we do not agree that, when Congress enacted that language, it was merely affirming a tautology (i.e., nonregulatory authorities cannot authorize regulatory programs). It is far more likely that Congress meant to caution EPA against assuming an authority that does not in fact exist.

Please again recall the legislative history surrounding Title VI. When Congress enacted Title VI, it also rejected a Senate version known as Title VII, the "Stratospheric Ozone and Climate Protection Act," which would have required EPA to regulate greenhouse gases. The admonitory language of section 602(e) states that EPA's study of the global warming potential of ozone-depleting substances "shall not be construed to be the basis of any additional regulation under this chapter [i.e., the CAA]." This is very significant, because it means Congress was not content just to reject Title VII. Congress also thought it necessary to state in Title VI that it was in no way authorizing a greenhouse gas regulatory scheme.

The admonitory language of section 103(g) is also worth quoting. EPA's whole case boils down to the argument that section 103(g) refers to CO₂ as an "air pollutant," and the CAA authorizes EPA to regulate air pollutants. This argument is incredibly weak. To begin with, under section 302(g) of the CAA, the term "air pollutant" does not automatically apply to any substance emitted into the ambient air. Such a substance must also be an "air pollution agent or combination of such agents." EPA has never determined that CO₂ is an air pollution "agent." More importantly, the admonitory language of section 103(g) is unequivocal: "*Nothing* in this subsection shall be construed to authorize the imposition on any person of air pollution control requirements" (emphasis added). If *nothing* in section 103(g) shall be construed to authorize the imposition of air pollution control requirements, then the reference therein to CO₂ as a "pollutant" should not be construed to be a basis for regulatory action. EPA's case is further undermined by Congressman John Dingell's commentary on the legislative history connected with section 103(g). In his October 5, 1999 letter to Chairman McIntosh, Rep. Dingell wrote: "While it [section 103(g)] refers, as noted in the EPA memorandum, to carbon dioxide as a 'pollutant,' House and Senate conferees never agreed to designate carbon dioxide as a pollutant

for regulatory purposes.”

We find disturbing your response to Q3 of our December 10th letter. Citing the very passage of *Chevron v. NRDC* quoted by EPA in its December 1st letter, we asked whether there was not a vital, practical distinction between EPA’s filling a “gap left, implicitly or explicitly, by Congress” in a “congressionally created ... program” and EPA’s creating new programs without express Congressional authorization. Your answers to Q3(a) and (b) do not acknowledge that EPA is in any meaningful way constrained by the distinction between filling gaps and creating programs.

In addition, we believe your answer to Q3(c) lacks credibility. We asked whether EPA’s authority to control substances based upon their global warming potential “is as clear and certain and unambiguous as EPA’s authority to control substances based upon their impact on ambient air quality, their toxicity, or their potential to damage the ozone layer.” Rather than acknowledge the obvious (i.e., EPA’s regulatory authority with respect to CO₂ rests on a tortuous interpretation at best), you reply that “EPA has not evaluated the strength of the technical and legal basis for such findings under any particular provision of the Act,” because it has “no current plans” to regulate CO₂. While that statement is welcome assurance in light of the Knollenberg limitation, it leaves a void as to the legal basis for EPA’s view of its authority.

Your answer to Q4 of our December 10th letter is similarly nonresponsive. We noted that, under CAA section 112(b)(2), EPA may not classify an ambient air pollutant like sulfur dioxide (SO₂) as a hazardous air pollutant (HAP) unless it “independently meets the listing criteria” of section 112. In Q4(a), we asked: “What are the criteria for listing under section 112 that SO₂ and the other ambient air pollutants do not independently meet?” Your reply corrects our formulation by pointing out that an ambient air pollutant may be listed as a HAP only if it is an ambient air pollutant “precursor” and “meets the criteria for listing under section 112(b)(2).” However, you did not state what those criteria are; you did not explain the specific difference between an ambient air pollutant and a HAP. In short, you did not answer our question. The reason, we suspect, is that a clear statement of the criteria that a substance must meet in order to be classified as a HAP would also make clear that CO₂ is unlike any of the substances currently listed as HAPs. That, in turn, would cast grave doubt on EPA’s claim that section 112 is “potentially applicable” to CO₂.

Your response to Q4(b) implies that EPA may actually have *greater* flexibility to list CO₂ as a HAP than any section 108 (“ambient”) air pollutant, because CO₂ is not listed under section 108 and, thus, is not subject to the qualification that it be a “precursor.” We disagree. The ambient air pollution program is the foundation of the CAA. The fact that Congress and EPA did not list CO₂ under section 108 is evidence that CO₂ is not a “pollutant” in any substantive meaning of the word. The HAPs program deals with substances that typically are deadlier or more injurious than ambient air pollutants. However, even at many times current atmospheric levels, CO₂ is a benign substance compared to ambient air pollutants like lead, ozone, or SO₂. Therefore, the fact that Congress and EPA never listed CO₂ as an ambient air pollutant is an argument against CO₂’s ever being listed as a HAP.

Your responses to Q4(c) and (d) employ the same flawed reasoning. Section 112(b) provides that no ozone-depleting substance may be classified as a HAP “solely due to its adverse effects on the environment.” Noting this restriction, we asked: “[D]oes it not stand to reason that no greenhouse gas may be listed solely due to its adverse environmental effect? Indeed, is not the exemption of greenhouse gases from listing under section 112 even stronger than that for ozone-depleting substances, inasmuch as the CAA nowhere expressly authorized EPA to regulate greenhouse gases?” You replied: “Since section 112 says nothing precluding the listing of greenhouse gases (or, for that matter, any other pollutants not regulated under Title VI) on environmental grounds alone, EPA does not agree with the conclusion in the last sentence of your question.” Here again, you come close to saying that EPA may lawfully do anything Congress has not expressly forbidden it to do. We would suggest that Congress did not need to exempt greenhouse gases from EPA’s section 112 authority, because Congress never gave EPA authority to regulate greenhouse gases in the first place.

