

**ENVIRONMENTAL PROTECTION AGENCY FISCAL
YEAR 2012 BUDGET**

HEARING

BEFORE THE

**COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE**

ONE HUNDRED TWELFTH CONGRESS

FIRST SESSION

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MARCH 2, 2011
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ONE HUNDRED TWELFTH CONGRESS
FIRST SESSION

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ENVIRONMENTAL PROTECTION AGENCY FISCAL YEAR 2012 BUDGET

WEDNESDAY, MARCH 2, 2011

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 2:30 p.m. in room 406, Dirksen Senate Office Building, Hon. Barbara Boxer (chairman of the committee) presiding.

Present: Senators Boxer, Inhofe, Lautenberg, Cardin, Sanders, Whitehouse, Udall, Barrasso, Johanns, Boozman.

STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator BOXER. The hearing will come to order. We want to welcome Administrator Jackson to this oversight hearing on the 2012 budget for the Environmental Protection Agency.

The mission that EPA undertakes every day is critically important to our children, to our families and to our communities, large and small, all across America. It is a mission created with bipartisan support, and every time I talk about the landmark laws that are under attack, I point out that the major, major landmark environmental laws were signed by Richard Nixon, Gerald Ford, and George Herbert Walker Bush. I think it is important to remember that until recently we had very strong bipartisan support for these laws. Because the initial impetus for them was to keep our families healthy, in good shape, and keeping our air and water clean and safe.

The President's budget recognizes the importance of EPA's mission and it is true that he reduced the EPA budget by more than \$1.3 billion. It is a 13 percent reduction. But I respect the President's effort to cut the deficit during these tough times, but to do it responsibly.

For example, the President's budget would make vital investments in enforcing our Nation's public health laws, including an agency-wide effort to reduce toxic pollution in at-risk communities, such as schools and other places where kids are exposed. I remember *USA Today* doing a major expose about the problem we are facing with our kids going to school in a situation where they are located near freeways and highways and railroad stops. Their lungs are suffering.

The budget would also assist State and local efforts to reduce dangerous air pollution to begin the process of getting the Nation's largest emitters of carbon pollution to reduce their emissions. As

we know, whether or not the EPA had a right to protect us from too much car pollution was decided by the Supreme Court. They said once there is an endangerment finding that they have the obligation to do so. That is what Administrator Jackson is planning to do.

So even where the President's budget proposes to make cuts, such as reductions in Clean Water and Safe Drinking Water loan programs, it does it, I think, responsibly, after there was an uptick in those programs in previous years. But in stark contrast to the President's support for EPA's essential work to protect our kids and families, the recently passed House Continuing Resolution, not the short-term 2-week one, which I voted for, but the longer 7-month one, actually takes an axe to EPA. The largest cut of any agency, EPA gets a 30 percent cut.

An astounding \$2 billion from the Water Infrastructure and Water Quality Protection programs. These cuts mean that our drinking water has a far greater chance of contamination. These cuts means thousands of lost jobs. When I ran this last time, where are the jobs, that is all we heard, where are the jobs. I said, I am going to come back here and fight for jobs. I am not going to fight to see jobs lost.

We are looking at, in that 7-month CR, a cut to clean up and redevelop brownfields. That law was passed under Republican leadership. It threatens, just that program, 5,000 jobs, just that program.

The House budget would slash 45 percent from the 2010 enacted level for Federal aid to State, local and tribal governments to protect our communities from dangerous pollution. It includes back door efforts to undermine EPA authorities that protect the air we breathe and the water we drink. There are riders on this. Not only do they cut to the heart of EPA, but then they tell Administrator Jackson, you can't cleanup the air, you can't cleanup soot or smog or carbon pollution. So it is legislating on an appropriations bill, it is attaching these riders. It is actually quite dangerous for the health of our communities.

I want to close by saying, if you look at the cost benefit ratio of the Clean Air Act, it is \$30 of benefits for every dollar invested. There is just a new report that shows the Clean Air Act prevented 160,000 cases of premature death, 130,000 heart attacks, 13 million lost work days were prevented, and 1.7 million asthma attacks were prevented in 2010 alone. That is from the Clean Air Act Amendments signed by George Herbert Walker Bush.

So, look, we all know we are facing tough economic times. But tough times call for intelligent decisionmaking and wisdom, not reckless cuts that will do more harm than good. I have talked to doctors, I have talked to the American Lung Association. They believe strongly that these if cuts go forward, we are going to see premature death, we are going to see illness. We have to protect the health of our children while also building clean technology industries.

This other point, since we passed the Clean Air Act, the U.S. GDP has risen by 207 percent. So there is all this talk that the environment and the economy are clashing. No, they don't. They work hand in glove. I always say if you can't breathe, you can't work.

If you have a great operation but your people can't come to work because they are sick, you don't do very well.

We are the world's largest producer and consumer of environmental technology. That industry has approximately 119,000 firms, supports 1.7 million jobs, generates \$300 billion in revenues, including \$43 billion in exports. Why would we take an axe to these industries? That is what we do, that is what the Republicans did in the House, I hope we won't in the Senate, for that 7-month Continuing Resolution.

So the President's budget does make tough choices, his 2012 budget. It is tough to cut, for me, a billion dollars out of EPA. That hurts my heart. But I am willing to go down that road, because it is a responsible cut. But the \$3 billion cut just goes over the line. I thank you very much for being here and look forward to hearing from you.

Senator Inhofe.

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

Senator INHOFE. Thank you, Madam Chairman. Administrator Jackson, nice to have you back, as always.

I suspect these are tough times at the EPA for a number of reasons, because you are going to have to make some cuts. I think all Federal agencies are.

I have to say this, in all due respect, instead of sacrifice, I am afraid the EPA's budget submission is yet another what I call a fiscal bait and switch. We have seen this before, going back to the Bush administration EPA. They propose significant cuts that appear fiscally responsible, but in truth they are cuts that the EPA knows that Congress will reinstate or restore. By my calculations, 83 percent of the EPA-proposed cuts come from three water programs with strong bipartisan support in Congress, including \$942 million from the State Revolving Funds. The Chairman and I have been strong supporters of this. These cuts total \$1.1 billion. EPA's overall cuts for Fiscal Year 2012 amount to \$1.3 billion.

So it is not hard to see the math here. You can bet these cuts will be restored. We have seen this over the years, I have seen it in other agencies. On Armed Services, I can remember when we were demanding some cuts there, so they said, fine, we will just take out the F-22 program and leave us without any fifth generation fighters.

So that is something that has happened and I kind of call on your help to find cuts that are more responsible and more politically realistic. I can think of many programs that don't deserve the funding, certainly at the level, and No. 1 would be, and I am sure this is no surprise to you, the amount of money that we are spending on the greenhouse gas regulatory regime.

I have to say, however, that due to existing greenhouse gas regulations, this is more complicated than it seems. The problem is that EPA, States and regulated entities have legal obligations stemming from the existing greenhouse gas regulations. We have to ensure, therefore, that our cuts don't have unintended consequences.

The best way to eliminate EPA's carbon regime is through an authorization bill. That is why I released, in fact, we are going to be

introducing it tomorrow, the Upton-Inhofe Bill, the Energy Tax Prevention Act of 2011. This bill puts Congress in charge of deciding our Nation's climate policy, not the EPA.

So we are going to still continue to try to do that. If we want to make strides in improving public health, we won't do it by regulating carbon dioxide. When it comes to real pollution, such as sulfur dioxide and particulate matter, the EPA's budget falls short. For example, it zeroes out the funding for the Diesel Emissions Reduction Act, or DERA. This is a program with bipartisan support from me, from Chairman Boxer, from Senator Carper and from most of the Committee that we passed last year. It would help to reduce real pollutants, but the EPA has decided to spend it elsewhere. This is, in my opinion, irresponsible.

Madam Administrator, I have said before, though we disagree, that I appreciate your leadership of the agency. You may have tough decisions ahead on ozone, PM dust, PM 10 dust, the Boiler MACT, Utility MACT, greenhouse gases. We put together, on the six major types of new regulations, what the cost is and what the job loss would be, and this country cannot afford it right now.

So we will likely disagree on what you decide. But you have always been honest and straightforward with me, and I look forward to continuing our relationship through this 112th Congress.

[The prepared statement of Senator Inhofe follows:]

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

Administrator Jackson, it is always good to see you. I suspect these are tough times at EPA, for a variety of reasons. The most obvious is the Nation's massive deficits and debt. If we want to eliminate them, Federal agencies must make meaningful fiscal sacrifices—and EPA is no exception.

But Administrator Jackson—and I say this with all due respect—instead of sacrifice, I'm afraid EPA's budget submission is yet another fiscal bait and switch.

We've seen this before, going back to the Bush administration: EPA proposes significant cuts that appear fiscally responsible—but in truth they are cuts EPA knows Congress will readily restore.

By my calculations, 83 percent of EPA's proposed cuts come from three water programs with strong bipartisan support in Congress, including \$947 million from State Revolving Funds (SRF). These cuts total \$1.1 billion. EPA's overall cuts for FY 2012 amount to \$1.3 billion. So it's not hard to see the math here.

You can bet these cuts will be restored, because many of my colleagues believe these are worthwhile programs. For example, the SRF supports our Nation's infrastructure—an area where the Federal Government has a crucial role to play.

Administrator, I call on you to help us find cuts that are more responsible—and more politically realistic. I can think of many programs that don't deserve funding. Item No. 1—and this should be no surprise—is EPA's greenhouse gas (GHG) regulatory regime.

I must say, however, that, due to existing GHG regulations, this is more complicated than it seems. The problem is that EPA, states, and regulated entities have legal obligations stemming from existing GHG regulations. We have to ensure, therefore, that our cuts don't have unintended consequences.

The best way to eliminate EPA's carbon regime is through an authorization bill. That's why I released the Energy Tax Prevention Act of 2011 with Rep. Fred Upton. This bill puts Congress in charge of deciding our Nation's climate change policy, not EPA bureaucrats. It will keep our focus on reducing real pollution, ensure people have jobs, and allow our economy to grow.

If we want to make strides in improving public health, we won't do it by regulating carbon dioxide. It's not a pollutant—despite what EPA says. When it comes to real pollution, such as sulfur dioxide and particulate matter, EPA's budget falls short. For example, it eliminates funding for the Diesel Emission Reduction Act, or DERA. This is a program with bipartisan support—from me, Chairman Boxer, Sen. Carper, and others—that we passed last year. It would help reduce real pollutants,

but EPA has decided to spend elsewhere. This is irresponsible and, if followed, bad for public health.

Administrator, I've said this before: though we disagree, I appreciate your leadership at the Agency. You have tough decisions ahead on ozone, on PM dust, on Boiler MACT, on Utility MACT, on hydraulic fracturing, and on greenhouse gases. We will likely disagree on what you decide. But you have always been honest and straightforward with me. I look forward to continuing our relationship through the 112th Congress.

Senator BOXER. Thank you very much, Senator.
Senator Udall, followed by Senator Barrasso.

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

Senator UDALL. Thank you, Madam Chair. I appreciate your calling this hearing. I thank Administrator Jackson for being here today.

