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S. HRG. 111–1194

SCIENTIFIC INTEGRITY AND TRANSPARENCY REFORMS AT THE ENVIRONMENTAL PROTECTION AGENCY

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON OVERSIGHT

AND THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

JUNE 9, 2009

Printed for the use of the Senate Committee on Environment and Public Works

Available via the World Wide Web: http://www.gpo.gov/fdsys

U.S. GOVERNMENT PUBLISHING OFFICE
94–588 PDF WASHINGTON : 2015

For sale by the Superintendent of Documents, U.S. Government Publishing Office
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ONE HUNDRED ELEVENTH CONGRESS
FIRST SESSION

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C O N T E N T S

SCIENTIFIC INTEGRITY AND TRANSPARENCY REFORMS AT THE ENVIRONMENTAL PROTECTION AGENCY

TUESDAY, JUNE 9, 2009

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
JOINTLY WITH THE
SUBCOMMITTEE ON OVERSIGHT,
Washington, DC.

The full Committee and subcommittee met, pursuant to notice, at 10 a.m. in room 406, Dirksen Senate Office Building, Hon. Sheldon Whitehouse (chairman of the subcommittee) presiding.

Present: Senators Whitehouse, Barrasso, Boxer, Inhofe, Lautenberg, Voinovich, Cardin, Carper, and Udall.

OPENING STATEMENT OF HON. SHELDON WHITEHOUSE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator WHITEHOUSE. The hearing will come to order.

I am delighted to be joined by the Ranking Member of the full Committee, and I am the chairman of the Subcommittee, and this is a joint hearing.

I am delighted to welcome the Administrator, and very pleased to be joined by Senator Udall and Senator Voinovich.

From a point of view of logistics, I understand that Administrator Jackson has an appointment at the White House at 11 o'clock, so you would like to leave here a little bit after 10:30, I would think, in order to be able to be there on time. And in order to allow time for questions, I would ask that we keep our opening statements brief, and I may exercise the prerogative of the Chair to cut them off at some point so that we can get to the testimony and get to the question and answer.

But I do want to thank the Administrator for being here today. This is only her third appearance before the Senate, which suggests her view of the importance of the issues of scientific integrity and transparency that bring us here today.

I want to thank our Chairman, Senator Boxer, who will be here later in the hearing, but at the moment has responsibilities in other committees. Without Chairman Boxer, today's hearing would not have been possible.

Under the previous Administration, as this Committee witnessed, EPA's integrity was compromised. Science took a back seat to politics. Polluters' interests came before protecting public health.

And this proud agency suffered an embarrassing string of court defeats with rulings literally mocking the agency's arguments.

But the winds of change have blown and under the Obama administration science is resuming its rightful place in public policy and EPA is reestablishing its reputation as an agency whose sole mission is to protect our health and environment.

Two Governmentwide memoranda have gone out throughout the Obama administration directing all executive branch agencies to improve scientific integrity and achieve unprecedented levels of transparency and openness. Within EPA, Administrator Jackson has issued agency-specific guidance on the proper role of science and transparency in agency decisionmaking. EPA has also begun to repair programs and protocols that undermined the proper role of science in the previous administration.

Last month, Administrator Jackson overhauled the integrated risk information system, known as IRIS. IRIS assesses the toxicity of new chemicals to determine their potential risks to human health. Under the last Administration, IRIS was changed to a complicated, obscure, 25-step process full of unnecessary conflicts of interest and delays. Reviews were taking 5 or 6 years or more, and the Office of Management and Budget was given undue secret influence over the outcome. The overhaul restores the integrity and transparency of the IRIS system and ensures that the majority of IRIS reviews are complete within 23 months.

Administrator Jackson has also resumed the staff white paper used to give the Administrator the recommendations of EPA's expert scientists, which former Administrator Johnson had replaced with an advanced notice of proposed rulemaking to wide opinion that this was an attempt to sideline the expert opinion of agency scientists in order to favor the opinions of industries regulated by the EPA.

We applaud this great start, but there is clearly more to do. The last 8 years have taught us that we need lasting reforms that permanently reestablish EPA's credibility and restore the pride of its dedicated employees who work long hours for much less money than they could be paid elsewhere, with passion and dedication, because they care deeply about EPA's mission.

I hope we will have the opportunity to discuss some of these future plans today. EPA's important mission protecting the health of the American people and the environment that sustains us and our children gives it sobering responsibilities. It must be as its first Administrator, William Ruckelshaus described it, an independent agency with only the critical obligation to protect and enhance the environment.

Administrator Jackson, it appears that you and your colleagues stand ready to meet these responsibilities. I welcome you. I look forward to your testimony.

And I turn to our very distinguished Ranking Member for his opening statement.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Mr. Chairman.

I welcome the Administrator here today, and I agree with the statement that was made in the opening part of the Chairman's statement that best available science is important, and I applaud you, Madam Administrator, for coming out and talking about scientific integrity and transparency as something that is going to be expected. But I have to look and see what the record is so far, and I think transparency and openness are losing for right now.

For one, I was disappointed by a recent announcement that EPA is eliminating a policy to make the process of setting national ambient air quality standards more transparent. I was also troubled to read about the secretive process behind the Administration's recent proposal for the new fuel economy standards. According to Energy and Environment Daily, Mary Nichols, head of the California Air Resources Board, and Carol Browner, quote, this is as it was quoted in the Energy and Environment Daily, which I suspect that you have read. It says, "quietly orchestrated private discussions from the White House with the auto industry officials," in an effort to conceal information used to develop the fuel economy proposal, Nichols said that she and Browner, "put nothing in writing ever."

Now, that doesn't look like transparency and openness, and this was the process on an issue of great importance. Instead of back room dealings, EPA should be encouraging public participation at every step of the rulemaking process.

Of course, openness and transparency can mean many things. At a minimum, they should mean that EPA conducts policy analysis using the best available science and that such analysis is clear, objective and accessible so the public can understand it.

Again, measured against this standard, I am afraid that we've missed the mark. To cite just one example, in its economic analysis of the Waxman-Markey global warming bill, EPA assumes that carbon capture and storage technology will be commercially available by 2015. Considering the numerous unresolved issues surrounding CCS, including liability, siting, permitting and the viability of the technology itself, this assumption seems pretty far-fetched.

Administrator Jackson, don't get me wrong. I appreciate EPA's analysis and assistance it provides in crafting legislation. I would say, however, that EPA's Waxman-Markey analysis is flawed in several important respects, including its assumptions, as I noted, about the nuclear power CCS, as well as the availability of offsets.

It also fails to account for the impact of the bill's overlapping mandates and the regional disparities the bill will create. In order to provide a more balanced assessment of the bill's cost, some of my colleagues and I will be sending a letter requesting the EPA, in fact, I have the letter here right now, that the EPA conduct a new analysis of the Waxman-Markey bill that reflects more realistic assumptions on a range of issues. I hope that you will commit to me today that the agency will re-work its analysis and complete it by June 26.

This is the letter. It has been signed by all but two of the Republicans. They will sign it, but we haven't been able to get it signed yet. And I think it's consistent with the comments that you have made, Madam Administrator, and thank you for being here.

Thank you, Mr. Chairman.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR
FROM THE STATE OF OKLAHOMA

I have always believed that one of the primary responsibilities of this committee is to ensure that regulatory decisions are based on the best available science. I want to commend Administrator Jackson for making scientific integrity and transparency essential components of EPA's mission. She has eloquently expressed support for these principles in Agency memos, congressional testimony, and speeches. My hope, Administrator Jackson, is that you will transform these words into actions.

So what is EPA's record so far? At this point, transparency and openness are not winning the day. For one, I was disappointed by the recent announcement that EPA is eliminating a policy to make the process of setting National Ambient Air Quality Standards more transparent.

I was also troubled to read about the secretive process behind the Administration's recent proposal for new fuel economy standards. According to Energy and Environment Daily, Mary Nichols, head of the California Air Resources Board, and Carol Browner, "quietly orchestrated private discussions from the White House with auto industry officials." In an effort to conceal information used to develop the fuel economy proposal, Nichols said that she and Browner "put nothing in writing, ever."

Now that doesn't look like transparency and openness; it's more like hide and seek. And this was the process on an issue of great importance. Instead of backroom dealings, EPA should be encouraging public participation at every step in the rulemaking process.

Of course, openness and transparency can mean many things. At a minimum, they should mean that EPA conducts policy analysis using the best available science and that such analysis is clear, objective, and accessible so the public can understand it. Again, measured against this standard, I'm afraid EPA has missed the mark.

Let me explain. In its economic analysis of the Waxman-Markey global warming bill, EPA based its conclusions on several questionable assumptions. For example, EPA assumes that only 6 gigawatts of new nuclear generation will be built in the U.S. over the next 10 years and 13 gigawatts through 2025. Yet EPA's previous modeling of Lieberman-Warner assumed a much greater role for nuclear: 24 gigawatts by 2020 and 44 gigawatts by 2025.

EPA also assumes that carbon capture and storage (CCS) technology will be commercially available by 2015. Considering the numerous unresolved issues surrounding CCS, including liability, siting, permitting, and the viability of the technology itself, this assumption seems farfetched.

Administrator Jackson, don't get me wrong: I appreciate EPA's analysis and the assistance it provides in crafting legislation. I would say, however, that EPA's Waxman-Markey analysis is flawed in several important respects, including its assumptions, as I noted, about nuclear power, CCS, as well as the availability of offsets. It also fails to account for the impact of the bill's overlapping mandates, and the regional disparities the bill will create.

In order to provide a more balanced assessment of the bill's costs, some of my colleagues and I will be sending you a letter requesting that EPA conduct a new analysis of the Waxman-Markey bill that reflects more realistic assumptions on a range of issues. I hope that you will commit to me today that the Agency will rework its analysis and complete it by June 26.

In my view, conducting this new analysis is a necessary component of your pledge to make EPA more transparent. I look forward to working with you to make it a reality.

Senator WHITEHOUSE. Thank you, Senator Inhofe.

Senator Udall, do you care to make an opening statement?

Senator UDALL. Just briefly, Chairman Whitehouse.

Senator WHITEHOUSE. I appreciate the brevity.

Senator UDALL. It's good. I also want to hear the Administrator on this very important subject.

OPENING STATEMENT OF HON. TOM UDALL, U.S. SENATOR FROM THE STATE OF NEW MEXICO

Senator UDALL. One of the things that I think struck me when I looked at this field. In 2008, a survey of EPA scientists concluded, and this is a survey done by the Union of Concerned Scientists and

included a report signed by thousands of scientists, including several dozen Nobel Prize winners, reveals some disturbing information: 783 scientists responded that the EPA policies do not allow scientists to speak freely to the news media about their findings; only 197 scientists believe that the EPA allows scientists to communicate freely with the media; 291 scientists responded they are not allowed to publish work in peer-reviewed scientific journals regardless of whether it adheres to agency policies or positions.

Now, I know the EPA under your leadership, Administrator Jackson, and the President, have made changes and I am looking forward to hearing about those today. I think as part of a systematic approach, I would recommend that we not limit ourselves only to the idea of the EPA fishbowl, but also to promote scientific integrity more broadly in the academic and private sector science that ultimately supports much of what EPA does through regulation.

Intimidation, retaliation, lack of funding and political interference are not limited only to EPA, but pose problems throughout the scientific community.

So my urging would be to the scientists and to the agencies that have these scientists, give us the truth. The people can handle the truth in a democracy. When we know the truth, then we can take the actions based upon sound science that will get us there.

So thank you for being here today and I look forward to hearing your testimony.

Senator WHITEHOUSE. Thank you, Senator Udall.

Senator Voinovich, do you care to make an opening statement?

Senator VOINOVICH. Yes, I do. Thank you, Mr. Chairman.

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator VOINOVICH. I appreciate the fact that we are having the hearing today. I firmly believe that EPA should be working with the best science and that the agency's analysis and decisions should be undertaken in a balanced and transparent process.

One of the problems we have as policymakers is that advocates on all sides of a debate claim that the system is rigged. I have seen it now for 11 years, because of the fact that there is no credibility about who is giving the information.

Greater transparency should help allay some of these concerns and, of course, the better information that we have, the better decisions that we are able to make.

In this regard, I do have concern with EPA's recent evaluation of legislation passed out of the House Energy and Commerce Committee to address climate change. To help us fully understand how this bill will impact emissions and our Nation's energy infrastructure and economy, I am joining Senator Inhofe and my other colleagues in asking you to re-run an analysis of that piece of legislation.

For example, the EPA assumes that nuclear power will expand by 150 percent over the lifetime of the program. This is in stark contrast to formidable challenges limiting the expansion of nuclear power, including the uncertainty in the Nuclear Regulatory Commission's licensing process, financing of the new bill, lack of human capital, and so forth. And I am a great advocate of nuclear power,

as you know. The fact of the matter is that that seems to be a very ambitious number in order to meet the caps.

Senator Inhofe has already talked about the issue of technology and capturing and sequestering carbon. I think you know that the Department of Energy has seven test cases right now on sequestering, and they claim that it will take them 10 years to really evaluate those tests that they have that they are running. So those types of things are very, very important.

As we all know, EPA's modeling is only as good as the assumptions that are built into it, and here optimistic assumptions about technology and offset availability and the lack of comprehensive analysis of the entire legislative proposal greatly constrains the potential costs of the program.

And I think that analysis of the previous cap-and-trade legislation showed significant economic hardship, while providing no impact on global temperatures. The time to take a detailed look at this is right now.

The point I am making is that the last time we had this before this Committee—first of all, we didn't have enough hearings, and I am going to ask the Chairman of the Committee to have some more hearings. They had eight of them in the House. We only had two of them, and I think we need to have those hearings.

But more important, there is no way that we ought to vote a bill out of this Committee until we have heard from the Environmental Protection Agency as to its impact. The last time around, we didn't get the EPA analysis until after it went out of Committee. We didn't get the energy information. So there's a lot of speculation about the real impact of it.

So the point I would like to make today is that you're here to talk about good science, and I think it's great. And some of the concerns that Senator Inhofe mentioned about some of what went on in two instances bothers me. I think that the Acting Chairman of this Committee did a very good job of excoriating the last Administration. I don't think that it was bad as what he depicted to us today, in all due respect, and it's your job to make sure that, you know, 4 years form now somebody else isn't sitting in that chair and doing the same thing about your Environmental Protection Agency.

So we look forward to your hearing and we look forward to working with you.

Thank you also for serving in this capacity. As I said when you visited me in the office, you have the toughest job in the Federal Government.

Senator WHITEHOUSE. Senator Lautenberg, would you care to make an opening statement?

Senator LAUTENBERG. Show me a Senator that doesn't care to make one.

[Laughter.]

Senator WHITEHOUSE. Given that, the Chair will declare that this will be the last opening statement before we get to Administrator Jackson's testimony. If any other Senators arrive, their statements will be taken for the record. In that way, we can get to our testimony, given her schedule and the appointment she has at the White House.

Senator VOINOVICH. And Mr. Chairman, I would like to have my entire statement in the record, by the way.

Senator WHITEHOUSE. Without objection.

Senator VOINOVICH. OK.

[The referenced material was not received at time of print.]

Senator WHITEHOUSE. Senator Lautenberg.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Thank you very much, Mr. Chairman, and thank you, Ms. Jackson. It's always a pleasure to see you because as I see it, and I don't know what Senator Whitehouse said, but you always carry good news.

So I am happy, and I hope that the discussion was frank and candid that the Chairman participated in because we've had plenty of trouble. We've had fake science all over the place. We have had people who thought one way, professional people whose minds, no, their minds were changed, their words were changed. That's what we saw on a constant basis.

From reversing global warming to creating clean energy, the jobs that go with it, identifying and replacing cancer-causing chemicals, science is the critical factor. And I know that you're a practitioner of truth, as well as science, and I appreciate that greatly.

Science was under attack, under constant attack in the previous Administration, which did its best to ignore, censor and suppress science. For example, they let political appointees in the White House delay or stop EPA risk assessments if they didn't like the outcome. We rely on those studies to tell us which chemicals may cause cancer, birth defects or other serious health problems.

But I am pleased to say, to note, that the Obama administration has already reversed some of the anti-science and anti-transparency policies of the past.

Administrator Lisa Jackson, you come from New Jersey. You tell the truth, even if it hurts. And this helps. Ms. Jackson reversed the policy governing risk assessments and made it clear that science would direct them, not the politics.

She issued a memo to EPA employees in May, "Scientific integrity will be the backbone" of her leadership of the agency, and we're grateful to you for that. And earlier this year, the White House directed the Office of Science and Technology Policy to create a plan to increase scientific integrity across the entire Federal Government.

And I want to also commend the EPA Administrator Jackson and the Obama administration for defending scientists and their research. As the chairman of the subcommittee with jurisdiction over dangerous chemicals, I know that science is the foundation for protecting future generations.

For example, there are tens of thousands of chemicals on the market, and if you tested the blood of any person in this room, you'd find an ample supply of industrial chemicals, including some that are known or suspected to cause cancer.

Unfortunately, current law makes it difficult for the EPA to require testing of chemicals and also almost impossible for EPA to regulate these chemicals, even if they're believed to be dangerous.

And that's why I plan to reintroduce my Kids Safe Chemicals Act in the coming months. The bill will require chemical companies to prove that their products are safe before they end up in our homes and come in contact with our children.

We already regulate pesticides and pharmaceuticals this way, and it's just common sense that we do the same for chemicals that are used in consumer products.

The new tone of openness, transparency and reliance on science is the right first step toward making our products, our homes and our environment safe for all our families. I applaud the Administration for their work, and I close with an example of a scientist that was brought in here from the Pasteur Institute in France. And he said that he absolutely denied the fact that global warming was in place because there would be more mosquitoes and more malaria if that was the case, and he hasn't seen examples of it. There is science on the fly if you've ever seen it.

Thank you very much.

Senator WHITEHOUSE. Thank you very much.

I see that the distinguished Senator from Maryland, Senator Cardin, has appeared. Before his arrival, I unfortunately took the liberty of closing the proceedings to further opening statements.

Senator CARDIN. Is that subject to objection?

[Laughter.]

Senator WHITEHOUSE. I would ask that the distinguished Senator——

Senator CARDIN. I'm looking forward to hearing from the Administrator, so I would be glad to put my statement in the record.

Senator WHITEHOUSE. I would appreciate it. That's very kind.

[The prepared statement of Senator Cardin follows:]

STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR FROM THE STATE OF MARYLAND

Madam Chairman, thank you, and our colleague Chairman Whitehouse of the Oversight Subcommittee for holding this hearing today. And thanks to our witnesses for coming before the committee to help us address the very important issue of scientific integrity and transparency in the regulatory and enforcement work of the EPA. I especially want to thank and acknowledge Dr. Lynn Goldman from Johns Hopkins University in Baltimore, I am very much looking forward to your testimony.

In September of 2008 this committee held an oversight hearing to examine President Bush's environmental record. I don't intend to fan partisan flames by rehashing that discussion, but I am greatly concerned about the legacy of Bush EPA policies that remain on the books and how they factor into enforcement actions, regulatory decisions and permit reviews taking place today. It is incredibly important for EPA to reassert the role science plays in its decisionmaking. We've seen a significant absence of science in the policies emanating from the Office of Water in particular.

The implementation of programs within the Clean Water Act, our nation's legal foundation for surface water protection is an area of great concern to me. The stated goal of the Clean Water Act: "To restore and maintain the chemical, physical and biological integrity of the Nation's water" makes it clear that science is intended to guide the principals behind the law.

Clean Water Act Jurisdiction

After the Supreme Court handed down its narrowly split decisions in the SWANCC [1] and Rapanos [2] cases, both clear examples of the court's ideological factions, EPA used these decisions to issue an ideologically driven guidance that dras-

[1] Solid Waste Agency of Northern Cook County v. Army Corps of Engineers—2001.
[2] Rapanos v. Army Corps of Engineers—2006.

tically narrowed the jurisdictional scope of the Clean Water Act. In an internal memo [3] from former EPA Assistant Administrator for the Office of Enforcement and Compliance Assurance, Granta Nakayama noted that "The Rapanos decision and the resulting Guidance have created uncertainty about EPA's ability to maintain an effective enforcement program with respect to Clean Water Act obligations." The memo further indicates that EPA's office of enforcement dropped or failed to pursue more than 500 Clean Water Act enforcement cases as a result of the Rapanos Guidance.

This same guidance created a convoluted and inconsistent jurisdictional review process that has removed Federal clean water protections from millions of acres of wetlands and thousands of miles of streams that were historically protected by the Clean Water Act, including the entire Los Angeles River in California and the Santa Cruz River in Arizona. The faulty jurisdictional determination review process does not require site visits, nor analysis of the chemical composition of soils or water, nor recording of biological indicators.

I appreciate the attention Administrator Jackson has given to this issue. The letter [4] she and other leaders in the Administration sent to the Chairman of the House Transportation and Infrastructure Committee acknowledged the current Clean Water Act jurisdiction guidance's shortcomings and consistencies and laid out a set of principles for Congress to address in a legislative solution to the Rapanos and SWANCC decisions, which is very helpful.

Mountaintop Removal Coal Mining

Mountaintop removal coal mining is one of the most environmentally destructive mineral extraction practices in the world. It's touted as being safer for workers, yet the harm the practice causes to drinking water sources, surface water quality and the incredibly destructive force and frequency of flood events exacerbated by mountaintop removal sites have made life in the towns located in the West Virginia coalfields anything but safe. Several scientific studies have been conducted on the adverse effects of mountaintop removal has on water quality and human health. Yet mountaintop removal mining is a permitted activity allowed by EPA.

I know that the Department of Interior administers Surface Mining Control and Reclamation Act (SMCRA) programs, which regulate the mining operations themselves, however the valley fills, that require 404 (dredge and fill) permits, associated with mountaintop removals require EPA approval. Your predecessor rewrote the rules on valley fills throwing science out of the window and gave a rubberstamp to just about any mountaintop removal permit application that came through the Agency.

A Harvard School of Public Health Study on life expectancy rates in the U.S., published in the Public Library of Science's Medical Journal on April 22, 2008 [5], found West Virginians to have the lowest life expectancy in the country. Further examination of the Harvard study data, by West Virginians for Affordable Health Care [6] found, at the county level, life expectancy rates in the Southern West Virginia coalfields, where mountaintop removal is the normative practice, to be in the lowest 1 percent in the country, nearly 11 years shorter than the national average.

Drinking water studies in the West Virginia coalfields have revealed dangerously elevated heavy metal levels in the water that flows out of the taps of the region. The water is far from safe to drink, and when the color of the water that flows out of the tap changes from yellow, to orange to red and eventually black, as it often does, well, that is all the scientific proof these victims need to know that mountaintop removal mines threaten their lives.

I appreciate the sentiment from the Administration on using science to guide its work. I only had time to delve into just some of the issues facing just one of EPA's program offices, the Office of Water. I look forward to hearing about the changes we can expect to see at EPA and the planned reforms to address the unfortunate policies that they inherited. I am confident that the reassertion of science will bring about the policy reforms necessary for the Environmental Protection Agency to get back to the work of protecting the environment.

Thank you.

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[3] U.S. Environmental Protection Agency, Memorandum from Granta Y. Nakayama, EPA's Assistant Administrator for Enforcement and Compliance Assurance, to Benjamin Grumbles, EPA's Assistant Administrator for Water (Mar. 4, 2008).

[4] May 20, 2009 letter from Council on Environmental Quality, Environmental Protection Agency, United States Department of Agriculture, Department of Interior and the Army of Engineers. Administration's recommendations for legislative solution to Rapanos decision.

[5] M. Ezzati, A. Friedman, S. Kulkarni, C. Murray, "The Reversal of Fortunes: Trends in County Mortality and Cross-County Mortality Disparities in the United States."

[6] http://www.wvahc.org/downloads/early__deaths.pdf.

Senator WHITEHOUSE. With that, and with gratitude to the Senator from Maryland, Administrator Jackson, you have the floor.

STATEMENT OF LISA JACKSON, ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY

Ms. JACKSON. Thank you so much, Mr. Chairman.

And thanks in absentia, at least for now, to Chairwoman Boxer for holding this hearing, for allowing me the honor of speaking on scientific integrity. As an engineer, as someone trained in science as a chemical engineer, if not in practice every day, it is truly an honor to be able to speak on behalf of the Administration on this topic.

Also, good morning to the Ranking Member, to all members of the Committee. It is good to see you all.

I just want to start by saying, and I will paraphrase my remarks. I am sure they are in the record. But if there is only one thing that we remember it is that good science does not simply happen at EPA or anywhere. Good science is only assured by the rigorous and constant application of processes that have been tried and true methods of showing the best way to reach scientific consensus on any topic. And there are many topics where opinion isn't entirely clear.

Those are things like peer review, things like a scrupulous adherence to transparency, which I believe we are well on the road to not only committing to, but putting into practice at EPA. And I would love to give examples which I will do in my testimony.

Many of the ideas I am going to share here this morning were in a memo that I issued just last month. We called it Scientific Integrity: Our Compass for Environmental Protection. We call it the Compass memo. We are driven, guided by science. It is not only the backbone, but it must be our guide.

As you can see, I am very proud of the work EPA has done. I, too, have seen the surveys that Senator Udall cited that indicate that a majority of past EPA scientists have experienced what they believe is some form of political interference in their work. That has to change and it will change.

Already, I sit here proud because I believe no other agency in Federal Government has done as much to restore the role of science than EPA, and that focus has come from me and from my office. It is important that career scientists know that their work will guide the policies that we make during my tenure and the tenure of the President.

On March 9, as you noted, President Obama issued a memo on scientific integrity underscoring the need for the public to trust the science and scientific process that informed public policy decisions. It provides important guideposts for our work. And as I have said many times, while the laws that EPA implements have room for policy judgments within them, the scientific findings on which these judgments must be made must be independent. They must be arrived at using well-established scientific methods—peer-reviewed, and they must be rigorous and accurate and impartial.

Policymakers must respect the expertise and independence of the agency's career scientists and independent advisers and insist that scientific processes meet the highest standards of quality.

Now, we recognize that environmental science is complex and it is multifaceted, and scientists may differ on methodologies that should be employed or how any particular study should be interpreted. What I am committed to is that kind of debate within our agency, and I am committed to making sure that that debate receives a full airing of views, because I believe that makes final decisions that much stronger.

Debate is not something that we should fear. It is actually a force to challenge us and guide us, and in New Jersey is makes us a little bit tougher. Right, Senator?

Senior scientists must take responsibility for resolving differences, using established science policies and their best professional judgments. I believe actions do speak louder than words, and during my first few months as Administrator, we have taken several actions to bolster the scientific processes we use. We have emphasized the importance of transparency and re-thought the integrated risk information system, or IRIS.

The new process is more transparent, but it is also timely because timeliness is crucial to making sure that when the science comes out, it is still useful to the American people and to policymakers. EPA will control the IRIS process as it has done in the past. Once again, it now controls it and it will have final responsibility for the content of the IRIS assessments.

At the end of the day, EPA will listen, take in the best scientific opinion from many sources, but it will be the arbiter about what the final decisions are.

We are improving efficiency, integrity and transparency in our programs. Our commitment to quality, integrity and timely public engagement was also the impetus for EPA staff to develop a science plan for our activities. We are working to develop, for example, a comprehensive human health and exposure assessment for dioxin, the dioxin reassessment. And I have committed that that reassessment will be completed by the end of calendar year 2010.

When we speak about the national ambient air quality standards, we know they play a central role in protecting human health and the environment, and we have now reexamined our NAAQS process to ensure that we take into account the latest peer-reviewed science of the Clean Air Scientific Advisory Committee, or CASAC, authorized by law to advise EPA on standards.

It is essential that the best science and the greatest transparency inform air quality standards because we know that prevents illnesses and saves lives.

Finally, the President's Memorandum on Scientific Integrity assigns the Director of the White House Office of Science and Technology Policy the responsibility to make recommendations to achieve the highest level of integrity in the executive branch's involvement with scientific and technical processes. EPA's active involvement will strengthen our ability to produce top quality science that meets the highest standards of integrity.

I have also asked our Acting Science Adviser Kevin Teichman, who is here with me today, to work closely with OSTP. After OSTP issues its recommendations, I will work closely to make sure that we are fully applying them at EPA.

The Presidential Memorandum on Scientific Integrity provides us with a unique opportunity to demonstrate our deep commitment to scientific integrity and fulfill our obligations to the American people. I commit to seizing this opportunity in the pursuit of EPA's vital mission to protect human health and the environment.

Thank you very much.

[The prepared statement of Ms. Jackson follows:]

Testimony of

Lisa P. Jackson
Administrator
U.S. Environmental Protection Agency (EPA)

Hearing on

SCIENTIFIC INTEGRITY

Before the

Environment and Public Works Committee
U.S. Senate

June 9, 2009

Madam Chairman and Members of the Committee, I am delighted to appear before you today to discuss an issue that has been, and will continue to be, the backbone of my leadership at EPA: scientific integrity. In fact, much of the testimony I will be giving this morning was part of a memorandum I sent to all EPA employees entitled: "Scientific Integrity: Our Compass for Environmental Protection."

On March 9, 2009, President Obama issued a Memorandum on Scientific Integrity underscoring that the "public must be able to trust the science and scientific process informing public policy decisions." The public health and environmental laws that Congress has enacted depend on rigorous adherence to the best available science.

That is why, when I became Administrator, I pledged to uphold values of scientific integrity every day.