We regard your brief response to Q5 to be a tacit admission that the HAPs framework is unsuited to control substances that deplete the ozone layer. You comment that “Congress included on the section 112(b)(2) list of HAPs several substances that deplete the ozone layer (e.g., methyl bromide, carbon-tetrachloride [CCL₄]).” However, this merely shows that *some* ozone-depleting substances (i.e., those that are carcinogenic, mutagenic, neurotoxic, etc.) independently meet the criteria for listing under section 112. It does not prove that EPA could act effectively to protect stratospheric ozone without new and separate authority (e.g., Title VI). We also note that, in Title VI, Congress did not declare any of the ozone-depleting substances to be an “air pollutant.” This suggests that EPA’s authority with respect to ozone-depleting chemicals comes from a specific grant by Congress, not from a generalized authority to control substances emitted into the air.

We regard your answer to Q6 as nonresponsive. We pointed out that stratospheric ozone depletion is, by definition, a phenomenon of the stratosphere, not of the ambient air, and that it differs fundamentally from ambient air pollution in both its causes and remedies. We therefore asked: “In light of the foregoing considerations, do you believe the NAAQS [National Ambient Air Quality Standards] program has any rational application to the issue of stratospheric ozone depletion?” You responded: “Since Title VI adequately addresses stratospheric ozone depletion, EPA has not had any occasion or need to undertake an evaluation of the use of the NAAQS program to address this problem.” We believe that Congress’ enactment of Title VI is further evidence that the CAA is a carefully structured statute with specific grants of authority to accomplish specific (hence limited) objectives, not an undifferentiated, unlimited authority to regulate any source of any substance that happens to be emitted into the air.

In Q7, we asked whether the NAAQS program, because it targets local conditions of the ambient air, is unsuited to address a global phenomenon of the troposphere, such as the supposed enhancement of the greenhouse effect by industrial emissions of CO₂. You replied: “EPA has not reached any conclusion on this question because, as already noted, the Agency has no current plans to propose regulations for CO₂.” We do not think it necessary for EPA to start a

rulemaking in order to evaluate whether a particular portion of the CAA is suited to control CO₂ in the context of a global warming mitigation program. We regard your answer as a tacit admission that EPA is unable to rebut our argument.

In your answer to Q8, you state: "There is nothing in the text of section 302(h) and we have found nothing in its history to support Mr. Glaser's speculation that the scope of that provision was limited to local or regional air pollution problems" such as those arising from particulate pollution. We disagree. The text in question refers to the effects of pollution on "weather, visibility and climate." As you note in your answer to Q12, CO₂ has never been "associated with visibility concerns." Particulate pollution, on the other hand, can impair visibility as well as affect local or regional weather and climate. As to the legislative history, the source of the phrase "weather, visibility and climate" in the 1970 CAA Amendments would seem to be the National Air Pollution Control Administration's 1969 air quality criteria for particulates, which discussed the interrelated impact of fine particles on weather, visibility and "climate near the ground" (*Air Quality Criteria for Particulate Matter*, Jan. 1969). The climate effects referred to were not global but local and regional in nature. In any event, we find nothing in the text and legislative history of section 302(h) to suggest that Congress intended that provision to address CO₂ in the context of the issue of global warming.

In Q9, we asked whether the NAAQS program is fundamentally unsuited to address the issue of global warming, since there seems to be no sensible way to set a NAAQS for CO₂. For example, a NAAQS for CO₂ set below current atmospheric levels would put the entire country out of attainment, even if every power plant and factory were to shut down. Conversely, a NAAQS for CO₂ set above current atmospheric levels would put the entire country in attainment, even if U.S. coal consumption suddenly doubled. You replied: "Since EPA has no current plans to propose regulations for CO₂, the Agency has not fully evaluated the possible applicability of various CAA provisions for this purpose. At this point in time, your question is entirely hypothetical." Whether "hypothetical" or not, our question points out that CO₂ does not seem to fit into the NAAQS framework. We regard your answer as a tacit admission that EPA has no idea how to set a NAAQS for CO₂ in the context of a global warming mitigation program.

In Q10, we noted that the attainment of a NAAQS for CO₂ would be impossible without extensive international cooperation, and that EPA had not yet determined whether CAA section 108 authorizes the designation of nonattainment areas where attainment cannot be achieved without international action. From these facts, we drew the reasonable conclusion that, until EPA determines that the CAA does grant such authority, it is "premature" for EPA to claim that section 108 is "potentially applicable" to CO₂. You replied: "Section 108 of the CAA authorizes regulation of air pollutants *if* the criteria for regulation under that provision are met. EPA has not yet evaluated whether such criteria have been met for CO₂. Thus, at this time, we believe it is accurate to state that section 108 (and other CAA provisions authorizing regulation of air pollutants) are 'potentially applicable' to CO₂" (emphasis added). We disagree. The mere fact that EPA has not evaluated whether CO₂ meets section 108 criteria furnishes no evidence that section 108 is potentially applicable to CO₂.