The acts that you administer, the Clean Air Act, Clean Water Act, the Safe Water Drinking Act, are really the cornerstones, as you know, Administrator Jackson, of America's public health. Really, when you come before our Committee, you talk over and over again about public health. I think that is important, when we talk about your budget, that we realize that the public health is impacted when we talk about cutting your budget.

EPA has a serious responsibility to implement these laws, these public health laws. Our Committee has an equally serious responsibility to oversee that implementation. These laws were passed with large, bipartisan majorities, and I believe they really have support all across America in terms of what you do on water and air and drinking water. Air and water pollution know no boundaries. They threaten us. When we protect the environment, we take these steps to protect ourselves and our children and future generations.

The Chair has talked a little bit about your report. I am going to hopefully ask you, after we get through the opening statements, but certainly in questions, about this new report you put out. The figures are pretty remarkable in terms of money saved, deaths prevented, pollution abated, all of those kinds of things. So I am going to put the rest of my statement in the record, but I very much appreciate your being here and look forward to having you speak very soon.

With that, Madam Chair, I yield back.

Senator BOXER. Thank you, Senator.
Senator Barrasso.

**STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM
THE STATE OF WYOMING**

Senator BARRASSO. Thank you very much, Madam Chairman. Welcome, Administrator Jackson.

In an article today in Politico, entitled Does Industry Cry Wolf on Regs, you were quoted as saying, "Today's forecasts of economic doom are nearly identical, almost word for word, to the doomsday predictions of the last 40 years." There is a picture of you today in Politico. It goes on, you are quoted as saying, "This broken record continues, despite the fact that history has proven the doomsayers wrong again and again."

So I just want to explore that statement, Administrator Jackson. Forty years ago, and you talk about 40 years ago, the same scientists that are predicting the end of the world now from global warming were predicting the end of the world from global cooling. I have with me a number of articles that I collected when I was in college, *Newsweek Magazine*, *The Cooling World*. *New York Times*, *A Major Cooling Widely Considered to be Inevitable*. One from *Time Magazine*, *Another Ice Age*?

So if we had committed the same amount of taxpayer resources and Government manpower that the Administration now wants us to commit to prevent global warming, had we done that to prevent global cooling, we would not be the most prosperous nation on earth. Advances in science and health care, diseases cured, children's lives saved, would not be the reality that we have had over those years. Millions of jobs would have needlessly been lost.

The fact is that the same doomsday predictions from 40 years ago is all we are getting from this agency and this Administration today. Only now, the problem, the Administration claims, is man-made global warming, not natural global warming, not mostly natural global warming, we are not quite sure to what extent it is all man-made, no, it is all man's fault. The Administration believes that the greatest environmental threat faced by man is ourselves, our past economic progress. This Administration intend to issue the greatest pile of regulations in the history of the Environmental Protection Agency and perhaps the United States to combat that threat.

So as a result, the Administration seems to believe that all these new regulations on small and large businesses, during the worst economic recession in recent memory, will yield untold numbers of jobs and save millions of lives. Well, more regulations may result in more Government jobs, but not in more private sector jobs. That approach has failed time and time again, all over the world.

The taxpayer resources that we will commit to regulating small and large business owners, based on these predictions of future impacts on land, water and air for global warming will harm businesses all across our country. This may be a regulator's dream, but it is a small business owner's nightmare. The small business owners can't question the predictions of those at the EPA on what will happen to their businesses in five or ten or 20 years from now, because by that time, by the time we reach the future 40 years from now, as you were quoting about 40 years in the past, and billions of taxpayer resources will have been spent, jobs will have been lost. This Administration will be long gone, having failed to focus on finding the right balance, the balance we need of energy security, environmental stewardship and economic growth.

I look forward to the questions. Thank you, Madam Chairman. Senator BOXER. Thank you so very much. Now we will go to Senator Sanders.

**STATEMENT OF HON. BERNARD SANDERS, U.S. SENATOR
FROM THE STATE OF VERMONT**

Senator SANDERS. Thank you, Madam Chair, and Administrator Jackson, thanks for being with us.

This is a critical time for the United States in so many ways, economically, our national debt, and environmentally. A sensible people and a sensible Government understand that we have to grow jobs in our economy. One way we do it is transforming our energy system. A sensible Government understands that we need to move our government toward a balanced budget, but not on the backs of children's health or the needs of working people at a time when the wealthiest people in this country have become wealthier and have received huge tax breaks.

A sensible government understands that while Rush Limbaugh and Glenn Beck may have an opinion on global warming, that is not what the scientific community agrees with. The overwhelming consensus of the scientific community is in fact that global warming is real and in fact, that global warming is likely man-made.

Now, I am concerned that the House Republican bill, recently produced, would allow big polluters, some of the biggest polluters in America, to spew more carbon pollution and thousands of additional tons of hazardous toxins, such as mercury, into our air and our water. This is despite the fact that the Centers for Disease Control and Prevention have said that mercury pollution harms children through "brain damage, blindness, seizures, inability to speak and kidney damage." Is that really the direction that we want to take America in the year 2011?

The American Lung Association said the House Bill "would result in millions of Americans being forced to breathe air that is unhealthy" and that includes more than 12,000 children in Vermont with asthma. I go to schools in the State of Vermont. When you ever walk into a school, go to a nurse's office and they will talk to you about the number of kids in our State that are breathing crap in the air that is contributing to asthma. Do we really want to accelerate that problem?

The Republicans like to talk about jobs and deficit, but their votes show what their true priorities are. The House Bill cuts \$1.4 billion from State Clean Water funds at a time when the American Society of Civil Engineers has graded our drinking water and our wastewater infrastructure as a D minus. You can't get much worse than that. If we cut fund to improve our wastewater situation and our clean water situation, we are making a very bad situation worse.

Here in the Senate, I think we have to make sure that we develop a sensible policy, that we do not sacrifice the health of our children and our families by excessive and unnecessary and unwise cuts to the EPA. So I have a lot of questions to ask you, Ms. Jackson, and I look forward to the question and answer period. Thank you for the work that you are doing.

Senator BOXER. Thank you.

Senator Johanns, followed by Senator Whitehouse.

**STATEMENT OF HON. MIKE JOHANNS, U.S. SENATOR FROM
THE STATE OF NEBRASKA**

Senator JOHANNS. Thank you very much, Madam Chairman.

I have listened to all the comments, and I just wonder, Madam Administrator, what you think as this goes back and forth from this standpoint. I don't know of another piece of the Federal Gov-

ernment that is having a more difficult time at the moment than your operation. You can see the divide.

I ran a very complex Federal department, 110,000 employees scattered all over the world. I always thought it was my responsible as Cabinet member to work with Democrats, work with Republicans, work with Independents. I will just tell you that sometimes when I was invited to a House member's office, or if I didn't know the House member and I didn't check to see which party they were, if they had a problem, I wanted to try to help them work through the problem.

Recently, I asked for a list of EPA regulatory efforts, EPA items that applied to agriculture that were an ongoing challenge for agriculture. I have in front of me three pages, mostly single-spaced. The start of that, at the top it says, this summary is only an indication. It was not meant to be exhaustive. For everybody out there in EPA land who might by chance be listening to my comments, this is devastating.

Now, nobody here is saying, let's not have clean water or clean air. But there has to be some common sense and sensibility about how we are going about this. That is why you are having problems with your budget. That is why the EPA is being targeted.

Now, there are a number of strategies I would respectfully suggest that you can follow. One strategy is just to keep your head down and straight ahead and see who wins at the end of the day. I think that is the wrong strategy and it is the wrong strategy for our country. These regulations, I read through them before I came over here today, affect real people trying to make a living in my State and in other States in the country. Yet, I did nine town hall meetings last week with businesses, with farmers, with ranchers.

It takes about 5 minutes for the EPA to come up. It is not humorous. These people are really struggling to try to figure out how to deal with you folks. I think that is a failure of the Department. If the USDA would have been in those conditions when I was running it, I think I would have been hauled up here and torn apart by all sides, Democrats and Republicans.

So I offer that because, quite honestly, I am just so frustrated with where the EPA is at and what they are trying to do. The final thing I would mention, although this is just so characteristic of this Administration, it is like everybody got instructions, push your authorities to the limit and beyond, and see if they can stop us. That should be no way to work with Congress. But we see it in the EPA, we see it in the FCC, we just see it across the board, like we are absolutely irrelevant over here. That, I think, again, is just the wrong way to try to run a Federal operation.

With that, I am anxious to hear your justification for your budget. But I will tell you, the problem with your budget, you are losing support over here. It won't be long until it will be a bipartisan loss. It won't be just somebody on one side of the table who is picking on this area of the Federal Government. It will be a bipartisan loss.

Thank you, Madam Chair.

Senator BOXER. Thank you.

I ask unanimous consent to place in the record a letter I received from the American Lung Association. You know, they don't see it the way Senator Johanns sees it at all. As a matter of fact, the

good news for you, Madam Administrator, is that they just did a bipartisan poll, let me tell you what it says, and then I will yield to Senator Whitehouse.

The public expects EPA to implement the Clean Air Act, specifically, the EPA to implement the Clean Air Act and strongly opposes congressional interference in the law's implementation. In February, the bipartisan public poll showed 69 percent of voters support EPA updating the Clean Air Act standards on air pollution; 79 percent of voters support stricter limits on mercury; 77 percent support stricter limits on smog; 74 percent support stricter limits on carbon; and 74 percent tougher fuel efficiency standards for heavy duty trucks.

I put this in the record because maybe there are some politicians who don't want you to do your job. The people who we are responsible to want you to do the job. We will put this in the record, and we will call on Senator Whitehouse.

[The referenced information was not available at time of print.]

Senator JOHANNIS. Madam Chair, since you have directly challenged me, do I have an opportunity to respond?

Senator BOXER. Yes, after Senator Whitehouse.

Senator JOHANNIS. Thank you.

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

Senator WHITEHOUSE. Thank you, Chairman. I want to thank the Administrator for being here, and I want to assure her that I am firmly on the side of those who think that you should enforce the Clean Air Act as the law requires. There was considerable debate over the law. It was settled all the way up to the U.S. Supreme Court. It is now crystal clear. I very much urge that you go forward.

In the history of regulation of polluters, the story from the polluters has always been the same: don't make us do it, it will cause terrible consequences, we will all lose money, it is unreasonable. We have heard so often that you can practically recite it in your sleep. It happened when the Clean Air Act was originally enacted, it has happened through the amendments, it has been consistent across the board.

The fact of the matter is, when you look at the data, the reports have shown that the Clean Air Act saves about 160,000 lives a year. The biggest thing that we have in Rhode Island is the Dunkin' Donuts Center, it seats 14,500 people. You could fill it 11 times with people whose lives are saved by enforcement of the Clean Air Act. That is a pretty big number of folks, that is a lot of families that don't have to go through a funeral. That is a lot of grieving that is forestalled.

In terms of the finances, studies have shown that Clean Air Act enforcement has cost about \$65 billion to the economy and saved about \$2 trillion. Because wise enforcement diminishes the collateral costs that polluters love to push out onto the rest of the public. We wouldn't be having this discussion at all if the cost of pollution went back onto the polluters. Then they would put the money in to fix it. But they don't want to do that. That is why they fought

so hard against cap-and-trade, and that is why we are where we are now.