The President's Memorandum provides important guideposts for how EPA should conduct and use science. Most notable is that "political officials should not suppress or alter scientific or technological findings and conclusions." While the laws that EPA implements leave room for policy judgments, the scientific findings on which of these judgments are based should be arrived at independently using well-established scientific methods, including peer review, to assure rigor, accuracy, and impartiality. This means that policymakers must respect the expertise and independence of the Agency's career scientists and independent advisors while insisting that the Agency's scientific processes meet the highest standards of quality and integrity.

The President's Memorandum stresses that "scientific information ... developed and used by the Federal government should ... ordinarily be made available to the public" and that, where permitted by law, "there should be transparency in the preparation, identification and use of scientific and technological information in policymaking." Consistent with this principle and my commitment to transparency, I believe that the methodologies and guidelines that EPA uses for scientific analyses should be shared fully with the public. EPA's regulatory decisions should include a full explanation of the science issues addressed by the Agency, the data relevant to those issues, and the interpretations and judgments underlying the Agency's scientific findings and conclusions.

Environmental science is complex and multi-faceted, and able scientists may not always agree on what methodologies should be employed or how studies should be interpreted. I am committed to fostering a culture of robust scientific debate and discussion within the Agency, recognizing that in the end senior scientists must take responsibility for resolving differences of opinions using established science policies and their best professional judgment. I intend to work with our science leadership, unions, and career staff to make sure that we respect and encourage free and honest discussion among our scientists while bringing to closure issues that we must resolve to support decision making.

But actions speak louder than words, and during my first few months as Administrator, I have demonstrated my commitment to scientific integrity in all of my decisions. Notable among these are the new processes for developing Integrated Risk Information System (IRIS) assessments, my commitment to completing the IRIS reassessment for dioxin, and the new process for reviewing National Ambient Air Quality Standards (NAAQS).

The President's strong emphasis on the importance of transparency and scientific integrity in government decision-making compelled a rethinking of the IRIS process. The new process will be more transparent and timely, and it will ensure the highest level of scientific integrity. For example, the interagency review will be entirely managed by EPA. In addition, for the first time, the process calls for all written science comments

received as part of the interagency science consultation and discussion steps in the process to become part of the public record.

To guarantee the scientific quality of the IRIS assessments, the process will include the opportunity for public comment and rely on a rigorous, open and independent external peer review. Changes in EPA's scientific judgments from public comments and peer review will be clearly documented and explained, maximizing the transparency of the final product. While still robust, the assessment development process, will be shortened to 23 months for most assessments, speeding the availability of IRIS assessments to the risk assessor community and the public and providing for more timely action to protect public health.

My commitment to ensuring the quality and integrity of EPA science while providing this information to the public in a timely way was also the impetus for my asking staff to develop a science plan for our activities related to dioxins in the environment. This plan includes completing the comprehensive human health and exposure assessment for dioxin, commonly called the "dioxin reassessment," and a review of dioxin soil clean-up levels currently in use across the United States. The plan identifies important milestones in these efforts, including my goal to complete the dioxin reassessment by the end of 2010.

The National Ambient Air Quality Standards play a central role in enabling EPA to fulfill its mission to protect the nation's public health and the environment, and it is critical that

these standards are grounded in science. With this in mind, I examined the process that the Agency uses to review and update the NAAQS to ensure it takes into account the latest peer-reviewed science and the Clean Air Scientific Advisory Committee's (CASAC) expert advice on the science and the standards. Based on that review, I set out a process that I believe will ensure the attributes of timeliness, scientific integrity, and transparency.

The new process preserves previous changes that contribute to these attributes, such as the kickoff workshop, the integrated review plan, and more concise, policy-relevant assessments of science, and risk and exposure. Many of these changes were based on CASAC's recommendations. At the same time, however, I am discontinuing the use of an advance notice of proposed rulemaking, which was the subject of strong concerns on the part of CASAC and others. In its place, I will reinstate the use of a policy assessment document prepared by EPA staff. By reinstating the policy assessment document in the revised NAAQS process, EPA has ensured that both the public and CASAC will once again be able to see and comment on a transparent staff analysis of the scientific basis for alternative policy options for consideration by the Administrator.

EPA already has a strong foundation of policies and procedures that support the President's scientific integrity goals. EPA's *Principles of Scientific Integrity*, developed in 1999 and reaffirmed in 2002, foster honesty and credibility in the science conducted by *and used by* the Agency. EPA's Quality Program further ensures that the data relied upon for decision making is of known and documented quality and is based on sound

scientific principles, and EPA's *Peer Review Handbook* is recognized for its good peer review practices. The Agency's regulatory development process includes Analytic Blueprints that formalize scientific input. Our Office of Research and Development is an integral part of this regulatory process to help ensure that the decisions made are informed by science and that the science is properly characterized. EPA also has strict rules in place to address scientific misconduct and whistleblower protections not only for the scientific process, but for all of EPA's activities.

EPA will build on this foundation and look for additional opportunities to strengthen the policies and procedures that ensure scientific integrity within the Agency. I have asked EPA's Science Policy Council, which provides leadership in cross-Agency science and science policy issues, to take the lead on this effort. The SPC at my request is inventorying all of our guidelines and policies that relate to scientific integrity to look for gaps and possible areas for improvement. One SPC focus, for example, will be updating and reaffirming EPA's *Peer Review Handbook* and recommending how we can improve implementation of our peer review policies across our programs and regions. I also have asked the SPC to work the National Partnership Council to reaffirm the Agency's *Principles of Scientific Integrity* and update the *Principles of Scientific Integrity* online training.

The President's Memorandum on Scientific Integrity assigns the Director of the White House Office of Science and Technology Policy the responsibility to make recommendations within 120 days to achieve the "highest level of integrity in the

executive branch's involvement with scientific and technological processes." EPA's active involvement with OSTP in this Presidential directive will strengthen our ability to produce top-quality science that meets the highest standards of integrity. Accordingly, I have asked our Acting Science Advisor, Kevin Teichman, in consultation with the SPC, to work closely with OSTP.

The Presidential Memorandum on Scientific Integrity provides us with a unique opportunity to once again demonstrate our deep commitment to scientific integrity, and I commit to seizing this opportunity in the pursuit of EPA's vital mission to protect human health and the environment.

Thank you.

Senator WHITEHOUSE. Thank you very much, Administrator.

I count six of us present, and Chairman Boxer to come, which makes seven. So if we take 5 minutes each, we should just about meet your schedule. So I would encourage my colleagues to use their 5 minutes wisely, because I will try to stay within that, knowing your scheduling demands.

Ms. JACKSON. Thank you.

Senator WHITEHOUSE. Administrator Jackson, many of us view the EPA as an organization that is emerging from a terrible time, whether it is the documented experiences of EPA scientists that Union of Concerned Scientists catalogued and that Senator Udall referred to, or the decisions of the D.C. Circuit Court of Appeals mocking agency theories in terms of Alice in Wonderland, or unprecedented challenges to the previous Administrator from the professional science advisory boards, or the evaluations by GAO, or indeed the hearings of this very Committee. There is a long and very complete record of things having gone significantly wrong.

As you and I discussed when you were a candidate for this office, we talked about the processes and the institutions that can help keep EPA on the straight and narrow. And one of them is the Inspector General. And throughout the difficult times that EPA experienced, we heard very little from the Inspector General. We had a candidate for that position who failed to clear, and from the very earliest moment, I urged that you consider this to be a priority position—get somebody very able in and move as rapidly on this as possible.

What can you tell us now about the process of appointing an Inspector General for the EPA?

Ms. JACKSON. Senator, it remains a priority of mine. Sometimes in the appointment process, we hit a few road bumps, and I am—we are not quite back to the drawing board, but we are now interviewing some new candidates for the position. I am optimistic that we will be able to move along with the White House expeditiously to name a new Inspector General. It is a very important, very important position. I couldn't agree more.

Senator WHITEHOUSE. Well, this will be one of many inquiries I make about it, just to keep——

Ms. JACKSON. I appreciate that.

Senator WHITEHOUSE. You know of my interest in this question.

More generally, we had a wonderful speech delivered by our President in Normandy. He talked about why the soldiers return to Normandy and tell their stories. The line in his speech was so people don't forget. And of course, he went to Buchenwald and also the whole message of the Holocaust is that it can never be forgotten.

Now, nothing along that line happened at EPA. Things were much—it is a question of a whole completely different scale. But the question of so people don't forget that the President indicated, I think is an important one. And I also think, and colleagues may disagree, but I think that the things that went wrong at EPA were not only significant, but also unique in the EPA's history.

It had a long history of being a proud, independent organization that irrespective of the political direction of the Administration,

went ahead, did its job, played by the numbers, and made honest decisions.

So I think the experience of the last 8 years is a significant one. It was particularly bad, particularly unique. Things went wrong, and I don't think we can just forget. And I would like to ask you what your view is on the question of so we don't forget; what role you think the I.G. might have in that; and whether there are any procedures in place within the EPA at this point to try to catalogue what took place so that there is an agency institutional memory of this. I think you and I share the belief that the better we remember this, the less likely it is to be repeated.

Ms. JACKSON. Yes, Senator. And we also share the belief that that is a very good role for an Inspector General once we have one, which is why it is such an important position. You know, we are all about looking forward at the EPA because we have such a tremendous workload in front of us for the American people.

And yet, there should be some ability for us as an agency to look at our record, the totality of it, but certainly focusing on the court decisions and some of the more egregious examples of scientists who felt that they weren't allowed to speak.

And I think the Inspector General could play a very strong role in doing that for the agency, while still allowing the agency scientists to move forward with their agenda, which is very important as well.

Senator WHITEHOUSE. Thank you, Administrator.

Senator Inhofe.

Senator INHOFE. Thank you.

First of all, I referenced this letter that we had sent to you, and I would like to know. We are requesting a response by June 26. Will you do that?

Ms. JACKSON. Senator, I haven't seen that letter. If it has been received at the agency, it certainly hasn't made its way to me. It sounds like you are still having it signed. I am happy to review it.

Senator INHOFE. No, we have already sent it. Now, maybe the agency didn't get it to you. It covers five areas, and even if it is a couple of areas where you are not going to, could we just get a response by the 26th, not expecting that every question is going to be answered, but it is going to take more time for this or this—just a response.

Ms. JACKSON. Not knowing what it says, I commit to you that we will timely in responding to your letter. What is today, the 8th?

Senator INHOFE. I don't know.

Ms. JACKSON. We will get you some response to your letter and it will be as responsive as we can be.

Senator INHOFE. Now, I have applauded you several times, and I have quoted your quote when you say the American people will not trust us to protect their health and their environment if they do not trust the transparency, and so forth. And yet this Bob Dineen, the CEO of the Renewable Fuels Association, made this statement. He wrote, in talking about the lack of access to the EPA's modeling, he said, "The inaccessibility of these models and the lack of clear and detailed documentation on how the various models and data sets were integrated appear to violate EPA's guidance regarding transparency."

Would you commit to allow full access to the assumptions and the inputs that developed the modeling? Do you have any thoughts about why this statement was made?

Ms. JACKSON. I don't know the gentleman. I don't want to try to get into his thought processes. What I can commit to you is that that modeling was done at the request of colleagues of yours in the House of Representatives. We were being responsive to their requests, as you are asking me to be responsive to yours, and I will certainly do that. But I have to respect them giving us input and asking the EPA to provide a service to Congress. That is part of our job and our function, and we are happy to do it.

Senator INHOFE. All right. That sounds good. I wasn't going to ask this question, except the Senator from New Jersey piqued my curiosity on something that I think would be good to have on the record here.

Science is an interesting thing. It is one that changes from time to time. Just as an example, many of the very top scientists throughout the world, such as Claude Allegre in France and David Bellamy in U.K. and Nir Shaviv in Israel, who at one time back during the initial Kyoto years in the late 1990s were very, very strong in saying that anthropogenic gases cause global warming. Those same scientists, them and about 700 other scientists, have now said no, we were wrong on the science at that time; we thought that was true and it is no longer true.

In fact, the interesting thing I saw just last week is Sarkozy appointed Claude Allegre to be the Minister, I believe, of the Environment for France. I am not sure that is the right title, something like that. And here is a guy who is totally on the skeptic side of the science.

I guess what I would say is we recognize that science—that there are interpretations. Science does change, and there are a lot of people who were immediately on one side that are now on the other side—just the recognition that science does change.

Ms. JACKSON. The recognition—I recognize that as we get more data, scientists are duty-bound to constantly be reviewing it and it may or may not change their position.

Senator INHOFE. Very good.

Ms. JACKSON. On the issue of climate science, despite the fact that 700 sounds like a large number, the vast majority of scientists who work in the field, the scientific consensus, is still that anthropogenic causes are causing our climate to change. So I certainly, and you and I have discussed this before, Senator, recognize the need to keep an open mind and to look at information as it comes in. I am not a climate scientist by training, but I do respect the consensus that has been reached amongst them.

Senator INHOFE. Yes, but as you say, as new data comes in, scientists do change.

Last, the IRIS process that you are adopting here does overlook some steps that the previous Administration was criticized for, such as OMB and others. There have been several people in the scientific community that feel that the EPA is writing the science, reviewing the science, and declaring the science.

Would you look at the—where is that chart? Well, the OMB part is in the post peer-review and several internal EPA steps. Would

you look at the chart that was used prior to that and then respond to us in writing for the record which of those steps you are eliminating. Would you do that for us?

Ms. JACKSON. I am happy to do that, and I have looked at that chart in the development of the new process.

Senator INHOFE. Yes, I know. Thank you.

Thank you, Mr. Chairman.

Senator WHITEHOUSE. I thank the distinguished Ranking Member.

I note with pleasure the arrival of our Chairman, who has contributed so much to keeping EPA within the proper bounds of scientific integrity and transparency. She has very courteously told me to continue following the early bird rule, so we turn now to Senator Udall.

Senator UDALL. Thank you.

I think it is important for the EPA and this Committee to also consider the consequences of the Data Access Act and the Data Quality Act. As you probably know, Administrator Jackson, these two appropriations riders passed in 1998 and 2000. And they put federally funded science, which is either done by in-house agency scientists or academics at a disadvantage to private sector for-profit science. These Acts give legal rights to regulated industries to file baseless attacks and delays against science supporting environmental regulation, without any penalty.

In principle, data access is a good thing, but due to the successful efforts of industry lobbyists, industry gets access to Government and academic data being used for regulation, but not the other way around. The data is only flowing one way from the researchers to industry opponents.

Using these Acts in 2003, the industry-funded Competitive Enterprise Institute filed a challenge to withdraw the National Assessment on Climate Change, despite that fact that it was heavily peer-reviewed, unlike the work of the think tank. The assessment was eventually published, but only after a fight.

My question has two parts. First, in its review of scientific integrity at EPA, is the agency paying any attention to the impacts of these two Acts on the scientific basis for EPA's regulatory decisionmaking? And second, do any ongoing reviews underway at OMB promise to reform the way that these Acts are implemented?

Ms. JACKSON. The agency's review, Senator, of the impact of those Acts I think has been part and parcel of our work with the Office of Science and Technology Policy on implementation of the Presidential Memorandum on Scientific Integrity. So I do believe that there has been—I am looking for Kevin—some discussion of that as part of that process. And I would expect, because it affects us agency-wide, certainly EPA is one agency where there is a potential for great effect. We have been quite vocal in that process.

Senator UDALL. And as you know, when you pass appropriations riders, many times you don't get the full benefit of the experience of the Congress. So I hope that when you review these and look at these that you come back to us, and come back to this Committee and to the Congress with recommendations, changes to be made to make our scientific decisionmaking more effective, more fair to both

industry scientists and Government scientists. Because I think that is ultimately where we are going to get the very best policy.

Thank you very much.

Ms. JACKSON. Thank you, Senator.

Senator WHITEHOUSE. Excuse me.

Senator Barrasso.

Senator BARRASSO. Thank you very much, Mr. Chairman.

I have a full statement if I could please put that in the record, and I have some question.

Senator WHITEHOUSE. It will be put in the record without objection.

[The referenced material was not received at time of print.]

Senator BARRASSO. Welcome. I hope you had an enjoyable trip to Wyoming and had a chance to see some of the great beauty of the incredible State.

Ms. JACKSON. A beautiful State.

Senator BARRASSO. Thank you.

I was looking at a New York Times article, and this was May 20. It said, "Vow of silence key to White House-California Fuel Economy Talks." And it starts by saying there was a simple rule for negotiations between the White House and California on vehicle fuel economy: put nothing in writing, put nothing in writing. It goes on and talks about decisions that nothing would be put in writing ever. And that was by Mary Nichols from California, talking about fuel standards and what was happening in the two States.

When they say "put nothing in writing ever," it also mentioned they didn't have any group meetings in discussing these fuel standards. And this was all in regard to approving vehicle emissions standards.

Did you participate in any of these meetings between Ms. Browner and Ms. Nichols?

Ms. JACKSON. I don't think I participated in any meeting with the two of them. Certainly, EPA was integrally involved in development of those fuel emission standards and the announcement made by the President.

Senator BARRASSO. Well, this seems to imply that the decisions were all made in meetings that you actually didn't participate in at all. And yet if you look at the Clean Air Act, it says the Administrator shall, by regulation, prescribe and from time to time revise in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines which in the Administrator's judgment cause or contribute to air pollution, which may responsibly be anticipated to endanger public welfare.

I mean, it goes on and on, but it says the Administrator shall, not Carol Browner. Under the law, wasn't this your decision to make? It seems that Ms. Browner is the one in charge and she has not been approved by the Senate, and not you, who were the administrator who we have confirmed to really run the Environmental Protection Agency, not an energy czar.

Ms. JACKSON. Yes, I think your question actually is based on a misunderstanding of the process here. First off, these were negotiations. I have run an enforcement program. I have been involved in numerous negotiations, and negotiations demand a level of trust

among the people around the table. We were talking about the auto industry. We had 10 CEOs who joined the President for that announcement. We had the unions. We had the State of California who have done path-breaking work on auto emissions standards. We had EPA and we had the Department of Transportation. Those discussions EPA participated in from a technical standpoint in order to give information on things like from our Ann Arbor lab, the costs or the feasibility of various types of controls on engines.

But to imply that the kind of secrecy that goes with negotiations so that people can speak freely to each other somehow is lack of scientific integrity is just a misunderstanding of the process.

Senator BARRASSO. But this is a hearing on transparency. What we are dealing with here is with transparency, and I want to know where the buck stops. Does it stop with you or does it stop with Ms. Browner? Because this talks about, I mean, specifically the New York Times article on May 20, it was then that Nichols and Browner decided to keep their discussions as quiet as possible, holding no group meetings, none at all. And then they, quote Ms. Nichols as saying, "We put nothing in writing ever."

CNN this week had a story on Friday about the number of czars running this Administration instead of the people that are confirmed by the Senate. And I have great concerns in an Administration that says, we want transparency; we want to be open; we want the American people to see what exactly is going on.

What the New York Times article speaks about are secret meetings, private meetings, hidden meetings, and that you, as the Administrator of the Environmental Protection Agency, were not even involved in, even though is affects specifically the areas that the laws of the Nation say you are to oversee.

Ms. JACKSON. To state again, my staff, certainly high-level members of my staff, were involved in the Auto Task Force, as well as on the subcommittees that were working specifically on this particularly thorny issue. This issue is one that demanded a cry for coordination at the White House level because it involved two agencies of the Federal Government, DOT and EPA, along with a State and 12 other States or more who had decided to join with California.

And so I don't want to be left with the impression or the sound bite that somehow EPA wasn't involved in the process. We clearly were. The negotiations that led to the path-breaking agreement that the President announced took time and it took energy and they were handled out of the White House.

Senator BARRASSO. Are you saying the staff was in charge then? I am still confused by this, and I see that my time has expired, but thank you very much for your comments.

Ms. JACKSON. Thank you.

Senator WHITEHOUSE. Thank you, Senator Barrasso. I apologize for holding to the clock, but the Administrator has an appointment at the White House so I am trying to get everybody a turn in before she has to leave.

Senator BARRASSO. Thank you, Mr. Chairman.

Senator WHITEHOUSE. Senator Cardin.

Senator CARDIN. Thank you, Mr. Chairman.

Administrator Jackson, it is a pleasure to have you before our Committee.

I want to touch on a couple of issues. First, the Clean Water Act. I am very interested in effective policies concerning clean water in America. I had the responsibility to chair the Subcommittee, and it seems to me that the Supreme Court decisions on jurisdiction has made it extremely difficult for you to achieve, for us to achieve the goals set out in the Clean Water Act based upon good science information.

And I would just ask for your help. I know we have talked about this before. And giving us the strategy so that we can allow science to dictate our policies in this Country, at least advise us as to what we should be doing on clean water. We have a tremendous interest in my State, as you know, with the Chesapeake Bay and I think this is important throughout our Country, and just urge your attention to a strategy that will allow us to return to good science in helping us develop the policies for clean water in this Nation.

Ms. JACKSON. I am happy to do that, Senator.

Senator CARDIN. Thank you.

I want to turn your attention to mountain-top removal of coal. Senator Alexander and I have filed legislation in regards to this as one of the most destructive practices in the world for extracting minerals. It is controlled not only by the Surface Mine Control and Reclamation Act, but also 404 permits under EPA. So you have a direct interest in this area.

I think it is pretty intuitive that drinking brown water is not healthy for you, as it gets darker and darker. But we now have some empirical evidence on health results of communities that are affected by this mountain-top mining, and would just urge you to get us the best science information possible so that we can make the right decisions. I know that there is a lot of interest involved here, but public health dictates that we take action.

Ms. JACKSON. Thank you, Senator. I don't want to eat up all your time, but thank you for giving me just a minute to address that.

I think that those who are most concerned about this issue probably do have a valid concern that EPA can be more transparent in the review processes it uses to judge the potential clean water impacts of these projects. Once again, EPA's role here is to look at what impacts these projects potentially have on water quality, and the law says there can be no significant degradation. And I think it is valid for people to say, what does that mean and how are you judging that.

So the commitment I would like to make to you is that we will get better information out there and increase the transparency of our process so that people don't have to guess what it is EPA is thinking or what our scientists are using to make judgments on any particular permit.

Senator CARDIN. That is fair enough. That is what we want. We want to see transparency. We want the information to be made available to us. We want to make the best judgments based upon the information that is available. And I think in this area of mountain-top mining, it is going to become obvious, but we need transparency in the process.

Later on the third panel, a distinguished person from Maryland will be testifying once again before our Committee, Dr. Lynn Goldman, and I welcome here to the Committee, a Professor, Environmental Health Sciences, Johns Hopkins University. She testified last year before our Committee and talked a little bit about some of the problems of the previous Administration.

The specific issue I want to talk about is a comment made in that statement where she discussed concerns about changes that have been made in EPA's integrated risk information system, IRIS, that opened the door for interference by Federal agencies like the Department of Defense, who are responsible for waste cleanups in communities and have an interest in delaying action.

I just want to use my last 50 seconds I have left just to compliment you and your agency for the manner in which you have worked with the Department of Defense. We are making progress in Maryland as a result of cooperation now between agencies. And that is good news, and I just really wanted to compliment the early action of your agency in trying to work out differences with other Federal agencies so that communities can get the benefit of cleanup where it is needed, and we are making progress now at Fort Meade that was not made before. So thank you very much.

Ms. JACKSON. Well, and thank you for your advocacy on behalf of the people of Maryland.

Senator CARDIN. Thank you, Mr. Chairman.

Senator WHITEHOUSE. The distinguished Senator from New Jersey, Senator Lautenberg.

Senator LAUTENBERG. Thank you. Thank you, Mr. Chairman. It shifts very transparently, but always good chairmen on this Committee because this Committee is driven by truth and candor, and that is the way we want to do it. Certainly, that is the mantel that you have adopted, and we appreciate it greatly.

I introduced the Kids-Safe Chemicals Act. It would force companies to conduct and submit studies on the safety of chemicals. Would that help ease your task in monitoring what is going on there?

Ms. JACKSON. The work you have already done, Senator, on leading the charge to ask tough questions about the Toxic Substances Control Act, about who should be responsible for getting the best data to EPA and about EPA's role, is extremely important.

EPA hasn't taken, but I hope will soon take on behalf of the Administration, a formal position on the legislation. But I think there is much to applaud in the idea that the American people are ready, and I think maybe even hungry, to know that the Government is ramping up its attention to the evaluation of chemicals before they end up in products that are used by our children or by our families.

Senator LAUTENBERG. I wrote a law that is referred to in its simplest form as the right to know. And it mimicked, if I may say, what was law in New Jersey, and people had a right to know and it was very helpful to us even though it had little or no penalty except public knowledge. It worked wonders. And this is something that the past Administration has continued to chip away at, and see if we could reduce that requirement. Well, we don't want that to happen.

In 2006 and 2007, the EPA completed only four chemical risk assessments, despite a backlog of more than 70 chemicals. In fact, 69 percent of outgoing assessments have been in progress for more than 5 years.

What might you do to speed up the pace of risk assessment at EPA, while you are maintaining the quality standard that you have set?

Ms. JACKSON. The risk assessment process at EPA was previously taking close to 10 years, if you looked at how long it was taking to get some assessments out. We have now committed to a new IRIS process that would take about 23 months, Senator. And our idea there is that you can invite rigorous public discussion. You can invite all kinds of input, including input from fellow agencies like the Department of Defense, but it will be on the record. Everyone will be able to see those comments, and EPA will control the final decision.

And the reason that is important is to ensure that we don't end up in endless debates back and forth at the expense of American's health while they wait and wait and wait for somebody in the Federal Government, and it is really EPA's role to do it, to speak on risk of any particular chemical.

Senator LAUTENBERG. I would ask you a question about Superfund. You are intimately knowledgeable about what the pace of Superfund cleanup has done. I picked up kind of management of the law from Governor Florio, Jim Florio, who wrote the Superfund law in 1980. It took us a long time to learn how to do the job properly.

It took a long time to get people trained. We have always managed, in my view, to get loyal and competent people in positions of importance in Government. I find the commitment to the work is far more binding than that which I have found in the private sector.

What do you think we might be able to do pace-wise if we could reinstate the polluter pays obligation?

Ms. JACKSON. Well, reinstatement of that obligation obviously is the first step, because it means a constant steady stream of a known amount of money to these cleanups. One of the things that has happened over the past year is this kind of, you know, giving different sites allowances and trying to figure out what is the minimum amount necessary to keep the cleanup going.

But I know you and Chairman Boxer have asked some very hard questions that I haven't yet fully answered about expressing your frustration with the pace of cleanups, the number of construction completions going down, and finding ways to see that number rise back to the levels we saw even 10 years ago.

And so, I am committed to trying to find those answers. I don't have them today. I did commit to the Chairman that we would do that work, and Mathy Stanislaus, thanks to the Committee, and your confirmation by the full Senate, has started actually I believe yesterday as head of the Superfund program, of OSWER, and that is certainly one of his charges.

We have to be creative and innovative, but we need to keep these cleanups moving. And I can tell you, going around the Country now and having events with Recovery Act money and seeing the joy, the

literal joy in communities when you come back to them and say not only are we back with a little money, we are back with enough money to change the cleanup schedule.

I could do that all day long. I wish it was my only job.

Senator LAUTENBERG. Thanks very much.

I would just close, if I might take 1 second.

Senator WHITEHOUSE. The Senator's time has expired.

Senator LAUTENBERG. Cruel behavior.

[Laughter.]

Senator WHITEHOUSE. It is, but it is 10:31. The Administrator has to get to the White House, and I will ask her if she could give 5 minutes to the Chairman. We will then conclude.

Ms. JACKSON. Absolutely.

Senator BOXER. OK.

Because of time, I just want to say that I will be submitting my questions to you for the record. Some of them follow up on Senator Lautenberg's questions. But I just feel I want to respond to Senator Barrasso in his anxiety over your not doing enough, if that is what he was trying to say, and say that I don't think in all my years, I have ever encountered an Administrator who hit the ground running the way you did. And thanks to this President for getting this appointment right.

I will just give a few examples. Air testing near schools, you promised you would do it. You started it right away, so that we can know if our kids are being exposed to toxics. Investigating the coal ash waste nationwide, and we are working very closely because we are very concerned about disasters waiting to happen all over this Country, and we are working on that.

You hired an expert on children's health, reporting directly to you, and we have had meetings in my office about how to do more, and Senator Lautenberg, even though he is chafing at not being able to talk a little longer, I want him to know how proud I am of him in his work to protect kids. And this kids' safety law is essential. And as Chairman, I commit myself to moving on this.

I think Senator Whitehouse's new chairmanship for Oversight is being proven that this was a great decision of this Committee, because he will be working directly with you as well.

You also announced the review of the waiver, and that set off, you know frankly, the negotiations that Senator Barrasso criticized. Why is the party of no criticizing the fact that we resolved an enormous dispute between the Federal Government and 19 States, or let's say 18 States, that were very upset that they couldn't do more on fighting global warming through vehicle emissions?

And the fact that of course you were at the table, but this did require the White House because, as you pointed out, there were so many parties involved, the DOT, the EPA, the autos, all the States. And you know, we should say hooray because now these lawsuits are being dropped, and yes, maybe not a lot was put in writing. Maybe there was a concern because there were a lot of lawsuits out there. The fact is, we should be very pleased.

And of course, your work on the endangerment finding, the proposed one that I think is leading us to hopefully a way to deal with

greenhouse gas emissions; the IRIS risk analysis process that you have changed.