Before examining whether CO₂ meets the criteria for regulation under section 108, EPA would first have to determine whether the CAA authorizes EPA to designate nonattainment areas where attainment cannot be achieved without international action. Also, as noted above, before examining whether CO₂ meets section 108 criteria, EPA would have to resolve the basic conceptual issue of whether setting a NAAQS for CO₂ is possible without putting the entire country either in attainment or out of attainment. Since EPA has not resolved these threshold questions, it is disingenuous to claim that section 108 is “potentially applicable” to CO₂. The most EPA can honestly say at this point is that it *does not know* whether section 108 could be found to be applicable to CO₂.

In Q11, noting that unilateral CO₂ emissions reductions by the United States would have no measurable effect on global climate change, we asked whether the NAAQS program can have any application to CO₂ outside the context of an international regulatory regime, such as the Kyoto Protocol, since CAA section 109(b) requires the Administrator to adopt NAAQS that are “requisite to protect” public health and welfare. You replied: “The Clean Air Act does not dictate that EPA must be able to address all sources of a particular air pollution problem before it may address any of those sources. Rather, EPA may address some sources that ‘contribute’ to a problem even if it cannot address all of the contributors. For example, EPA was not precluded from addressing airborne lead emissions because there are other sources of lead contamination, some of which may be beyond EPA’s jurisdiction. See *Lead Industries Ass’n v. EPA*, 647 F.2d 1130, 1136 (DC Cir. 1980).” We agree that EPA may address some sources that contribute to a problem even if it cannot address all of the contributors. However, there is a fundamental difference between lead pollution and CO₂ “pollution.”

As the D.C. Circuit Court of Appeals observed in the *Lead Industries* case, airborne lead is one of three major routes of exposure, the others being diet and accidental ingestion of lead objects by small children. Accordingly, setting a NAAQS for lead cannot provide comprehensive protection against lead pollution. However, setting a NAAQS for lead can significantly reduce exposure to *airborne* lead. Moreover, reducing airborne lead would also reduce the amount of lead in the nation’s food supply -- another major route of exposure. Therefore, it is possible to set a NAAQS for lead that is “requisite” to protect public health. In contrast, setting a NAAQS for CO₂ outside the context of a global treaty cannot significantly reduce (or even measurably slow the growth of) atmospheric concentrations of CO₂, particularly since China alone will soon overtake the U.S. as a source of greenhouse gas emissions. Thus, it is hard to imagine that a NAAQS for only one gas -- CO₂-- that applies only to the U.S. could satisfy the section 109(b) requirement that it be “requisite” to protect public health and welfare.

In Q12, we asked which provisions of the CAA apply to “major stationary sources” and “major emitting facilities,” and whether such provisions are among those EPA considers “potentially applicable” to CO₂. You explained that the regulatory requirements of Parts C and D of Title I and Title V of the CAA apply to major stationary sources and major emitting facilities. You also noted that, to be a major stationary source or major emitting facility, an entity must emit an air pollutant that EPA regulates “pursuant to other provisions of the CAA (e.g., if it were a criteria pollutant under section 108).” As you know, section 302(j) defines

“major stationary source” and “major emitting facility” as any stationary facility or source that emits, or has the potential to emit, “one hundred tons per year or more of any air pollutant.” It is our understanding that several hundred thousand small and mid-sized businesses and farms individually emit 100 tons or more of CO₂ per year. Regulating CO₂, therefore, would dramatically expand EPA’s control over the U.S. economy generally and the small business sector in particular. We are concerned that EPA has an enormous organizational interest in laying the legal predicate for future regulation of CO₂.

In Q13, we challenged EPA’s reading of the Knollenberg funding limitation. We noted that there is no clear practical difference between issuing regulations for the purpose of reducing greenhouse gas emissions, which EPA claims is legal, and issuing regulations “for the purpose of implementing ... the Kyoto Protocol,” which EPA acknowledges is illegal. Rather than speak to the substance of our concern, you refer to previous letters which, in our judgment, also sidestep that concern. We believe that EPA has once again failed to elucidate any criteria that would enable Congress, or other outside observers, to distinguish between legal and illegal greenhouse gas-reducing regulations under the Knollenberg limitation.

In your response to Q13, you also took issue with our understanding of the conditions on which the Senate agreed to ratify the Rio Treaty. We asked: “[W]ould it not have been pointless for the Senate to have insisted, in ratifying the Rio Treaty, that the Administration not commit the U.S. to binding emission reductions without the further advice and consent of the Senate, if it were already in EPA’s power to impose such reductions under existing authority?” You replied: “[T]he Senate insisted that the Executive Branch not commit the U.S. to a binding *international* legal obligation (i.e., a treaty obligation) without further advice and consent. The Senate’s statement on this point has no bearing on the scope of existing domestic legal authority to address pollution problems as a matter of domestic policy, independent of any international legal obligations.” We agree in part, and disagree in part. We agree that the Senate’s statement referred to international obligations. Nonetheless, that statement does have a bearing on the scope of EPA’s authority.

A major reason for the Senate’s instruction was the concern that the Administration might commit to an international agreement that imposes costly burdens on the U.S. and a few other countries while exempting most nations, including major U.S. trade competitors like China, Mexico, and Brazil, from binding emission limitations. Acting on this same concern, the Senate in July 1997 passed the Byrd-Hagel Resolution (S. Res. 98) by a vote of 95-0. Byrd-Hagel stated, among other things, that the U.S. should not be a signatory to any climate change agreement or protocol that would exempt developing nations from binding emissions limits.