But I do think that it would be fair for you in your comments to react to the comments that were made recently that as soon as you got here, EPA went berserk. It looks to me like the exact opposite happened, that during the Bush administration, EPA was choked down, stepped on and shut up in every way that the White House could dictate. There were emails that the White House refused to open, so it wouldn't trigger administrative procedures.

The Administrator was called up to the White House when the EPA was recommending action, and told to snuff it, and he went back down and he did snuff it out. The White House censored CDC documents when they were going to be released related to this. Vice President Cheney tried to get the lawsuits that EPA was bringing against the polluters in the Midwest stopped.

So what has happened isn't that the EPA has suddenly gotten hyperactive. What has happened is that the tight leash, the muzzle that the Bush administration improperly put on the EPA for years has been released, because it was wrong to have it there in the first place, and now all that pent-up work needs to be done for the sake of the American public and for the sake of all of our health.

When I mentioned the Midwest power plants, the coal-burning plants, that is a particular reason why it is important for EPA to be active. Rhode Island has 10 percent asthma. You can get up on a bright, clear summer morning in Rhode Island and driving into work, you hear the warning that this is not a safe air day. That if you are old, if you are an infant, if you have breathing difficulties, you need to stay home in the air conditioning. It is not because of anything that is happening in Rhode Island. It is ozone that is being brought in from out of State.

Rhode Island DEM can regulate and can fuss over Clean Air standards until it is blue in the face. But the transport rule, the Federal transport rule is the one thing that is our protection in Rhode Island, the protection of our kids' lungs, of our seniors' lungs, of our grandparents' lungs, against the pollution that is being coughed up out of the Midwest, largely from coal, and that then lands on us.

So I want to strongly urge you to obviously, you have been at this game a long time. You know what is fair, you know what is right. Don't let people mischaracterize what you are doing. Go forward, do your job, protect our health. History will judge you well.

Senator BOXER. Thank you very much, Senator.

Senator JOHANNIS, I will give you a minute to respond to my reading of the letter from the Lung Association.

Senator JOHANNIS. That is very much appreciated.

Here is my point. There is nothing in anything I said that says, don't enforce the law. Nothing. What I am saying is this: you are having a hard time in the EPA with budget issues and other issues, because I believe fairly strongly, very strongly, that confidence is slipping away in what you are doing. When I asked for regulations on agriculture, and I see three pages, and they are only giving me an idea of what is going on, I wonder what is going on.

One of the things I did as Secretary of Agriculture, I went out and did listening sessions across the United States. Not pre-

scripted. Anybody could walk in and tell me what they liked or didn't like, and I learned a lot. It helped me do my job.

The point is, common sense goes a long way.

Senator BOXER. Thank you, Senator. I don't know how——

Senator UDALL. Madam Chair?

Senator BOXER. Yes? Yes, go ahead.

Senator UDALL. I just want to offer something into the record.

Senator BOXER. Sure.

Senator UDALL. The statement was made here that there was this great consensus in 1970 about global cooling. There is an article from 2008, *USA Today*, reviewed all the literature. The supposed global cooling consensus among scientists in the 1970's is a myth, and I would just offer that for the record.

Senator BOXER. Would you put that in the record, then?

Senator UDALL. Yes. I will.

[The referenced information follows:]

Study debunks 'global cooling' concern of '70s

By Doyle Rice, USA TODAY

http://www.usatoday.com/weather/climate/globalwarming/2008-02-20-global-cooling_N.htm

The supposed "global cooling" consensus among scientists in the 1970s — frequently offered by global-warming skeptics as proof that climatologists can't make up their minds — is a myth, according to a survey of the scientific literature of the era.

The '70s was an unusually cold decade. *Newsweek*, *Time*, *The New York Times* and *National Geographic* published articles at the time speculating on the causes of the unusual cold and about the possibility of a new ice age.

But Thomas Peterson of the National Climatic Data Center surveyed dozens of peer-reviewed scientific articles from 1965 to 1979 and found that only seven supported global cooling, while 44 predicted warming. Peterson says 20 others were neutral in their assessments of climate trends.

The study reports, "There was no scientific consensus in the 1970s that the Earth was headed into an imminent ice age.

"A review of the literature suggests that, to the contrary, greenhouse warming even then dominated scientists' thinking about the most important forces shaping Earth's climate on human time scales."

"I was surprised that global warming was so dominant in the peer-reviewed literature of the time," says Peterson, who was also a contributor to the United Nations' Intergovernmental Panel on Climate Change 2007 report.

Scientific reports in the past decade, most notably the U.N. panel's Nobel Prize-winning efforts, have warned that human activities are warming the planet by increasing the release of heat-trapping "greenhouse" gases into the atmosphere.

Skeptics have argued that climate change is cyclical, not fueled by the burning of fossil fuels — coal, oil and natural gas. Peterson notes in the study that concerns over the frigid 1970s subsequently became representative of scientific division over global warming.

That was an unusually cold decade, especially the later years, across the Northern Hemisphere. In the USA, the winters of 1977-79 were three of the 11 coldest since the recording of temperatures began in the 1890s, according to climate center data. The winter of 1978-79 remains the coldest on record in the USA.

Just as it's hard for people today to think much about global warming in the dead of winter, it was also hard for the public — and the media — to focus on a warming world, while at the same time enduring some of the coldest winters on record.

However, as Peterson notes in the paper, "even cursory review of the news media coverage of the issue reveals that, just as there was no consensus at the time among scientists, so was there also no consensus among journalists."

Some have doubts about the new survey. "The paper does not place the late '70s in its climatic context," says Pat Michaels, a senior fellow in environmental studies at the Cato Institute in Washington, D.C.

"The temperature records we had at the time showed a very sharp cooling from the mid-'40s to the mid-'70s," Michaels says. "And scientists attempted to explain that as a consequence of the pollution that was preventing solar radiation from reaching the surface.

"At the time, scientists thought the cooling effect of pollution was greater than the warming effect of carbon dioxide," Michaels adds. "They were attempting to explain the dramatic cooling of the '70s."

But Robert Henson, a writer at the National Center for Atmospheric Research and author of *The Rough Guide to Climate Change*, says: "This is an important part of science history, and Peterson and his co-authors have done a great job of excavating it."

"People have long claimed that scientists in the 1970s were convinced a new ice age was imminent. But in fact, many researchers at the time were already more concerned about the long-term risks of global warming."

Along with Peterson, the study was also authored written by William Connolly of the British Antarctic Survey and John Fleck of *The Albuquerque Journal*. The research will be published in the *Bulletin of the American Meteorological Society*.

Senator BOXER. I say, Senator Johanns, I thought that was very good advice to an Administrator who of course has to know the best way to implement the laws. But that is not the impression that I got from you. So let me just say, in going back to this poll one more minute, I said it was bipartisan. I asked my staff, who did the poll. So listen to who did the poll.

It was the Democratic polling firm, Greenberg, Quinlan, Rossner Research and the Republican firm, Ayres, McHenry and Associates. There was no divide. Everybody supports the EPA doing its job.

Now, if what Senator Johanns is saying, do it in the best way, of course, we are all there. But that is not the sense I had from it, and I am glad that he clarified it. Because you don't have a choice. The law is the law is the law. You have to implement it.

Well, let's get started and listen to you.

Senator INHOFE. Well, wait a minute.

Senator BOXER. Yes, go ahead.

Senator INHOFE. We have a jump ball here.

Senator BOXER. Well, go ahead, I will give you 2 minutes.

Senator INHOFE. I will ask the Senator, Senator Udall, are you saying they are now disavowing what they said about the cooling spell, another ice age coming? Because I have not heard that. That is the first time I have heard that.

Senator UDALL. No, they actually, let me just, this is an article that reviewed the scientific literature, the Climatic Data Center surveyed dozens of peer-reviewed scientific articles from 1965 to 1975, and found that only 7 supported global cooling, while 44 predicted warming. So the whole idea, if we are going to make the statement that the same scientists concluded global cooling that are now concluding global warming, I don't think that that is an accurate scientific summary of what was going on in the 1970's.

Senator INHOFE. That is really interesting, because I have never heard that before. I do have some things I want to submit to the record, because I remember so well what Senator Barrasso was talking about. In fact, I have a chart I sent for, they are looking for it right now, taking the same magazines that were quoting the same scientists way back in 1976, and then again in 2006.

Senator SANDERS. If I may—

Senator BOXER. Can I just say, last comment, 30 seconds, Senator Sanders.

Senator SANDERS. I think what Senator Inhofe is saying in a sense is correct, there were articles, you have front pages of magazines making the point. But what Senator Udall is saying, yes, there were magazines, but that was not reflecting the scientific opinion, the opinion of the scientific community. So there may have been stories.

Senator INHOFE. I know what he is saying. However, these stories had the names of scientists in it. I will go ahead and get these and submit them for the record.

[The referenced information follows:]

THE MYTH OF THE 1970s GLOBAL COOLING SCIENTIFIC CONSENSUS

BY THOMAS C. PETERSON, WILLIAM M. CONNOLLEY, AND JOHN FLECK

There was no scientific consensus in the 1970s that the Earth was headed into an imminent ice age. Indeed, the possibility of anthropogenic warming dominated the peer-reviewed literature even then.

THE MYTH. When climate researcher Reid Bryson stood before the members of the American Association for the Advancement of Science in December 1972, his description of the state of scientists' understanding of climate change sounded very much like the old story about the group of blind men trying to describe an elephant. The integrated enterprise of climate science as we know it today was in its infancy, with different groups of scientists feeling blindly around their

piece of the lumbering climate beast. Rigorous measurements of increasing atmospheric carbon dioxide were available for the first time, along with modeling results suggesting that global warming would be a clear consequence. Meanwhile, newly created global temperature series showed cooling since the 1940s, and other scientists were looking to aerosols to explain the change. The mystery of waxing and waning ice ages had long entranced geologists, and a cohesive explanation in terms of orbital solar forcing was beginning to emerge. Underlying this discussion was a realization that climate could change on time scales with the potential for significant effects on human societies, and that human activities could trigger such changes (Bryson 1974).

Bryson laid out the following four questions that still stand today as being central to the climate science enterprise:

- i) How large must a climate change be to be important?
- ii) How fast can the climate change?
- iii) What are the causal parameters, and why do they change?
- iv) How sensitive is the climate to small changes in the causal parameters?

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Despite active efforts to answer these questions, the following pervasive myth arose: there was a consensus among climate scientists of the 1970s that either global cooling or a full-fledged ice age was imminent (see the "Perpetuating the myth" sidebar). A review of the climate science literature from 1965 to 1979 shows this myth to be false. The myth's basis lies in a selective misreading of the texts both by some members of the media at the time and by some observers today. In fact, emphasis on greenhouse warming dominated the scientific literature even then. The research enterprise that grew in response to the questions articulated by Bryson and others, while considering the forces responsible for cooling, quickly converged on the view that greenhouse warming was likely to dominate on time scales that would be significant to human societies (Charney et al. 1979). However, perhaps more important than demonstrating that the global cooling myth is wrong, this review shows the remarkable way in which the individual threads of climate science of the time—each group of researchers pursuing their own set of

questions—was quickly woven into the integrated tapestry that created the basis for climate science as we know it today.