So I just want to say, you know, I could not be more pleased. And then I am going to in my last 2 minutes just make a couple of statements from my opening statement.

Science had clearly been under siege when you took the reins. From clean air to perchlorate to children's health, I believe decisions that should have been based on science were based on politics and the polluters were running the show. This is my opinion and I would be glad to go toe to toe with anybody who thinks differently. You know, that is why the whole IRIS program was so derailed because we put the polluters at the table. And the fact is, it is the EPA's job to clean up the environment. It is not the Environmental Pollution Agency. It is the Environmental Protection Agency. And I am so proud of the work you are doing.

And I also want to thank Senator Inhofe, he is in there, out there somewhere, because when it came to giving you the political appointees that you need and that the President had sent down, he has been most cooperative. And we were able to get Gina McCarthy through after a little bit of a fuss and a fight. We have some of the others done, Tom Strickland. And I have to say that Senator Inhofe has not been obstructionist, and I appreciate it so much.

So I just want to thank you, Administrator, for your openness, your honesty. You just come and you look us all in the eye regardless of whether you agree with us. You tell us what you think. You are also willing to have an open mind for all of us. And what more could we ask from you?

But I just wanted to counter Senator Barrasso's point, if you heard him and didn't know you, you would think he was talking about somebody else. You couldn't be stronger or more assertive in implementing your responsibilities under the law.

And I want to thank again Senator Whitehouse for working with me to create this Subcommittee, because this oversight is essential. You have so many issues on your plate and so many, frankly, dangerous problems that you are dealing with, problems that have been neglected.

So we will work with you in the future, as we have going into this, and I am very proud of the work you are doing.

And I thank you, Senator.

Senator WHITEHOUSE. On that happy note, the Administrator is excused for her engagement at the White House. I thank her very much for her attendance and her testimony, and hope I have not caused too much anxiety on the part of her staff who urgently are signaling that she needs to be on the way.

Senator BOXER. Will you tell the President we all want you to have more input? Tell him that Senator Barrasso is very worried, and he should listen to you.

[Laughter.]

Ms. JACKSON. I will, but he will say, what, more? How much more can I possibly give you?

And you know, just to have a second. Senator Barrasso is gone, and I am sorry to hear that, but you know, I just want to say for the record, of course EPA was there. We were hands-on at the table. To take Mary Nichols' quote, and we both know her. Some-

one should ask her what she meant, but certainly EPA was integrally involved in this ground breaking.

And I agree with you. I don't know how you get bad news out of that announcement. That announcement took every single constituency who might be worried and said, this is a good thing for us, for our businesses, for our unions, for the American people.

So I just think that that process is an example of how EPA's science came to the fore, and how our experts and our people who work so hard got an opportunity to see a happy day. No one was happier than those scientists on that day.

So thank you very much, Madam Chair.

Senator WHITEHOUSE. The next panel consists of John B. Stephenson, the Director, Natural Resources and Environment, at the U.S. Government Accountability Office.

Director Stephenson, welcome.

STATEMENT OF JOHN B. STEPHENSON, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. STEPHENSON. Mr. Chairman, Ranking Member Inhofe, and other Members who are here, I am pleased to be here today to discuss the importance of scientific integrity and transparency at the EPA.

My statement is based on our past work on both EPA's integrated risk information system, or IRIS, and EPA's Federal advisory committees and their use, such as the Science Advisory Board.

Our work last year on IRIS, as you remember, which is a data base that contains the agency's scientific position on the potential human health effects of more than 540 chemicals, identified significant concerns about both the lack of transparency in the process and the resulting effect on the credibility and integrity of these assessments.

We noted that the consequences of these problems were very serious because IRIS assessments, after all, are the cornerstone of EPA's ability to ensure scientifically sound environmental decisions, policies and regulations. We also found that the timeframes for completing assessments were unacceptably long, often taking over a decade to complete. In many cases, assessments became obsolete before they could be finalized and were stuck in the endless loop of assessment and reassessment.

Last year, we testified before this Committee about EPA's lack of progress in streamlining IRIS and our frustration in its lack of response to our recommendations. Indeed, the process that EPA unveiled in April, 2008 a year ago was a step backward and worse than the one it replaced.

As a result of this serious and seemingly intractable problem, we added IRIS to GAO's January, 2009 report on Governmentwide high-risk areas needing increased attention by executive agencies and the Congress.

Today, I am pleased to report that while it is too soon to offer a blanket endorsement, the new IRIS process introduced by EPA on May 21 of this year appears to be a step in the right direction. In particular, we are pleased that the new IRIS process, if man-

aged effectively, will be largely responsive to the recommendations we made in our March, 2008 report.

First, the process will be managed by EPA, rather than OMB, as the former process was. Second, it addresses a key transparency concern by expressly requiring that all written comments provided by other Federal agencies on draft IRIS assessments be part of the public record.

Third, the new process streamlines the previous one by consolidating and eliminating several steps. Most importantly, the step under which the Federal agencies could have IRIS assessments suspended in order to conduct additional research, a step which would have defeated the intent of basing IRIS assessments on the best available science.

And fourth, the request for an increase of $5 million and 10 additional staff positions will help ensure that more resources are allocated to the IRIS program to meet user needs. Of course, the ultimate success of IRIS will depend upon how effectively EPA implements the new process.

While these changes reflect a significant improvement that can help EPA restore the integrity and productivity of this critical program, we believe additional clarification is needed for some elements of the new process. Specifically, it is not clear whether significant agreements reached among the Federal agencies during interagency consultation meetings will be documented in the public record. Nor is it clear to us why comments from other Federal agencies cannot be solicited at the time the initial draft is sent to independent peer reviewers and the public.

These changes would enhance transparency, further reduce the overall assessment timeframes, and provide greater assurance that the draft had not been inappropriately biased by policy considerations of agencies affected by the outcome, such as the Departments of Defense and Energy.

Finally, it is unclear whether or how OMB or other White House offices will be involved in the new process.

Switching gears a bit, I would like to briefly summarize our work on EPA's scientific advisory committees and offer some cautions about how they are formed and used. EPA currently has 24 separate Federal advisory committees that help ensure scientific integrity by providing advice and expert peer review. We have made a number of recommendations to EPA to improve the independence and credibility of peer review panels convened by the Science Advisory Board, one of EPA's largest and most prominent Federal advisory committees.

EPA implemented our recommendations, enhancing its assurance that relevant conflicts of interest are identified and addressed, and that the committees are balanced in terms of points of view. However, we believe that wider use of these same policies and procedures by EPA's other scientific advisory committees could help more broadly ensure that committee work is not jeopardized by allegations of conflicts of interest or bias.

We also believe that there are opportunities for EPA to use its scientific advisory committees, such as the Children's Health Advisory Protection Committee, more effectively and proactively than they have in the past.

Mr. Chairman, that concludes a summary of my statement. I will be happy to answer questions that you or other members of the Committee may have.

[The prepared statement of Mr. Stephenson follows:]

United States Government Accountability Office

GAO

Testimony
Before the Committee on Environment and Public Works, U.S. Senate

For Release on Delivery
Expected at 9:30 a.m. EDT
Tuesday, June 9, 2009

SCIENTIFIC INTEGRITY

EPA's Efforts to Enhance the Credibility and Transparency of Its Scientific Processes

Statement of John B. Stephenson, Director
Natural Resources and Environment

GAO-09-773T

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Highlights

Highlights of GAO-09-773T, a testimony before the Committee on Environment and Public Works, U.S. Senate

June 9, 2009

SCIENTIFIC INTEGRITY

EPA's Efforts to Enhance the Credibility and Transparency of Its Scientific Processes

Why GAO Did This Study

The Environmental Protection Agency's (EPA) ability to effectively implement its mission of protecting public health and the environment relies largely on the integrity and transparency of (1) its assessments of the potential human health effects of exposure to chemicals and (2) its federal advisory committees, which are to provide independent, expert reviews of EPA's scientific work, among other functions. EPA's Integrated Risk Information System (IRIS) program is critical in developing the agency's scientific positions on the potential health effects of exposure to toxic chemicals. These positions, used as a basis for environmental risk management decisions by EPA and others, are maintained in IRIS' database of more than 540 chemical assessments. Since 2001, GAO has issued a number of reports addressing the importance of integrity and transparency to EPA's chemical assessments and to EPA's federal advisory committees. GAO work on EPA's advisory committees has focused on its Science Advisory Board—1 of 24 EPA federal advisory committees—which convenes panels to review many of the agency's scientific assessments and proposals.

This testimony highlights scientific integrity and transparency issues GAO has reported on and relevant EPA reform efforts regarding (1) the IRIS assessment process and (2) federal advisory committee policies and procedures and appointment mechanisms. GAO has supplemented information from its prior reports with a preliminary review of the IRIS assessment process EPA issued on May 21, 2009, and the current appointment mechanisms for members of EPA's federal advisory committees.

View GAO-09-773T or key components. For more information, contact John B. Stephenson at (202) 512-3841 or stephensonj@gao.gov.

What GAO Found

In March 2008, GAO reported that the database of chemicals assessed under the IRIS program was at serious risk of becoming obsolete because EPA had not been able to complete timely, transparent, and credible assessments or decrease its backlog of ongoing assessments. A revised IRIS assessment process EPA issued in April 2008 did not respond to GAO's recommendations; rather, it made changes likely to further exacerbate concerns GAO had identified. Largely as a result of EPA's lack of responsiveness, GAO added EPA's processes for assessing and controlling toxic chemicals as a high-risk area in its January 2009 biennial status report on governmentwide high-risk areas requiring increased attention by executive agencies and Congress. Taking positive action, EPA issued a new IRIS assessment process on May 21, 2009. In announcing these reforms, EPA echoed GAO's findings that the April 2008 assessment changes reduced the transparency, timeliness, and scientific integrity of the IRIS process. The IRIS reforms, if implemented effectively, will represent significant improvements. Among other things, they restore EPA's control of the process and increase its transparency. For example, under the prior process, interagency reviews were required and managed by the Office of Management and Budget (OMB) and EPA was not allowed to proceed with assessments at various stages until OMB notified EPA that it had sufficiently responded to comments from OMB and other agencies. In contrast, under the recently announced process, EPA is to manage the entire IRIS assessment process, including what are now called interagency consultations.

In 2001, GAO reported on limitations in the policies and procedures developed by EPA's Science Advisory Board to ensure that its panels' peer reviewers are independent and that a balance of viewpoints is represented on each panel. These limitations could have reduced the effectiveness of the Board by contributing to its being perceived as biased and could have inadvertently exposed panelists to violations of federal conflict-of-interest laws. EPA revised the Board's policies and procedures, as GAO had recommended. In a broader 2004 report on federal advisory committees, GAO highlighted the Board's revised policies and procedures, and those of the National Academies, which can—if implemented effectively—provide an assurance that relevant conflicts of interest are identified and addressed and that the committees are balanced in terms of points of view. However, EPA currently appoints members to 16 of its federal advisory committees using an appointment mechanism reserved for cases in which members are to speak as representatives of identified entities and are not subject to conflict-of-interest reviews, rather than as individuals speaking on behalf of the government on the basis of their best judgment. While EPA may be appropriately seeking stakeholder advice from some of its advisory committees, a number of these committees focus on scientific and technical questions for which EPA is likely to be seeking advice on behalf of the government. As EPA works to enhance scientific integrity, a review of advisory committee appointments could help ensure that committee work is not jeopardized by allegations of conflicts of interest or bias.

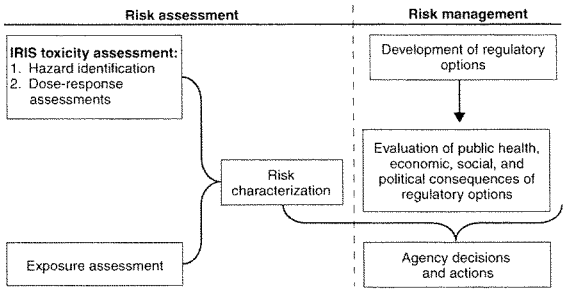
Madam Chairman and Members of the Committee:

I am pleased to be here today to discuss the importance of scientific integrity and transparency at the Environmental Protection Agency (EPA). EPA's ability to effectively carry out its mission to protect human health and the environment is critically dependent on timely and credible scientific and technical information and health risk assessments. Since 2001, we have issued a number of reports underscoring the importance of integrity and transparency in processes that (1) develop the science used to inform policy decisions and (2) are used to establish federal advisory committees that, among other things, provide independent peer reviews of EPA's scientific determinations.

Notably, our work on EPA's Integrated Risk Information System (IRIS) program and its database—which contains the agency's scientific position on the potential human health effects of exposure to more than 540 chemicals—identified significant concerns about both the lack of transparency in the process EPA uses to assess toxic chemicals and the resulting effect on the credibility, or integrity, of these assessments.[1] The consequences of these transparency and credibility issues are considerable because IRIS assessments are the cornerstone of scientifically sound environmental decisions, policies, and regulations. That is, the toxicity assessments in IRIS constitute the first two critical steps of the risk assessment process. This process, in turn, provides the foundation for risk management decisions, such as determining whether EPA should establish controls for particular substances to protect the public under such environmental laws as the Clean Air Act and the Safe Drinking Water Act. (See fig. 1.)

[1]GAO, *Chemical Assessments: Low Productivity and New Interagency Review Process Limit the Usefulness and Credibility of EPA's Integrated Risk Information System*, GAO-08-440 (Washington, D.C.: Mar. 7, 2008).

Figure 1: National Academies' Risk Assessment and Risk Management Model Used by EPA



Source: National Academies.

EPA also seeks to enhance the quality and credibility of its highly specialized scientific and technical products by using independent, expert peer reviews. The 24 federal advisory committees EPA has established can be important vehicles for such peer review. For example, the EPA Science Advisory Board convenes panels to review many of the agency's scientific assessments and proposals. Because the work of fully competent peer review panels can be undermined by allegations of conflict of interest and bias, the best interests of federal advisory committees are served by effective policies and procedures regarding potential conflicts of interest, impartiality, and overall committee balance.

In this context, my testimony today discusses scientific integrity and transparency issues and, where applicable, EPA reforms of the IRIS assessment program and federal advisory committee policies and procedures. My statement is based on findings from a number of reports and testimonies we have issued since 2001 involving scientific integrity and transparency issues at EPA.[2] We have supplemented this testimony with a preliminary review of EPA's May 21, 2009, revisions to the IRIS assessment process and of the current appointment mechanisms for EPA's 24 federal advisory committees. Our preliminary analysis of IRIS reforms

[2]See Related GAO Products in Appendix I.

focuses primarily on issues related to scientific integrity and transparency and does not include IRIS productivity issues. We conducted our work from May 26 to June 9, 2009, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform our work to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

EPA Reforms Have the Potential to Significantly Improve IRIS, but EPA Could Clarify Some Issues

In March 2008, we reported that the IRIS database—a critical component of EPA's capacity to support scientifically sound risk management decisions, policies, and regulations—was at serious risk of becoming obsolete because the agency had not been able to complete timely, transparent, and credible chemical assessments or decrease its backlog of ongoing assessments. In addition, assessment process changes EPA had recently made, as well as other changes EPA was considering at the time of our review, would have further reduced the credibility, transparency, and timeliness of IRIS assessments. Among other things, we concluded the following:

- EPA's efforts to finalize IRIS assessments have been impeded by a combination of factors. These factors include (1) the Office of Management and Budget's (OMB) requiring two additional reviews of IRIS assessments by OMB and other federal agencies with an interest in the assessments, such as the Department of Defense, and (2) EPA management decisions, such as delaying some assessments to await the results of new research.
- The two new OMB/interagency reviews of draft assessments involve other federal agencies in EPA's IRIS assessment process in a manner that limits the credibility of IRIS assessments and hinders EPA's ability to manage them. For example, some of the agencies participating in these reviews could face increased cleanup costs and other legal liabilities if EPA issued an IRIS assessment for a chemical that resulted in a decision to regulate the chemical to protect the public. Moreover, the input these agencies provide to EPA is treated as "deliberative" and is not released to the public. Regarding EPA's ability to manage IRIS assessments, without communicating its rationale for doing so, OMB required EPA to terminate five assessments that for the first time addressed acute, rather than chronic, exposure—even though EPA had initiated this type of assessment to help it implement the Clean Air Act.
- The changes to the IRIS assessment process that EPA was considering, but had not yet issued at the time of our 2008 review, would have added to the

already unacceptable level of delays in completing IRIS assessments and would have further limited the credibility of the assessments. For example, the changes would have allowed potentially affected federal agencies to have assessments suspended for up to 18 months to conduct additional research. As we reported in 2008, even one delay can have a domino effect, requiring the assessment process to essentially be repeated to incorporate changing science.

In April 2008, EPA issued a revised IRIS assessment process. The process was largely the same as the draft process we had evaluated during our review and did not respond to the recommendations in our March 2008 report. Moreover, some key changes were likely to further exacerbate the productivity and credibility concerns we initially identified. For example, EPA's revised process formally defined comments on IRIS assessments from OMB and other federal agencies as "deliberative" and excluded them from the public record. As we stated in our report, it is critical that input from all parties—particularly agencies that may be affected by the outcome of IRIS assessments—be publicly available. In addition, we concluded that the estimated time frames under the revised process, especially for chemicals of key concern, would likely perpetuate the cycle of delays to which the majority of ongoing assessments have been subject. Instead of streamlining the process, as we had recommended, EPA institutionalized a process that from the outset was estimated to take 6 to 8 years for some widely used chemicals that are likely to cause cancer or other serious health effects. This was particularly problematic because of the substantial rework such cases often require to take into account changing science and methodologies.

Largely as a result of EPA's lack of responsiveness, we added transforming EPA's processes for assessing and controlling toxic chemicals as a high-risk area in our January 2009 biennial status report on governmentwide high-risk areas requiring increased attention by executive agencies and Congress.[3] Taking positive action, on May 21, 2009, EPA issued a new IRIS assessment process, effective immediately. In a memorandum announcing the reforms to the IRIS assessment process, the EPA Administrator echoed our prior findings that the April 2008 changes to the process reduced the transparency, timeliness, and scientific integrity of the IRIS process. She noted that the President's recent emphasis on the importance of transparency and scientific integrity in government decision making

[3]GAO, *High Risk Series: An Update*, GAO-09-271 (Washington, D.C.: January 2009).

compelled a rethinking of the IRIS process.[4] If effectively implemented, the new process would be largely responsive to the recommendations outlined in our March 2008 report.

- First, the new process and the memorandum announcing it indicate that the IRIS assessment process will be entirely managed by EPA, including the interagency consultations (formerly called OMB/interagency reviews). Under EPA's prior process, these two interagency reviews were required and managed by OMB—and EPA was not allowed to proceed with assessments at various stages until OMB notified EPA that it had sufficiently responded to comments from OMB and other agencies. The independence restored to EPA under the new process is critical in ensuring that EPA has the ability to develop transparent, credible IRIS chemical assessments that the agency and other IRIS users, such as state and local environmental agencies, need to develop adequate protections for human health and the environment.
- Second, the new process addresses a key transparency concern highlighted in our 2008 report and testimonies. As we recommended, it expressly requires that all written comments on draft IRIS assessments provided during the interagency consultation process by other federal agencies and White House offices be part of the public record.
- Third, the new process streamlines the previous one by consolidating and eliminating some steps. Importantly, EPA eliminated the step under which other federal agencies could have IRIS assessments suspended in order to conduct additional research, thus returning to EPA's practice in the 1990s of developing assessments on the basis of the best available science. As we highlighted in our report, as a general rule, requiring that IRIS assessments be based on the best science available at the time of the assessment is a standard that best supports the goal of completing assessments within reasonable time periods and minimizing the need to conduct significant levels of rework.[5]
- Fourth, as outlined in the EPA Administrator's memorandum announcing the new IRIS process, the President's fiscal year 2010 budget request includes an additional $5 million and 10 full-time-equivalent staff positions for the IRIS program, which is responsive to our recommendation to

[4]EPA Memorandum, "New Process for Development of Integrated Risk Information System Health Assessments" (Washington, D.C.: May 21, 2009).

[5]As also stated in our report, we understand that under exceptional circumstances, it may be appropriate to wait for the results of an important ongoing study, such as a major epidemiological study that will provide new, critical data for an assessment.

assess the level of resources that should be dedicated in order to meet user needs and maintain a viable IRIS database.

We are encouraged by the efforts EPA has made to adopt most of our recommendations, including those addressing transparency practices and streamlining the lengthy IRIS assessment process. The changes outlined above reflect a significant redirection of the IRIS process that, if implemented effectively, can help EPA restore the integrity and productivity of this important program. Nevertheless, on the basis of our preliminary review of the new IRIS assessment process, we have some initial questions that EPA may wish to consider as it implements its new process. For example, regarding integrity and transparency, it is not clear

- whether any significant agreements reached among the federal agencies during interagency consultation meetings will be documented in the public record, since the new policy specifies only that written comments provided by other federal agencies will become part of the public record; and
- why comments from other federal agencies cannot be solicited at the same time the initial draft is sent to independent peer reviewers and public comments are solicited. This change would enhance transparency and would further reduce overall assessment time frames. Specifically, the public and peer reviewers could have greater assurance that the draft had not been inappropriately biased by policy considerations of other agencies, including those that may be affected by the outcome, such as the Department of Defense and the Department of Energy.

In addition, the new assessment process states that "White House offices" will be involved in the interagency consultation process but does not indicate which offices. Given that (1) EPA will be performing the coordinating role that OMB exercised under the prior process and (2) the purpose of these consultations is to obtain *scientific* feedback, it is unclear whether OMB will continue to be involved in the interagency consultation process.

EPA Has Improved the Policies and Procedures of Its Science Advisory Board, but Their Wider Use by Other EPA Scientific Advisory Committees Could Enhance EPA's Scientific Integrity

Independent, expert peer review of EPA's scientific and regulatory products, such as risk assessments and proposed rules, is integral to the agency's ability to effectively protect public health and the environment. Specifically, using peer review, EPA seeks to enhance the quality and credibility of the agency's highly specialized products. One of the several ways EPA obtains expert peer review is from advice and recommendations it requests of its 24 federal advisory committees comprising independent experts.[6] For example, since its inception in 1978, one of EPA's largest and most prominent federal advisory committees—the EPA Science Advisory Board—has convened hundreds of peer review panels to assess the scientific and technical rationales underlying a wide range of current or proposed EPA regulations and policies. The IRIS program uses Science Advisory Board panels to peer review some of its particularly complex chemical assessments,[7] and the Board is currently expanding a panel that will review existing IRIS assessment values established more than 10 years ago. Federal advisory committees such as the Science Advisory Board are subject to the requirements of the Federal Advisory Committee Act (FACA), which include broad requirements for balance, independence, and transparency.

To be effective, peer review panels must be—and also be perceived to be—free of any significant conflict of interest and uncompromised by bias. Peer review panels should also be properly balanced, allowing for a spectrum of views and appropriate expertise.

These standards, reflected in the act, are important because the work of fully competent peer review panels can be undermined by allegations of conflict of interest and bias.

In 2001, we reported on limitations in the policies and procedures developed by EPA's Science Advisory Board to ensure that its panels' peer reviewers are independent and that a balance of viewpoints is represented on each panel. These limitations could reduce the effectiveness of the Board overall by contributing to its being perceived as biased and could inadvertently expose some panelists to violations of federal conflict-of-

[6]EPA peer reviews may also be obtained by letter reviews, panels of experts established and managed by contractors, and panels convened by the National Academies.

[7]Other IRIS assessments are peer reviewed by panels convened by an EPA contractor or the National Academies.

interest laws.[8] Demonstrating a strong commitment to the integrity of its peer reviews, EPA took a number of actions to implement our report's recommendations, including

- establishing a standard process for Science Advisory Board panel formation that includes a requirement to document decisions about conflicts of interest and balance of viewpoints and expertise in forming each panel, as well as prospective panelists' responses to several standardized questions aimed at assessing impartiality;
- developing a new confidential financial disclosure form designed to capture needed information to evaluate potential conflicts of interest;
- allowing the public to review a "short list" of candidates selected for a specific Science Advisory Board panel and to comment on the appropriateness of including any of these candidates on the panel; and
- developing CD-based conflict-of-interest training for Science Advisory Board panelists.

In 2004, we reported on the policies and procedures at nine federal departments and agencies, including EPA, that extensively use federal advisory committees.[9] We also identified practices that promote independence and balance used by the National Academies[10] and the EPA Science Advisory Board.[11] Regarding the latter issue, we concluded that the National Academies and the EPA Science Advisory Board have developed clear processes that, if effectively implemented, can provide these organizations with an assurance that relevant conflicts of interest are identified and addressed—and that committees are appropriately balanced in terms of points of view. Specifically, we found that the

[8]GAO, *EPA's Science Advisory Board Panels: Improved Policies and Procedures Needed to Ensure Independence and Balance*, GAO-01-536 (Washington, D.C.: June 12, 2001).

[9]The nine departments and agencies are the Departments of Agriculture; Energy; the Interior; and Health and Human Services (HHS) and, within HHS, the Centers for Disease Control and Prevention, Food and Drug Administration, and the National Institutes of Health; the National Aeronautics and Space Administration; and the Environmental Protection Agency.

[10]The National Academies consist of four private, nonprofit organizations that advise the federal government on scientific and technical matters: the National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council.

[11]GAO, *Federal Advisory Committees: Additional Guidance Could Help Agencies Better Ensure Independence and Balance*, GAO-04-328 (Washington, D.C.: Apr.16, 2004).

processes used by the National Academies and EPA's Science Advisory Board[12] clearly and consistently

- identify the information they deem necessary to assess candidates for independence and to balance committees,
- explain to the candidates why the required information is important to protect the integrity of the committee's work,
- request public comment on proposed committee membership, and
- require evaluation of the overall balance of committees before committees are finalized.

Regarding the federal advisory committee policies and procedures at nine departments and agencies, in 2004 we found that the Departments of Agriculture, Energy, and the Interior had a long-standing practice of appointing most or all members of their federal advisory committees as "representatives"—expected to reflect the views of the entity or group they are representing and not subject to conflict-of-interest reviews—even when the departments called upon the members to provide advice on behalf of the government on the basis of their best judgment and thus should have appointed them as special government employees. That is, members of federal advisory committees that are providing advice on behalf of the government should be appointed as "special government employees"—short-term or intermittent employees subject, with some important modifications, to the conflict-of-interest requirements applicable to other federal employees.[13] We also reported that representative appointments are generally not appropriate for scientific and technical advisory committees, which typically provide advice on behalf of the government. We made recommendations to the two agencies responsible for overseeing aspects of federal advisory committees to, among other things, provide additional guidance to federal agencies on the appropriate use of representative appointments. In response, these agencies issued such guidance in 2004 and 2005. (See appendix I for

[12]We also reported that EPA's Federal Insecticide, Fungicide, and Rodenticide Scientific Advisory Panel has a committee formation process similar to that of the Science Advisory Board.

[13]Special government employees serving on federal advisory committees are provided with an exemption that allows them to participate in particular matters that have a direct and predictable effect on their financial interest if the interest arises from their nonfederal employment and the matter will not a have a special or distinct effect on the employee or employer other than as part of a class.

additional information on our 2004 federal advisory committee recommendations.)

The two scientific EPA federal advisory committees we assessed in our 2004 report appropriately appointed their members as special government employees. We note that 16 of the 24 EPA federal advisory committees currently use representative appointments, according to the government's database of federal advisory committee information. While EPA may be appropriately seeking stakeholder advice from some of these advisory committees, a number of its committees focus on scientific and technical questions for which EPA is likely to be seeking advice on behalf of the government on the basis of committee members' best judgment, rather than stakeholder advice. EPA's scientific and technical committees using representative appointments include the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances, the Coastal Elevations and Sea Level Rise Advisory Committee, the Environmental Laboratory Advisory Board, and the Children's Health Protection Advisory Committee. In reviewing information about EPA's committees, we found that descriptions of the objectives and scope of committee activities for EPA committees using representative appointments are similar to such descriptions for EPA committees using special government employees, such as the Science Advisory Board; the Federal Insecticide, Fungicide, and Rodenticide Science Advisory Panel; the National Drinking Water Advisory Council; and the Human Studies Review Board.

As EPA moves forward with actions to enhance its scientific integrity, it will be appropriate for the agency to review its federal advisory committee appointments, especially those for which it appoints members as representatives, to help ensure that committee work is not jeopardized by allegations of conflict of interest or bias. As discussed earlier, committee members appointed as representatives are not evaluated for potential conflicts of interest. If some EPA committee members are inappropriately appointed as representatives, EPA cannot be assured that any real or perceived conflicts of interest of their committee members who provided advice on behalf of the government were identified and appropriately mitigated. Further, allegations that the members had conflicts of interest could call into question the independence of the committee and jeopardize the credibility of the committee's work.

Advisory committee charters generally expire at the end of 2 years unless renewed by the agency or Congress. The EPA committees with representative members discussed earlier have charters expiring in 2009 and 2010. As it reviews its policies and procedures to ensure scientific

integrity, EPA could either comprehensively review the appointments of its 16 committees with representative members or, alternatively, review them as the charters are renewed. We note that EPA has in-house expertise in managing federal advisory committees composed of special government employees—for example, the staff who administer and coordinate Science Advisory Board committees—and thus should be well positioned to address this issue.