Now, if the Senate is overwhelmingly opposed to a climate change treaty that would exempt three-quarters of the globe from binding obligations (even though they emit significant greenhouse gases), it is unthinkable that Congress would support a *unilateral* emissions reduction regime binding upon the U.S. alone. Simply put, when the Senate ratified the Rio Treaty, it did so with the understanding that the Executive Branch would not attempt via


administrative action, executive agreement, or rulemaking to go beyond the Treaty's *voluntary* goals.


In Q14, we asked you to account for the fact that, although the Administration claims to regard the science supporting the Kyoto Protocol as "clear and compelling," EPA apparently does not believe the science is strong enough to commence a "formal scientific review process" to determine the appropriateness of domestic regulatory action. Rather than explain how such seemingly inconsistent positions cohere, EPA simply asserts without explanation that there is no incongruity or contradiction.

In summary, with EPA's answers in hand, we are more convinced than ever that the CAA does not authorize EPA to regulate CO₂. As we have stated in previous letters, it is inconceivable that Congress would delegate to EPA the power to launch a CO₂ emissions control program -- arguably the most expansive and expensive regulatory program in history -- without ever once saying so in the text of the statute. We also think it is obvious that the basic structure of the NAAQS program, with its designation of local attainment and nonattainment areas and its call for State implementation plans, has no application to a global phenomenon like the greenhouse effect. Furthermore, in view of the well-known fact that CO₂ is a benign substance and the foundation of the planetary food chain, we are appalled by the Administration's insistence that EPA might be able to regulate CO₂ as a "toxic" or "hazardous" air pollutant.

The CAA is not a regulatory blank check. The Administration's claim that the CAA authorizes regulation of greenhouse gas emissions can only serve to undermine Congressional and public support for legitimate EPA endeavors.

Sincerely,


David M. McIntosh
Chairman
Subcommittee on National Economic Growth,
Natural Resources, and Regulatory Affairs


Ken Calvert
Chairman
Subcommittee on
Energy and Environment

cc: The Honorable Dan Burton The Honorable James F. Sensenbrenner, Jr.
The Honorable Dennis Kucinich The Honorable Jerry F. Costello
The Honorable Joseph Knollenberg The Honorable John D. Dingell

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ONE HUNDRED SIXTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON GOVERNMENT REFORM
2157 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6143

MAJORITY (202) 225-5074
MINORITY (202) 225-5051
TTY (202) 225-6852

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BERNARD SANDERS, VERMONT,
INDEPENDENT

October 26, 1999

BY FACSIMILE

The Honorable Carol M. Browner
Administrator
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Administrator Browner:

On October 20, 1999, an ad hoc coalition of environmental organizations filed a petition requesting the Environmental Protection Agency (EPA) regulate certain Kyoto Protocol-listed greenhouse gases, including carbon dioxide (CO₂), under Section 202(a)(1) of the Clean Air Act. The petitioners also asked for a "substantive response" by you within 180 calendar days and threatened to "consider litigation" to achieve the regulatory actions requested.

It is our conviction that EPA cannot lawfully comply with the petitioners' request. On the same day the environmental groups filed their petition, the President signed the "Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2000," which contains the "Knollenberg" funding restriction. The Knollenberg provision bars EPA from proposing or issuing rules, regulations, decrees, or orders to implement the Kyoto Protocol. Regulating CO₂ and other greenhouse gases is, of course, the core function of the Protocol. If the Knollenberg provision means anything, it means no regulation of CO₂ unless and until the Senate ratifies the Protocol.

Furthermore, as observed by Congressman John D. Dingell in an October 5, 1999 letter to Chairman McIntosh, the Senate unsuccessfully attempted in 1990 to amend the Clean Air Act to address greenhouse gas emissions from motor vehicles. The Senate proposed to add a new subchapter entitled "Stratospheric Ozone and Global Climate Protection" that, under the proposed definitions of the Senate-passed bill, applied to "motor vehicles." However, House and Senate conferees dropped those provisions in the final October 1990 conference report. Congress deliberately withheld from EPA the very power the petitioners now assert EPA must exercise.

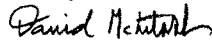
Finally, we note that you and other Administration spokespersons, on numerous occasions, have pledged not to implement the Kyoto Protocol prior to its ratification by the Senate. A "no implementation" pledge that is not also a commitment to abstain from regulating CO₂ is hollow – an empty promise.

If EPA does not summarily dismiss the petition as inconsistent with its "no implementation" pledge, the Knollenberg provision of P.L. 106-74, and the text, structure, and legislative history of the Clean Air Act, please establish a process for public comment on the petition.

Pursuant to the Constitution and Rules X and XI of the House of Representatives, we request that EPA maintain a public docket of all meetings and telephone, fax, and e-mail contacts with any of the petitioners, and others, including other Federal officials, concerning the petition. The docket should clearly describe the purpose of such meetings and identify all Federal and non-Federal attendees and contacts. We further request that you provide the Subcommittees with a copy of each document on a bimonthly basis, beginning November 15th.

Please deliver your response to this letter and the information requested to the Government Reform Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs majority and minority staffs in Rayburn House Office Building B-377 and B-350A, respectively, and the Science Subcommittee on Energy and the Environment majority staff in Ford House Office Building H2-389. If you have any questions about this request, please contact Staff Director Marlo Lewis at 225-1962 or Staff Director Harlan Watson at 225-9816. Thank you.