RECOGNITION OF A PROBLEM: THE POTENTIAL FOR WARMING. In 1965, when U.S. President Lyndon Johnson asked the members of his President's Science Advisory Committee (PSAC) to report on the potential problems of environmental pollution, climate change was not on the national agenda. The polluting effects of detergents and municipal sewage, the chronic problems associated with urban air pollution, and the risks associated with pesticides dominated public discourse about humanity's impact on the environment. However, in a 23-page appendix, which today appears prescient, the committee's Environmental Pollution Panel laid out the following stark scenario: emissions of carbon dioxide from the burning of fossil fuels could rapidly reshape Earth's climate (Revelle et al. 1965).

The panel's members had two new tools at their disposal that had not been available just a few years

PERPETUATING THE MYTH

The following are examples of modern writers perpetuating the myth of the 1970s global cooling scientific consensus.

Citing Singer (1998) as their source of information, Singer and Avery (2007) indicate that the National Academy of Science (1975) experts exhibited "hysterical fears" about a "finite possibility" that a serious worldwide cooling could befall the Earth, and that Ponte (1976) captured the "then-prevailing mood" by contending that the Earth may be on the brink of an ice age.

Balling (1992) posits,

Could the [cold] winters of the late 1970s be the signal that we were returning to yet another ice age? According to many outspoken climate scientists in the late 1970s, the answer was absolutely yes—and we needed action now to cope with the coming changes . . . However, some scientists were skeptical, and they pointed to a future of global *warming*, not cooling, resulting from a continued build up of greenhouse gases. These scientists were in the minority at the time.

According to Horner (2007), the massive funding of climate change research was prompted by "consensus panic over 'global cooling.'" This was "three decades ago—when the media were fanning frenzy about global cooling" (Will 2008) or, as Will (2004) succinctly put it, "the fashionable panic was about global cooling." "So, before we take global warming as a scientific truth, we should note that the opposite theory was once scientific verity" (Bray 1991).

In a narrative, Crichton (2004) put it this way:

"Just think how far we have come!" Herley said. "Back in the 1970s, all the climate scientists believed an ice age was coming. They thought the world was getting colder. But once the notion of global *warming* was raised, they immediately recognized the advantages. Global warming creates a crisis, a call to action. A crisis needs to be studied, it needs to be funded. . ."

According to Michaels (2004),

Thirty years ago there was much scientific discussion among those who believed that humans influenced the . . . reflectivity [which would] cool the earth, more than . . . increasing carbon dioxide, causing warming. Back then, the "coolers" had the upper hand because, indeed, the planet was cooling. . . But nature quickly shifted gears. . . Needless to say, the abrupt shift in the climate caused almost as abrupt a shift in the balance of scientists who predictably followed the temperature.

Giddens (1999) states,

Yet only about 25 or so years ago, orthodox scientific opinion was that the world was in a phase of global cooling. Much the same evidence that was deployed to support the hypothesis of global cooling is now brought into play to bolster that of global warming — heat waves, cold spells, unusual types of weather.

before. The first up-to-date global temperature reconstructions had recently become available, allowing them to consider the twentieth century's somewhat confusing temperature trends (Somerville et al. 2007). More importantly, they had access to carbon dioxide data that Charles David Keeling and his colleagues had been collecting since 1957 on Mauna Loa, Hawaii, and in Antarctica (Pales and Keeling 1965; Brown and Keeling 1965). The data showed "clearly and conclusively," in the panel's words, that atmospheric carbon dioxide was rising as a result of fossil fuel burning. Human activities, the panel concluded, were sufficient in scale to impact not just the immediate vicinity where those activities were taking place. Industrial activities had become a global, geophysical force to be recognized and with which to be reckoned. With estimated recoverable fossil fuel reserves sufficient to triple atmospheric carbon dioxide, the panel wrote, "Man is unwittingly conducting a vast geophysical experiment." With the emission of just a fraction thereof, emissions by the year 2000 could be sufficient to cause "measurable and perhaps marked" climate change, the panel concluded (Revelle et al. 1965).

THE GLOBAL TEMPERATURE RECORDS: A COOLING TREND. Efforts to accumulate and organize global temperature records began in the 1870s (Somerville et al. 2007). The first analysis to show long term warming trends was published in 1938. However, such analyses were not updated very often. Indeed, the Earth appeared to have been cooling for more than 2 decades when scientists first took note of the change in trend in the 1960s. The seminal work was done by J. Murray Mitchell, who, in 1963, presented the first up-to-date temperature reconstruction showing that a global cooling trend had begun in the 1940s. Mitchell used data from nearly 200 weather stations, collected by the World Weather Records project under the auspices of the World Meteorological Organization, to calculate latitudinal average temperature. His analysis showed that global temperatures had increased fairly steadily from the 1880s, the start of his record, until about 1940, before the start of a steady multidecade cooling (Mitchell 1963).

By the early 1970s, when Mitchell updated his work (Mitchell 1972), the notion of a global cooling trend was widely accepted, albeit poorly understood. The first satellite records showed increasing snow and ice cover across the Northern Hemisphere from the late 1960s to the early 1970s. This trend was capped by unusually severe winters in Asia and parts of North America in 1972 and 1973 (Kukla and Kukla 1974),

which pushed the issue into the public consciousness (Gribbin 1975). The new data about global temperatures came amid growing concerns about world food supplies, triggering fears that a planetary cooling trend might threaten humanity's ability to feed itself (Thompson 1975). It was not long, however, before scientists teasing apart the details of Mitchell's trend found that it was not necessarily a global phenomenon. Yes, globally averaged temperatures were cooling, but this was largely due to changes in the Northern Hemisphere. A closer examination of Southern Hemisphere data revealed thermometers heading in the opposite direction (Damon and Kunen 1976).

NEW REVELATIONS ABOUT THE ICE AGES. While meteorologists were collecting, analyzing, and trying to explain the temperature records, a largely separate group of scientists was attacking the problem from a paleoclimate perspective, assembling the first detailed understanding of the Earth's ice age history. The fact that parts of the Northern Hemisphere had once been covered in ice was one of the great realizations of nineteenth-century geology. Even more remarkable was the realization that the scars on the landscape had been left by not one but several ice ages. Climate clearly was capable of remarkable variability, beyond anything humanity had experienced in recorded history.

It was not until the mid-twentieth century that scientists finally assembled the details of the coming and going of the last ice ages. The geologists' classic story had suggested four short ice ages over the Quaternary, with long warm periods between them. However, analysis of coral, cores from ice caps and the ocean floor, along with the application of newly developed radiometric techniques, forced a radical reevaluation. Climate was far more variable, with long ice ages punctuated by short interglacial periods (Broecker et al. 1968; Emiliani 1972). The new work went beyond filling in gaps in scientists' knowledge of the past. It laid the foundation of an explanation for why ice age cycles occurred. Building on earlier work (e.g., Adhémar 1842; Croll 1875), Serbian engineer and geophysicist Milutin Milankovitch calculated that highly regular changes in the tilt of Earth's axis and the eccentricity of its orbit around the sun would change the distribution of sunlight hitting the Earth's surface, leading to the waxing and waning of ice ages (Milankovitch 1930). Milankovitch's work won few converts, in part because it did not match geologists' understanding of the history of the ice ages. However, the new dating of the ice's ebbs and flows led

to new interest in Milankovitch's ideas (e.g., Ericson et al. 1964; Damon 1965). "The often-discredited hypothesis of Milankovitch must be recognized as the number-one contender in the climatic sweepstakes," Wallace Broecker wrote (Broecker et al. 1968). It took the rest of the science world a while to catch up with Broecker, but by the late 1970s they had (Hays et al. 1976; Kerr 1978; Weart 2003).

Because Milankovitch's astronomical metroame was predictable over thousands of years, climate scientists could now begin talking about predicting the onset of the next ice age. And they did. Members of the Climate: Long-range Investigation, Mapping and Prediction (CLIMAP) project lived up to their project's name with a "prediction" of sorts: in the absence of possible anthropogenic warming, "the long-term trend over the next several thousand years is toward extensive Northern Hemisphere glaciation" (Hays et al. 1976).

CARBON DIOXIDE. Mid-nineteenth-century British naturalist John Tyndall was fascinated by the new emerging evidence of past ice ages, and believed he had found a possible explanation for such dramatic changes in Earth's climate: changes in the composition of the atmosphere. Some molecules, he realized, could absorb thermal radiation, and as such could be the cause for "all the mutations of climate which the researches of geologists reveal" (Weart 2003; Tyndall 1861; Somerville et al. 2007). In 1896 Swedish scientist Svante Arrhenius calculated that a doubling of atmospheric carbon dioxide would raise global temperatures 5°–6°C. However, he figured it would take 3,000 yr of fossil fuel burning to do it (Weart 2003). Thus continued what would be a century of scientific debate and uncertainty, both about the effect of such so-called "greenhouse gases" and the possibility that the burning of fossil fuels could contribute substantially to their concentration (Landsberg 1970). It was not until the second half of the twentieth century that scientists finally had the tools to begin measuring the concentrations of those greenhouse gases in sufficient detail to begin evaluating their effects.

Using funding available through the International Geophysical Year, Charles David Keeling was able to overcome problems of local interference in carbon dioxide measurements in 1957 by establishing stations in Antarctica and atop Mauna Loa. By 1965, his data were sufficient to show an unambiguous trend. Keeling's observation also showed that atmospheric carbon dioxide was increasing far faster than Arrhenius's 70-yr-old estimate. That was enough for members of the U.S. President's Scientific Advisory

Committee to pronounce the possibility that increasing carbon dioxide could "modify the heat balance of the atmosphere to such an extent that marked changes in climate, not controllable through local or even national efforts, could occur" (Revelle et al. 1965).

The PSAC scientists had a new tool for understanding the implications—the first preliminary results of newly developing climate models. The same year the PSAC report came out, Syukuro Manabe and Richard Wetherald developed the first true three-dimensional climate model. The results were raw at the time the PSAC report was written, but within 2 yr, the first seminal modeling results from the Geophysical Fluid Dynamics Laboratory team were published. Given their simplifying constraints, they found that a doubling of atmospheric carbon dioxide would raise global temperature 2°C (Manabe and Wetherald 1967). Within a decade, the models' sophistication had grown dramatically, enough for Manabe and Wetherald to conclude that high latitudes were likely to see greater warming in a doubled- CO_2 world, and that the intensity of the hydrologic cycle could be expected to increase significantly (Manabe and Wetherald 1975). The accumulating evidence of the new carbon dioxide record and the modeling results was enough for Wallace Broecker to ask in 1975, "Are we on the brink of a pronounced global warming?" Broecker's answer was a resounding "yes" (Broecker 1975).