In conclusion, EPA's most recent changes to the IRIS assessment process, if effectively implemented, would represent a significant improvement over the process put in place in 2008. Among other things, the reforms appropriately restore EPA's control of the IRIS process and increase the transparency of the process. In addition, EPA was responsive to our 2001 recommendations for improving the independence and balance of committees convened by EPA's Science Advisory Board by developing policies and procedures that represent best practices. As a result, if these policies and procedures are implemented effectively, EPA can have an assurance that its Science Advisory Board panels are independent and balanced as a whole. However, a number of EPA's other federal advisory committees do not appear to have benefited from the steps the Science Advisory Board has taken to enhance the integrity and transparency of its committees. As EPA takes additional steps to comply with the President's March 9, 2009, memorandum on scientific integrity, we believe that EPA's scientific processes could be further enhanced by considering our questions about some aspects of the IRIS assessment process and reviewing its federal advisory committee appointments.

Madam Chairman, this concludes my prepared statement. I would be happy to respond to any questions that you or other Members of the Committee may have at this time.

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Appendix I: Information on GAO's 2004 Federal Advisory Committee Recommendations

Following are highlights of the recommendations in our 2004 report, *Federal Advisory Committees: Additional Guidance Could Help Agencies Better Ensure Independence and Balance*,[1] to the General Services Administration (GSA) and the Office of Government Ethics (OGE). These agencies oversee aspects of federal advisory committees. Specifically, GSA develops guidance on establishing and managing Federal Advisory Committee Act (FACA) committees, and OGE develops regulations and guidance for statutory conflict-of-interest provisions that apply to special government employees.

Our 2004 report contained recommendations to GSA and OGE to, among other things, provide additional guidance to federal agencies on the appropriate use of representative appointments. Specifically, we recommended that guidance from OGE to agencies be improved to better ensure that members appointed to committees as representatives were, in fact, representing a recognizable group or entity. OGE agreed that some agencies may have been inappropriately identifying certain advisory committee members as representatives instead of special government employees and issued guidance documents in July 2004 and August 2005 that clarified the distinction between special government employees and representative members. In particular, as we recommended, OGE's clarifications included that (1) members should not be appointed as representatives purely on the basis of their expertise and (2) appointments as representatives are limited to circumstances in which the members are speaking as stakeholders for the entities for groups they represent.

We also recommended that OGE and GSA modify their FACA training materials to incorporate the changes in guidance regarding the appointment process, which they have done. In addition, we recommended that GSA expand its FACA database to identify each committee member's appointment category and, for representative members, the entity or group represented. GSA quickly implemented this recommendation and now has data on appointments beginning in 2005. Finally, we recommended that OGE and GSA direct agencies to review their appointments of representative and special government employee committee members to make sure they are appropriate. OGE's 2004 and 2005 guidance documents addressed this issue by, among other things, recommending that agency ethics officials periodically review appointment designations to ensure they are proper.

[1]GAO-04-328.

Related GAO Products

High-Risk Series, An Update. GAO-09-271. Washington, D.C.: January. 2009.

EPA Science: New Assessment Process Further Limits the Credibility and Timeliness of EPA's Assessments of Toxic Chemicals. GAO-08-1168T. Washington, D.C.: September 18, 2008.

Environmental Health: EPA Efforts to Address Children's Health Issues Need Greater Focus, Direction, and Top-Level Commitment. GAO-08-1155T. Washington, D.C.: September 16, 2008.

Chemical Assessments: EPA's New Assessment Process Will Further Limit the Productivity and Credibility of Its Integrated Risk Information System. GAO-08-810T. Washington, D.C.: May 21, 2008.

Toxic Chemicals: EPA's New Assessment Process Will Increase Challenges EPA Faces in Evaluating and Regulating Chemicals. GAO-08-743T. Washington, D.C.: April 29, 2008.

Federal Advisory Committee Act: Issues Related to the Independence and Balance of Advisory Committees. GAO-08-611T. Washington, D.C.: April 2, 2008.

Chemical Assessments: Low Productivity and New Interagency Review Process Limit the Usefulness and Credibility of EPA's Integrated Risk Information System. GAO-08-440. Washington, D.C.: March 7, 2008.

Federal Advisory Committees: Additional Guidance Could Help Agencies Better Ensure Independence and Balance. GAO-04-328. (Washington, D.C.: April 16, 2004.

EPA's Science Advisory Board Panels: Improved Policies and Procedures Needed to Ensure Independence and Balance. GAO-01-536. Washington, D.C.: June 12, 2001.

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Questions from Senator Boxer

Q1: Clean Air Reforms: Mr. Stephenson, the Government Accountability Office investigated EPA's 2006 changes to the process of creating Clean Air Act standards -- and reported on its findings before this Committee last year. I asked GAO to conduct this investigation because the changes appeared to put politics before science when protecting the public health. EPA has recently reformed the way it creates these standards. Do you think that these reforms will help to put science back in the driver's seat when EPA creates clean air standards?

GAO Response: Our 2006 report on air toxics, *Clean Air Act: EPA Should Improve the Management of Its Air Toxics Program* (GAO-06-669), included the following recommendations to EPA:

To improve the management of EPA's air toxics program and enhance its ability to reduce risks of cancer and other adverse health effects, we recommend that the EPA Administrator require the Assistant Administrator for Air and Radiation to develop an air toxics program improvement plan that incorporates the following five issues:

- provides a detailed schedule for completing its mandated air toxics activities and identifies the staffing and funding resources needed to meet the schedule and address the health risk assessment needs;
- prioritizes activities within the air toxics program, placing the highest priority on those actions that have the greatest potential to address health risks, to the extent permitted by the Clean Air Act;
- establishes a process and timelines for meeting the act's requirements to periodically review and update the list of air toxics;
- outlines an approach and timelines for improving the agency's ability to measure the program's costs and benefits; and
- describes how the agency plans to improve its air toxics emissions inventory, including a discussion of the statutory authority for, and the merits of, requiring states and emissions sources to submit standardized emissions data.

As you know, we periodically follow up with agencies on their responses to our recommendations. As of our last review, EPA had not implemented these recommendations, and they remain open in our recommendations reporting system. We are following up with EPA to determine if they have progressed in responding to these recommendations and to encourage them to do so expeditiously.

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Currently, EPA's Science Advisory Board is reviewing EPA's risk and technology review program, which addresses the residual risk component of regulating air toxics.

Q2: Importance of Scientific Integrity: Mr. Stephenson, the Government Accountability Office is an independent, nonpartisan agency that investigates how the federal government spends taxpayer dollars. As the GAO's Director in charge of investigating natural resources and environmental issues, how would you characterize the importance and benefits of improving the scientific integrity of federal agency decisions?

GAO Response: Improving the scientific integrity of federal agency decisions is critical to agencies' ability to develop scientifically sound environmental decisions, policies, and regulations. That is why GAO has recommended, for example, that EPA assess the health risks of exposure to toxic chemicals using the best available science and a transparent assessment process.

Questions from Senator Lautenberg

Q1. In January, the GAO declared the U.S. system of regulating chemicals to be "high risk." The GAO found that our current chemical law "places the burden of obtaining data on existing chemicals on EPA, rather than on the companies that provide the chemicals." Shouldn't the EPA be able to require companies to provide information to the EPA on the safety of their chemicals?

GAO Response: The current legal framework places restrictions on EPA's ability to require companies to provide information on the safety of their chemicals. Other approaches, such as that adopted by the European Union, merit consideration.

Q2. The technology for performing risk assessments has advanced rapidly in recent years. Yet the pace of assessment at the EPA has remained frustratingly slow. You attribute this slow pace partly to interference from OMB and other agencies, as well as delaying some decisions to wait for new research. What can be done to speed up the assessment process?

GAO Response: First, as we have recommended, we believe that risk assessments should be based on the best *available* data—meaning that only in extraordinary circumstances would an assessment be delayed to await the results of an ongoing or planned study. Regarding delays stemming from reviews by OMB and other agencies, EPA needs to manage the process, setting time frames for receipt of comments.

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EPA's new IRIS assessment process, announced in May 2009, responds to GAO's recommendation that EPA define the appropriate role of external federal agencies in EPA's IRIS assessment process and manage an interagency review process in a manner that enhances the quality, transparency, timeliness, and credibility of IRIS assessments, including determining when interagency issues have been appropriately address and providing comments by OMB and other federal agencies on the draft IRIS assessments to decision makers, the Congress, and the public. If implemented effectively, these changes should enable EPA to better manage its IRIS assessment process and provide timely assessments.

Q3. Your 2006 report on the air toxics program at the EPA found that ninety-five (95) percent of Americans face an increased likelihood of developing cancer because of exposure to air toxics like mercury, benzene, and asbestos. Has the EPA made any progress in improving its air toxics program since you examined it in 2006?

GAO Response: As noted above, we periodically follow up with agencies on their responses to our recommendations. To date, EPA has not implemented the recommendations in our air toxics report and remain open in our recommendations reporting system.

Questions from Senator Cardin

Q1. In a March 2009 EPA Management Challenges Study you cited polluted storm water as one of EPA's major challenges to reducing pollution in the Nation's Waters. I wholeheartedly agree that this is serious problem that is difficult to tackle. You noted that EPA still hasn't developed rapid water-testing methods as required under the BEACH Act. Seeing as how this was a management study, did you find any correlation between EPA's management approach and the Agency's inability to develop and apply the scientific data necessary for these rapid water quality tests?

GAO Response: GAO's March 2009 testimony statement on EPA's management challenges was a compilation of information on challenges that the agency faces based on information that was gleaned from numerous studies that we conducted over the past decade. In this statement we included an example of EPA not having developed rapid testing methods and current water quality standards to demonstrate a major deficiency and challenge related to the agency's efforts for reducing pollution in our nation's water bodies. The information supporting this observation was developed during GAO's May 2007 review of EPA's implementation of the BEACH Act. In that review we determined that EPA had not complied with the BEACH Act's

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requirement to conduct epidemiological studies that would allow agencies to identify appropriate pathogen indicators for contamination of coastal waters and develop accurate, expeditious, and cost effective methods for detecting the presence of these pathogens. Although GAO's review did not link this delay to EPA's management approach, we did identify the following reasons for the delay: (1) EPA completed the studies for freshwater, but the marine water studies were interrupted by Hurricane Katrina, (2) EPA officials believed that the initial time frames in the BEACH Act were unrealistic given the time that it takes to complete these studies and develop standards, and (3) resource constraints may be affecting the ability of the agency to complete the studies and develop the testing methods.

In August 2007, EPA developed a Science Plan to communicate the agency's high priority research that it intends to conduct to establish the scientific foundation for new or revised recreational water quality criteria. As outlined in the Science Plan, EPA intends to conduct ongoing scientific research from July 2007 – December 2010, during which the agency will undertake several scientific studies including, rapid water quality testing methods using molecular biology techniques. According to EPA, the agency expects to analyze and synthesize the study results and develop and publish the new or revised recreational water criteria and supplementary information during the January 2011 – December 2012 period.

Q2. In this same report you cite numerous Clean Water program areas where the GAO made recommendations as to how EPA could more effectively regulate discharges from CAFOs [Concentrated Animal Feeding Operations - or "Factory Farms"], implement its stormwater program, better protect public safety at beaches, and how EPA could better coordinate the Chesapeake Bay program to put its limited resources towards the most cost-effective restoration activities. You said that EPA largely agreed with your recommendations. Please tell us about the plans or commitments EPA made regarding the implementation of your recommendations?

GAO Response:

Concentrated Animal Feeding Operations

In September 2008, we issued a report entitled *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern* (GAO-08-944, Sept. 4, 2008), that discussed (1) the trends in concentrated animal feeding operations (CAFOs) over the past 30 years, (2) the amounts of waste they generate, (3) findings of key research on the impacts of air and water pollutants from CAFOs on human health and the environment, (4) the progress that EPA and the states had made in regulating and

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controlling the air pollutants emitted by CAFOs, and (5) the impact that recent court decisions have had on EPA and the states' ability to regulate CAFO discharges that impair water quality. In that report, we included 4 recommendations—one recommendation to improve EPA's ability to more effectively monitor and regulate CAFOs and three recommendations to more effectively determine the extent of air emissions from animal feeding operations. EPA agreed with our finding that that no national inventory of permitted CAFO exists and agreed it should complete its efforts to develop such an inventory. The agency indicated that it is currently working with its regions and the states to develop and implement a new national data system to collect and record facility-specific information on permitted CAFOs. In response to our recommendation that EPA reassess the nationwide data collection efforts to ensure that the data being collected would provide the scientific and statistically valid data that EPA needs to estimate the air emissions from animal feeding operations, EPA noted that it had developed a quality assurance plan for the data collected during the study. However, EPA did not address our concerns that the monitoring sites selected for the study may not represent a statistically valid sample or might account for the differences in climatic conditions, manure handling methods, density of operations, or other sources that could contribute significantly to emissions from animal feeding operations. In response to our recommendation that EPA identify the additional data that it plans to use to supplement the nationwide air emissions monitoring study, EPA stated that it could not identify the data that it will use to augment the data collected during the monitoring study and did not provide information on when it plans to identify the supplemental data that it plans to use. EPA agreed with our recommendation that it needs to establish a strategy and timetable for developing a process-based model that can more accurately predict the total air emissions from animal feeding operations and said that it has begun to evaluate what is needed to develop such a model. However, the agency did not provide any information on when it expects to complete its plans for developing a process-based model.

Stormwater Program

In May 2007, GAO issued a report entitled *Clean Water: Further Implementation and Better Cost Data Needed to Determine Impact of EPA's Storm Water Program on Communities* (GAO-07-479, May 31, 2007), that discussed (1) the progress made in implementing the storm water program, (2) the extent to which the program burdens communities, (3) the accuracy of EPA's cost estimates for the program, and (4) the data available for assessing the program's burden in the future. To enable EPA to evaluate the implementation of the storm water program, we recommended that EPA issue guidance and consider regulatory changes to ensure that (1) communities report on activities in sufficient detail to determine their scope, costs, and results; and

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(2) communities report this information consistently so that it can be analyzed on a national basis.

EPA agreed with our recommendation and stated that it was developing annual reporting guidance to improve the quality and consistency of data reported by communities. More recently, EPA indicated that it had determined the most effective way to obtain comparable data across the nation was to develop a set of standardized questions for all small municipal separate storm sewer systems to use in reporting their storm water activities to their NPDES permitting authority. According to EPA, the agency has finalized an annual reporting form that consists of a set of standardized questions, including queries about implementation status, resources being expended on the program, and environmental outcomes. EPA reported that it has circulated the annual reporting form to EPA regional and state storm water programs and, while the agency determined that it was not appropriate to modify annual reporting regulations, it is taking some steps to encourage states to use the form.

Protection of Public Safety at Beaches

In 2007, GAO reported that EPA had not complied with the BEACH Act's requirement to conduct epidemiological studies that would allow federal and state agencies to identify appropriate pathogen indicators for contamination in coastal waters and develop accurate, expeditious, and cost effective methods for detecting the presence of these pathogens. As a result, to better protect beachgoers from contamination at coastal beaches, GAO recommended that EPA needed to establish a definitive time line for completing the studies on pathogens and their effects on human health, and for publishing new or revised water quality criteria for pathogens and pathogen indicators.

EPA agreed with our recommendation and in March 2007, the agency held a week-long workshop that brought together experts to discuss issues related to the development of new or revised water quality criteria for pathogen indicators. A summary of the proceedings and input from experts participating in the workshop is included in the *Report of the Experts Scientific Workshop on Critical Research Needs for the Development of New or Revised Recreational Water Quality Criteria.* After considering input from the experts at the workshop, in August 2007, EPA developed a *Critical Path Science Plan for Development of New or Revised Recreational Water Quality Criteria* (Science Plan). The purpose of the Science Plan was to communicate the agency's high priority research that it intends to conduct to establish the scientific foundation for new or revised recreational water quality criteria. As part of this plan,

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EPA also developed a *Criteria Development Plan* (CDP) that describes the process and timeline the agency will follow in developing and publishing new or revised recreational water quality criteria. According to the CDP, EPA plans to conduct ongoing scientific research from July 2007 – December 2010, during which the agency will undertake several scientific studies including, rapid water quality testing methods using molecular biology techniques. EPA expects to analyze and synthesize the study results and develop and publish the new or revised recreational water criteria and supplementary information from January 2011 – December 2012. As we previously reported, without the completion of these studies and the development of new water quality criteria, states will have to continue to use existing methods that are already outdated for monitoring water quality at their beaches.

Chesapeake Bay Program

In 2005 we issued a report entitled *Chesapeake Bay Program: Improved Strategies Are Needed to Better Assess, Report, and Manage Restoration Progress* (GAO-06-96) that addressed the management, coordination, and reporting mechanisms used by the Bay Program. Our report included six recommendations—one recommendation to develop and implement an integrated approach to measure overall progress of the restoration effort, three recommendations to enhance the effectiveness and credibility of the restoration effort, and two recommendations to improve the management and coordination of the effort. The Bay Program has made progress in addressing the six recommendations made in our report, and has fully implemented 3 of the 6 recommendations, but needs to take additional actions to fully address the three other recommendations. Specifically,

- *The Bay Program has developed an integrated approach to measure progress.* In response to our recommendation, the Bay Program has integrated key measures into 3 indices of bay health and 5 indices of restoration progress. According to the Bay Program, these indices are now being used to assess and report on the overall progress made in restoring the bay's health and implementing restoration efforts.
- *The Bay Program has improved its reporting format, but needs to take additional steps to ensure the independence of the reporting process.* In response to our recommendation that the Bay Program's report include an ecological assessment of the health of the bay, the program has developed and used a set of 13 indicators of bay health to report on the key ecological attributes representing the health of the bay. The Bay Program has also developed an annual reporting process that, unlike the previous format, clearly distinguishes between ecosystem health and management actions in response to our recommendation that the program report separately on the health of the bay and the progress made in implementing management actions. However, we believe that the Bay Program's actions to

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establish the independent and objective reporting process that we recommended fall short and we remain concerned about the lack of independence in the reporting process. While the program has charged its Scientific and Technical Advisory Committee with assuring the scientific integrity of the data, indicators, and indices used in the program's publications, we do not believe that this committee can provide a fully independent review of the Bay Program reports because it is a standing committee of the Bay Program and provides input and guidance on developing input and guidance on developing measures to restore and protect the bay. Furthermore, although the Bay Program also instituted a separate reporting process by the University of Maryland's Center for Environmental Science, we do not believe that the report issued by the Center is as independent as the Bay Program believes because several members of the Scientific and Technical Advisory Committee are also employees of the center. We continue to believe that the Bay Program can take additional steps to establish a more independent peer review process that will further enhance the credibility and objectivity of its reports.

- *The Bay Program established a strategic framework but key elements to more effectively coordinate and manage the restoration effort are still needed.* In response to our recommendation to develop a comprehensive, coordinated implementation strategy the Bay Program has developed a strategic framework to unify existing planning documents and articulate how the restoration partnership will achieve its goals. However, the framework provides only broad strategies for meeting the Bay Program's goals and does not identify the activities that will be needed to reach the goals, resources needed to undertake the activities, or the partner(s) that will be responsible for funding and carrying out the activities. We believe that additional work is needed before the strategy that the Bay Program has developed can move the restoration forward in a more strategic and well-coordinated manner. The Bay Program has also taken a number of steps to address our recommendation that it establish a means to better target its limited resources to the most cost-effective restoration activities. Among other things, the Bay Program has adopted an adaptive management process, and has established annual targets and a funding priority framework. However, these steps by themselves will not allow the Bay Program to target their limited resources. The program continues to lack benchmark information on what activities should have been undertaken and how much funding is needed and partners will remain unable to identify gaps and duplication in their efforts, which are key inputs necessary to implement an effective adaptive management approach. In addition, not all annual targets are associated with priorities and without clear priorities, the Bay Program's restoration partners will not be able to

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Questions from Senator Inhofe

Q1. EPA is supposedly streamlining the way it assesses the health effects of chemicals. EPA is removing some of the steps in the Integrated Risk Information System (IRIS) review process. Specifically, they are having less internal EPA review, not more, less peer review, not more, less OMB review, not more, and less international partner review, not more. And yet, when EPA's assessments under the existing system undergo outside peer review, they are consistently criticized. In at least three major instances, the National Academy of Sciences has found serious problems with EPA's assessments (dioxin, perchlorate, and trichloroethylene). And now EPA wants to do even less checking and quality control. EPA calls them roadblocks. I call them assurance. I'd rather see EPA get these assessments right than get them fast. If EPA's goal is more scientific integrity and more transparency, why when it comes to IRIS are they reducing both?

GAO Response: In our review of the revised IRIS process, we found that EPA will increase the integrity and transparency of its assessments if it effectively implements the new process. The steps that EPA has eliminated include (1) stopping ongoing assessments to wait for the design and implementation of new research and (2) developing what EPA referred to as a qualitative assessment. As we have recommended, risk assessments should be based on the best available, and only in extraordinary circumstances should an assessment be delayed to await the results of an ongoing or planned study. In addition, the qualitative assessment was eliminated was an interim product EPA created in 2008. Not only is this interim produce unnecessary, it would have added significant time to the assessment process. Overall, the new process improves the transparency of the IRIS assessment process by making all comments on draft assessments available to the public and also by including public listening sessions for comments on draft assessments. The IRIS process continues OMB/Interagency and Expert Peer Reviews of draft assessments. Comments from both of these reviews are to be publicly available.

Q2. Please explain how EPA's new IRIS process meets generally-recognized definitions of scientific peer review.

GAO Response: While we are not certain what particular aspect of scientific peer review is of concern to you, we note that draft IRIS assessments are reviewed by

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independent expert review panels, receive interagency review, and that EPA requests comments from the public on the drafts. In terms of transparency, input provided from these reviews is to be available to the public.

Q3. In your opinion, how important is the reproducibility of study results when weighing the value of one study versus another? How do we ensure scientific integrity and transparency for studies whose results cannot be reproduced or that did not follow Good Laboratory Practices (GLP)?

GAO Response: Overall, the quality and credibility of the study or studies used to support scientific assessments are of the utmost importance. Peer review is an important quality control measure.

Q4. What type of study should be given more weight, all other things being equal: a toxicity study or an epidemiology study? Why?

GAO Response: As stated in our 2001 report, *Environmental Protection Agency: Use of Precautionary Assumptions in Health Risk Assessments and Benefits Estimates* (GAO-01-55): "Data from epidemiological studies are preferred for characterizing human health risks because they can provide the most direct evidence that a substance poses health risks to people." The report highlights the strengths and limitations of both toxicity and epidemiology studies.

Q5. In the field of toxicology most scientific methods have been developed by scientific consensus through ASTM and OECD (organization for Economic Co-operation and development). GLP ensures integrity and transparency. If these protocols are followed, do you see any reason to discount a scientific study that is run by an independent laboratory and funded by a chemical company? Would you give such a study less weight than a study conducted at a university that did not follow an ASTM or DECO protocol? Would you do the same for one that did not follow GLP?

GAO Response: Evaluations of the quality of studies should apply consistent criteria, regardless of who funded the studies.

Q6. Peer review is an integral part of the scientific process. Scientific journals typically do not publish toxicity studies that do not show some kind of toxic effect. By what criteria should a study be judged if a scientific journal refuses to publish the study because it showed no toxic effect?

GAO Response: We are not aware of instances in which mainstream scientific journals have declined to publish well designed and conducted studies because they

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do not show toxic effects. We believe that the quality and credibility of studies are typically central to journals decisions about what they will publish.

Q7. For most scientific disciplines there are standards and methods developed by international standard-setting bodies, whether through ASTM (American Society of Testing of Materials), OECD, ISO (International Standards Organization) or elsewhere, to ensure scientific integrity and transparency. What do you propose Congress do that has not been achieved through international standards organizations?

GAO Response: GAO has not examined this issue.

Q8. What is the difference in bias between a study funded by a chemical company that sells a particular chemical and a study funded by an environmental group wanting to ban that chemical?

GAO Response: Your question highlights why it is important for research studies to fully identify the sponsors who provided funding. The potential for bias may exist in either case, depending on how the studies are managed and peer reviewed, and it is important for users of the studies to be informed about the potential for bias.

Senator WHITEHOUSE. Thank you very much, Director.

Let me first tell you how much we appreciate the work that you did back in, I guess, 2008, on the original IRIS process, which as GAO found lent itself to interference, perhaps even capture, and was not consistent with the transparency that one expects for this type of determination, where the life and health of Americans will be at stake.

So it was good work. We appreciate it. And I am delighted that you have come back to review the remedy, and I think the recommendations that you make for EPA are very helpful on that.

I would like to follow up a little bit on this question of the science advisory boards. You have indicated a distinction between two methodologies. One is a sort of representative methodology where you get an industry scientist and somebody else and they become proxies for different interest groups. And the other is a process whereby you try to get people who are the best scientists and you bring them in to give their best judgment. And that those are two different approaches.

When Administrator Johnson was in charge, we often heard that where there was some uncertainty or where there was some doubt, that created a range of reasonable decisionmaking for the Administrator and he could therefore decide, based on the doubt, to err, say, toward the industry side of the equation.

It strikes me that there is a circularity here. If you use the representative model, bringing in scientists who would ordinarily have a conflict of interest, but are exempted from conflict of interest rules in order to provide the industry point of view, and they conflict with the legitimate science or with the environmental science point of view, by using that representative mechanism, you have created doubt in your science advisory panel.

And now you are in a position to say, aha, there is doubt about the science from the scientific advisory panel, and therefore I now have authority not to go where the science would ordinarily dictate.

And it seems that there is almost a feedback loop between the Administrator's discretion to avoid the science based on doubt and uncertainty, which he referred to over and over again in hearings, and the doubt and uncertainty that is inherently created when you have this turned into kind of a mini-legislative body instead of a peer science body.

Would you comment on that?

Mr. STEPHENSON. Yes. I think both roles are appropriate. I mean, you want representative scientific advisory committees to represent special groups, industry or whatever. That is appropriate. But you also want a set of advisory committees that are advising the Government. They are special Government employees, if you will, on the integrity in the science. And our only caution is that you shouldn't confuse the two types of groups and you should use them appropriately.

We think as a general rule that having stronger conflict of interest policies and procedures for assigning the members or selecting the members of those committees are nevertheless still important.

Senator WHITEHOUSE. Thank you.

Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

You had stated in your opening statement, Mr. Director, that the IRIS approach now is a step in the right direction. And I notice that Chairman Boxer and I both have this same chart. This is one that was put together of the revised IRIS process post-April 10th of 2008.

Now, we are supposedly streamlining the way it assesses the health effects of chemicals. The EPA is removing some of the steps of the integrated risk information system review process. That is what we are talking about here, some of the steps.

Now, it looks like a busy chart. It looks like a lot of steps, probably a lot of them I would find that were not necessary. But EPA specifically is cutting back internal EPA review. It is cutting back peer review, cutting back OMB review, and cutting back the international partner review.

Now, if they are cutting back all of these, why do you say that is a step in the right direction?

Mr. STEPHENSON. Well, I don't think they are cutting them out entirely. In our view, and this is a preliminary view, they have consolidated some of those assessments that the other Federal agencies will provide.

Senator INHOFE. OK. Well, specifically, look at the OMB interagency review and the revised assessment post-peer review. Where were they combined with something else to preserve the integrity of their review?

Mr. STEPHENSON. Well, in our view, they could consolidate the agency input as well as the industry input and any other stakeholder input at the same time, and consider those and do it in a very public way. All the research and information provided by the Federal agencies, as well as any other stakeholder, could be considered at that time.

Senator INHOFE. So you are saying that there is OMB interagency review now, in this revised IRIS system that is in place today?

Mr. STEPHENSON. What we are saying is it is not clear how the White House offices will be involved in this particular process. And we think that needs to be clarified and that needs to be strengthened. We are certainly not against agency input to the IRIS process. It just should be scientific research, the same as any other stakeholder should be. It should be done in public, very transparent.

Senator INHOFE. OK, I would like to ask the same thing of you that I did of the Administrator, that you would submit in writing, for the record, which of these steps that were in this chart that you have seen and have worked with, that are eliminated or combined, and where they are combined. Would you do that?

Mr. STEPHENSON. We will be happy to do that.

Senator INHOFE. OK. Some comments were made by Senator Whitehouse about the science. He referred to industry science and environmental science. Is it your effort? I think we are all interested in having both sciences, as they are kind of conflicting sciences.

Mr. STEPHENSON. Absolutely.

Senator INHOFE. Would it be your wish, whether it is on a scientific advisory board or elsewhere, to have equal input if we are

characterizing by either environmental or industry? My personal feeling is there shouldn't be a difference. Science should be science and it should be blind to industry and environment.

Mr. STEPHENSON. I absolutely agree. IRIS is supposed to be a collection and synthesis of the available science on a given chemical at a given time, and certainly everybody has a research and science that is relevant to that. I don't make a distinction between industry science and environmental science.

Senator INHOFE. But if some of the scientists come from an association or an industry that could be made appear to be prejudiced, would you make the effort to have the other side also?

Mr. STEPHENSON. Absolutely. That is written out in the scientific advisory committee rules that you should have all points of view equally represented.

Senator INHOFE. All right. Thank you very much.

Mr. STEPHENSON. Certainly.

Senator WHITEHOUSE. Chairman Boxer.

Senator BOXER. Thank you, Mr. Chairman.

Senator WHITEHOUSE. How unusual for me to be able to call on you.

Senator BOXER. Well, thank you very much. I greatly appreciate it.