Sincerely,



David M. McIntosh
Chairman
Subcommittee on National Economic Growth,
Natural Resources and Regulatory Affairs



Ken Calvert
Chairman
Subcommittee on Energy
and the Environment

cc: The Honorable Dan Burton
The Honorable F. James Sensenbrenner
The Honorable Dennis Kucinich
The Honorable Ralph M. Hall
The Honorable Jerry F. Costello
The Honorable Joe Knollenberg
The Honorable John D. Dingell



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 6 1999

OFFICE OF
AIR AND RADIATION

The Honorable David M. McIntosh
Chairman
Subcommittee on National Economic Growth
Natural Resources and Regulatory Affairs
Committee on Government Reform
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This is in response to your letter of October 26, 1999, regarding the October 20 petition to the Environmental Protection Agency (EPA) from the International Center for Technology Assessment. The petition seeks regulation of greenhouse gas emissions from new motor vehicles. In your letter, you requested that the Agency establish a public comment process on the petition if we do not summarily dismiss the petition.

EPA has not yet decided how to respond to the petition, however, we believe it is appropriate, as you suggested, for the Agency to establish a process to solicit public review of and comment on the petition. This process will be initiated through the publication of a Federal Register notice announcing the comment process. As part of this process, EPA will establish a public docket under our standard docketing procedures. The upcoming Federal Register notice will provide details on this docket. My staff will keep the Subcommittee staff informed of our progress.

We hope this information is responsive to your inquiry. If you have further questions, please contact us again.

Sincerely,


Robert Perciasepe
Assistant Administrator

DAVID M. MCINTOSH
20 DISTRICT, INDIANA
GOVERNMENT REFORM AND
OVERSIGHT COMMITTEE
SUBCOMMITTEE CHAIRMAN
NATIONAL ECONOMIC GROWTH
NATURAL RESOURCES AND
REGULATORY AFFAIRS
EDUCATION AND THE
WORKFORCE COMMITTEE
SMALL BUSINESS COMMITTEE
1206 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-2021 PH
(202) 225-3383 FX
E-MAIL: mcintosh@h1.house.gov
HP: www.house.gov/mcintosh

Congress of the United States
House of Representatives
Washington, DC 20515-1402

October 19, 1999

DISTRICT OFFICE
800-363-0851
2900 WEST JACKSON STREET
SUITE 101
MUNCIE, IN 47304
(765) 747-6680 PH
(765) 747-6588 FX
THE PARLIAMANTARY CENTER
1134 MARION
ANDERSON, IN 46018
(765) 840-2918 PH
(765) 840-2922 FX
2561 THE STREET
COLUMBUS, IN 47201
(812) 377-2657 PH
(812) 377-2657 FX
60 NORTH 5TH STREET
RICHMOND, IN 47214
(765) 967-7883 PH
(765) 967-3225 FX

THE CLEAN AIR ACT IS NOT A REGULATORY BLANK CHECK!

**Support the
No Implementation without Ratification Bill**

Dear Colleague:

On June 16, 1999, I introduced H.R. 2221, the "Small Business, Family Farms and Constitutional Protection Act," to preempt efforts by the Clinton Administration to implement the non-ratified UN global warming treaty, the Kyoto Protocol.

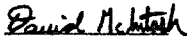
H.R. 2221 safeguards Congress' Constitutional role in treaty making in several ways. First, the bill makes permanent the "Knollenberg" funding restriction against "backdoor" regulatory implementation of the Kyoto Protocol. Second, it prohibits agencies from regulating carbon dioxide (CO₂), the principal Kyoto-covered "greenhouse" gas, without new and specific legislation by Congress. Third, it prohibits agencies from offering "early action credits" to jump-start implementation of the non-ratified treaty.

Recent statements by Administration officials underscore the need for such legislation. At an October 6th joint hearing conducted by the Government Reform Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs and the Science Subcommittee on Energy and the Environment, Environmental Protection Agency (EPA) General Counsel Gary S. Guzy argued that the Clean Air Act authorizes EPA to regulate CO₂. Virtually all sectors of the economy – manufacturing, transportation, agriculture, electric generation – emit CO₂ as a byproduct. EPA's reading of the Clean Air Act would "justify" an enormous expansion of the agency's power.

CO₂ is an odorless, colorless gas that is non-toxic at 20 times current atmospheric concentrations. It is also the fundamental nutrient in the planetary food chain. Yet, according to Mr. Guzy, the mere fact that CO₂ is emitted into the air proves that EPA has the power to regulate it – as if the Clean Air Act were a regulatory blank check. In reality, the Act is a carefully structured statute that establishes specific programs to accomplish specific objectives. The Act expressly establishes an ambient air quality program, an air toxics program, and a stratospheric ozone protection program. Nowhere does it even hint at establishing a global warming mitigation program.

Although it is inconceivable that Congress would delegate far-reaching regulatory powers to EPA without ever saying so in the text of the statute, that is exactly what EPA wants us to believe. Nor is that all. When the Subcommittees raised questions about the apparent conflict between the Administration's "no implementation without ratification" pledge and EPA's claim of authority to regulate CO₂, Mr. Guzy declined to affirm that EPA would not regulate CO₂ until the Kyoto Protocol is ratified. Regulation of CO₂ is, of course, the Protocol's core function. A "no implementation" pledge that is not also a pledge not to regulate CO₂ is hollow – an empty promise.

EPA is claiming a power Congress has not delegated – a power indispensable to implementing a treaty the Senate has not ratified. The Small Business, Family Farms, and Constitutional Protection Act aims to nip such mischief in the bud. If you would like to become a co-sponsor of this legislation, call Marlo Lewis at 225-1962.