AEROSOLS. In December 1968, a group of scientists convened in Dallas, Texas, for a "Symposium on Global Effects of Environmental Pollution" (Singer 1970). Reid Bryson showed the panel a remarkable graph illustrating the correlation between rising levels of dust in the Caucasus and the rising output of the Russian economy over the previous three decades. It was the foundation for an argument leading from human activities to dust to changing climate. Atmospheric pollution caused by humans was sufficient. Bryson argued, to explain the decline in global temperatures identified earlier in the decade by J. Murray Mitchell (Bryson and Wendland 1970).

Also on the symposium panel was Mitchell himself, and he disagreed. Mitchell's calculations suggested that particulates added to the atmosphere were insufficient to explain the cooling seen in his temperature records. However, he raised the possibility that, over time, cooling caused by particulates could overtake warming caused by what he called the "the CO_2 effect" (Mitchell 1970).

In 1971, S. Ichtiague Rasool and Stephen Schneider wrote what may be the most misinterpreted and mis-

used paper in the story of global cooling (Rasool and Schneider 1971). It was the first foray into climate science for Schneider, who would become famous for his work on climate change. Rasool and Schneider were trying to extend the newly developed tool of climate modeling to include the effects of aerosols, in an attempt to sort out two potentially conflicting trends—the warming brought about by increasing carbon dioxide and the cooling potential of aerosols emitted into the Earth's atmosphere by industrial activity.

The answer proposed by Rasool and Schneider to the questions posed by Bryson and Mitchell's disagreement was stark. An increase by a factor of 4 in global aerosol concentrations, "which cannot be ruled out as a possibility," could be enough to trigger an ice age (Rasool and Schneider 1971). Critics quickly pointed out flaws in Rasool and Schneider's work, including some they acknowledged themselves (Charison et al. 1972; Rasool and Schneider 1972). Refinements, using data on aerosols from volcanic eruptions, showed that while cooling could result, the original Rasool and Schneider paper had overestimated cooling while underestimating the greenhouse warming contributed by carbon dioxide (Schneider and Mass 1975; Weart 2003). Adding to the confusion at the time, other researchers concluded that aerosols would lead to warming rather than cooling (Reck 1975; Idso and Brazel 1977).

It was James Hansen and his colleagues who found what seemed to be the right balance between the two competing forces by modeling the aerosols from Mount Agung, a volcano that erupted in Bali in 1963. Hansen and his colleagues fed data from the Agung eruption into their model, which got the size and timing of the resulting pulse of global cooling correct. By 1978, the question of the relative role of aerosol cooling and greenhouse warming had been sorted out. Greenhouse warming, the researchers concluded, had become the dominant forcing (Hansen et al. 1978; Weart 2003).

MEDIA COVERAGE. When the myth of the 1970s global cooling scare arises in contemporary discussion over climate change, it is most often in the form of citations not to the scientific literature, but to news media coverage. That is where U.S. Senator James Inhofe turned for much of the evidence to support his argument in a U.S. Senate floor speech in 2003 (Inhofe 2003). Chief among his evidence was a frequently cited *Newsweek* story: "The cooling world" (Gwynne 1975). The story drew from the latest global temperature records, and suggested that cooling "may portend a drastic decline for food production." Citing

the Kuklas' work on increasing Northern Hemisphere snow and ice, and Reid Bryson's concerns about a long-term cooling trend, the *Newsweek* story juxtaposes the possibility of cooling temperatures and decreasing food production with rising global populations. Other articles of the time featured similar themes (see "Popular literature of the era" sidebar).

Even cursory review of the news media coverage of the issue reveals that, just as there was no consensus at the time among scientists, so was there also no consensus among journalists. For example, these are titles from two *New York Times* articles: "Scientists ask why world climate is changing; major cooling may be ahead" (Sullivan 1975a) and "Warming trend seen in climate, two articles counter view that cold period is due" (Sullivan 1975b). Equally juxtaposed were *The Cooling* (Ponte 1976), which was published the year after *Hothouse Earth* (Wilcox 1975).

However, the news coverage of the time does reflect what *New York Times* science writer Andrew Revkin calls "the tyranny of the news peg," based on the idea that reporters need a "peg" on which to hang a story. Developments that are dramatic or new tend to draw the news media's attention. Revkin argues, rather than the complexity of a nuanced discussion within the scientific community (Revkin 2005). A handy peg for climate stories during the 1970s was the cold weather.

SURVEY OF THE PEER-REVIEWED LITERATURE. One way to determine what scientists think is to ask them. This was actually done in 1977 following the severe 1976/77 winter in the eastern United States. "Collectively," the 24 eminent climatologists responding to the survey "tended to anticipate a slight global warming rather than a cooling" (National Defense University Research Directorate 1978). However, given that an opinion survey does not capture the full state of the science of the time, we conducted a rigorous literature review of the *American Meteorological Society's* electronic archives as well as those of *Nature* and the scholarly journal archive *Journal Storage (JSTOR)*. To capture the relevant topics, we used global temperature, global warming, and global cooling, as well as a variety of other less directly relevant search terms. Additionally, in order to make the survey more complete, even at the expense of no longer being fully reproducible by electronic search techniques, many references mentioned in the papers located by these searches were evaluated, as were references mentioned in various history-of-science documents. Because the time period attributed to the global cooling consen-

sis is typically described as the 1970s, the literature search was limited to the period from 1965 through 1979. While no search can be 100% complete, this methodology offers a reasonable test of the hypothesis that there was a scientific consensus in the 1970s regarding the prospect of imminent global cooling. Such a consensus would be easily shown by both the presence of many articles describing global cooling projections and the absence of articles projecting global warming.

One measure of the relevance of a paper to a developing scientific consensus is the number of citations it receives. For that reason, a citation analysis of the papers found in our survey was undertaken. Not all of the citations may be supportive of the paper in question, but they do help indicate which papers dominated the thinking of the day. Because the period assessed ended in 1979 and it takes time for citations to start appearing, the citation count was extended

through 1983. The gray literature of conference proceedings were not authoritative enough to be included in the literature search. However, a few prestigious reports that may not have been peer reviewed have been included in this literature survey because they clearly represent the science of their day.

Our literature survey was limited to those papers projecting climate change on, or even just discussing an aspect of climate forcing relevant to, time scales from decades to a century. While some of these articles make clear predictions of global surface temperature change by the year 2000, most of these articles do not. Many of the articles simply examined some aspect of climate forcing. However, it was generally accepted that both CO₂ and anthropogenic aerosols were increasing. Therefore, for example, articles that estimated temperature increases resulting from doubling CO₂ or temperature decreases resulting from anthropogenic aerosols would be listed in

POPULAR LITERATURE OF THE ERA

There are too many potential newspaper articles to adequately assess and, because they report on current events, even articles in the same paper by the same author separated by only a few months can be quite different. For example, the following are titles from two *New York Times* articles: "Scientists ask why world climate is changing; major cooling may be ahead" (Sullivan 1975a) and "Warming trend seen in climate; two articles counter view that cold period is due" (Sullivan 1975b). The most frequently cited magazine articles are described below. While these articles described the past climate and a distant future of another ice age, the following is a review only of their decadal-to-century-scale global temperature projections.

Science Digest's 1973 article "Brace yourself for another Ice Age" (Colligan 1973) primarily focused on ice ages and global cooling, with the warning that "the end of the present interglacial period is due 'soon'." However, it clarified that "soon" in the context of the world's geological time scale could mean anything from two centuries to 2,000 years, but not within the lifetime of anyone now alive." The article also mentioned that "scientists seem to think that a little more carbon dioxide in the atmosphere could warm things up a good deal."

Time Magazine (1974) ominously worried that "climatological" Cassandras are becoming increasingly apprehensive, for the weather aberrations they are studying may be the harbinger of another ice age." However, only one scientist was indicated by name issuing any sort of projection: "Some scientists like Donald Oilman, chief of the National Weather Service's long-range-prediction group, think that the cooling trend may be only temporary."

Science News's 1975 article "Climate change: Chilling possibilities" (Douglas 1975) mainly discussed the new findings that raised the possibility of "the approach of a full-blown 10,000-year ice age." However, it also put these results into perspective with statements such as "the cooling trend observed since 1940 is real enough . . . but not enough is known about the underlying causes to justify any sort of extrapolation," and "by the turn of the century, enough carbon dioxide will have been put into the atmosphere to raise the temperature of earth half a degree."

The 1975 *Newsweek* article (Gwynne 1975) quotes four scientists by name and none of them offered a projection of the future; three discussed observations of the recent cooling and one the relation-

ship between climate and agriculture. The article did, however, state that "seemingly disparate [weather] incidents represent the advance signs of fundamental changes in the world's weather," though "meteorologists disagree about the cause and extent of the cooling trend." The article states that there was an "almost unanimous" view that the cooling trend would "reduce agricultural productivity for the rest of the century," and it even discussed possible solutions such as spreading black soot on the Arctic ice cap.

In 1976, *National Geographic Magazine* published an article entitled "What's happening to our climate?" In this article, Matthews (1976) discusses projections on the relevant time frame from four different scientists. Reid Bryson of the University of Wisconsin believed that the critical factor was cooling caused by aerosols generated by an exploding population. If Willi Dansgaard of the University of Copenhagen is correct—that western Europe's climate lags 250 yr behind Greenland's—"Europe could be in for a cooler future," although he cautions that man-made atmospheric pollution "may completely change the picture." The "cooling trend of world climate" was documented in the 1960s by

Table 1 as warming or cooling articles, respectively. The neutral category in Table 1 includes papers that project no change, that discuss both warming and cooling influences without specifically indicating which are likely to be dominant, or that state not enough is known to make a sound prediction. Articles were not included in the survey if they examined the climate impacts of factors that did not have a clear expectation of imminent change, such as increases in volcanic eruptions or the creation of large fleets of supersonic aircraft.

The survey identified only 7 articles indicating cooling compared to 44 indicating warming. Those seven cooling articles garnered just 12% of the citations. Graphical representations of this survey are shown in Fig. 1 for the number of articles and Fig. 2 for the number of citations. Interestingly, only two of the articles would, according to the current state of climate science, be considered "wrong" in the sense of

getting the wrong sign of the response to the forcing they considered—one cooling (Bryson and Dittberner 1976) and one warming (Idso and Brazel 1977) paper—and both were immediately challenged (Woronko 1977; Herman et al. 1978). As climate science and the models progressed over time, the findings of the rest of the articles were refined and improved, sometimes significantly, but they were not reversed.

Given that even a cursory examination of Fig. 1 reveals that global cooling was never more than a minor aspect of the scientific climate change literature of the era, let alone the scientific consensus, it is worth examining the ways in which the global cooling myth persists. One involves the simple misquoting of the literature. In a 2003 *Washington Post* op-ed piece, former Energy Secretary James Schlesinger quoted a 1972 National Science Board report as saying, "Judging from the record of the past interglacial ages, the present time of high temperatures should be drawing to an

J. Murray Mitchell Jr., of the National Oceanic and Atmospheric Administration (NOAA). Now, he notes, "carbon dioxide pollution may be contributing to an opposite, or warming, tendency." And last, "It is possible that we are on the brink of a several-decade-long period of rapid warming," observes Dr. Wallace S. Broecker of Columbia University's Lamont-Doherty Geological Observatory. "If the natural cooling trend bottoms out . . . global temperature would begin a dramatic rise . . . this warming would, by the year 2000, bring average global temperatures beyond the range experienced during the past 1,000 years."