Let me just say to GAO and to you personally, Mr. Stephenson, a great big thank you for the work that you did, because when I called you in here and we found out what was going on, there was some grave concern. And I don't disagree with anything Senator Inhofe said, but that's not what was going over there.

And this is what the process was when you took a look at it. By the way, this is only part of it, because here it says, Federal agencies identify mission-critical chemicals, and if no new studies, then go to step 14. Step 14 isn't even on here because they didn't have space for it, so there is more. And then over here it says, public listening session for comment on draft assessment announced in FRN in step 17(a). And that's not even on this particular sheet.

So what was going on over there? If I could just say what I would have entitled this thing, it is how to kill scientific risk assessment. That is what I think was going on. They were killing it. They were killing it by dint of the process. They were killing it by inviting the polluters to the table. That is not what this is.

I want to protect my little baby grandson from getting cancer from a lot of chemicals that are out there. I know we all feel the same way. So therefore, I want a system based on science, not based on politics, not based on having the polluter at the table. Of course, they are going to argue that their chemical is safe. We saw the makers of arsenic say that their chemical was safe. So they are all going to say it is safe.

Well, now we have a new assessment. It is understandable to people. It is streamlined, which I would think the other side would like. And the question that Senator Inhofe asked was fine. He said, how do we get the other agencies in? It is right here in step 6(b), EPA-led interagency scientific discussion. And therefore, they are going to listen. But EPA will lead it. They are not going to let these other folks lead it.

So let me ask you a couple of questions in my remaining time. Do you think in general, and I get your specific criticism of EPA and I think they have to address them, but do you think in general that the most recent changes help to ensure transparency when developing IRIS assessments and the changes ensure that EPA controls the development of such assessments, rather than having the polluters control it?

Mr. STEPHENSON. Well, we are GAO, so we are naturally skeptical, and we reserve judgment to see how it is implemented. We think that is very important. But in general, it does allow for all of the research considered in the IRIS process to be publicly available equally, whether it is an agency or an industry or any other environmental group.

Senator BOXER. Good. And of course, it has to be implemented right. And in your own report here, which the Chairman has handed me, the IRIS reforms, if implemented effectively, will represent significant improvements. Among other things, they restore EPA's control of the process and increase transparency.

But your hesitation is that it has got to be implemented in the right way. Correct?

Mr. STEPHENSON. Correct. And we do say that it does go toward implementing most of the recommendations that we made in our April, 2008 report. We just haven't done a full analysis of it.

Senator BOXER. How long will you need until we call you back to let us know if you think they are implementing it effectively? Will it take 6 months, a year? Because we want to stay on top of it through this Oversight Subcommittee.

Mr. STEPHENSON. We want to see what kind of progress they make on the first problematic assessments of some chemicals that have been in the process for over a decade. Now, maybe they have been in a decade for very good reasons, but in general, we want to see if the Administrator can meet her commitment of 23 months on average for an assessment. So I would say at least a year.

Senator BOXER. So, we will have you back in a year to see what the progress is.

Senator Whitehouse, I hope that you will do this in a year.

Now, last question. In your opinion, how important is it to ensure that scientific panels base their decisions on the best available science, not other considerations? Could agencies improve their methods for ensuring the use of the best available science?

Mr. STEPHENSON. Absolutely. We think that there are many EPA advisory committees. And as I said, they serve multiple purposes. The best available science is for the FACA Committee that is an important goal. And we have noted in the past that EPA can use these advisory committees more effectively and proactively than they have in the past. So we will be watching that as well.

Senator BOXER. OK. Let me say finally, again, you know, there is a lot of times you do a lot of reports and nothing much happens, and I don't like that. This time, a lot has happened and implementation is the key, but you have to feel good that you made a big change happen here in the IRIS program. So I just want to thank you.

Mr. STEPHENSON. Thank you. That is our job.

Senator WHITEHOUSE. And now finally the distinguished and very patient Senator from Delaware, Senator Carper.

Senator CARPER. Thank you, Mr. Chairman.

Mr. Stephenson, welcome. It is good to see you. Thank you for joining us today and for the work that you and your colleagues at GAO do.

As you know, the EPA's integrated risk information program and its data base contain the EPA's scientific position on the potential human health effects of exposure to I believe more than 540 chemicals. And you stated before that the system has received an increase in funds and in resources, but we still have some ways to go to have all the information we need in order to fully understand the true human health impacts of certain chemicals.

I am concerned that the missing data in IRIS will delay air toxic policy decisions. And first of all, let me just ask you to just talk with us about is there a better way to collect this information; what are some of the options; how are we collecting that information now; how might we collect it more prudently in the future.

Mr. STEPHENSON. Of course, assessments of air toxins are also some of those 540 that you mentioned. And what we said in our 2008 report is that early planning could really help if EPA on either a two or even a 3-year window out could identify, along with the program offices within EPA, the assessments that were vitally needed to implement the air toxics program and other Clean Air Act programs.

We think that would go a long way to informing the research community what was going to be needed such that it would be available when the IRIS assessment on that particular chemical started. We think that would go a long way toward streamlining, making more efficient the overall assessment of all chemicals, including air toxins.

Senator CARPER. Now, who have you shared that notion with?

Mr. STEPHENSON. We actually recommended that in our 2008 report on IRIS. And early planning can really help in that regard. We had I think 15 or 20 recommendations in that report for improving the then-IRIS process.

Senator CARPER. And who at EPA has responded to those recommendations in that report?

Mr. STEPHENSON. They haven't been responded to specifically in detail. There is a 60-day requirement for all Federal agencies to respond to GAO recommendations and provide that information to the Congress as well. And we haven't done as good a follow up on that as we could have. We are in the process of doing that now to see exactly what has been done toward each of those recommendations.

Senator CARPER. Has the 60-day clock already run?

Mr. STEPHENSON. Oh, yes. That was an April, 2008 report.

Senator CARPER. Well, we are coming up on a 460-day clock. Is that right?

[Laughter.]

Senator CARPER. OK. Of the recommendations that were included, did you say 20?

Mr. STEPHENSON. I am doing it by recollection, but there were a lot.

Senator CARPER. But what were some of the most important ones? You may have said this already.

Mr. STEPHENSON. Well, early planning. We highlighted the need for transparency. We don't have objections to anybody providing research for EPA to consider on a given chemical. We just think it should be very transparent. The research should be publicly available for the whole scientific community to look at. We offered lots of opportunities for streamlining the process, eliminating what we thought as redundant steps or unnecessary steps.

So they went the whole gamut of what we called a broken system back a year ago.

Senator CARPER. I presume that there has been an informal dialog back and forth between GAO and EPA over the last years. Is that true, on these points?

Mr. STEPHENSON. Somewhat. I mean, we don't have specific work going on IRIS right now, looking at the new process. We think, and as I think the Committee thinks, it is better to give the EPA a little bit of opportunity to respond to the process that they just introduced May 21st, and implement it, and then we think it would be appropriate for you all to request GAO, for us to take another look at IRIS down the road.

Senator CARPER. You just kind of answered the last question I was going to ask, what should we be doing differently, or to follow on?

Mr. STEPHENSON. I think just holding oversight hearings like this, keeping the hearings process going; continuing to emphasize scientific integrity; and look at all the individual elements of the agency process that result in good integrity at the agency. I think we are making progress. I think we are on the right track.

Senator CARPER. OK. And my last question is, what kind of job do you think that Senator Whitehouse is doing in chairing this hearing today?

[Laughter.]

Mr. STEPHENSON. An absolutely splendid job.

[Laughter.]

Senator CARPER. I think he is doing his best.

Senator WHITEHOUSE. That may need further investigation.

Senator CARPER. I have never seen him quite this good.

So thank you for joining us today.

Mr. STEPHENSON. Thank you.

Senator CARPER. Senator Whitehouse, thank you for pulling us all together.

Senator WHITEHOUSE. Thank you very much, Senator Carper.

Thank you, Mr. Stephenson. You are excused, but with the appreciation of the Committee for a job well done. And I think as the Chairman said, you must feel considerable satisfaction in seeing such swift results under this Administration of the recommendations that GAO offered in the past. So again, congratulations and well done.

Mr. STEPHENSON. It is nice to see you all use our work.

Senator WHITEHOUSE. While the next panel is joining us, I will add to the record of these proceedings, without objection, a letter received from John Holdren, the Assistant to the President for Science and Technology and the Director of the Office of Science

and Technology Policy, who overseas official travel makes his appearance at this particular hearing impossible, but who wrote to let us know of the importance that the President places on this topic, and to inform us of the important work on scientific integrity that the President has asked the Office of Science and Technology Policy to lead, in particular OSTP's assembly of a task force representing all departments and agencies with what are described as "considerable" scientific missions.

[The referenced document follows:]

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20502

June 9, 2009

The Honorable Sheldon Whitehouse
Chairman, Oversight Subcommittee
Environment & Public Works Committee
United States Senate
Washington, D.C. 20510

Dear Senator Whitehouse:

I am writing in reference to your hearing on scientific integrity in the Federal government and in the policy making process. I regret that overseas official travel makes my attendance impossible, and I hope that this letter will provide the Committee with some insight into the importance the President places on this topic and the important work on scientific integrity that the President has asked the Office of Science and Technology Policy (OSTP) to lead.

More than ever before, science holds the key to the prosperity of our nation, the security of our people, the quality of our environment, and the richness of our lives. For these reasons, during the campaign, Barack Obama and Joe Biden released a blueprint for action that called for "[r]*estoring integrity to U.S. science policy to ensure that decisions that can be informed by science are made on the basis of the strongest possible evidence.*"

Even before his inauguration, the President was sending a strong signal about the importance he attaches to these matters, in the form of his nominations of very prominent scientists to key positions in his Administration, among them Dr. Steven Chu as Secretary of Energy, Dr. Jane Lubchenco as Under Secretary of Commerce for Oceans and Atmosphere and Administrator of the National Oceanic and Atmospheric Administration (NOAA), and Drs. Harold Varmus and Eric Lander as Co-Chairs, with me, of the President's Council of Advisors on Science and Technology (PCAST).

Then, on March 9th, the President signed an executive memorandum to restore scientific integrity in government decision making. He has described it this way: "*the days of science taking a back seat to ideology are over. ... To undermine scientific integrity is to undermine our democracy.*"

The actions and words of the President are a call for a culture shift in Washington, a change in the scientific and policy making conversation, a more candid dialogue. It is a call for our leaders to discuss science honestly and clearly, with an open discussion of how scientific information has contributed to and has been considered in policy decisions. Furthermore, this renewed call for scientific integrity is essential for ensuring the strength and credibility of our scientific workforce by assuring current and future scientists that their work will be respected and properly considered.

More specifically, the President's executive memorandum on scientific integrity directed me, as the Director of OSTP to: "*develop recommendations for Presidential action designed to guarantee scientific integrity throughout the executive branch,*" and to "*confer, as appropriate, with the heads of executive departments and agencies, including the Office of Management and Budget and offices and agencies within the Executive Office of the President ... and recommend*

a plan to achieve that goal throughout the executive branch." The President's memo provided six guiding principles covering issues ranging from the selection and retention of federal scientists, to the availability of scientific information used in policymaking. My office and I were directed to complete this task within 120 days of the issuance of the memorandum.

To fulfill this Presidential request, OSTP has taken a number of steps. First, a task force, representing all departments and agencies with considerable scientific missions, was assembled. This task force consists of career employees holding senior scientific positions (e.g. Chief Scientist) and started its work by examining the existing government policies that serve to protect scientific integrity.

Second, the task force published a Federal Register notice on April 23 requesting public comments on the President's memorandum and its six guiding principles. To maximize public feedback, two mechanisms were provided for respondents: an email address, scientificintegrity@ostp.gov, was created to allow messages to be sent directly to OSTP; and our Open Government staff created an interactive website to allow respondents to comment and rank feedback received on any of the six guiding principles.

The Federal Register notice captured the attention of a number of scientific organizations, which helped publicize the notice and encourage participation. In addition, the task force members were asked to go back to their respective departments and agencies and inform employees of the Federal Register notice. As a result, we received hundreds of thoughtful responses during the public comment period, which closed on May 13th.

Among the comments were responses from individuals, government scientists, noted experts, and a wide range of professional organizations and societies including, the American Association for the Advancement of Science (AAAS), the Union of Concerned Scientists (UCS), Scientists and Engineers for America (SEA), and the American Chemical Society (ACS). The breadth and quality of this input makes the next step easier.

The task force is now compiling the public input and preparing guidance for my recommendations to the President. These recommendations are intended to help promote, foster, and strengthen scientific integrity throughout the executive branch of government. I thank the Committee for their attention to the subject of scientific integrity and look forward to continued interest in this vitally important topic.

Sincerely,

John P. Holdren

John P. Holdren
Assistant to the President for Science and Technology
Director, Office of Science and Technology Policy

cc: Senator Boxer
Senator Inhofe
Senator Barrasso

Senator WHITEHOUSE. The task force has, in the Federal Register, filed a notice requesting public comments on the President's memorandum and its six guiding principles. If anybody wishes to comment into that process, the email address is scientificintegrity@ostp.gov. And he encourages public input so that the process of continuing to enhance transparency and scientific integrity in this Administration can continue forward.

And now it is my pleasure to welcome Dr. Grifo, Dr. Green and Dr. Goldman. You seem to be narrowed in a short bandwidth of the alphabet today. But we are delighted to have you with us. We appreciate the work that you have done in the past, and I turn the hearing over to you for your statements.

Dr. Grifo.

STATEMENT OF FRANCESCA GRIFO, SENIOR SCIENTIST AND DIRECTOR, SCIENTIFIC INTEGRITY PROGRAM, UNION OF CONCERNED SCIENTISTS

Ms. GRIFO. Good morning. My name is Francesca Grifo, as you have said, and I am a Senior Scientist and Director of the Scientific Integrity Program at the Union of Concerned Scientists, a leading science-based non-profit working for a healthy environment and a safer world.

Thank you, Chairman Boxer in absentia, Chairman Whitehouse, and the Ranking Members, also in absentia, and the members of the Committee for the opportunity to speak to you this morning.

The U.S. Environmental Protection Agency is at a crossroads. The EPA is emerging from a period where agency science was often a casualty of political decisions made behind closed doors. Our research documented that 889 scientists personally experienced at least once incidence of political interference between 2002 and 2007.

The current Administrator, Lisa Jackson, has reversed course on many of the most egregious of these decisions and has spoken eloquently about the central role of science and transparency in her vision for the EPA. But as the agency faces mounting challenges in the coming years, the urge to justify policy decisions with tampered science will remain a constant temptation.

We urge Administrator Jackson and Congress to go beyond reversing bad policies from the previous Administration and to take steps to secure the credibility of future EPA decisions.

In truth, there is no silver bullet that will forever protect EPA science from political manipulation. Any law or policy regime that is flexible enough to allow fact-based decisionmaking is vulnerable to mischief by unscrupulous policymakers. There is simply no way to watch over every data point in its journey from scientist to policy arena.

But we can increase transparency and power scientists to speak out in still broader reforms, and ask Congress to pay attention to these issues when drafting legislation and in their oversight.

Transparency means that the media has access to EPA science and scientists. Our finding that 783 scientists disagreed or strongly disagreed that EPA policies allow scientists to speak freely to the news media about their findings suggests the importance of the implementation of an agency-wide media policy that allows scientists

and researchers to freely express their personal views with an explicit disclaimer that they are speaking as private citizens, and not seeking to represent official agency policy.

Public affairs officers also need to have clearly defined and important roles, but are not gatekeepers of information. Our analysis of 15 Federal agencies demonstrates that some agencies are already successfully doing this.

Transparency also means that the public has a right to know the extent of outside influence on the EPA. The EPA should institute a transparency policy for meetings, including a complete public record of all meetings with outside entities. Computers now make this possible as a quick addition to the routine of signing in when visiting a Federal agency.

Transparency can protect the integrity of EPA science, and the EPA should take steps to ensure that science is not manipulated in the regulatory process, specifically by expanding the information it shares with the public about its decisions. The EPA's rulemaking docket should contain all scientific studies in an agency's possession related to proposed regulation, and all official interagency communications regarding rules under review, including those from the White House.

The EPA should publish a summary statement discussing the scientific basis for any regulatory decisions informed by science.

EPA whistleblowers are the last bastion against abuses of science. The agency scientists have a profound responsibility to the U.S. public. To fulfill that responsibility, they need reassurance that standing behind their scientific work will not open them to retaliation.

The House is considering a bipartisan comprehensive whistleblower protection bill. We strongly support that legislation and we urge the Senate to strengthen its whistleblower bill, S. 372, in line with House reforms. But even before strong whistleblower protection is enacted, we hope that Administrator Jackson will send a strong message to agency managers now that Federal scientists who raise concerns or expose agency misconduct should not be retaliated against.

Looking to the future, there are far-reaching reforms that should be considered to equip the EPA for the challenges of the 21st century. To prevent political interference in EPA science by other agencies, the EPA needs to be empowered to take the lead on cross-cutting environmental issues. A 2002 GAO report found merit in the idea of elevating the EPA to a Cabinet-level agency and we concur.

Problems with monitoring and enforcement need to be addressed by Congress and the President to ensure that the EPA is the robust environmental agency that our Country needs. The EPA is an organization that necessarily houses both scientific and policy-making functions. The interaction between these two functions can lead to interference, but is also a source of strength and credibility for the organization.

The science and policy wings of an agency should work as if separated by a semi-permeable membrane that ensures the flow of scientific information and advice from scientists to policymakers to fa-

cilitate the creation of fact-based policies, but strongly limits how policymakers can affect agency scientists.

Finally, in conclusion, the role for Congress. It is vitally important that Congress continue its oversight of agency programs and activities. Risk assessment, cost-benefit analysis, interactions with OMB and the Federal advisory committees have all proven fertile ground for interference in the past, and I urge this Committee to laud Administrator Jackson for her accomplishments, but also to exercise its oversight authority and to remain vigilant to abuses of science.

When considering the next generation of environmental and public health laws, I urge Congress to take steps to ensure that those laws make use of the best available science and use transparency, the empowerment of scientists and other means to increase accountability and create laws that are resistant to political tampering.

I look forward to working with the Committee on these issues. Thank you.

[The prepared statement of Ms. Grifo follows:]

Written Testimony of Francesca T. Grifo, Ph.D.
Senior Scientist with the Union of Concerned Scientists
Director of the Scientific Integrity Program

Before the U.S. Senate Committee on Environment and Public Works

"Scientific Integrity and Transparency Reforms at the EPA"
June 9, 2009

This testimony is presented by Dr. Francesca Grifo, Senior Scientist with the Union of Concerned Scientists (UCS), a leading science-based nonprofit working for a healthy environment and a better world. The full testimony is submitted for the record and Dr. Grifo will summarize her statement for the Committee.

Good morning, my name is Dr. Francesca Grifo. I am a Senior Scientist and the Director of the Scientific Integrity Program at the Union of Concerned Scientists, a leading science-based nonprofit working for a healthy environment and a safer world. I would like to thank Chairmen Boxer and Whitehouse, Ranking Members Inhofe and Barrasso, and the Members of the Committee for the opportunity to speak to you this morning about scientific integrity and transparency reforms at the EPA.

This written testimony contains a brief introduction (p. 1), a discussion of recent developments at the EPA (p. 2), UCS's short-term recommendations for strengthening scientific integrity at the EPA (p. 3), a discussion of long-term issues affecting scientific integrity at the EPA (p. 7), the role of Congress in overseeing EPA's work and in drafting new environmental and public health legislation (p. 10) and a summary of the UCS survey of EPA scientists and our report *Interference at the EPA* (p. 12).

I. Introduction

The U.S. Environmental Protection Agency (EPA) is at a crossroads. The EPA is emerging from a period of time where agency science was too often a casualty of political decisions made behind closed doors. The current administrator, Lisa Jackson, has reversed course on many of the most egregious of these decisions and has spoken eloquently about the central role of science and transparency in her vision for the EPA. Yet the agency faces mounting challenges in the coming years and the urge to justify policy decisions with tampered science remains a constant temptation.

In truth there is no silver bullet that will forever protect EPA science from political manipulation. Any law or policy regime that is flexible enough to allow fact-based decision making is vulnerable to mischief by unscrupulous policy makers. However, there are concrete reforms that can be adopted—such as whistleblower protections for scientists and greater transparency—that will safeguard EPA's science against political interference.

We urge Administrator Jackson to go beyond reversing bad policies from the previous administration and set a higher bar for the agency. She should take concrete steps to secure the credibility of future EPA decisions by adopting the reforms described below.

To document recent problems with political interference in EPA science, the Union of Concerned Scientists (UCS), working with the Center for Survey Statistics and Methodology at Iowa State University, surveyed nearly 5,500 EPA scientists, asking for information about political interference in their scientific work, the use of science in EPA decision making, barriers to communication, employee morale, and the agency's effectiveness. We received completed surveys from 1,586 scientists, representing every scientific program office at EPA headquarters, all 10 regional offices, and more than a dozen research laboratories across the country.

We summarize the findings of our report, *Interference at the EPA*[1], in section VI of this testimony. We include a specific focus on interference in EPA science by the White House Office of Management and Budget (OMB).

II. Recent Developments

Since her confirmation, Administrator Jackson has clearly stated her commitments to scientific integrity and transparency in three memoranda to EPA staff:

- In a January 23, 2009 memo to all EPA staff, Jackson stated, "When scientific judgments are suppressed, misrepresented or distorted by political agendas, Americans can lose faith in their government to provide strong public health and environmental protection. ... I pledge that I will not compromise the integrity of EPA's experts in order to advance a preference for a particular regulatory outcome." In the same memo Jackson also pledged to operate "in a fishbowl."[2] An April 23, 2009 memo provided some further details for her stated commitment to transparency.[3]

- In a May 9, 2009 memo, Jackson reiterated her pledge to uphold scientific integrity at the EPA stating, "Science must be the compass guiding our environmental protection decisions."[4]

In addition to words, Administrator Jackson overturned a number of decisions that had harmed science-based policy making at the EPA.

- April 17, 2009 – reversed the Bush-era decision to ignore EPA's scientific finding that climate change will endanger human health and set in motion potential curbs on greenhouse gas emissions under the auspices of the Clean Air Act.

- April 21, 2009 – restored the full reporting of toxic chemicals in the Toxics Release Inventory (TRI) that had been weakened by the Bush administration.

- May 21, 2009 – overturned Bush administration rules that greatly reduced the role of independent science in drafting national ambient air quality standards (NAAQS).

- May 21, 2009 – overturned Bush administration rules that gave other federal agencies with conflicts of interest greater control over EPA's scientific database known as the Integrated Risk Information System (IRIS).

These are all very welcome developments and help to move beyond many of the problems of recent years. However, there are still several areas where Administrator Jackson could quickly adopt reforms that would strengthen the agency's scientific integrity. Her first priorities should be:

- Drafting an agency-wide communications policy that ensures scientific openness at the EPA
- Providing the public with more information about meetings between agency officials and outside entities
- Routinely disclosing more information about the scientific basis for agency decisions.

We outline concrete recommendations to address these and other issues in the next section.

III. Short-term Recommendations

The many forms of political interference in EPA science revealed through our survey, our interviews, and other sources of information require a suite of solutions in four major arenas: increasing agency transparency, protecting EPA scientists, reforming its regulatory process and strengthening its scientific advisory system.

Making the EPA More Transparent

Decisions made behind closed doors threaten the integrity of EPA science and the agency's ability to protect public health and the environment. Opening up these decisions to congressional and public scrutiny is an important step in revealing and ending the misuse of science.

Transparency in Meetings with Outside Entities

The EPA should institute a transparency policy for meetings with outside entities. This policy should require that the agency post on its website a complete record of all meetings with outside entities including for-profit and not-for-profit organizations, other agencies, and individuals (with the exception of meetings related to national security). Such a policy need not be burdensome, as participants could enter the required information directly into a database before the start of any meeting. The database should include the names and affiliations of meeting attendees as well as the date, time, location, and subject of the meeting.

Administrator Jackson has posted her daily schedule on the EPA website and has encouraged other top EPA officials to do the same. This is a promising start; however the website only displays the schedule for the current day and does not archive previous days, greatly reducing its usefulness to the public. The EPA should publicly archive this information and develop tools (such as email announcements or RSS feeds) for syndicating the administrator's schedule to the public.

Media Policies

A UCS investigation found that the EPA does not have an agency-wide policy governing communication with the public and the media and relies on a patchwork of policies governing individual offices and laboratories. Furthermore, the policies we did uncover did not include provisions necessary to ensure free and open communication of scientific findings between scientists and researchers, and the media, policy makers, and the public.[5]

The EPA should implement an agency-wide media policy that incorporates the following principles:

- Scientists and researchers may freely express their personal views. Scientists and researchers, as any federal employees, have a right to express their personal views outside of a few narrow restrictions (such as releasing classified or proprietary information). Provided that a scientist makes an explicit disclaimer that he or she is speaking as a private citizen and is not seeking to represent official agency policy, he or she should be allowed to speak freely about his or her research and to offer his or her scientific opinions—even in situations where the research may be controversial or have implications for agency policy. Agency policies governing communication with the media should make this option clear and explicit to employees.
- Scientists and researchers have the right to review, amend, and comment publicly on the final version of any document or publication that significantly relies on their research, identifies them as an author or contributor, or purports to represent their scientific opinion. While editing by non-scientists is often necessary and useful, final review by scientific experts is essential to ensuring that accuracy has been maintained in the clearance process.
- Agency employees have clearly defined responsibilities in working with the media. Employees are responsible for the accuracy and integrity of their communications and should not represent the agency on issues of politics or policy without prior approval from the agency's public affairs officer (PAO). Employees are also responsible for working with the PAO to make significant research developments accessible and comprehensible to the public.
- PAOs have clearly defined roles, such as responding promptly to media inquiries and providing journalists and agency staff with accurate information, but not acting as "gatekeepers" of information. Scientists and researchers should not be required to obtain pre-approval from the PAO before responding to a media request about their research. However, requiring scientists and researchers to give the PAO prior notice of such interactions when possible, and to recap the interview afterward, is appropriate.
- If whistle-blower protection reforms are enacted by Congress, employees should be informed of those rights.
- Employees that leave federal service should not be required to sign non-disclosure agreements that restrict disclosure beyond classified or proprietary information.
- Public affairs staff should have a plan for disseminating the media policy to agency scientists and researchers and should conduct trainings in effective media communication that emphasize scientific openness. The official agency media policy should be publicly available on the EPA website.

Publication Policies

Peer review is a pillar of the scientific method; political review is not. While the broad direction of federal research is dictated by agency missions and funding priorities, federal scientists and researchers should be free to conduct that research and publish findings without fear of retaliation. The EPA's process for clearing information for outside publication has occasionally become a de facto policy review, and has delayed publication of papers despite disclaimers that the views are personal.

The EPA should review its peer-review and clearance policies to streamline excessive review and to adopt policies that ensure the free flow of scientific information.

- The EPA should affirm that scientific peer review is the appropriate standard for ensuring the quality of agency scientific information, and agencies should require that only qualified and non-conflicted scientists are involved in peer review of scientific publications.
- For non-official materials (e.g., papers submitted to scientific journals by agency employees), authors should have the option of bypassing any policy review and publishing the work with a disclaimer that it does not represent agency policy. A timely and transparent policy review is appropriate and recommended for official agency documents and reports.
- The EPA should set reasonable time limits for review and clearance of scientific publications and presentations. The supervisor or other reviewing official should provide to the author written clearance on the condition of specified changes being made, not later than 30 days after submission. If this deadline is not met, the author should be allowed to submit the article for publication or presentation with an appropriate disclaimer stating that the article does not represent agency views or policies.
- Draft versions of official agency documents or scientific reports should periodically be made available to the public. A draft version should be released if a document has been completed by agency staff yet held up in the policy or interagency review process for longer than six months.
- Scientific work done in an employee's personal time should not be required to be submitted to an internal review process, even if the employee identifies his or her employer, provided that the work includes an appropriate disclaimer.

Protecting EPA Scientists

The agency's scientists have a profound responsibility to the U.S. public. To fulfill that responsibility, they need reassurance that standing behind their scientific work will not open them to official or unofficial retaliation. Reps. Chris Van Hollen (D-MD) and Todd Platts (R-PA) have introduced a strong comprehensive whistleblower protection bill in the House. We strongly support that legislation, and urge that the Senate strengthen its whistleblower bill, S. 372, in line with the House reforms. But even before strong whistleblower protection legislation is enacted, we hope that Administrator Jackson now will send a strong message to agency managers that federal scientists who raise concerns or expose agency misconduct should not be retaliated against.

Reforming the Regulatory Process

The EPA was created to implement and enforce the nation's environmental laws, and it has developed the expertise, experience, processes, and policies needed to fulfill that charge. While the White House is responsible for overseeing these agencies, a balance should be struck between administration priorities and agency independence.

As was shown above, in recent years the OMB began reviewing the scientific underpinnings of EPA decisions; such political review of scientific information greatly damages the credibility of EPA decisions and should be banned. In its forthcoming executive order on regulatory review, the White House should explicitly respect the agency's reservoir of scientific and technical knowledge and restrain the OMB from reviewing the EPA's scientific and technical documents.