David M. McIntosh
Member of Congress

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For Immediate Release
October 20, 1990

ONE HUNDRED SIXTH CONGRESS
Congress of the United States
House of Representatives

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INDEPENDENT

Contact: Marlo Lewis
(202) 225-1962

McIntosh Rebutts Petition for Regulation of CO₂

WASHINGTON – Earlier today, an ad hoc group of environmental organizations filed a petition demanding that the Environmental Protection Agency (EPA) regulate carbon dioxide (CO₂) emissions from automobiles. “The petitioners want to read into the Clean Air Act legally binding obligations to regulate CO₂ – as if the Kyoto Protocol were already ratified,” said House Government Reform Subcommittee Chairman David McIntosh (R-IN).

Also today, the President signed the “Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2000,” which contains the “Knollenberg” funding restriction barring EPA from proposing or issuing regulations to implement the Kyoto Protocol. “Regulating CO₂ is the core function of the Protocol – if the Knollenberg provision means anything, it means no regulation of CO₂,” McIntosh explained.

The Clean Air Act nowhere expressly states that EPA may – let alone must – regulate CO₂. Furthermore, Congress considered and then rejected language mandating CO₂ tailpipe emission standards when it amended the Clean Air Act in 1990. “Congress deliberately withheld from EPA the very power the petitioners now assert EPA must exercise,” McIntosh said.

McIntosh also described as false and self-serving the argument, presented by EPA General Counsel Gary Guzy at an October 6, 1990 hearing co-chaired by McIntosh, that the Clean Air Act authorizes EPA to regulate CO₂. Virtually all sectors of the economy – manufacturing, transportation, agriculture, electric generation – emit CO₂ as a byproduct. “EPA’s reading of the Clean Air Act would ‘justify’ an enormous expansion of the agency’s control over the U.S. economy.”

“Both EPA and the private petitioners wrongly view the Clean Air Act as a regulatory blank check,” said McIntosh. “In reality, the Act is a carefully structured statute that limits as well as empowers what EPA may lawfully do.”

The Clean Air Act establishes specific programs to accomplish specific objectives. It expressly establishes an ambient air quality program, an air toxics program, and a stratospheric ozone protection program. Nowhere does it even hint at establishing a greenhouse gas emissions control program. “It is inconceivable that Congress would delegate far-reaching regulatory powers to EPA without ever saying so in the text of the statute,” McIntosh said.

At the October 6th hearing, Guzy stated that EPA has “no plans” to regulate CO₂. “Unfortunately, this is not the same as promising not to regulate CO₂ until and unless the Senate ratifies the Kyoto Protocol,” McIntosh said. “EPA had better not attempt to regulate CO₂ without new and specific legislative authorization by Congress.”



Center for the Study of Carbon Dioxide and Global Change

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October 15, 1999

The Honorable Ken Calvert
Chairman
Science Subcommittee on Energy and the Environment
U.S. House of Representatives
H2-389
Washington, DC 20515

The Honorable David M. McIntosh
Chairman
Government Reform Subcommittee on National Economic Growth,
Natural Resources and Regulatory Affairs
U.S. House of Representatives
B-377 Rayburn House Office Building
Washington, DC 20515

Dear Chairmen Calvert and McIntosh:

Please accept this addendum to my written testimony submitted before you on October 6, 1999, in response to incorrect statements made in testimony prepared by Dr. Chris Field.

Several statements were made in the testimony of Dr. Field that challenged the near-universal positive growth response of plants to rising atmospheric CO₂ levels. However, these challenges are not supported by the bulk of peer-reviewed papers published in this field. Thus, I will address certain statements made by Dr. Field that are unsupported by the scientific literature.

Dr. Field stated that C₄ crops do not increase photosynthesis and growth with increasing atmospheric CO₂ levels. However, in a highly-cited literature review, Poorter (1993) demonstrated that for a doubling of the atmospheric CO₂ concentration, nineteen different C₄ plants exhibited an average growth increase of 22%, including the economically and agriculturally important species of corn and sorghum. In addition, I am aware of eleven published papers on corn alone, which

P. O. Box 25697 · Tempe, AZ 85285-5697
Telephone (602) 491-3837 · Facsimile (602) 491-3868
Email: cidso@co2science.org
<http://www.co2science.org>

also demonstrate an average growth increase of 22% for a doubling of the atmospheric CO₂ concentration. Furthermore, in the August 1999 edition (volume 5) of *Global Change Biology*, of which Dr. Field is an editor, a review article showed that C₄ grasses increased photosynthesis and total biomass by 25 and 33%, respectively, in response to a doubling of the atmospheric CO₂ concentration (Wand et al., 1999). In fact, the authors of that review paper concluded that it may be premature to predict that C₄ grasses will lose their competitive advantage over C₃ grass species in elevated CO₂. Thus, it is abundantly clear that C₄ plants can (and do!) respond to increases in the CO₂ content of the air.

It was stated by Dr. Field that insects will eat more plant material at elevated CO₂ than they do at ambient CO₂ concentrations. However, no references were cited to support this claim. In this case, few studies have probed this topic; yet I am aware of several that found no difference in insect food consumption between elevated and ambient CO₂ concentrations (Williams et al., 1998; Smith and Jones, 1998), and one wherein significantly less plant material was consumed under CO₂-enriched conditions (Lincoln, 1988). In addition, several studies have shown that herbivory induces an up-regulation of photosynthesis, which increases this process and leads to greater biomass production (Bryant et al., 1998; Kruger et al., 1998). Thus, herbivory can actually *stimulate* rapid and significant growth responses in elevated CO₂. In addition, in Free-Air CO₂ Enrichment (FACE) experiments (where elevated CO₂ levels are maintained about vegetation growing naturally under field conditions and *not* within growth chambers or greenhouses), where insects have free passage to forage, I am not aware of any study in which pests ate so much plant material that they negated any CO₂-induced increases in plant growth. Thus, it is premature to state that insects will eat more plant material in a future world of higher CO₂, or infer that yield reductions will result from such activities.