There were also lay books on climate change, some of which received rather scathing reviews in the scientific literature. For example, discussing *The Climatic Threat: What's Wrong with our Weather?* (Gribbin 1978a), Wigley (1978) wrote that the average reader "cannot possibly know how incompletely the author reviews the field he discusses, how uncritical and selective are his references to the scientific literature, how much he has mixed sound well accepted work with controversial opinion and speculation, and how often the cautious, tentative words of others are represented as established fact." Note also, "A casual

reader" of *Climates of Hunger: Mankind and the World's Changing Weather* (Bryson and Murray 1977) "will not get a balanced picture of the current climatic debate" (Gribbin 1978b). Kellogg's (1979) review of Halacy (1978) that also comments on Calder (1974), stated that

Halacy, in *Ice and Fire?* Like Calder, has chosen to write a book whose central theme is the prediction of a global cooling as the beginning of a new ice age—perhaps occurring very quickly. . . . Furthermore, even a non-expert will notice that he has blurred his timescales cleverly (as did Nigel Calder, whom he quotes extensively), giving the impression that the advent of an ice age could occur in a matter of a decade or so—perhaps it will take a century if we are lucky.

Landsberg (1976) also took Calder's book, *The Weather Machine*, to task, stating that "he quotes his favorite scientists at length, and then covers himself by a sentence at the end that there are others with diverging opinions. . . . The amount of half-digested meteorology, such as the potential dust effect in the atmosphere, is formidable."

A common feature of the popular articles and books is the probable negative impacts of climate variability on agriculture, which was felt to be stressed already by population pressures. The book, *The Genesis Strategy* (Schneider 1976) takes this further and argues for a policy resilient to any future changes in climate, though without predicting either warming or cooling. A more extreme book, *The Cooling* (Ponze 1976), predicts that cooling could lead to billions of deaths by 2050, but struggles to find any good source for predictions of such a cooling; it is also somewhat undermined by its own preface by Reid Bryson, which states that "there are very few pages that, as a scientist, I could accept without questions of accuracy, of precision, or of balance." On the other side, the book *Hothouse Earth* (Wilcox 1975) has both polar ice caps melting due to anthropogenic global warming (Landsberg 1976) and the 1973 Charlton Heston film *Soylent Green* "imagines the Earth of 2022 as a dried-up wasteland where the greenhouse effect, brought about by an exponentially growing population and unchecked industry, has led to the destruction of the environment" (Bertram 2006).

Table 1. Cooling, neutral, and warming papers as defined in the text followed by the number of times they have been cited up through 1983.

| Year | Cooling papers | Neutral papers | Warming papers |
|------|--|--|--|
| 1965 | | | Revelle et al. (1965) |
| 1966 | | | |
| 1967 | McCormick and Ludwig (1967): 67 | | Manabe and Wetherald (1967): 306 |
| 1968 | | | |
| 1969 | | | Sellers (1969): 191 |
| 1970 | | Landsberg (1970): 83 | Berman (1970): 0; Report of the Study of Critical Environmental Problems (1970): 130 |
| 1971 | Barrett (1971): 14; Rasool and Schneider (1971): 144 | | Mitchell (1971): 81 |
| 1972 | Hanniton and Saliga (1972): 12 | Charlson et al. (1972): 0; Lowry (1972): 0; National Science Board (1972): 0; Rasool and Schneider (1972): 0 | Budyko (1972): 36; Machta (1972): 31; Mitchell (1972): 36; Sawyer (1972): 8 |
| 1973 | | | Sellers (1973): 104 |
| 1974 | Chjilek and Coakley (1974): 38 | Bryson (1974): 13; Hobbs et al. (1974): 22; Weare et al. (1974): 12; Willett (1974): 0 | Federal Council for Science and Technology Interdepartmental Committee for Atmospheric Sciences (1974): 1; Kellogg and Schneider (1974): 30; Sellers (1974): 33 |
| 1975 | | National Academy of Sciences (1975): 0 | Broecker (1975): 54; Manabe and Wetherald (1975): 211; Ramanathan (1975): 63; Rock (1975): 13; Schnader and Mass (1975): 82; Schneider (1975): 94; Thompson (1975): 49 |
| 1976 | Bryson and Dittbarner (1976): 31 | Shaw (1976): 6 | Budyko and Vinnikov (1976): 0; Dunin and Kurien (1976): 29; Mitchell (1976): 50; Wang et al. (1976): 89 |
| 1977 | Twomey (1977): 19 | Bryson and Dittbarner (1977): 0 | Flohn (1977): 7; Ito and Brazel (1977): 1; Lee and Snell (1977): 8; National Academy of Sciences (1977): 1; Nordhaus (1977): 13; Panel on Energy and Climate (1977): 78; Woronko (1977): 1 |
| 1978 | | Herrnas et al. (1978): 0; Mason (1978a): 0; Miles (1978): 3; Ramanathan and Coakley (1978): 44; Shultz and Green (1978): 3 | Budyko et al. (1978): 0; Cooper (1978): 0; Gilchrist (1978): 5; Ido and Brazel (1978): 2; Mason (1978b): 0; Pierce (1978): 48; Ohning and Adler (1978): 25; Steiner (1978): 10 |
| 1979 | | Choudhury and Kukla (1979): 4; Sagan et al. (1979): 25 | Berger (1979): 6; Charnoy et al. (1979): 50; Houghton (1979): 0; Hoyt (1979): 13; Rotty (1979): 1 |

end... leading into the next glacial age" (Schlesinger 2003). The quote repeatedly appeared other places in the political debate over climate change, including the floor of the U.S. Senate where Inhofe (2003) followed up that quote by stating, "That was the same timeframe that the global-warming alarmists are concerned about global warming." The actual report, however, shows that the original context, rather than supporting the global cooling myth, discusses the full state of the science at the time, as described earlier. The words not extracted by Schlesinger and Inhofe are highlighted with italics:

Judging from the record of the past interglacial ages, the present time of high temperatures should be drawing to an end, to be followed by a long period of considerably colder temperatures leading to the next glacial age some

20,000 years from now. However, it is possible, or even likely, that human interference has already altered the environment so much that the climatic pattern of the near future will follow a different path. For instance, widespread deforestation in recent centuries, especially in Europe and North America, together with increased atmospheric opacity due to man-made dust storms and industrial wastes, should have increased the Earth's reflectivity. At the same time increasing concentration of industrial carbon dioxide in the atmosphere should lead to a temperature increase by absorption of infrared radiation from the Earth's surface. When these human factors are added to such other natural factors as volcanic eruptions, changes in solar activity, and resonances within the hydro-atmosphere, their effect can only be estimated in terms of direction, not of amount (National Science Board 1972).

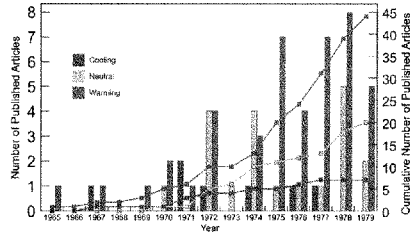


FIG. 1. The number of papers classified as predicting, implying, or providing supporting evidence for future global cooling, warming, and neutral categories as defined in the text and listed in Table 1. During the period from 1965 through 1979, our literature survey found 7 cooling, 20 neutral, and 44 warming papers.

Underlying the selective quotation of the past literature is an example of what political scientist Daniel Sarewitz calls "scientization" of political debate: the selective emphasis on particular scientific "facts" to advance a particular set of political values (Sarewitz 2004). In this case, the primary use of the myth is in the context of attempting to undermine public belief in and support for the contemporary scientific consensus about anthropogenic climate change by appeal to a past "consensus" on a closely related topic that is alleged to have been wrong (see "Perpetuating the myth" sidebar).

INTEGRATING CLIMATE SCIENCE IN THE LATE 1970s. When James D. Hays and colleagues published their landmark 1976 paper linking variations in the Earth's orbit to the ice ages, they offered the following two caveats:

Such forecasts must be qualified in two ways: First, they apply only to the natural component of future climatic trends—and not to anthropogenic effects such as those due to the burning of fossil fuels. Second, they describe only the long-term trends, because they are linked to orbital variations with periods of 20,000 years and longer. Climatic oscillations at higher frequencies are not predicted (Hays et al. 1976).

As the various threads of climate research came together in the late 1970s into a unified field of study—ice ages, aerosols, greenhouse forcing, and the global temperature trend—greenhouse forcing was coming to be recognized as the dominant term in the climate change equations for time scales from decades to centuries. That was the message from B. John Mason of the British Meteorological Office when he stood before members of the Royal Society in London on 27 April 1978 to deliver a review lecture on the state of the science. Taking his audience through the details of how the new computer climate models worked and what they showed, Mason ticked off the following

now-familiar list of climate variables: variations in the Earth's orbit, aerosols, and the rapid increase in greenhouse gases. The effect of the latter, he said, was by far the largest, and more detailed study of the issue "now deserves high priority" (Mason 1978b).

In July 1979 in Woods Hole, Massachusetts, Jule Charney, one of the pioneers of climate modeling, brought together a panel of experts under the U.S. National Research Council to sort out the state of the science. The panel's work has become iconic as a foundation for the enterprise of climate change study that followed (Somerville et al. 2007). Such reports are a traditional approach within the United States for eliciting expert views on scientific questions of political and public policy importance (Weart 2003). In this case, the panel concluded that the potential

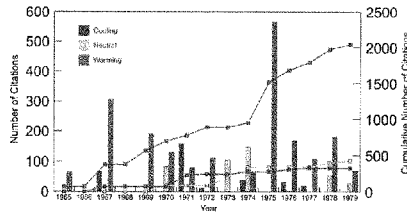


FIG. 2. The number of citations for the articles shown in Fig. 1 and listed in Table 1. The citation counts were from the publication date through 1983 and are graphed on the year the article was published. The cooling papers received a total of 325 citations, neutral 424, and warming 2,043.

damage from greenhouse gases was real and should not be ignored. The potential for cooling, the threat of aerosols, or the possibility of an ice age shows up nowhere in the report. Warming from doubled CO₂ of 1.5°–4.5°C was possible, the panel reported. While there were huge uncertainties, Verner Suomi, chairman of the National Research Council's Climate Research Board, wrote in the report's foreword that he believed there was enough evidence to support action: "A wait-and-see policy may mean waiting until it is too late" (Charney et al. 1979). Clearly, if a national report in the 1970s advocates urgent action to address global warming, then the scientific consensus of the 1970s was not global cooling.

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Senator BOXER. I tell you what let's do. We will put, I ask unanimous consent that colleagues have a couple of days to get this in the record. We are going to move on and hear from Hon. Lisa Jackson right now. You can use that when you get to your question time.

Go ahead.

**STATEMENT OF HON. LISA JACKSON, ADMINISTRATOR,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

Ms. JACKSON. Thank you, Madam Chair, Ranking Member Inhofe, and members of the Committee. Thank you for inviting me to testify about President Obama's Fiscal Year 2012 budget request for the Environmental Protection Agency.