The EPA can also take steps to ensure that science is not manipulated in the regulatory process, specifically by expanding the information it shares with the public about its decisions. The EPA's rule-making dockets should contain:

- All scientific studies in an agency's possession related to a proposed regulation, regardless of whether the study was directly cited or whether it directly informed the final decision.
- All official interagency communications regarding rules under review, including those from the White House.
- Completed and peer-reviewed drafts of agency documents prepared by scientific or technical staff before they are subjected to White House or interagency review.

The EPA should also regularly publish a summary statement discussing the scientific basis for any regulatory decisions informed by science. The statement should be available in a timely fashion and should explain how officials made the final decision given the evidence. The statement should include (1) the rationale for the decision, including all scientific documents and data used to make it, (2) a minority report voicing any significant dissenting scientific evidence or opinions and an explanation of how the agency resolved such differences of opinion, and (3) identification by name of each official and employee who participated in the decision.

Ensuring Robust Scientific Input to the EPA's Decision Making

Agencies should take concrete steps to ensure that inappropriate criteria such as party affiliation and political opinions are never a part of the process for selecting members of scientific committees. Agencies should select members of advisory committees based solely on their experience and technical qualifications in the topic the committees will address.

The process for selecting advisory committee members should be made more transparent. Specifically, the EPA should:

- Publicly announce their intent to form a new scientific advisory committee, or to select a new member for an existing committee.
- Publish criteria for selecting committee members and should solicit nominations for committee membership.

- Call for public comment on the charge to the committee.

After the selection process is complete, the EPA should make basic information on committee members easily available to the public. This information should describe each member's qualifications and background, and disclose past employers and funding sources.

The EPA should specify which advisory committees are expressly scientific and which are designed to gather stakeholder input. The EPA should

- Clarify its criteria for appointing advisory committee members as "special government employees" (SGEs) or "representatives," and ensure that the proper level of scrutiny of conflicts of interest occurs.[6] (SGEs are subject to greater scrutiny than representatives, who are assumed to be stakeholders with special interests.)
- Work with the OGE to explicitly define the type and magnitude of financial ties that constitute a conflict of interest, and it should establish transparent guidelines on the degree to which a conflict of interest would disqualify nominees from participating in a particular committee.
- For committees whose mission is purely to provide objective scientific advice (as opposed to committees designed to gather input from stakeholders), committee members should be appointed as SGEs and should be entirely free of financial conflicts of interest.[7]
- Scientists and researchers with conflicts of interest could provide their expertise to scientific advisory committees, but the EPA should take steps to ensure that they do not have decision-making roles on those committees, and that their participation is limited to making presentations and responding to questions.
- Scientists who have taken public positions on issues should not be excluded from an advisory committee because of concerns about bias. Having a point of view does not preclude an objective assessment of the information presented to a committee. A scientist's membership in a scientific association should not be considered evidence of bias, even if that association has a stated policy agenda.

The EPA should review and strengthen how it uses the scientific expertise of its staff and external advisory committees to create policies—especially when scientific input is critical or required by law. Specifically, the next EPA administrator should work with the Clean Air Scientific Advisory Committee to improve the process for setting the National Ambient Air Quality Standards, to ensure that decision makers have access to the "best available science."

IV. Strengthening EPA's Science Capacity for Future Challenges

The previous section outlined reforms that can be quickly accomplished by the EPA and the Obama administration. Looking ahead to future, there are a number of more far-reaching reforms that should be considered to better equip the EPA for the challenges of the twenty-first century. Many of these will require both Congressional action and thoughtful leadership from the executive branch. Addressing climate change is the most obvious environmental challenge facing the agency, but beyond that issue we discuss four general ways the scientific capacity of the EPA could be strengthened.

Elevating EPA to Cabinet-Level Agency

To prevent political interference in EPA science by other agencies, the EPA needs to be empowered to take the lead on cross-cutting environmental issues. A 2002 GAO report found merit in the idea of elevating the EPA to a cabinet-level agency. The report urged policy makers to consider that: "(1) environmental policy be given appropriate weight as it cuts across the domestic and foreign policies that other Cabinet departments implement and enforce and (2) the head of the agency is able to deal as an equal with his or her counterparts within the federal government and within the international community as well. Providing Cabinet status would also clarify the organization's direct access to the President on environmental matters."[8]

The GAO notes that the United States is "the only major industrial power without a Cabinet-level environmental organization" and that elevation to Cabinet status would "send the symbolic, but important, message to other federal departments and foreign nations that the United States is fully committed to solving the most serious and complex domestic and global environmental problems."

These arguments will only grow more salient as the U.S. begins to consider actions to address global climate change – a problem that not only cuts across multiple cabinet agencies but is intrinsically an international issue. As such, we recommend that the president elevate the EPA to a cabinet-level agency, or establish a Department of the Environment.

Resources, Monitoring and Enforcement

Political interference in the collecting and reporting of environmental monitoring data has occasionally harmed the agency's ability to fulfill its mission. EPA scientists and policy makers need access to accurate and up-to-date data in order to craft sound policy. Similarly, the EPA has a responsibility to provide environmental information to the public.

In addition to interference with the TRI and IRIS databases mentioned above, a 2008 report by the Natural Resources Defense Council identified numerous environmental and public health monitoring programs that had been reduced or eliminated in recent years. Two important EPA monitoring systems—one requiring factory farms to report the emission of air toxics and another tracking levels of perchlorate and MTBE in drinking water—have been dismantled entirely.[9]

Other programs saw cuts in budget or program responsibilities. For example, the network of sites for monitoring lead air pollution shrank from more than 900 in 1980 to little more than 200 in 2005. Today only two of the 27 worst sources of such pollution are within one mile of a monitoring site.[10] Other reduced programs include site inspections and health assessments at Superfund sites and internal reviews performed by the Office of Environmental Justice. The report also identified areas where monitoring programs do not currently exist but are needed to advance the EPA's goals, such as monitoring stormwater run-off and pesticide levels in urban watersheds.

Weak or inconsistent enforcement can undercut even the wisest government policies. In the first five years of the Bush administration, the EPA opened fewer criminal investigations, filed fewer

lawsuits, and levied smaller fines against polluters than in the final five years of the Clinton administration. The result of this drop in enforcement is that it "now costs less to pollute."[11] The Bush administration also undermined pending EPA lawsuits by weakening regulations to allow aging power plants to emit more pollution—a policy that prompted the resignation of Bush's first EPA Administrator, Christine Todd Whitman.[12]

Problems with monitoring and enforcement also need to be addressed by Congress and the president to ensure that the EPA is the robust environmental agency that our country needs. Congress should provide the EPA with resources commensurate with its growing responsibilities and should work to ensure that selective internal budget cuts are not used to punish inconvenient programs or offices. The president should commit to strong and consistent enforcement of the nation's environmental laws.

From 2004 to 2009 the EPA's budget declined by about 25 percent after adjusting for inflation. In President Obama's FY 2010 budget, the EPA received $10.5 billion—a 34 percent boost over 2009—including significant investments in water infrastructure, Superfund site cleanup and climate change monitoring. The EPA also received $7.2 billion in funding through the American Recovery and Reinvestment Act. This is a significant investment in the EPA's ability to address environmental problems in the coming years, and Congress should continue to ensure that EPA's funding levels remain consistent with its responsibilities.

Structural Reforms to EPA Science

The EPA is an organization that necessarily houses both scientific and policy making functions. The interaction between these two functions can lead to political interference, but is also a source of strength and credibility for the organization. The ideal interaction between the science and policy wings of an agency can be thought of as a one-way membrane. It is desirable that scientific information and advice flow from scientists to policy makers, to facilitate the creation of fact-based policies. However, there ought to be strong limitations on how policy makers can affect agency scientists.

It is inevitable that agency priorities will guide the research work of agency scientists (government scientists—unlike their peers in academia—do not have free reign over their topics of study). Furthermore, policy makers utilize this expertise by identifying questions that they would like agency scientists to answer, often in an effort remove uncertainties about various policy options. But beyond these general priority-setting functions, there should be structural impediments to policy makers interfering in the work of agency scientists or external advisory committees.

A wall between scientists and policy makers can be weak or strong, and there are dangers associated with either extreme. In an overly "stovepiped" organization, policy makers may not even be aware of scientific analyses that could inform their work. Conversely, an agency that has completely integrated its scientific and policy making functions may allow the science to be influenced by the prevailing policy enthusiasms—either directly or indirectly.

At EPA there are many different models for distributing these science and policy making roles. For example, there is a significant mass of scientists in the Office of Research and Development (ORD) doing work that could potentially inform EPA's policies. However, other EPA program and regional offices also include significant scientific expertise alongside their policy making functions. The results of our survey show that political interference occurred across all sections of the EPA.

Addressing these structural issues may be crucial to ensuring independent science at the EPA. Because these issues are quite complicated, Congress should considering tasking the GAO or the National Academies with identifying metrics and addressing reforms to EPA's organizational structure that will promote scientific integrity and fact-based policy making.

V. The Role of Congress

Congressional Oversight

As we noted above, there are no silver bullets that will forever protect EPA science from political manipulation, and as a result, it remains vitally important that Congress continue its oversight of agency programs and activities.

The following are examples of decision points in the EPA's policy making processes that bear close scrutiny by Congressional watchdogs:

- Risk Assessment – The new rules governing the IRIS process are a good first step towards depoliticizing risk assessments, but because these scientific assessments can have considerable monetary consequences they will likely be a common target of political interference in the future.

- Cost-Benefit Analysis – Even seemingly minor political interference in required regulatory impact assessments can create the appearance of regulatory costs outweighing the benefits and provide justification for de-regulatory action.

- The Role of OMB – In the past, OMB has served as the gate-keeper for all federal regulations. Too often in recent years, OMB has tampered with the science underlying those regulations. The Obama administration is currently drafting an executive order that will govern how regulatory review is conducted; the interaction of this order with the regulatory priorities of the agencies will be an important subject of oversight.

- Federal Advisory Committees – There are a number of important reforms to the advisory committee system that should be implemented and Congress can play a crucial role in ensuring that federal agencies have plans for incorporating advisory committee expertise into their policy making processes.

Scientific Integrity in New Legislation

When considering the creation of the next generation of environmental and public health laws, the Congress should take steps to ensure those laws are resistant to political tampering. To further this goal, we are developing a check-list for legislators to ensure strong scientific integrity language is included in any pending legislation.

Scientific Integrity:
- How does this legislation protect science from being suppressed, distorted or manipulated?
- What mechanisms are in place to protect employees who report efforts to suppress or distort science?
- Are the metrics and benchmarks for policies based on the best available science?

Transparency:
- Are the scientific studies and other research transparent and publicly accessible?
- Are scientists' dissenting views parts of the public record?
- Are federal scientists to discuss their work with the media?
- Do federal scientists have the freedom to discuss their views, even when they disagree with policy, provided they issue a disclaimer that they are speaking as private individuals?
- Do federal scientists have the right to publish their work in peer-reviewed journals?
- Do federal scientists have the freedom to discuss their work with their colleagues at international conferences?

Rule making and policy making:
- How does the legislation incorporate scientific advisors and advisory committees into the policy process?
- What is the role of the other agencies and of the Office of Management and Budget in formulating policy?

Conflicts of interest:
- Does the legislation create any committees, councils or other entities?
- How will the selection process for members work?
- What information about potential conflicts has to be disclosed?
- Is there a limit on conflict of interest waivers an agency may grant to these participants?
- If it is a scientific advisory panel, are corporate scientists involved as stakeholders or special government employees (SGEs)?
- Are all the advisory councils and other entities that include the participation of non-governmental employees under the jurisdiction of the Federal Advisory Committee Act?
- Are members of these advisory councils permitted to belong to scientific societies, including those with legislative agendas?

Accountability
- When special interests lobby federal agencies, will that information be made public?
- Will their requests be part of the public record?
- Who will ensure that all action items and reports are created and published on time? How?

VI. Interference at the EPA

The U.S. Environmental Protection Agency (EPA) has the simple yet profound charge "to protect human health and the environment." EPA scientists apply their expertise to protect the public from air and water pollution, clean up hazardous waste, and study emerging threats such as global warming. Because each year brings new and potentially toxic chemicals into our homes and workplaces, because air pollution still threatens our public health, and because environmental challenges are becoming more complex and global, a strong and capable EPA is more important than ever.

Yet challenges from industry lobbyists and some political leaders to the agency's decisions have too often led to the suppression and distortion of the scientific findings underlying those decisions—to the detriment of both science and the health of our nation. While every regulatory agency must balance scientific findings with other considerations, policy makers need access to the highest-quality scientific information to make fully informed decisions.

Concern over this problem led the Union of Concerned Scientists (UCS) to investigate political interference in science at the EPA. In the summer of 2007, UCS, working with the Center for Survey Statistics and Methodology at Iowa State University, distributed a 44-question survey to nearly 5,500 EPA scientists, asking for information about political interference in their scientific work, the use of science in EPA decision making, barriers to communication, employee morale, and the agency's effectiveness. UCS identified these scientists through EPA websites, consultations with current and former employees, and targeted Internet searches.

We received completed surveys from 1,586 scientists, for a response rate of 29 percent. These respondents represented every scientific program office at EPA headquarters, all 10 regional offices, and more than a dozen research laboratories across the country. Most respondents were agency veterans, with more than a decade of experience at the EPA. Beyond specific survey questions, more than 850 scientists also provided written comments in response to an open-ended essay question. To add to this information, UCS interviewed dozens of current and former EPA scientists.

The results of these investigations show an agency under siege from political pressures. On numerous issues—ranging from mercury pollution to groundwater contamination to climate change—political appointees of the George W. Bush administration have edited scientific documents, manipulated scientific assessments, and generally sought to undermine the science behind dozens of EPA regulations.

These findings highlight the need for strong reforms to protect EPA scientists, make agency decision making more transparent, and reduce politicization of the regulatory process.

Political Interference in Scientific Work

Large numbers of EPA scientists reported widespread and inappropriate interference by EPA political appointees, the White House, and other federal agencies in their scientific work:

- 889 scientists (60 percent of respondents[13]) personally experienced at least one incident of political interference during the past five years.

- Among EPA veterans (scientists with more than 10 years experience at the agency), 409 (43 percent) said interference occurred more often in the past five years than in the previous five-year period.

EPA scientists also reported personally experiencing specific forms of political interference, from the explicit to the subtle:

- 94 scientists (7 percent) had frequently or occasionally been "directed to inappropriately exclude or alter technical information from an EPA scientific document."

- 191 scientists (16 percent) had personally experienced frequent or occasional "situations in which scientists have actively objected to, resigned from, or removed themselves from a project because of pressure to change scientific findings."

- 232 scientists (18 percent) had personally experienced frequent or occasional "changes or edits during review that change the meaning of scientific findings."

- 285 scientists (22 percent) had personally experienced frequent or occasional "selective or incomplete use of data to justify a specific regulatory outcome."

- 153 scientists (13 percent) had personally experienced frequent or occasional "pressure to ignore impacts of a regulation on sensitive populations."

- 299 scientists (24 percent) had personally experienced frequent or occasional "disappearance or unusual delay in the release of websites, press releases, reports, or other science-based materials."

- 394 scientists (31 percent) had personally experienced frequent or occasional "statements by EPA officials that misrepresent scientists' findings."

Respondents indicated that political interference arose from both internal and external sources. In essay responses, nearly 100 scientists identified the White House Office of Management and Budget (OMB), which oversees the federal budget and coordinates all federal regulations, as the primary source of external interference.

Respondents reported widespread respect for their direct supervisors, but had fewer commendations for EPA's senior leaders:

- 1,282 scientists (81 percent) respected the integrity and professionalism of their direct manager or supervisor, while 686 (43 percent) said the same about EPA's senior leaders.

- A majority of respondents (906 scientists, or 59 percent) agreed that their direct supervisor stands behind scientific staff who express politically controversial opinions.

Rates of political interference varied widely among offices and divisions within the agency:

- The percentage of scientists reporting interference was highest in the program offices with regulatory duties, and at EPA headquarters. A total of 337 scientists in the program offices (68 percent), and 379 scientists at headquarters (69 percent), reported at least one incident of interference in the past five years.

- The percentage of scientists reporting interference was lower—although still significant—in the Office of Research and Development (ORD), the EPA's main research arm. The ORD's National Health and Environmental Effects Research Laboratory was notably freer of interference (39 percent) than any other EPA division, while its National Center for Environmental Assessment had the highest percentage of scientists reporting interference of all EPA divisions (84 percent).

- The percentages of scientists reporting interference in the 10 regional offices varied widely, from 44 percent (region 6) to 73 percent (region 9).

To place these results in context, we cite specific incidents of interference. For example, political appointees at the White House and in top positions at the EPA manipulated scientific findings and analyses regarding mercury pollution and climate change. These incidents involved pressure to change scientific methods and findings, direct editing of scientific documents by nonscientists, and delayed release of scientific reports.

A third case—involving interagency review of the EPA's assessment of toxic chemicals—illustrates the growing ability of the OMB and other federal agencies to review and second-guess the work of the EPA's scientific experts.

Barriers to the Free Communication of Science

The free communication of scientific results is a critical part of the scientific process. Despite statements by EPA leaders asserting that the agency supports scientific openness, many scientists report that it restricts free communication of the results of taxpayer-funded research:

- 783 scientists (51 percent) disagreed or strongly disagreed that EPA policies allow scientists to "speak freely to the news media about their findings." Another 556 scientists (36 percent) had no opinion or were unsure. Only 197 scientists (13 percent) agreed that the EPA allows scientists to communicate freely with the media.

- 291 scientists (24 percent) disagreed or strongly disagreed that they are "allowed to publish work in peer-reviewed scientific journals regardless of whether it adheres to agency policies or positions."

Beyond these restrictive policies, hundreds of scientists said they fear retaliation for speaking candidly about the EPA's work. More scientists feared retaliation for speaking candidly inside the agency than outside it:

- 492 scientists (31 percent) disagreed or strongly disagreed that they could openly express concerns about the EPA's work *inside* the agency without fear of retaliation.

- 382 scientists (24 percent) disagreed or strongly disagreed that they could openly express concerns about the EPA's work *outside* the agency without fear of retaliation.

Interviews with current and former EPA scientists revealed new examples of problems in communicating scientific research. In two cases, EPA scientists were barred from presenting research on climate change at scientific conferences. Other scientists reported difficulties speaking with the media and obtaining EPA clearance to publish their findings in scientific journals.

Political interference in scientific work combined with barriers to the free communication of scientific findings affect the amount and quality of information the U.S. public receives.

Undermining the Role of Science in EPA Decision Making
Scientific information is the lifeblood of much of the EPA's work and the credibility of its decisions depends on the quality of its scientific work. A plurality of EPA scientists reported that the agency's regulatory policies are consistent with its scientific findings. However, a similar number felt that the EPA could do a better job of using the best judgment of its scientific staff:

- 745 scientists (48 percent) felt that the EPA's determinations and actions are frequently or always consistent with the scientific findings in agency documents and reports.

- 719 scientists (47 percent) felt that the EPA's determinations occasionally, seldom, or never make use of the best judgment of its scientific staff.

Hundreds of EPA scientists also felt that the agency only occasionally incorporates expert advice from advisory committees into policy decisions:

- 553 (36 percent) scientists felt that the agency occasionally, seldom, or never heeds advice from independent scientific advisory committees.

Recent changes in the EPA's process for setting the National Ambient Air Quality Standards provide one prominent example of how political considerations have trumped scientific expertise and sidelined EPA's scientific advisory committees.

Challenges to Agency Effectiveness
Beyond political interference in EPA science, several survey questions asked respondents about other factors that could impair their ability to do their jobs, and the ability of the agency as a whole to fulfill its mission. Large numbers of EPA scientists indicated that a lack of sufficient or appropriate resources was a serious issue in their office or division:

- 969 scientists (62 percent) disagreed or strongly disagreed that the "EPA division where I work has sufficient resources to adequately perform its mission of protecting human health and the environment."

- 555 scientists (36 percent) agreed or strongly agreed that the "recent changes and closures in the EPA library system have impaired my ability to do my job." This opinion was especially prevalent among scientists in regions 5, 6, and 7, which had their libraries closed (86 of these scientists, or 48 percent, agreed).

- 574 scientists (41 percent) agreed or strongly agreed that "the trend toward contracting out scientific work is harming the effectiveness of my division."

Survey questions also asked scientists about their job satisfaction, and the morale in their division:

- Respondents were twice as likely to report a decrease in job satisfaction over the past five years as to report an increase (670 versus 328 scientists).

- Opinions about workforce morale ranged widely. A total of 564 scientists (37 percent) said morale was fair, and 387 (25 percent) said morale was poor or extremely poor. A total of 570 scientists (37 percent) said morale was good or excellent.

Questions about the overall effectiveness of the EPA elicited a range of responses:

- Respondents were more likely to agree than disagree that the EPA was acting effectively to clean up environmental problems. A total of 812 scientists (52 percent) agreed that the EPA acts effectively to "clean up and/or mitigate existing pollution or environmental problems," while 522 (33 percent) disagreed.

- 694 scientists (44 percent) agreed that the EPA acts effectively to "foster practices that prevent environmental degradation or adverse health effects before they occur," while 629 scientists (40 percent) disagreed.

- Respondents were twice as likely to report a decrease in the effectiveness of their office or division (696 scientists, or 45 percent) as an increase (321 scientists, or 21 percent) over the past five years.

- Respondents were evenly split on whether the EPA is moving in the right direction. A total of 685 scientists (44 percent) disagreed that EPA is moving in the right direction, while 624 scientists (40 percent) agreed.

Case Study: OMB Interference in EPA Science

The White House Office of Management and Budget—especially its Office of Information and Regulatory Affairs (OIRA)—has played an increasingly powerful role in the creation, review, and approval of EPA decisions. Since the Reagan administration, the OMB has had the power to review and approve all government regulations, and to perform cost-benefit analyses. The OMB has used this power to force the EPA to modify or withdraw many rules and policies. For

example, in 2002 the OMB thwarted an EPA plan to declare a public health emergency over asbestos found in the insulation of millions of homes across America.[14]

The OMB has recently stepped beyond its role in reviewing the EPA's policies to review and manage the actual science underlying them. For example, under former director John Graham, OIRA sought to create overly restrictive guidelines for how federal agencies should conduct scientific assessments, such as risk analysis and peer review of research. The National Academies sharply criticized these guidelines as harmful to the mission of federal science and regulatory agencies, yet the OMB implemented them in modified form.[15] OIRA also recently hired a handful of scientists to create in-house scientific expertise in an office traditionally dominated by economists.[16] The agency then began, for the first time, to review and criticize the scientific basis for EPA decisions.

In 2007, OMB analysts manipulated scientific knowledge about mortality arising from exposure to ground-level ozone, in the EPA's regulatory impact assessment on changing the ambient air quality standard for ozone.[17] The OMB has also interfered in the scientific basis for EPA policies on a 2004 rule regulating formaldehyde pollution from plywood plants,[18] and a 2006 decision not to tighten the ambient air quality standard for fine particulate matter.

While the OMB's in-house expertise is undoubtedly helpful in interpreting scientific documents, it is inappropriate for the White House to second-guess the consensus of EPA specialists with decades of experience, and of advisory committees composed of internationally respected experts.

In their essays, nearly 100 EPA scientists explicitly identified the OMB's meddling in EPA decision making as a major hindrance to the agency's scientific integrity. Here is a small sample of responses to the question: "How could the integrity of scientific work produced by the EPA best be improved?"

Reviewing EPA Science

- "The unprecedented and unwarranted influence of the EPA's scientific work and findings by the White House and OMB must end."
- "OMB should stop interfering in EPA Science."
- "Get the White House, industry, and OMB out of what is supposed to be science-based decision making."
- "Also, for your next survey look at OMB. That is a true source of frustration. They truly interfere and want to stamp the White House Agenda over every document that is sent to them for review. Truly few realize the impact that they have. They have hired their own scientists and play the 'my scientist is better than yours' game. EPA has to accept a lot of **** from them to get any documents out."
- "OMB is increasingly interfering in earlier stages of projects (as opposed to review of draft documents and conclusions), sometimes insisting on methodologies that are less credible than those selected by EPA scientists."
- "Restrain [the] Office of Management and Budget. This Administration has not only watered down important rules protecting public health (I've see this happen firsthand with the PM 2.5 implementation rule), they have also altered internal procedures so that

scientific findings are accorded less weight. For example, the staff paper used previously in setting the NAAQS review has been eliminated."

- "Get the OMB out of the business of reviewing science—they do not have adequate staff or adequately skilled staff to provide a scientific review of everything EPA does."
- "The role of OMB in terms of policy review and coordination is a problem. Economists, or whatever they are, 'playing' scientist and/or engineer is troublesome and a real annoyance. They lack the basic credentials to make scientific or engineering judgments."
- "Eliminate OMB and CEQ interference in EPA science, prevent political appointees from inserting themselves into controversial science issues."
- "Get OMB and their inexperienced staff out of the review and decision-making process. They create time delays and have inappropriately stopped agency work that has been in progress for years due to their lack of scientific understanding."
- "When I was first at EPA (1988), we did good work but it was sometimes ignored. That was frustrating, but at least the work was there. Now it seems like they want the scientific work to match the preordained conclusions. In case you are wondering, I think peer review is a good thing—I've seen people too invested in their beliefs to see what their data are really saying. But OMB, with John Graham at the helm, seemed intent on rendering EPA and every other regulatory agency (Food and Drug Administration, Occupational Safety and Health Administration, Mine Safety, Consumer Product Safety Commission...) utterly powerless with its 'information quality guidelines.' And although the administration chose Steve Johnson (a career scientist) as EPA administrator, it sent Graham henchman Marcus Peacock over to keep a close eye on EPA as deputy administrator."
- "OMB and the White House have, in some cases, compromised the integrity of EPA rules and policies; their influence, largely hidden from the public and driven by industry lobbying, has decreased the stringency of proposed regulations for nonscientific, political reasons. Because the real reasons can't be stated, the regulations contain a scientific rationale with little or no merit."
- "Get OMB out of the risk assessment business. They aren't qualified and do their best to compromise EPA's process and drag out actions based on EPA's determinations. Demanding that things be referred to [the National Academies], which inevitably slides any decision out 3–4 years, is one of OMB's favorites."

Lessening EPA Independence

- "Currently, OMB is allowed to force or make changes as they want, and rules are held hostage until this happens. OMB's power needs to be checked as time after time they weaken rulemakings and policy decisions to favor industry."
- "Stop allowing political employees and OMB to 'regulate' what EPA scientists do. Just let EPA scientists do their job; we are well qualified and can be trusted."
- "In this administration, self-censorship is almost as powerful as political censorship. Options that OMB or the White House wouldn't like aren't even put forward."
- "The current administrator is a puppet operated by CEQ and OMB."

Transparency

- "Reduce the power of OMB over EPA scientific products. All communications between EPA and OMB during the development of agency technical products and actions should

be preserved for the public record. Stakeholders should demand an end to 'paralysis by analysis' strategies to prevent EPA from doing its job. In particular, implementation of OMB's risk assessment guidelines would be disastrous."

- "Require more transparency regarding involvement of OMB, CEQ, and other federal agencies when they comment [or] pressure EPA to make revisions in proposed and final actions."
- "Over the last few years it has come to pass that OMB typically provides nonsensical political edits to every technical guidance coming out. (Not just the ones we hear about in the news, but ALL of them.) This is often done behind closed doors—after the document leaves the control of technical staff, OMB/White House request EPA management to make their requested political changes as EPA technical edits, before officially submitting to OMB for review."
- "Integrity of scientific work is high. OMB has been 'granted' authority beyond what I understand has been traditional to impact final decisions. It is not clear who, how, or what initiated this change or increase in power, but it is absurd. A nonscientific body that does not have legal deference is forcing final decisions that may not be palatable to staff, and even political officials at EPA. Watch out for this on the upcoming ozone NAAQS decision. Solution: OMB must not step beyond its authority, and return to traditional review of regulations."
- "Reduce influence of White House and OMB in decision making. Recognize [that] costs of new regulations are easy to estimate, while costs of improvements in health and the environment are much more difficult."
- "Limit OMB review of, and influence on, content of scientific/engineering data and information (e.g., in rulemaking and guidance development). 2.) Require more transparency in OMB review process. 3.) If we are going to have to justify all environmental policy/regulations/guidance through cost-benefit, allow us to develop methodologies to quantify nonuse and ecological benefits."
- "Control the power of OMB to a reasonable level—OMB does more to waste time and taxpayer dollars than any other organization in the government."

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Environment and Public Works Committee Hearing
June 9, 2009
Follow-Up Questions for Written Submission
Responses from Dr. Francesca Grifo

Questions from Senator Barbara Boxer:

Question 1: Media and Scientific Integrity
Dr. Grifo, you have testified about the importance of ensuring that scientists can talk to the press about their scientific findings. Could you please describe the top three protections that an agency should put into its media policy to help ensure that scientists can freely discuss their scientific findings with the press?

All federal agencies should adopt official policies that ensure free and open communication between scientists, the media, policy makers, and the public. The following three principles are critical to a successful policy:

1) Scientists, like any federal employees, have a right to express their personal views outside of certain narrow restrictions. As long as they provide an explicit disclaimer that they are speaking as private citizens and not as a representative of their agency, scientists should be allowed to speak freely about their research and to offer their scientific opinions—even in situations where their research may be controversial or have implications for agency policy.
2) To help ensure technical accuracy, scientists have the right to review, approve, and comment publicly on the final version of any document or publication that significantly relies on their research, identifies them as an author or contributor, or purports to represent their scientific opinions.
3) Agency policies should explicitly affirm that the role of agency public affairs officials is *not* to act as "gatekeepers" of scientific information, but rather to help scientists communicate their research to the public. This policy should be backed up by public statements from agency leadership.