Dr. Field stated that weeds tend to be stimulated by elevated CO₂ as much as crops and implied that C₄ crops may be out-competed by C₃ weeds for limiting resources. As addressed in my previous testimony, competition between C₃ and C₄ species tends to be reduced by elevated CO₂, and the whole notion of C₄ crops succumbing to C₃ weeds is rapidly changing due to empirical observations of C₃ and C₄ plant responses to elevated CO₂ (Wand et al., 1999).

Dr. Field also stated that a warmer climate would eliminate many or even all of the stimulatory effects of elevated CO₂ on crop productivity. This statement is completely false; and I refer you to my primary testimony for rebuttal.

Dr. Field stated that negative effects of climate change (temperature and precipitation) will approximately cancel stimulatory effects of increased CO₂ on plant growth. Again, this statement is not supported in the literature, where the percentage growth response to elevated CO₂ increases with temperature and is also

greater under water-stressed conditions than it is under well-watered conditions (Idso and Idso, 1994).

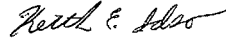
Dr. Field stated that if climate changes are at the high end of the predicted range, the overall impact on US food production over the next century will be negative. I strongly disagree with this statement, and refer you to my primary testimony for rebuttal. Nonetheless, on the high end, air temperatures are predicted to rise by as much as 3 degrees Celsius, but the CO₂-induced rise in optimal growth temperature for most plants will rise by nearly twice as much, which will more than accommodate the predicted temperature rise (Idso and Idso, 1994). In addition, the photosynthetic rates of most plants at this warmer optimum growth temperature under elevated CO₂ conditions will be nearly twice as great as they are at the lower optimum growth temperature characteristic of ambient CO₂ concentrations. Thus, large and significant gains in agricultural output can be expected with rising CO₂ levels *and air temperature*.

Dr. Field states that recent studies indicate that the most negative impacts of rising CO₂ and climate change will occur in and near the tropics. Again, I disagree. Those regions of the globe, which are already the warmest, are predicted to have temperature increases that will be much less than other regions of the globe (Houghton et al., 1996); and elevated CO₂ typically ameliorates the negative impact of high temperature and water stress on growth (Idso and Idso, 1994).

Dr. Field suggested that in natural ecosystems growth responses to elevated CO₂ tend to be small or even absent. This idea is not supported in the literature. In a recent study of western juniper, for example, Knapp and Soule (1998) have demonstrated that it has been expanding its range and increasing stem biomass since the 1960s, in response to the historical rise in the air's CO₂ content. In a rainforest mesocosm, a 72% increase in the CO₂ content of the air increased ecosystem carbon exchange by 79% (Lin et al., 1998). A 69% increase in CO₂ also increased photosynthesis in chalk grasslands by about 30% (Bryant et al., 1998); and an 87% increase in the CO₂ concentration of transition hardwood forests "plugs" increased yellow and white birch seedling biomass by approximately 31% (Berntson and Bazzaz, 1998). In an 8-year study of tall grass prairies, atmospheric CO₂ enrichment stimulated above and belowground biomass, especially during dry years when prairies were water-stressed (Owensby et al., 1999). In a FACE study in North Carolina, a 60% increase in the air's CO₂ content within a loblolly pine plantation increased tree biomass by 14% after only one year of CO₂ enrichment (Naidu and Delucia, 1999). Thus, there is plenty of evidence, including the analyses of tree ring cores from nearly every continent of the globe, which demonstrate that natural ecosystems can and do respond positively to elevated CO₂.

Finally, Dr. Field stated that there is insufficient evidence to assess the impacts of elevated CO₂ on biological diversity. However, I have documented several studies in my primary testimony that suggest that rising atmospheric CO₂ levels tend to maintain and even increase ecosystem biodiversity.

Sincerely,



Dr. Keith E. Idso
Vice President

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October 25, 1999

The Honorable David McIntosh
Chairman, House Committee on Government Reform
Subcommittee on National Economic Growth, Natural Resources,
and Regulatory Affairs
B-377 Rayburn House Office Building
Washington, DC 20515

Dear Chairman McIntosh:

I write to comment on the testimony delivered on October 6, 1999, of Mr. Gary Guzy, General Counsel of the US EPA. Mr. Guzy was invited to explain to your subcommittee the US EPA's views as to the legal authority provided by the Clean Air Act to regulate emissions of CO₂. Mr. Guzy makes the case that the definitions within Clean Air Act define CO₂ as an air pollutant. His argument is that the Clean Air Act defines the term "air pollutant" as:

"...any air pollution agent or combination of such agents, including any physical, chemical, biological, (or) radioactive.... substance or matter which is emitted into or otherwise enters the ambient air."

Mr. Guzy points to this language as the basis for defining CO₂ as a pollutant because CO₂ is a "physical (and) chemical substance which is emitted into...the ambient air" and thus is an "air pollutant" within the Clean Air Act's definition. I think this is an inappropriate extrapolation of the Clean Air Act language.