Congress enacted the Clean Air Act, the Clean Water Act and America's other bedrock environmental protection laws on a broadly bipartisan basis. It did so to protect American children and adults from pollution that otherwise would make their lives shorter, less healthy and less prosperous. It did so to make the air and drinking water in America's communities clean enough to attract new employers.

It did so to enable America's local governments to revitalize abandoned and polluted industrial sites. It did so to safeguard the pastime of America's 40 million anglers. It did so to protect the farms whose irrigation makes up a third of America's surface freshwater withdrawals. It did so to preserve the livelihoods of fishermen in American great waters, such as the Chesapeake Bay and the Gulf of Mexico.

Congress gave EPA the responsibility of implementing and enforcing those laws, and each year, Congress appropriates the money that makes EPA's implementation and enforcement work possible. As head of the EPA, I am accountable for ensuring that we squeeze every drop of public health protection out of every dollar we get.

So I support the tough cuts in the President's proposed budget. But I am equally accountable for pointing out where cuts become detrimental to public health. Without adequate funding, EPA would be unable to implement or enforce the laws that protect Americans' health, livelihoods and pastimes. Big polluters would flout legal restrictions on dumping contaminants into the air, into rivers and onto the ground. Toxic plumes already underground would reach drinking water supplies, because ongoing work to contain them would stop. There would be no EPA grant money to fix or replace broken water systems, and the standards that EPA has set to establish for harmful air pollution from smokestacks and tailpipes would remain missing from a population of sources that is not static, but growing.

So if Congress slashed EPA's funding, concentrations of harmful pollution would increase from current levels in the places Americans live, work, go to school, fish, hike and hunt. The result would be more asthma attacks, more missed school and work days, more heart attacks, more cancer cases, more premature deaths and more polluted waters. Needless to say, then, I fervently request and deeply appreciate continued bipartisan support in Congress for funding the essential work that keeps American children and

adults safe from uncontrolled amounts of harmful pollution being dumped into the water they drink and the air they breathe.

President Obama believes that our Federal Government must spend less money. Decreasing Federal spending is no longer just a prudent choice, it is now an unavoidable necessity. Accordingly, the President has proposed to cut EPA's annual budget nearly 13 percent from its current level. That cut goes beyond eliminating redundancies. We have made difficult, even painful choices. We have done so, however, in a careful way that preserves EPA's ability to carry out its core responsibilities to protect the health and well-being of America's children, adults and communities.

You have been reviewing the budget request for more than 2 weeks now, so I will not march through all its details. Rather, I will provide just a few examples of the difficult choices we have made while preserving fundamental safeguards. This request provides \$2.5 billion, a decrease of \$947 million, for the Clean Water and Drinking Water State Revolving Funds. Future year budgets for the SRFs will adjust, taking into account repayments.

EPA, the States and community water systems will build on past successes, while working toward the Fiscal Year 2012 goal of ensuring that over 90 percent of the populations served by community water systems receive drinking water that meets all applicable health standards.

This budget requests an additional \$6.4 million to conduct integrated pilot projects in several communities, including disadvantaged ones, to evaluate and reduce risks from toxic air pollution through regulatory enforcement and voluntary efforts. An additional \$3.7 million will improve our monitoring of toxic air pollution, and our dissemination of that data to State, local and tribal governments and to the public.

The budget contains \$350 million for programs and projects strategically chosen to target the most significant environmental problems in the Great Lakes ecosystem. That represents a cut of \$125 million from Fiscal Year 2010, which was the first year of the initiative. We will implement the most important projects for the Great Lakes and its restoration and achieve visible results.

With this budget's \$16 million investment in enhancing chemical safety, we will take action to reduce chemical risks, increase the pace of chemical hazard assessments and provide the public with greater access to information on toxic chemicals. We will use the funds to implement chemical risk reduction steps that address impacts on children's health and on disadvantaged, low income and indigenous populations.

Thank you, Madam Chair. I look forward to the Committee's questions.

[The prepared statement of Ms. Jackson follows:]

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

Madame Chair, Ranking Member Inhofe, and Members of the Committee, thank you for the opportunity to appear before you to discuss the Environmental Protection Agency's proposed budget. In the State of the Union—as President Obama laid out a plan to win the future—he made clear that we “will not hesitate to create or enforce common-sense safeguards to protect the American people,” and explained that these safeguards are “why our food is safe to eat, our water is safe to drink, and our air is safe to breathe.”

These are the services EPA provides. EPA's activities prevent thousands of illnesses such as asthma, cancer and other diseases. They help keep students and workers healthy so they can be more productive. They save lives. Preliminary estimates show that last year, the Clean Air Act alone is estimated to have saved 160,000 lives and prevented more than 100,000 hospital visits.

President Obama also understands, however, that as millions of families are cutting back and making sacrifices, they expect the same level of good fiscal sense out of their government.

This budget reflects that good fiscal sense, and makes many tough choices. FY 2010's budget of \$10.3 billion was EPA's highest funding level since its creation. This FY 2010 budget request, while a deep cut resulting in a total budget of \$8.973 billion, will allow EPA to carry out its core mission and fund the most critical efforts to protect the health of American families.

The choices in this budget reflect EPA's commitment to core regulatory work and preserving the hard-won progress made over the last 40 years in protecting and restoring the quality of our air, water, and land; ensuring the safety of our chemicals; and providing strong enforcement of environmental laws and regulations.

At the same time, we have heeded the President's call for deficit reduction and made some painful choices to reduce funding for important programs. As it does every year, EPA has worked to find efficiencies within our programs and in some cases made reductions trusting that further efficiencies can be found. The \$8.973 billion proposed for EPA in the FY 2012 President's Budget will allow the Agency to maintain its core programs while investing in areas of urgent need and will support key priorities during this time of fiscal challenges.

This budget represents a nearly 13 percent reduction over the DFY 2010 budget and reflects our priorities: supporting action on climate change and improving air quality; protecting America's waters; building strong State and tribal partnerships; strengthening enforcement and compliance; enhancing chemical safety; supporting healthy communities; and maintaining a strong science foundation. Because of the constrained fiscal environment, the Budget decreases the State Revolving Funds (SRFs) by nearly \$950 million while supporting a long-term goal of providing about 5 percent of total water infrastructure spending and spurring more efficient system-wide planning. The Budget also reduces the Great Lakes Restoration Initiative by \$125 million, eliminates about \$160 million in targeted water infrastructure earmarks, and eliminates \$60 million for clean diesel grants.

Our priorities are aligned with the governmentwide effort to identify near-term high priority performance goals. For EPA, our goals include reducing greenhouse gas emissions, improving water quality, and delivering improved environmental health and protection to our communities. EPA will work toward meeting these goals over the next 18 to 24 months.

Madam Chair and Members of the Committee, let me touch on some of the highlights of this budget, both the painful choices and the targeted investments that will protect our health and the environment.

SUPPORTING ACTION ON CLIMATE CHANGE AND IMPROVING AIR QUALITY

We are committed to meeting EPA's obligations under the Clean Air Act, the landmark law that all American children and adults rely on to protect them from harmful air pollution. We will continue to take meaningful, common sense steps to address climate change and improve air quality. Making the right choices now will allow the Agency to improve health, drive technology innovation, and protect the environment; all without placing an undue burden on the nation's economy. Indeed, EPA's implementation of the Clean Air Act has saved millions of lives and avoided hospital visits; enhanced American productivity by preventing millions of lost work-days and growing the clean energy sector; and kept American children healthy and in school.

Our budget requests \$46 million for additional regulatory efforts aimed to reduce greenhouse gas emissions and address the Climate and Clean Energy Challenge. This includes \$30 million in State grants and support for permitting, which will ensure that our State partners develop the technical capacity to address greenhouse gas emissions under the Clean Air Act. Also included is \$6.0 million in additional funding for the development and implementation of new emission standards that will reduce greenhouse gas emissions from mobile sources such as passenger cars, light-duty trucks, and medium-duty passenger vehicles. These funds also will support EPA's assessment and potential development, in response to legal obligations, of standards for other mobile sources. Also included is \$7.5 million for the assessment and potential development of New Source Performance Standards for several categories of major stationary sources through means that are flexible and manage-

able for business. Finally, this amount includes an additional \$2.5 million for priority measurement, reporting and verification activities related to implementing the GHG Reporting Rule, to ensure the collection of high quality data.

Our air toxics strategy prioritizes standards that provide the greatest opportunity for cost-effective emissions reductions. This budget requests an additional \$6.4 million to conduct integrated pilots in several communities, including disadvantaged communities, to systemically evaluate and reduce risks from toxic air pollutants through regulatory, enforcement, and voluntary efforts. An additional \$3.7 million will improve air toxic monitoring capabilities and dissemination of information between and among the EPA offices, the state, local and tribal governments, and the public.

We anticipate a more than four-fold increase in the number of vehicle and engine certificates EPA issues. In addition, as a result of diverse and sophisticated technologies, we anticipate more challenging oversight requirements for both the vehicle/engine compliance program and fuels. We will upgrade vehicle, engine, and fuel testing capabilities through a \$6.2 million investment in the National Vehicle and Fuel Emissions Laboratory.

PROTECTING AMERICA'S WATERS

By leveraging partnerships and traditional and innovative strategies, we will continue to sustain and improve water infrastructure and clean-up America's great waterbodies. EPA, the states, and community water systems will build on past successes while working toward the FY 2012 goal of assuring that 91 percent of the population served by community water systems receives drinking water that meets all applicable health based standards.

The Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) provide grants to states, which use the funds to make affordable loans to local communities for public drinking water and wastewater infrastructure projects. The President's Budget requests \$1.55 billion for the Clean Water SRF and \$990 million for the Drinking Water SRF. This request level reduces funding for State Revolving Funds by \$947 million from FY 2010 levels. As part of the Administration's long-term strategy, EPA is implementing a Sustainable Water Infrastructure Policy that focuses on working with states and communities to enhance technical, managerial, and financial capacity. Important to the technical capacity will be enhancing alternatives analysis to expand "green infrastructure" options and their multiple benefits. Future year budgets for the SRFs gradually adjust, taking into account repayments, through 2016 with the goal of providing, on average, about 5 percent of water infrastructure spending annually. Federal dollars provided through the SRFs will serve as a catalyst for efficient system-wide planning and ongoing management of sustainable water infrastructure.

We will also leverage our partnership with states and tribes through an additional \$21 million in Water Pollution Control (Sec. 106) grants to enhance water quality and to provide additional resources to address Total Maximum Daily Load (TMDL), nutrient, and wet weather issues. An additional \$4 million is requested for Public Water Systems Supervision grants to support management of State and drinking water system data, improve data quality, and allow the public access to compliance monitoring data not previously available. This will improve transparency and efficiency and reduce the need for State resources to maintain individual compliance databases.

This budget supports EPA's continued efforts to clean up America's great waterbodies. It includes \$67.4 million for the Chesapeake Bay program, a \$17.4 million increase, which will allow EPA to continue to implement the President's Executive Order on Chesapeake Bay Protection and Restoration. The increased funding will support Bay watershed States as they implement their plans to reduce nutrient and sediment pollution in an unprecedented effort to restore this economically important ecosystem.