Question 2: Scientific Review Panels
Dr. Grifo, agencies use review panels to check the quality of agency documents and decisions. These panels can contain people who work for industry as well as public health institutions. In your opinion, how important is it to ensure that agencies screen people for conflict of interests as much as possible when they are in a decision-making position on such a panel?

Nearly 1,000 committees of experts advise federal agencies on issues ranging from toxics in the air to the approval of prescription drugs and devices and stem cell research. Too often, these advisory panels contain members who have conflicts of interest – financial ties to companies (or their competitors) that stand to benefit from the committee's recommendations.

Such financial conflicts reduce the credibility of the panel's recommendations and can lead to situations where private gains are placed ahead of the public's welfare. It is crucial that science-based agencies receive advice that is truly independent and is given

by experts without financial ties to special interests with a stake in the policy outcomes under review. The Federal Advisory Committee Act (FACA) became law in 1972 to ensure that the nation has access to the best objective scientific advice. Agency overuse of waivers for committee members with conflicts of interest violates of the spirit of that law.

Strengthening the advisory committee system should be a priority for the administration and Congress. We urge congress to strengthen FACA by making the process for selecting advisory committee members more transparent and by ensuring that potential conflicts of interest are disclosed and avoided.

Questions from Senator Benjamin L. Cardin:

1. A 2007 survey by the Union of Concerned Scientists showed that political interference in science has been a major problem at the EPA. As documented in that survey, nearly 900 scientists said they had personally experienced some form of political interference within the last five years. Why should the public care about the happiness or career fulfillment of EPA scientists? Was what you found at EPA similar to what you have seen at other agencies?

Political interference in science can directly harm the health, well-being and prosperity of American citizens. The American public relies on the government to make wise decisions on critically important topics like air pollution, consumer safety and national security. Without access to high-quality, independent science government officials cannot make good policy decisions – and the public health and well-being may suffer as a result.

EPA scientists apply their expertise to protect the public from air and water pollution, clean up hazardous waste, and study emerging threats such as global warming. Because each year brings new and potentially toxic chemicals into our homes and workplaces, because air pollution still threatens our public health, and because environmental challenges are becoming more complex and global, a strong and capable EPA is more important than ever.

The problem is by no means unique to EPA. Science has been distorted, manipulated, and suppressed on dozens of issues, from prescription drugs to endangered species to national security. The Union of Concerned Scientists has documented scores of examples of such abuses in our online *A to Z guide to political interference in science* (available at http://www.ucsusa.org/AtoZ) and through our surveys of scientists at nine federal agencies.

2. Also in that survey, more than 700 EPA scientists felt that the agency only occasionally makes use of its scientists' best judgment when making its determinations. Do you think scientists should determine public policy at the EPA?

Science is rarely the only tool used to make a decision, but science should not be manipulated or distorted before it enters the decision-making process. There are other inputs that agency decision makers may draw upon when creating public policy. However, scientific input should always be weighed from an impartial perspective.

Unfortunately, we have documented the suppression, manipulation, and distortion of EPA science by the White House, by EPA political appointees and by other federal agencies often as a means of justifying or supporting a preferred policy option. Such interference degrades the credibility of government decisions, prevents citizens from understanding how government decisions are made and can have serious consequences for the public's health and safety.

Questions from Senator David Vitter:

1. Recent scientific/economic analysis by the Union of Concerned Scientists (UCS) has claimed that Americans can "significantly reduce carbon emissions and lower energy bills." As well, the Union of Concerned Scientists has testified before Congress that "We can save consumers money on their energy bills because of increased energy efficiency, even though electricity rates and gasoline prices go up slightly. That means families will see average household savings of $900 a year in 2030, while businesses will, all together, save nearly $130 billion a year." Your organization has made these statements in regards to a Cap and Trade program for C02 when nearly all other economic analysis, including that from OMB, CBO and even President Obama have stated that the consumer and the economy will be adversely affected by the cost of Cap and Trade or EPA regulation of C02. In the interest of "scientific integrity" please explain why your own analysis of the cost of Cap and Trade and C02 regulation comes to an opposite conclusion than that of our top universities, OMB, CBO and the President?

The main reason our Climate 2030 Blueprint shows that consumers and businesses can save money, even though energy prices are slightly higher, is because of the comprehensive policy approach we analyzed. In addition to including a cap and trade policy that would put a price on carbon emissions, the Blueprint includes polices to increase energy efficiency investments in homes, schools, hospitals, office buildings, industrial facilities, and vehicles, to increase renewable energy use, and to give consumers better transportation choices that require less driving. The savings from energy efficiency and improved transportation choices would not come for free. We include the costs that consumers and business would make to invest in more efficient technologies, buildings and transportation options, as well as the additional policy and program costs needed to encourage these investments and overcome important market barriers. However, the reductions in energy use from these measures more than offset the additional policy and investment costs and modest increases in energy prices.

In our comprehensive Blueprint policy scenario, consumers and businesses would see net annual savings of $255 billion in 2030. This includes $414 billion in reduced energy bills—even accounting for the cost of allowances passed on to consumers—due to lower energy use. It also includes $160 billion in costs of investing in efficiency, renewable energy, better transportation choices, and other low carbon technologies and the costs of allowances passed through to consumers in slightly higher energy prices. Consumers would see $126 billion of these net annual savings in 2030, or $900 per household, while businesses would see $129 billion. Note, however that these values only look at direct household and business expenditures. They do not account for either $8 billion in costs for research and development, tax credits and implementation costs or $219 billion in auction revenues that would be returned to consumers and businesses, leading to a total savings from the Blueprint of $464 billion in 2030.

Most other studies of cap and trade proposals have not included strong complementary policies and have greatly underestimated the potential savings from efficiency. However, McKinsey & Company, a leading energy consulting firm, recently conducted a study that looked at how the nation would benefit by investing in energy efficiency. They

found that investing $50 billion for 10 years would reduce U.S. energy use in buildings and industry by 23 percent in 2020 -- more than Canada's annual non-transportation energy consumption -- while lowering consumer and business energy costs by $1.2 trillion. They also found that it would cut annual U.S. global warming emissions by 1.1 gigatons – the equivalent of taking the entire U.S. fleet of passenger vehicles and light trucks off the roads.[1]

2. In the interest of scientific integrity the UCS has issued analysis claiming that a national Renewable Electricity Standard of 25% by the year 2025 would save consumers money on the cost of electricity. There are obviously a number of problems with this assumption. First, renewable energy is significantly more expensive than traditional carbon based electricity generation. Without significant subsidies that well exceed those provided to all other forms of energy, wind and solar are not competitive. This is a fact supported by readily available information with the Energy Information Administration at the Department of Energy. Second, renewable energy such as wind and solar are only "intermittent" energy sources, providing energy less than 30% of the time, as the wind doesn't always blow and the sun doesn't always shine. Can you explain the economic analysis that lead you come to the conclusion that mandating more expensive "intermittent" energy will reduce the cost of energy for consumers?

We disagree that renewable energy is significantly more expensive than traditional carbon based electricity. In fact, more than 20 comprehensive analyses over the past decade have found that using renewable sources to provide up to 25 percent of U.S. electricity needs is both achievable and affordable.[2] Our most recent 2009 study—using a modified version of the EIA's NEMS model—found that a national renewable electricity standard of 25 percent by 2025 would lower electricity and natural gas bills in all 50 states. Cumulative national savings to consumers and businesses would total $95 billion by 2030.[3] These savings occur as increased renewable generation reduces the demand for and price of fossil fuels, particularly natural gas, which lowers natural gas bills for heating homes and buildings and for running industrial processes. And since natural gas is often on the margin for producing electricity, lower natural gas prices can also put downward pressure on electricity prices.

A 2009 EIA study arrived at similar conclusions, despite using more pessimistic assumptions about the cost and performance of renewable energy technologies. That study projected that a renewable electricity standard of 25 percent by 2025 would result in a small reduction in consumer natural gas bills—offsetting slightly higher electricity bills (EIA 2009).[4] By 2030, the impact on consumers' cumulative electricity and natural

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[4] Energy Information Administration (EIA). 2009. Impacts of a 25-percent renewable electricity standard as proposed in the American Clean Energy and Security Act discussion draft. Washington, DC: U.S. Department of Energy. April.

gas bills under two different scenarios would range from a small cost of $8.4 billion (0.2 percent) to a slight savings of $2.5 billion (0.1 percent). Similarly, a 2007 EIA study of a 25 percent by 2025 renewable electricity standard found $2 billion in cumulative savings on combined electricity and natural gas bills through 2030 (EIA 2007).[5] Therefore, even when renewable energy costs are slightly higher than conventional energy sources, these costs are offset or more than offset by savings on natural gas bills.

These studies have also shown that renewable energy can make a significant contribution to U.S. electricity needs while maintaining the reliability of the nation's electricity supply. The EIA and UCS analyses project that renewable technologies that operate around the clock—such as biomass, geothermal, landfill gas, and incremental hydroelectric plants—would generate 33–66 percent of the nation's electricity under a national renewable electricity standard.

Regional systems for transmitting electricity could easily integrate the remaining power produced from wind and solar at very modest cost, and without requiring storage. Studies by U.S. and European utilities have found that reliance on wind energy for as much as 25 percent of electricity needs would add no more than $5 per megawatt-hour—or less than 10 percent—in grid integration costs to the wholesale cost of wind.[6]

In 2008, DOE released a comprehensive analysis showing how the U.S. could increase wind generation from about 1 percent of total electricity in 2007 to 20 percent by 2030 without the need for storage and without adverse impacts on the reliability of the nation's power supply. The study also found that this level of penetration could be achieved at modest costs of 2 percent more than investing in new coal and natural gas plants—or 50 cents per month per household—including costs for new transmission lines, but not federal incentives or any value for reducing carbon emissions.[7]

A July 2009 report prepared by researchers at the Lawrence Berkeley National Lab shows that average prices for wind power, which now provides about half of U.S. non-hydro renewable electricity, were competitive with or below wholesale power prices between 2003 and 2008 (see Figure below).[8] This is based on data from a large sample of wind projects operating in the U.S. that were built between 1998 and 2008.

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[5] Energy Information Administration (EIA). 2007. Energy and economic impacts of implementing both a 25-percent renewable portfolio standard and a 25-percent renewable fuel standard by 2025. Washington, DC: U.S. Department of Energy.

[6] Holttinen, H., P. Meibom, C. Ensslin, L. Hofmann, A. Tuohy, J.O. Tande, A. Astanqueiro, E. Gomez, L. Soder, A. Shakoor, J.C. Smith, B. Parsons, and F. van Hulle. 2007. *State of the art of design and operation of power systems with large amounts of wind power: Summary of IEA wind collaboration.* EWEC 2007 conference, May 7–10, Milan. Online at *http://www.risoe.dk/rispubl/art/2007_120_paper.pdf*.

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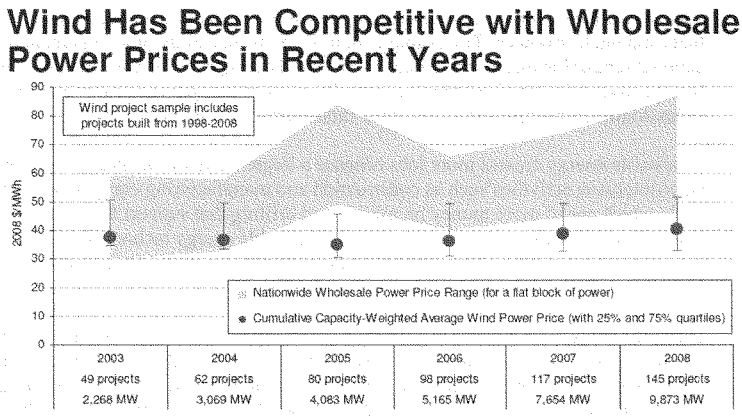

3. The EU and Spanish programs are often touted by proponents of renewable energy, including UCS, as a good example of the potential for renewable energy. However, a recent comprehensive study by Gabriel Calzada, an economics professor at King Juan Carlos University in Madrid, shows quite a contradiction to what many, including UCS, have claimed. The study has been hailed as the first critical analysis of the actual performance and impact of the European Union and Spanish programs. According to the study, the jobs most harmed were manufacturing jobs, particularly those involving iron and steel products. Basic chemical products, plastics and precious metals-related industries also were impacted, as were the producers of cement, lime and plaster. According to the Calzada study, wind power had a jobs-created-versus-jobs-lost average of 2.2-jobs-loss ratio for each "green" job created. The ratio for wind power was 4.27 jobs lost for every job created. Solar was the worst with a ratio of 12.7 jobs lost for every job created. Can you explain where the Calzada study was incorrect in its analysis? As well, please explain why the Calzada study so strikingly contradicts the assumptions for job growth from a "green" economy assumed by UCS?

The Calzada Spanish renewable energy jobs study has been widely discredited. There are at least three main problems with the study. First, the report does not quantify any job losses that are directly attributable to investment in renewable energy. As the Wall St. Journal reported in its energy and environment blog, "The study doesn't identify those jobs allegedly destroyed by renewable-energy spending. What the study actually says is that government spending on renewable energy is less than half as efficient at job creation as private-sector spending."

Second, the study inappropriately assumes that every public sector dollar spent on renewable energy displaces a dollar of general private sector spending. The more appropriate comparison would be spending an equivalent amount of money on renewable energy compared to coal, natural gas, or nuclear power plants since we need to get our electricity supply from somewhere. Numerous studies that have made this appropriate

comparison have found that renewable energy sources create more jobs than using fossil fuels and nuclear power. For example, both UCS' recent study of a 25 percent by 2025 national renewable electricity standard and a study completed by the University of Massachusetts for the Center for America Progress found that renewable energy technologies create approximately three times more jobs than fossil fuels.[9]

Renewable energy creates more jobs because a larger share of the money is spent on labor-intensive activities such as construction and manufacturing compared to fossil fuels, which spend more money on mining and drilling that support fewer jobs per million dollars of expenditure. In addition, renewable energy technologies tend to rely more on local resources and businesses than fossil fuels, which are often imported from other states and countries.

Third, the study's results contradict data from the Spanish Ministry of Labor, which found that the renewable energy industries have created 175,000 jobs in Spain. In addition, the European Commission found that adopting a strong renewable energy policy could result in a net increase of over 400,000 new jobs in the EU by 2020.

Wind power has actually been one of the bright spots in the struggling U.S. economy. According to the American Wind Energy Association, the industry now employs about 85,000 people, and added 35,000 new jobs last year alone (a 70 percent increase). Developers invested some $27 billion in U.S. wind power over the past two years—much in agricultural and other rural areas. U.S. manufacturing of wind turbines and their components has also greatly expanded, with more than 70 new facilities opening, growing, or announced in 2007 and 2008.

4. The United States will continue to need base-load power to supply the nation's energy needs. Wind and Solar are not capable of providing energy more than 30% of the time. Without nuclear energy it is mathematically impossible to make significant reductions in carbon emissions and provide energy 24 hours a day, seven days a week. Can you discuss UCS's position on nuclear power, and how we may achieve carbon emissions reductions without nuclear power?

Nuclear power could play a role in reducing global warming emissions because nuclear reactors emit almost no carbon when they operate and can have very low life-cycle emissions. However, the nuclear power industry faces major economic, safety, security, and waste disposal challenges that must be resolved before new nuclear reactors could make a significant contribution to reducing carbon emissions. A forced nuclear resurgence could make carbon reductions much more expensive, while creating unnecessary environmental and public health risks.

In the *Climate 2030 Blueprint* study, UCS conducted a peer-reviewed analysis of the costs and benefits through 2030 of scenarios for reducing U.S. global warming emissions

[9] Pollin, R., J. Heintz, and H. Garrett-Pelteir. 2009. The Economic Benefits of Investing in Clean Energy: How the economic stimulus program and new legislation can boost U.S. economic growth and employment. Prepared by the University of Massachusetts Amherst Political Economy Research Institute for the Center for America Progress. June.

using a modified version of EIA's National Energy Modeling System. The analysis included a detailed review of technology costs and trends through the fall of 2008. The review of electricity sector technologies found that—especially with the recent cost escalation—new nuclear plants are likely to be among the most expensive of available options. Moreover, the analysis did not fully consider the likelihood of continued nuclear cost escalation during actual construction, which has been the historical experience of the industry. Indeed, the UCS nuclear cost projections used in the Blueprint are near the low end of the range of independent estimates by Wall Street and other analysts, which have continued to rise since UCS completed its analysis.

The Blueprint analyzed two policy scenarios for achieving the required carbon reductions. One scenario relied exclusively on a cap-and-trade system to set a price on carbon emissions. Every technology was allowed to compete to provide reductions at the lowest cost. The second scenario relied on a combination of cap-and-trade plus complementary incentives and standards to ensure robust energy efficiency improvements and renewable electricity development. This scenario was developed because prior analyses have shown that such efficiency and renewable energy policies can reduce consumer energy bills and the cost of meeting emission reduction targets.[10] Energy efficiency measures, in particular, cost only about three cents per kilowatt hour saved, much less than it costs to generate a kilowatt-hour from any new technology.

New nuclear plants were found not to play a significant role in either scenario. In the combined policy scenario, energy efficiency and renewable energy were found to meet nearly all the required new energy needs and emission reductions in the electricity sector. The model did not build any new nuclear plants beyond four 1,100 MW plants that are assumed to be built as a direct consequence of previously enacted nuclear subsidies and loan guarantees. This scenario was the least expensive for consumers and businesses, with cumulative net savings of $1.6 trillion by 2030 compared to a business-as-usual reference case, despite achieving power plant carbon emission reductions of 84 percent by 2030 and including the costs of investing in efficiency and renewable energy technologies.

In the cap-and-trade-only case, the lack of efficiency policies pushed electricity demand much higher. But the model added only an additional eight more nuclear plants by 2030 over the reference case, for a total of 13,600 MW. In contrast, an additional 285,000 MW of renewable energy was added compared to the reference case, for a total of 355,000 MW. This scenario was less expensive for consumers than the business-as-usual case, but not nearly as attractive economically as the case with efficiency and renewable energy policies. The cap-and-trade-only scenario reduces total consumer costs by a cumulative $600 billion through 2030, a trillion less than the savings in the scenario with complementary energy efficiency and renewable energy policies.

For example, see UCS. 2009. *Clean Power, Green Jobs.* March. ACEEE. 2007. *Assessment of the House Renewable Electricity Standard and Expanded Clean Energy Scenarios.* December. EIA. 2001. *Analysis of Strategies for Reducing Multiple Emissions from Electric Power Plants.* July.

Thus, even with assumptions that are likely to prove optimistic for nuclear plant costs, nuclear plants are not needed or economical to help meet carbon reduction goals through 2030, especially if policy support for more cost-effective energy efficiency and renewable energy is provided. No conclusions on relative competitiveness after 2030 can be reached at this time.

Senator WHITEHOUSE. Thank you, Dr. Grifo. That was a very good summation of a very, very thorough statement. I appreciate that you sent in the complete statement because it has a lot of wonderful material in it, particularly some of the quotes from the EPA scientists about the OMB interference. That was very trenchant stuff, and thank you for summarizing it so well.

Dr. Green.

STATEMENT OF KENNETH P. GREEN, RESIDENT SCHOLAR, AMERICAN ENTERPRISE INSTITUTE FOR PUBLIC POLICY RESEARCH

Mr. GREEN. Good morning. I would like to thank Chairman Boxer, Senator Inhofe, Senator Whitehouse and the Committee for having me here today to testify about this very important topic.

I am, as you said, Kenneth Green, Resident Scholar at the American Enterprise Institute.

I generally like to begin with a few words of my background. By training, I am an environmental scientist, having received my doctoral degree in environmental science and engineering from UCLA in 1994. I was drawn to that field through a childhood in the San Fernando Valley, a very smoggy area when I grew up, where I developed asthma and learned first-hand about the hazards of air pollution.

I felt love for the environment when with my mother and I camped in California's many State parks and out in the Mojave Desert, where we had a placer mining claim and where the air was clean, dry and thoroughly healthful.

In the 1970s when the oil embargo hit, I tried to set up my own solar distillery to make fuel ethanol from surplus oranges of my neighbors, but the Bureau of Alcohol, Tobacco and Firearms wouldn't give a license to distill to a 13-year-old in those days.

[Laughter.]

Mr. GREEN. I have worked at the intersection of science and public policy since 1990 when I took an internship position as an Environmental Policy Analyst at the now defunct Hughes Aircraft Company, which was then headquartered in Los Angeles, California. Both the subject of my doctoral studies and the focus of my work involved air quality regulations then being promulgated by the California Air Resources Board and the Air Quality Management District of the South Coast Air Quality Management District.

Subsequently, I worked at several think tanks in the United States and Canada and my research has broadened to incorporate climate change and energy policy analysis at State, provincial and Federal levels.

As more and more of our Nation's public policy decisions involve the use of complex scientific information, I think it becomes more and more important that our policymaking institutions make use of such information in a process that is unbiased, open to outside review and analysis, and allows for the airing of divergent opinion, and particularly is deliberative enough to ensure the decisions we make are the right ones.

As recent experience has regretfully shown, this is not always the case. Policies intended to mitigate climate change and conventional pollution with the use of corn ethanol, for example, have

backfired badly. Rather than reducing greenhouse gas emissions, there is every evidence that corn ethanol has increased them; rather than reduce conventional air pollution, corn ethanol production has increased them, along with polluting surface and groundwater, contaminating fish stocks with pesticide and herbicide residues, and expanding oceanic dead zones caused by algae which bloom when they are over-fed by fertilizer runoff from corn agriculture.

Most of these problems were raised by nongovernmental analysts and outside scientists before the ethanol mandates were passed, but the policymaking process proved opaque to such cautionary voices.

Now, warnings are coming from nongovernmental policy analysts once again. We may see equally perverse impacts from other forms of renewable energy being promoted at breakneck speed through the spending of stimulus money in pending legislation involving energy and climate change.

For example, new scientific reports are validating concerns expressed by energy analysts that concentrated solar power systems may have unsustainable water demand and will imperil the fragile desert ecosystems I grew up enjoying and would like to see for my children and grandchildren safe to enjoy as well.

Warnings that wind turbines are not environmentally benign are also being validated as they are found to cause noise pollution, visual blight, bird and bat kills, and potentially harm livestock. One recent study, in fact, also has found that mass transit systems may even produce more pollutants than the automobiles and air travel they seek to displace.

Left and right, we are seeing failings of policymaking bodies to listen to cautionary voices outside of their own purview in the development of public policy that is based on scientific information.

The President's Memoranda on Transparency and Open Government and on Scientific Integrity are a great start, but they can only be considered a start in the process to ensure the information is used in the process of public policy formation.

On the plus side, the memoranda correctly identify certain important elements of a transparent process featuring scientific integrity. The President is exactly right when he says political officials should not suppress or alter scientific or technological findings and conclusions.

It is also reassuring the President ordered to the extent permitted by law that there should be transparency in the preparation, identification and use of scientific and technological information in policymaking, and I particularly think the President's observation that public engagement enhances the Government's effectiveness and improves the quality of decisions because knowledge is widely dispersed in society. That is spot on.

All too often, however, I have seen an assumption that only scientists working within Government or dependent on governmental grants have worthwhile knowledge to inject into public policy decisionmaking. There is, I believe, an inherent bias against scientists in the private sector, even though those are the people who, day in and day out in laboratories, produce the prescription drugs and devices that save millions and who develop the technologies that empower billions.

The same is true with regard to the President's and agency emphasis on the peer-reviewed literature. As we have discovered through revelations about fraud in the scientific and medical literature, peer review is no guarantee of accuracy. Often, the keys to publication are in the hands of those with a vested career interest in preserving a particular theory that gained them prestige and standing to be considered as peer reviewers. As a recent article, ironically published in the peer-reviewed literature, Journal of PLOS Medicine pointed out, most claimed research findings are wrong.

The President, Congress and the regulatory agencies should explicitly recognize there is a legitimate role for nongovernmental independent scientific participation in the public policy decisionmaking process in terms of personnel and the injection of scientific research materials conducted outside the peer-reviewed literature, but by private entities.

Many times over my career, I have seen a lack of opportunity for consultation. I have seen massive scientific reports issued by State and Federal Governments before Thanksgiving weekend or just before the Christmas holidays, with minimal time allowed for the review of 1,000-page documents.

We may see that again in coming months where we have been promised the passage of landmark legislation on climate change just in time for the Independence Day holidays and most people's summer vacation. That is not what I would call accessibility or transparency.

The rest of my comments I will submit for the record because I believe I am running out of time. But to conclude, it must be always remembered that science may be able to tell us what is, but it cannot tell us what to do. It is important that science infuse processes, but not that we be guided or led by science. We are not a scientocracy.

Public policy formation requires the balance of many factors, social, economic, equity, individual rights, personal responsibilities, and more. Openness and transparency and scientific integrity are very important, but they are not the only elements that are important in public policy decisionmaking.

Thank you for providing me the opportunity to speak, and of course I look forward to your questions.

[The prepared statement of Mr. Green follows:]

Testimony before the U.S. Senate Environment and Public Works Committee
Senator Barbara Boxer, Chairman

Hearing on Scientific Integrity and Transparency Reforms at the EPA

Dr. Kenneth P. Green

June 9, 2009

Chairman Boxer, Members of the Committee, thank you for having me here today, to testify about this vitally important topic. I generally like to begin with a few words of background.

By training, I am an environmental scientist, having received my doctoral degree in environmental science and engineering from UCLA in 1994. I was drawn to the field through a childhood in the smoggy San Fernando Valley of California where I grew up, developed asthma, and learned first hand about the hazards of air pollution.

I developed a love for the environment when, with my mother, I'd camp in California's many state parks, and out in the Mojave desert, where we had a placer mining claim, and where the air was clean, dry, and thoroughly healthful.

In the 1970s, when the oil embargo hit, I tried to set up my own solar distillery to make fuel ethanol from surplus oranges of my neighbors, but the Bureau of Alcohol, Tobacco, and Firearms wouldn't give a license to distill alcohol to a 13-year old in those days.

I have worked at the intersection of science and public policy since 1990, when I took an internship position as an environmental policy analyst at Hughes Aircraft Company, which was then headquartered in Los Angeles California. Both the subject of my doctoral studies, and the focus of my work at Hughes Aircraft involved air quality regulations then being promulgated by the California Air Resources Board, and the Air Quality Management District.

Subsequently, in work at several think tanks in the United States and Canada, my research has broadened to incorporate climate change and energy policy analysis as state, provincial, and federal levels.

As more and more of our nation's public policy decisions involve the use of complex scientific information, it becomes more and more important that our policymaking institutions make use of such information in a process that is free of bias, is open to outside review and analysis, allows for the airing of divergent opinion, and is deliberative enough to ensure that the decisions we make are the right ones.

As recent experience has shown, this is not currently the case. Policies intended to mitigate climate change and conventional pollution with the use of corn-ethanol have backfired badly. Rather than reduce greenhouse gas emissions, poorly-thought out ethanol mandates have increased them. Rather than reduce conventional air pollution, corn-ethanol has increased them, along with polluting surface and ground water, contaminating fish stocks with pesticide and herbicide residues, and expanding oceanic dead-zones caused by algae which bloom as they are over-fed by fertilizer run-off from corn agriculture. Most of these problems were raised by non-governmental analysts before the ethanol mandates were passed, but the policymaking process proved opaque to such cautionary voices.

Now, warnings are coming from non-governmental policy analysts and scientists that we may see equally perverse impacts from other forms of renewable energy that are being promoted at breakneck speed through the spending of stimulus money, and pending legislation involving energy and climate change. For example, new scientific reports are validating concerns expressed by energy analysts that concentrated solar power systems may have unsustainable water demand and will imperil fragile desert ecosystems. Warnings that wind turbines are not environmentally benign are being validated as they are found to cause noise pollution, visual blight, bird and bat kills, and potentially harm livestock. One recent study has found that mass transit systems may well produce more pollution than the automobiles and air travel they seek to displace. Left and right, we are seeing failings of our government's policymaking bodies to listen to cautionary voices in the development of public policy dependent on the sound use of scientific information.

The President's memoranda on Transparency and Open Government and on Scientific Integrity are a good start, but they can only be considered a start in the process to ensure that scientific information is used properly in the process of public policy formation.

On the positive side of the ledger, the memoranda correctly identify certain important elements of a transparent process featuring scientific integrity. The President is exactly correct when he says that "political officials should not suppress or alter scientific or technological findings and conclusions."

It is also reassuring to see the President order that "To the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking."

Of particular importance, I think, is the President's declaration that "Government should be participatory." As the President observes, "Public engagement enhances the Government's effectiveness and improves the quality of its decisions. Knowledge is widely disbursed in society, and public officials benefit from having access to that dispersed knowledge."

The President's call for Executive departments and agencies to offer Americans greater opportunities to participate in policymaking processes and to infuse the decision-making process with their "collective expertise and information" is spot on.

All too often, I have seen an assumption that only scientists working within government, or dependent on governmental grants have worthwhile knowledge to inject into public policy decision-making. There is, I believe, an inherent bias against scientists in the private sector, even though those are often the people who, day by day, in their laboratories, are producing the prescription drugs that save millions, and who develop the technologies that empower billions. The President should explicitly recognize that there is a legitimate role for non-governmental, independent scientific participation in the public policy decision-making process.