This interpretation is inappropriate because the scope of the definition would be too encompassing if interpreted in this manner. One can not simply conclude that any "physical (or) chemical substance which is emitted into the air "be considered as an air pollutant". With this interpretation, the EPA would also have to conclude that the following are also "pollutants":

- Steam (water vapor)
- Nitrogen
- Oxygen

Obviously, this is not what was intended!

Clearly there is significant debate needed to consider the implications, pro and con, of increased CO₂ concentrations in our atmosphere. The scientific community is doing this. The single most significant unknown in my opinion in this debate is the time scale considerations of global temperature fluctuations and global atmospheric gas concentration fluctuations. Should trends over decades be considered significant relative to trends over centuries or over millennia or over tens or hundreds of millennia? There are no clear answers that I can see, therefore, one can understand the hesitancy associated with legislation which attempts to solve or curb a "problem" when the "problem" is yet to be adequately defined. However, regardless of this debate, I think everyone will agree that pollution prevention and energy efficiency should be strived for in any economy. But this should not be accomplished through a false pretense by defining natural substances of the genre of carbon dioxide, nitrogen, oxygen, and water as "pollutants".

In fact, rhetoric and carelessness of definitions like this can be stifling to emerging technologies that actually solve tremendous environmental problems. One such emerging technology platform that I am referring to is the utilization of liquid and supercritical CO₂ to replace water and organic solvents in manufacturing, service, and coating industries. I am currently Director of an industrially funded applied research center located jointly between North Carolina State University and the University of North Carolina at Chapel Hill called the Kenan Center for the Utilization of CO₂. The sponsors of the center include:

Air Products	JSR	
BOC Gases	Micell Technologies	Praxair
Dow Chemical	Nalco Corporation	Rohm & Haas
DuPont	Occidental Chemical	Solvay
Elf Atochem	Phasex	UHDE

In addition, we were recently awarded a National Science Foundation Science and Technology Center for Environmentally Responsible Solvents and Processes which was funded to establish

and support an interdisciplinary research team to help drive the commercialization activities of industry towards use of CO₂ as a replacement of water and organic solvents. Carbon dioxide offers tremendous opportunities for eliminating or curbing the use of water and organic solvents in processes such as:

- Production of large volume commodity plastics
- Fermentation broth processing using biotechnology
- Coating deposition
- Dry cleaning
- Precision cleaning
- Electronics manufacturing
- Textile dyeing
- Paper production

Carbon dioxide is advantageous to use for these processes because it is::

- Naturally occurring
- Non-toxic
- Readily available as it is a by-product from the production of fertilizer ethanol, natural gas, and hydrogen
- Inexpensive

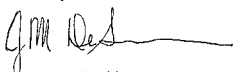
In addition, because of the low heat of vaporization of CO₂, CO₂-based processes are inherently more energy efficient. Indeed, calculations suggest that if all the PVC in the world was to be manufactured in CO₂ instead of in water as is currently done (which generates tremendous amounts of contaminated waste water), the world would save >1 trillion BTU's/year! This energy savings is for only one of the dozens of high volume commodity plastics which are made each year. DuPont has just announced plans to build a \$275 million Teflon™ polymer and monomer production plant using CO₂ as a reaction medium to replace water. This plant will be more energy efficient and more nonpolluting than water based methods. Micell Technologies®, (www.micell.com), a company that I co-founded in 1996, has commercialized a liquid CO₂ dry cleaning process that replaces the use of perchloroethylene, a groundwater contaminant and

suspected toxin. Liquid CO₂ dry cleaning machines are now up and running in North Carolina, Rhode Island, and Illinois with new start-ups scheduled next year in South Carolina, Nebraska, Texas, Colorado, Pennsylvania, Alabama, Maine, Florida, and Toronto. The CO₂ process for dry cleaning is a win-win for the environment (non-contaminating), for consumers (no more toxic solvents brought into the home through dry cleaning), for low wage employees working in dry cleaners (elimination of air toxins in the workplace), and for communities surrounding dry cleaning facilities. We strongly believe that these successful commercial demonstrations will be replicated in many other industries and CO₂ will emerge in the next decade as the solvent of choice for our manufacturing, cleaning, and processing industries.

To summarize, it is inappropriate to characterize CO₂ as an air pollutant based on the cited language in the Clean Air Act. Otherwise using the same logic one would have to characterize water vapor, oxygen, and nitrogen as air pollutants as well. In addition, the use of CO₂ as a replacement for water and organic solvents should be encouraged as it represents a real opportunity for pollution prevention and energy efficiency. And any debate or legislation about curbing CO₂ production should be careful to focus on the production of "new" CO₂ and not inhibit the use of "already existing" CO₂ in pollution prevention technologies.

Please contact me if you would like any clarification or if you need more information.

Sincerely,



Joseph M. DeSimone
William R. Kenan Jr. Distinguished Professor of Chemistry and
Chemical Engineering
Co-Founder and Chairman of Micell Technologies[®], Inc.
Co-Director of the Kenan Center for the Utilization of CO₂ in Manufacturing
Director, NSF Science and Technology Center for Environmentally
Responsible Solvents and Processes

JMD/tog

cc: Congressman David Price Senator Jesse Helms Rita Colwell-Director NSF
Congressman David Camp Senator John Edwards
Carol Browner - Administrator EPA

**“The preceding sentence
[mentioning the global
warming potential of certain
substances] shall not be
construed to be the basis of any
additional regulation under
this chapter.”**

Clean Air Act, Section 603(b)

○

**“Nothing in this subsection
[mentioning CO₂] shall be
construed to authorize the
imposition on any person of
pollution control
requirements.”**

Clean Air Act, Section 103(g)