Many times, over my career, I have seen a lack of real opportunity for consultation in the policymaking process. I have seen massive scientific reports issued by state and federal governmental agencies the day before Thanksgiving weekend, or just before the Christmas season, with minimal time allowed for the review of thousand-page scientific summary documents, and only trivial opportunities for meaningful consultation.

Post-regulatory release of Regulatory Impact Assessments, as was the case with the 1997 revisions to the National Ambient Air Quality Standards, have sometimes made a mockery of the very idea of consultative decision making.

Massive dockets in which thousands of review comments receive little more than blithe dismissals have been common features of governmental decision-making on important scientific issues I have sought to analyze over the last 18 years.

Well-credentialed and experienced scientists have too often been frozen out of consultative processes because they are viewed as tainted by an industrial connection, or because they hold unorthodox views.

In conclusion, the President's memoranda on Transparency and Open Government, and Scientific Integrity are a good step, but only a single step in improving the way that our government makes use of scientific information at all levels of the decision-making process. As more and more issues require the use of such information, more attention needs to be paid to reforming the processes by which scientific information is gathered, validated, balanced, summarized, and used to inform the decision-making process.

Finally, it must always be remembered that science may be able to tell us "what is," but it can never tell us "what to do." Science informs, it does not compel. Public policy formation involves the balance of many factors, social, economic, ethics, equity, individual rights, personal responsibility, and more.

Creating openness and transparency in the scientific elements of the decision-making process is important, but that same level of openness, transparency, and consultation should infuse every element of the public policy development process.

Thank you for providing me this opportunity to address you on an issue near and dear to my heart. I will, of course, gladly take your questions.

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August 4, 2009

United States Senate
Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, DC 20510-6175
Attn: Heather Majors

Senator Boxer, Senator Inhofe, Members of the Committee –

I'd like to thank you again for giving me the opportunity to testify at the June 9 hearing on Scientific Integrity and Transparency. Pursuant to my testimony before the Committee, Senator Inhofe sent me the following question:

"You stated that you have seen a lack of real opportunity for consultation in the policymaking process. What needs to be done to ensure that there is enough time for meaningful review of science and regulatory decision making?"

I appreciate this opportunity to elaborate on the subject, and I hope that I can contribute something to improve regulatory decision-making in matters that hinge on scientific information.

While I understand that there is often a sense of urgency involved in crafting, passing, and enacting legislation, it needs to be recognized that "getting the science right" is a fundamental element of crafting sound legislation. Indeed, we know that legislation resting on a flawed foundation is as likely to do harm as it is to do good. Scientific information can be highly complex, and requires both time and expertise to analyze and interpret. In addition, the interface between the science and a particular policy needs to be assessed to insure that whatever policy is enacted will actually produce the expected good, while avoiding or minimizing the potential for perverse consequences.

We need only consider the perverse consequences of recent environmental legislation to see how important this is. Corn-ethanol has shown itself to be an environmental disaster that raises the cost of food, despoils land and water, consumes vast quantities of fresh water, and actually increases greenhouse gas emissions when compared with the gasoline it replaces. The subsidization of compact fluorescent lights (CFL), and the pending ban on incandescent light bulbs will almost certainly cause a massive increase in mercury contamination in landfills and everywhere else that the CFLs are disposed of improperly. And as a recent editorial in the Washington Post observed, the cash-for-clunkers program may stimulate the economy, but it will also stimulate the production of materials that are greenhouse gas intensive such as steel, glass, and plastics, while taking perfectly serviceable vehicles out of use, and adding their non-recyclable mass to an already large waste stream.

With that preface, here are several recommendations that I believe might improve the policymaking process:

1. Proposed legislation that depends on the interpretation of scientific information should have a formal period of external science review. This is the case, for example, with the United Nations Intergovernmental Panel on Climate Change Assessment Reports, as well as reports from agencies like the EPA. I would suggest allowing 5 working days for this review cycle, as legislation grows lengthier and lengthier, and the issues being addressed are increasingly complex. There should be specific recognition of the fact that the "best science," is not always found in the halls of government agencies, or governmentally-funded universities, but may well reside in industry, where scientists work to produce the many miraculous products we have, such as new prescription drugs, new energy technologies, non-invasive medical imaging devices, and more. Private-sector scientists, as well as scientists working for NGOs should have a place at the table – and a vote as well – when it comes to serving on scientific review boards.

2. Often, the peer-reviewed literature used to build the case for particular legislation is not readily available to the public, but must be purchased, often at high cost, from journal publishers, or laboriously obtained from university libraries. Sometimes the data used by government agencies in establishing the scientific case for legislation is not available for audit or confirmation. Few scientists outside of the university can afford to subscribe to more than a few journals. Yet reviewing the underlying scientific materials can be critical to understanding the issues at hand and the likely consequences of the legislation. Thus, Congress should make those materials available to those who wish to perform a scientific review. This could be done through a limited-access website, where access is granted to specific reviewers who request access.

3. After the scientific review period, the sponsors of the legislation should reply to comments on a publicly available website. Again, such practices are quite common in the review of scientific reports of various agencies including the EPA. Public dissemination of responses to scientific queries would go a long way toward increasing transparency of the decision making process for issues involving scientific findings.

I appreciate the opportunity to contribute to the Committee's efforts to improve scientific integrity and transparency in public policy decision making. I hope that my testimony and my answer to the question above will help secure better decision making to the benefit of all Americans.

Best,

Kenneth P. Green, D.Env.
Resident Scholar
American Enterprise Institute

Senator WHITEHOUSE. Dr. Goldman.

STATEMENT OF LYNN GOLDMAN, PROFESSOR AND PRINCIPAL INVESTIGATOR, JOHNS HOPKINS NATIONAL CHILDREN'S STUDY

Ms. GOLDMAN. Thank you, Senator Boxer and Senator Inhofe in absentia for inviting me to testify before you today.

As you know, I formerly served at the U.S. EPA in the Clinton administration. I am a Professor at Johns Hopkins University.

This issue of scientific integrity at the EPA is one that is very near and dear to my heart. During the time that I was at EPA, we worked very hard to try to get the science right to inform regulations, to inform all of our actions, to inform the legislation that was being undertaken by this body.

And we also worked very hard to establish peer review practices and other mechanisms to make sure that the external scientific community could participate as much as possible and so that they could serve as a check, if you may, to make sure that the science coming from EPA was completely up to date with the science as it is occurring in academia and the rest of society.

And I think the results of that were a number of science-based actions that served to protect the public's health and the environment, which is, after all, what the mission of the EPA is all about.

Last year, I appeared before this Committee to testify about my concerns about the changes that had been made to EPA's integrated risk information system, or IRIS. Of course, it is a very challenging process to completely assess the toxicity of a chemical. It requires the engagement of scientists from very many disciplines and the synthesis of a tremendous amount of information.

And the peer review process is even more difficult because you would want the peer reviewers to be very much at the cutting edge of the science, and to be capable of being able to review the work of EPA scientists who themselves are extraordinarily expert in what they do.

Unfortunately, in the last Administration, actions had been taken that undermined that process. The White House Office of Management and Budget was in essence placed in charge of that process. There were non-transparent processes that allowed other agencies to intervene in that process, and even to stop assessments of chemicals if they wanted more time to study them. And the last word on the toxicity of the chemicals was in the hands of the OMB.

So I personally am very happy that the EPA under Lisa Jackson's leadership has restored the integrity of the IRIS process, and I think that the new review process makes sense. It is open. It is transparent. It allows everybody to play a role, the Federal agencies as well as outside scientists, and it allows the final authority over the contents of IRIS listings to be in the hands of EPA, which is where it needs to be.

As I at one point worked in a State agency, I worked for the State of California, and I can tell you that everybody relies on IRIS, the States, industry. It is a very, very important resource and it is one that needs to be protected.

I have also been pleased with the changes that Lisa Jackson has announced to the process for creating the so-called NAAQS, the

National Ambient Air Quality Standards. Again, there had been some changes made in the last Administration where the so-called staff papers that laid out the analysis of EPA scientists were disregarded by decisionmakers, and they were not made available to the public. They were not made available to Congress to review. And I am happy to see that those have now been restored to the proper place in terms of helping to inform decisions, as well as the new determination on the part of EPA to listen to its Clean Air Scientific Advisory Committee.

I will tell you, as a member of the scientific community now, that the disputes that were occurring between EPA and CASAC hurt EPA terribly in terms of EPA's credibility with independent scientists and the fact that, you know, the idea that if you were brought to EPA to advise the EPA that your advice would not even receive a hearing by decisionmakers, then what would motivate you to serve as an adviser to EPA?

Because believe me, those special Government employee assignments take a lot of time. They take you away from your research. They take you away from your students. And the only reason it is worth doing that is to serve the public, to feel that you are doing something in service of EPA.

In closing, I would like to bring to your attention the work of the bipartisan Policy Center's Science for Policy Project, that is cochaired by Sherwood Boehlert and by Don Kennedy. I happen to be a member of this. This is an interim report from this group called Improving the Use of Science in Regulatory Policy. And it is our hope that these kinds of reports from outside of the Government will be helpful to all of you as you deliberate in the future.

Thank you again for inviting me to be here with you.

[The prepared statement of Ms. Goldman follows:]

Testimony
Scientific Integrity and Transparency Reforms at the Environmental Protection Agency

Senate Committee on Environment and Public Works and EPW Oversight Subcommittee

Lynn R. Goldman, M.D., M.P.H.

Professor, Environmental Health Sciences,
Johns Hopkins University, Bloomberg School of Public Health
June 8, 2009

Chairman Boxer, Senator Inhofe and members of the Committee on Environment and Public Works, it is my honor to testify today about the US Environmental Protection Agency (EPA) and its efforts to reform scientific integrity and transparency. I am a professor of environmental health at the Johns Hopkins Bloomberg School of Public Health. From 1993-98, I served as Assistant Administrator for Prevention, Pesticides and Toxic Substances at the US EPA Prior to that I worked for eight years in public health with the California Department of Health Services. These views are my own.

The issue of scientific integrity at the EPA is near and dear to me. At EPA in the 1990s, we worked hard to institute procedures to strengthen the scientific basis of EPA's actions, and to focus EPA's scientific activities on research and risk assessments in support of EPA's mission to safeguard health and the environment. We instituted peer review mechanisms to assure that the science produced in support of agency actions was well founded and had the support of the scientific community. A number of science-based actions were taken that still are providing benefits today. In 1996, Congress enacted new laws, both an amendment to the Safe Drinking Water Act and the Food Quality Protection Act, which established a stronger scientific basis for protecting the public from harmful contaminants in drinking water and pesticides in food. EPA expanded the Toxic Release Inventory to add new substances that potentially threaten health and the environment. New health protective standards for ozone and particulate matter (PM) were issued under the Clean Air Act.

Last year I appeared before your committee to discuss my concerns about the changes that had been made to EPA's Integrated Risk Information System (IRIS). The assessment of hazards of a toxic chemical is a complex and challenging process that involves scientists with specialized training in a myriad of disciplines related to chemistry, toxicology and epidemiology. The peer review for such an assessment is even more challenging; a very high level of expertise is required. Mechanisms have long been available to obtain such review. Reports can be sent to individual reviewers, to EPA's Science Advisory Board and its committees, to interagency processes mediated by the National Toxicology Program and/or the White House Office of Science and Technology Policy, and to the National Academies.

Unfortunately, during the last administration we saw actions that undermined the role of science in EPA decision making. EPA had established the White House Office of Management and Budget as the final arbiter of science judgments in IRIS. Moreover, they opened the door to interference with the IRIS process by federal agencies like the Department of Defense who are responsible for waste cleanups in communities and have an interest in delaying action. In essence, other agencies could stop reviews dead in their tracks. This process was not transparent and in essence provided them with a veto over EPA's scientific conclusions. The net effect of this change in the IRIS process was to undercut the scientific credibility of the IRIS listings and to slow the process to the point where it was unproductive. It undermined the public's trust in EPA's IRIS process.

I am happy to say that the EPA, under Lisa Jackson's leadership, has taken action to restore integrity to the IRIS process. She has announced a streamlined review

schedule that should assure that the EPA completes the assessments in a timely fashion. Also, other federal agencies will no longer have the opportunity to request suspension of an assessment process to conduct research on "mission critical" chemicals. Input from other federal agencies and White House offices will be from health scientists and will focus on scientific and technical comments, and these comments will be made public. Importantly, EPA will have final authority over the contents of all IRIS assessments after considering the scientific input of experts at other agencies and White House offices. EPA will continue to require that the assessment undergo rigorous independent external peer review and public review. IRIS assessments are relied upon by the public health community, by state and local agencies, and by industry to provide authoritative information about EPA's views about the toxicity of chemicals. Restoring transparency and credibility to IRIS is a giant step forward and I applaud it.

Likewise the last several years have seen erosion in the scientific credibility of EPA's process to set National Ambient Air Quality Standards, so called "NAAQs", under the Clean Air Act. The previous administration had replaced the work of EPA's scientific experts with an Advance Notice of Proposed Rulemaking outlining potential options for air quality standards in the Federal Register. EPA on several occasions had seriously disregarded advice from EPA's own Clean Air Scientific Advisory Committee (CASAC), so much so that members of the CASAC had publically disagreed with EPA's decisions. Such a dispute not only decreased confidence in EPA's decisions but also signaled to the scientific community that their advice would be disregarded, decreasing their willingness to serve EPA in this capacity.

EPA has announced steps to restore integrity to the NAAQs process. From this point forward EPA's expert staff analyses of options will be considered by the EPA Administrator when setting air quality standards. CASAC's advice will be taken. The staff technical analyses will once again be made available to the public prior to the initiation of formal rulemaking. EPA will continue to hold the public workshops early in the NAAQS review. As is the case with IRIS, EPA's staff will involve scientific experts in other federal agencies early in the review of each air quality standard, to obtain the full benefit of scientific knowledge within the federal government. Restoring transparency and credibility to the NAAQs process will very much increase confidence in EPA's decisions and will restore faith to the scientific community.

In conclusion I am heartened by these recent changes at the EPA. Going back to a much earlier time, I am reminded of EPA Administrator William Ruckelshaus, in 1983, who directed EPA to operate 'in a fishbowl.' What this means is to allow the fullest possible public participation in all aspects of decision-making, with all parties, from environmentalists to the regulated community. EPA does its best work in the sunshine. This is especially true when it comes to science, which inherently benefits from open and transparent processes. Another important step forward is an apparent commitment to get the work done in a timely fashion. By moving forward effectively with IRIS listings and NAAQ standards, the EPA will better serve the public by assuring that new scientific information is translated into action to appropriately protect health and the environment. Thank you again for the opportunity to testify before your committee today.

Senator WHITEHOUSE. Thank you, Dr. Goldman. I appreciate your testimony, and I thank all of the witnesses for their participation in this hearing.

This is the first hearing of the Oversight Committee of the Environment and Public Works Committee. And it is a Committee that didn't exist before. This is a joint hearing, and obviously the Chairman, Barbara Boxer, and the Ranking Member, Jim Inhofe, have been here during the course of the hearing, and now you are down to the Chairman of the Subcommittee, myself, and my distinguished Ranking Member, Senator Barrasso.

And I would love to hear the advice of the panel on what's next. What are the two or three key things that EPA should focus on in order to, I would say reclaim its integrity, but let's be a little bit more technical, to reclaim processes and protocols and standards that will protect its integrity?

Go ahead, Dr. Grifo.

Ms. GRIFO. Thank you.

Two or three is hard. I have four.

Senator WHITEHOUSE. OK.

Ms. GRIFO. Can I stick in four?

Senator WHITEHOUSE. Four is good.

Ms. GRIFO. I think one of the most important things is going to be to draft an agency-wide media policy. I mean, the media are the route from EPA to the American people, and we really need to have that route opened up.

The second I would say is just in general providing the public with more information about meetings between agency officials and outside entities. This has been another source of problems in the past.

Senator WHITEHOUSE. Can I stop you on the media policy just for 1 second?

Ms. GRIFO. Yes.

Senator WHITEHOUSE. Just from a management point of view, you could get into a situation in which you had an employee who was grandstanding with the media, who was using the media to undercut administrative authorities or create management problems, to self-aggrandize or stray away from the topic that they have been told to handle because they have a personal interest in something else.

There are other motivations for going to the media than just plain kind of whistleblowing and transparency. How do you cope with those? How do we write a policy or pursue a standard of oversight that allows for some degree of management of the function of employees in talking to the media, while at the same time assuring that that doesn't become an institutional problem that affects scientific integrity?

Ms. GRIFO. I think there are two things. One, I think you are aware of our work, our media policy scorecard, where we looked at 15 agencies. And in fact, there are several agencies that do have this kind of a media policy and that hasn't happened. It has not become a giant impediment to the work of those agencies. So I think it can happen.

But I think the second thing is that what we are talking about is a personal views exemption. That in other words, the scientist

cannot speak for the agency without going through all of those normal channels that we all approve and want to see happen.

Senator WHITEHOUSE. OK. That is a good answer.

Ms. GRIFO. But rather, you know, it is a personal views exception. They have to stop and take off their agency hat and put on their private citizen hat, and then of course, you know, we do have the First Amendment, so we want to——

Senator WHITEHOUSE. Yes. Understood. OK. I didn't want to stop you at one because you had four.

Ms. GRIFO. OK. So that was two, very quickly.

The third one I think is really about routinely disclosing more information about the scientific basis for agency decisions. I think there are still, you know, big issues that are out there. I think we have a number of these issues swirling around. When we look at the relationship between the EPA and the Office of Management and Budget that are still, I mean obviously we are waiting for the new directive to come out of OMB and OIRA to tell us what its role is going to be. But I think what is important is OIRA is a creation of Congress. OIRA was created by Congress and Congress, you know, could limit OIRA and do things in that regard.

And the last one, last but not least, I think we really would like to see Lisa Jackson come out and be very clear with her managers, because this is the level at which this is happening. She has come out and said in a general sense to employees, but to completely and in a focused manner address her managers on how retaliation is just not acceptable. Because until we have strong whistleblower protections legally enabled, we still are going to have those issues because there is this culture and we want to see that culture change.

So those would be my quick four.

Senator WHITEHOUSE. OK. I will come back to it, but my time has expired, so I will turn to the distinguished Senator from Wyoming.

Senator BARRASSO. Thank you very much, Mr. Chairman. It is a pleasure to work with you on this Oversight Committee. I appreciate it. I would say so far you are the finest Chairman that this Committee has ever had.

[Laughter.]

Senator BARRASSO. Dr. Green, if I could just ask you a couple of questions. You state in your testimony that there is an assumption that only scientists working within Government or dependent on Government grants really have worthwhile knowledge to inject into public policy decisionmaking. What would you say about scientists from environmental special interest groups? Are they treated with more credibility?

Mr. GREEN. I think to a certain extent they are. They are certainly given a place at the table more often, I think, than those who are with either non-environmental NGOs or with industrial or technological groups.

I think they are given the benefit of the doubt that they are somehow unbiased and not dependent on any sources of income that could bias their opinions. And I think that in many cases that assumption is open to question.

Senator BARRASSO. Well, do you see a reluctance by Federal agencies, then, to hire scientists who come from the private sector, say, as opposed to environmental special interest groups? And how do you see that happening?

Mr. GREEN. I guess that would perhaps that might depend on the Administration.

Again, there is I think a general belief that somehow being a productive part of an industrial organization or a private organization is a tainting thing to be, that there is some taint to actually making things that we rely on in our daily lives, and they are not therefore treated with the same level of gravitas.

There is the other fact, however, which is if you are actually doing work in laboratories for the private sector, you are not focusing on peer-reviewed publication. And therefore, the giant emphasis on having a long track record of peer-reviewed publication does cut against such people who are busy actually doing their job.

Senator BARRASSO. You made a comment that I found striking. You said that "While science may be able to tell us what is, it can never really tell us what to do." And you know, is there any issue today where you believe that policymakers are saying science is telling us what to do?

Mr. GREEN. Well, I mean, absolutely. The biggest issue of the day, climate change, is one in which you hear this routinely. The science says we must do X. We must achieve this level of greenhouse gas emission reductions over this period of time. The science tells us we must.

Well, that is not the nature of science. Science can tell you the nature of a problem. It could tell you what impacts you might get from a given reduction of greenhouse gases. But the decision that that is the worthwhile or the best investment of the funds you have at the time you have them with regard to the other values you hold dear, such as economic growth, which also affects health and the environment, that decision can only be done on a multiple value assessment. It is not a dictation of science.

But we hear this regularly, not only with regard to climate change, but with regard to chemical exposures, air pollution. Science tells us we must do something. As a scientist, I can tell you I am the first one who does not want to live in a scientocracy.

Senator BARRASSO. Dr. Green, if I could go on. I talked with Lisa Jackson about my concerns about how there is now an energy and a climate czar with oversight over issues involving the Environmental Protection Agency, the Secretary of Interior, Secretary of Energy, Secretary of Transportation.

I just want your thoughts on the creation of an energy and climate czar. Is that going to help or hurt using science correctly in developing policy?

Mr. GREEN. Well, as we found, czars didn't work terribly well for Russia, so it is unclear they are going to work any better for us. I think it actually is a very bad precedent. I think the responsibility of the agency heads to the Senate which confirms them is very important in terms of openness, transparency and all of the things we have talked about today.

The fact that there is a Government agency or Government person who says explicitly that in order to deny knowledge to the pub-

lic nothing was written down is deeply troubling, when you talk about a decision that could lead to the loss of jobs for tens of thousands of people, change the buying decisions and override the buying decisions of all Americans. I find that to be very troubling, and if that is going to be the pattern we see with regard to energy decisionmaking as well, I think it is still more troubling.

Senator BARRASSO. And then, Dr. Green, I only have about 30 seconds left. Would you like to respond to any of the other comments you have heard from other panelists today?

Mr. GREEN. Well, I think there is some general agreement here that these are important issues, transparency, openness and consultation. But I think without a meaningful commitment to allowing the time for deliberation, these things are almost all meaningless. I have had the dubious pleasure of reading the IPCC reports on science now in their totality every 5 years. And I can tell you, you cannot plow through a 1,000-page document of intense scientific information over a weekend in order to submit comments within a 15-day or 30-day comment period.

Without a real commitment to a deliberative time period and the end of game-playing with the release before holidays and so forth, all of this is relatively meaningless.

Senator BARRASSO. OK. Thank you.

Thank you, Mr. Chairman. I have some other additional questions for Dr. Grifo and Dr. Goldman. Perhaps I can submit those in writing.

Senator WHITEHOUSE. Or we can continue to a second round?

Senator BARRASSO. No, that is all right. I have an Energy markup, so thank you, Mr. Chairman.

Senator WHITEHOUSE. All right. I wanted to follow up on a point that our distinguished Ranking Member just made about, and that Dr. Green also did, about the difference between, the perceived difference between Government scientists, scientists representing not-for-profit organizations, and scientists representing the views of for-profit private corporations.

And I concur that it is not a given that because a scientist worked for a private corporation, their credibility is diminished or their integrity is subject to question. But it does make a bright and simple guideline, and it is a bit of a proxy, I would suggest, that may not be exactly accurate. But the problem that I see is that within the science supported by private for-profit corporations, we have seen over and over situations in which the science was really deliberately twisted for profit.

They were real low moments. They could not be characterized by scientific integrity. Examples like the American Tobacco Institute and its forever campaign to convince people that tobacco was safe. The American Lead Institute and its forever campaign to convince people that, first, lead was safe; and second, well, OK, it is not safe, but you have to eat a flake of lead the size of a potato chip before you are actually harmed.

I think we have to be candid and admit that there is an industry of bogus or questionable science that infects a part of the private sector. And unfortunately, the private sector has not really made any effort to distinguish the legitimate private science from those propagandizing efforts.

And as a result, I think there is a broader taint, and therefore people who can't pick out one thing from the other just think, well, there is no risk of private science being corrupt if we don't bother to look at it; if we focus more on the NGOs who don't have the same profit motive, and if we focus on Government scientists who don't have that motive at all.

So I would urge that one of the things we might consider in this Committee as we go forward is trying to make some of those distinctions between what is legitimate science and on what occasions the science has just been degraded and turned to industry propagandizing. And unfortunately, there are I think at this point almost indisputable examples of that.

And I would like to ask Dr. Goldman on that point. You have said that EPA does its best work in the sunshine. Is it enough in terms of trying to make that distinction between legitimate private science and private science that has been bought and paid for to produce a particular result, the so-called merchants of doubt? Is sunshine enough or should there be more attention to those organizations like the American Tobacco Institute and the American Lead Institute of the past that frankly don't meet standards of environmental integrity or credibility?

Ms. GOLDMAN. Well, I would agree with you that there does need to be more attention paid to that. And I have an experience along those lines during the time I was at EPA responsible for the regulation of pesticides. Apparently, we were looking at one in particular called phosphine.

After I left EPA, people involved in the tobacco litigation sent me a big folder about phosphine and how the tobacco companies which were using this pesticide had put together a group called, I think they are called the Phosphine Coalition or some such thing. And in this folder was a letter from a private scientific organization, a consulting firm that was hired to support them in defending their product against EPA and against regulation in which the firm promised not only a certain outcome in terms of, we will evaluate this chemical and we will come up with this number as the appropriate number to which EPA will regulate it, but they would write a paper about that and publish that in the scientific literature before they had done one thing, before they had lifted a single pencil to do a risk assessment.

And you know, reading that, I mean, is that what made my hair curl? But it really was something I had suspected was going on behind the scenes, but had never had proof of. And that kind of thing just shouldn't be. And I agree with you that industry has some responsibility to help sort this out and to weed out some of these practices that are inconsistent with the best of science.

Senator WHITEHOUSE. Yes, I think as you said, there is the risk that if industry itself won't stand up to these abusive practices and distinguish its science from them, that they will then suffer some of that taint, which I think is unnecessary.

Senator Barrasso.

Senator BARRASSO. [Remarks off microphone.]

Mr. GREEN. Yes, I would like to respond to that question. I think you make a good point. The problem with bright lines is that there is a side on either side of the line. Bad actors are all around, not

only in private sector, but in Government. For the example you gave about private malfeasance, and my mother died from smoking, so you can't say anything as bad about the tobacco industry as I would.

But for every instance you have given, I can give another one of Government science malfeasance: Tuskegee experiments, radiation experiments on airmen during World War II. The Government is no stranger to scientific malfeasance any more than the private sector is.

I don't see grounds for giving a benefit of the doubt to one side or the other. I see grounds for actually simply being careful as to taking multiple inputs and filtering through them by determining whether they are true or false, not who wrote them, not where they were published, but whether they are true or false.

That would be my main response to that point, which is I think to say that the people who, as I said, develop the prescription drugs that save lives; who develop the pesticides and herbicides that feed people more affordably and that lead us to crops which we can export to the world to help address world hunger.

To say that those people are not virtuous people and that you have an assumption that they are putting their personal interests ahead of the health of other people's children and their own children, I think is a somewhat scurrilous thing to say.

Thank you.

Senator WHITEHOUSE. Dr. Grifo, would you care to comment on this discussion? You are the one person who has not been included so far.

Ms. GRIFO. Thank you.

I mean, I think what is very important here are two things: clarity and disclosure. I mean, I think you need to be clear about, you know, what is the context, who is it that is speaking and those sorts of issues. But the disclosure is critical. I mean, I think you are right. Obviously, industry science has done a tremendous amount for the American public. You know, we are all consumers at one level or another.

But I think what is important to remember is that we don't want someone who is taking a large amount of money from a company that produces a product that an advisory committee is making a decision about. I mean that is a clear conflict of interest, and we have to guard very closely against those.

I mean, personally we would like to see them eliminated completely when we are talking about scientific advisory committees. We see that industry scientists can come to the committee, can present, can answer questions, but when it comes to chairing or cochairing such a committee or voting, that is where we would see the distinction and that is where we need the clarity.

Senator WHITEHOUSE. And do you feel that the disclosure at present is adequate with respect to let's divide up membership on scientific advisory committees; submission of testimony to scientific advisory commissions; and submission of comment to proposed rulemakings? Are the standards adequate so that the public and the policymakers who are reviewing that material know who has what motivations?

Ms. GRIFO. Yes, I would submit that they are not. I think Dr. Goldman mentioned the Bipartisan Policy Center and the work that they are doing, and they are wrestling with this issue, and wrestling mightily with this issue. And our President, Kevin Knobloch, is also on that steering committee.

I think, you know, what we are looking for here are true disclosure. The two models that are out there that are excellent are the National Academies and IARC, which is, you know, the French, the World Health Organization. I think both of them are models. They look at the very specific issues.

What I think we need to see, what we institutionally think we need to see is for the Office of Government Ethics to come in and help with some of these definitions because right now, conflict of interest is a little bit of a murky concept, so there is a lot of work to be done there. And there are other reforms that we really need to consider when we look at FACA, which is the Federal Advisory Committee Act.

Senator WHITEHOUSE. Well, I appreciate the testimony of the witnesses. I appreciate the courtesy of my very distinguished Ranking Member. And I thank everyone for attending this first hearing, albeit a joint one, of the Environment and Public Works Subcommittee on Oversight.

The record of the hearing will remain open for an additional week if anybody seeks to add any additional materials.

And if there is nothing further, there is nothing further, and we are now adjourned.

[Whereupon, at 11:45 a.m. the Committee was adjourned.]