This budget has \$350 million included for programs and projects strategically chosen to target the most significant environmental problems in the Great Lakes ecosystem, a \$125 million decrease from FY 2010, the first year of the initiative. Led by EPA, and engaging the capabilities of a number of Federal agencies, the initiative will implement the most important projects for Great Lakes Restoration and achieve visible results.

The Administration is committed to restoring and protecting the Gulf Coast ecosystem following decades of environmental harm, including the BP Deepwater Horizon oil spill. As Chair of the Gulf Coast Ecosystem Restoration Task Force, established by Executive Order 13554, I will work with the Federal and State Task Force members to lead environmental recovery efforts in the region. EPA is also working

to support the Federal and State Trustees on the Deepwater Horizon Natural Resource Damage Assessment and Restoration Trustee Council as they develop a restoration plan to restore the region's natural resources to pre-spill conditions. As a complement to these efforts, EPA's request of \$6.6 million for the Mississippi River Basin program will address excessive nutrient loadings that contribute to water quality impairments in the basin and, ultimately, to hypoxic conditions in the Gulf of Mexico.

BUILDING STRONG STATE AND TRIBAL PARTNERSHIPS

Strong partnerships and accountability are vital to the implementation of environmental programs, and we are committed to strengthening State and tribal capacity. This budget includes \$1.2 billion for State and tribal grants which is an overall increase of \$84.9 million over FY 2010 within this amount is a reduction to Nonpoint Source (Sec. 319) Grants and Local Government Climate Change Grants. This request will provide critical support to State and local governments who are working diligently to implement new and expanded requirements under the Clean Air Act and Clean Water Act.

These include implementation of updated National Ambient Air Quality Standards and addressing complex water quality issues such as nutrient pollution, which I discussed earlier.

To help tribes strengthen environmental protection capacity and move forward with implementation of environmental programs, an \$8.5 million increase is included for Tribal General Assistance Program grants and \$20 million is budgeted for the competitive Tribal Multi-media Implementation grant program.

STRENGTHENING ENFORCEMENT AND COMPLIANCE

Regulated entities, Federal agencies, and the public benefit from easy access to tools that help them understand environmental laws and find efficient, cost-effective means for putting them into practice. This budget includes a request of \$27.5 million for the Regaining Ground in Compliance Initiative. Through this initiative, EPA will begin to harness the tools of modern technology to address some of these areas and make EPA's Enforcement and Compliance Assurance program more efficient and effective. We also will increase the number of inspections at high risk facilities regulated under the Spill Prevention, Control and Countermeasures (SPCC) and the Facility Response Plan (FRP) regulations.

By increasing the use of electronic reporting, monitoring tools, and market-based approaches, we will improve the effectiveness and efficiency of our limited resources, and ensure a level playing field for American businesses. By maximizing the use of advanced data and monitoring tools, we can focus our limited inspection and enforcement resources and focus our attention on identifying where the most significant vulnerabilities exist.

ENHANCING CHEMICAL SAFETY

America's citizens deserve to know the products they use are safe. One of my highest priorities is making significant and long overdue progress in assuring the safety of chemicals. We are taking immediate and lasting actions to eliminate or reduce identified chemical risks and develop proven alternatives.

FY 2010 represents a crucial stage in our approach for ensuring chemical safety. The program has attained its "zero tolerance" goal in preventing the introduction of unsafe new chemicals into commerce. However, many "pre-TSCA" chemicals already in commerce remain un-assessed.

With the \$16 million investment for the Enhancing Chemical Safety initiative included in this budget, we will increase the pace of chemical hazard and risk assessments, strengthen chemical information management and transparency, and take action to address identified chemical risks including careful consideration of the impact of chemicals on children's health and on disadvantaged, low-income, and indigenous populations. The additional funding will help to close knowledge and risk management gaps for thousands of chemicals already in commerce through actions that will decrease potential impacts to human health and the environment. We also will continue promoting use of proven safer chemicals, chemical management practices, and technologies to enable the transition away from existing chemicals that present significant risks.

SUPPORTING HEALTHY COMMUNITIES

We are committed to protecting, sustaining or restoring the health of communities and ecosystems by bringing together a variety of programs, tools, approaches and

resources directed to the local level. Partnerships with international, Federal, state, tribal, local governments, and non-governmental organizations have long been a common thread across EPA's programs. This diversity of perspectives and experiences brings a wider range of ideas and approaches, and creates opportunities for innovations.

The budget includes a \$20.4 million multidisciplinary initiative for Healthy Communities. It supports states and communities in promoting healthier school environments by increasing technical assistance on school siting, environmental health guidelines, and Integrated Pest Management in schools. It also provides resources to address air toxics within at-risk communities, and to enhance the important joint DOT/HUD/EPA outreach and related efforts with communities on sustainable development.

We proudly support the America's Great Outdoors initiative to develop a community-based 21st century conservation agenda that can also spur job creation in the tourism and recreation industries. Leveraging support across the Federal Government, EPA will join the Department of the Interior, the Department of Agriculture, and the Council on Environmental Quality to lead the coordinated effort to protect and restore our outdoor legacy. The area-wide planning and community support focus of existing EPA programs and initiatives like Urban Waters and Brownfields programs align well with the goals and objectives of this new initiative.

MAINTAINING A STRONG SCIENCE FOUNDATION

To develop a deeper understanding of our environmental challenges and inform sustainable solutions, we are requesting a science and technology budget of \$826 million, \$22 million lower than our FY 2010 enacted funding level, reflecting both efficiencies and difficult choices in order to ensure support for the highest priority science needs. We will strengthen planning and delivery of science through an integrated research approach, which will help us more deeply examine our environmental and public health challenges. By looking at problems from a systems perspective, this new approach will create synergy and produce more timely and comprehensive results beyond those possible from approaches that are more narrowly targeted to single chemicals or problem areas. Within the request, we are including increases for research on endocrine disrupting chemicals, green infrastructure, air quality monitoring, e-waste and e-design, green chemistry, and the potential effects of hydraulic fracturing on drinking water.

To make progress on these research priorities and leverage the expertise of the academic research community, funding redirections will support additional Science to Achieve Results (STAR) grants and fellowships. This budget also supports the study of computational toxicology, and other priority research efforts with a focus on advancing the design of sustainable solutions for reducing risks associated with environmentally hazardous substances. Two million dollars is also included to conduct a long-term review of EPA's laboratory network. These increases are offset by redirections from other areas, such as human health and ecosystems, biofuels, homeland security, mercury, and groundwater remediation.

We look forward to working with the Congress to cut spending and cut the deficit. But to win the future, we cannot cut in a way that will undermine our ability to win the future and out-educate, out-innovate, and out-build our economic competitors. The budget that the President announced is a responsible plan that shows how we can live within our means and invest in the future. It makes tough choices to cut spending and cut the deficit. It includes a 5-year non-security discretionary freeze, saving more than \$400 billion over the decade and reducing non-security discretionary spending to its lowest level as a share of the economy since President Eisenhower, and the Budget reduces the deficit by more than \$1 trillion, putting us on a path to fiscal sustainability.

Thank you again for inviting me to testify today, and I look forward to answering your questions.

Senator BOXER. Thank you.

As you know, there are many efforts going on in the short term for the 7-month 2011 budget to not only cut huge amounts from EPA, but also to prohibit EPA, there are riders on there, which we are going to fight hard against any riders, because a lot of us don't believe that this is the proper place, on a budget, to essentially weaken the Clean Air Act. People want to repeal the Clean Air Act, just bring it to the floor, we will debate that, and oh, boy, will the American people weigh in.

But instead of doing that, they do these cuts by a thousand deaths. We heard about bills to prohibit you from enforcing, stopping pollution or cutting it down from boilers or cement plants. So I want to ask you to put it so the American people understand what this is. What kind of pollution comes out of cement plants and boilers? Let's take those two as an example.

Ms. JACKSON. Both have some pollutants in common. Mercury is a big problem, and other metals, sometimes arsenic or chromium.

Senator BOXER. OK, let's stop there a minute. What is the impact of mercury?

Ms. JACKSON. Mercury is a neurotoxin.

Senator BOXER. Explain that. What do you mean by that?

Ms. JACKSON. It is toxic to our nervous system, our brains. It is particularly toxic to the development of brains in young children.

Senator BOXER. So the goal is to reduce this mercury, so that we don't harm our children and the most vulnerable people.

What about arsenic? From my recollection, arsenic can kill.

Ms. JACKSON. Yes. Arsenic is a carcinogen. It is a naturally occurring metal, but it is also in water, can be carcinogenic. We have communities across the country that still are struggling to meet Federal standards for clean drinking water for arsenic.

Senator BOXER. What pollution is in particulate matter, those small pieces of pollution that get in our air?

Ms. JACKSON. Tiny pieces or particles, maybe you can call them soot, coarse particles, are a little bit bigger, are killers. They actually, they don't make you sick, they contribute to premature deaths. So that is actually a causal relationship. It is not speculative, and it is the basis, oftentimes, for the estimates of lives, premature deaths avoided are generally due to soot pollution.

Senator BOXER. So when you work on cleaning up the air, do you take into account the benefits that people have, and does the law require you to do that?

Ms. JACKSON. Absolutely. This is beyond common sense, as the Senator asked, and I certainly support. This is about being able to show tremendous benefits, sometimes on the order of 30 to 40 dollars in benefits, health benefits, for every dollar spent by a polluter or an industry to control its pollution.

Senator BOXER. OK. In your report of March 2011, was this report required by Congress?

Ms. JACKSON. Yes, it was.

Senator BOXER. The benefits and costs of the Clean Air Act. Could you tell me if I am right in saying these things, that in the year 2010, the particulate matter, the fact that you were able to go after this, resulted in 160,000 lives saved in 2010?

Ms. JACKSON. Right, 160,000 incidences of premature mortality.

Senator BOXER. Were prevented?

Ms. JACKSON. Yes.

Senator BOXER. Let's go to infant mortality in the year 2010. Infant mortality, which by the way, we are slipping on that front. So how many premature deaths of infants were there in 2010?

Ms. JACKSON. Madam Chair, do you have the number?

Senator BOXER. Well, I show 230, I just wanted to make sure that I am reading it correctly.

Ms. JACKSON. We will confirm that number, but that sounds right.

Senator BOXER. OK. It shows here that ozone mortality, 4,300 lives saved there. It shows cases of chronic bronchitis, 54,000 prevented. So asthma, you call it—explain that word—exacerbation, is that? So explain to me what that means, those cases of asthma that didn't get worse because you cleaned up the air?

Ms. JACKSON. That is absolutely right. That is absolutely right. Asthma attacks avoided, cases that didn't proceed because of better air, cleaner air.

Senator BOXER. You show here 86,000 hospital admissions that didn't occur in 2010 alone. Isn't there a cost to hospital admissions?

Ms. JACKSON. Certainly.

Senator BOXER. The person going in, we know about our health care costs. School days, this is unbelievable, school days lost, prevented 3,200,000 school days lost. That is an enormous number.

Here is the other one. I want my colleagues to understand this, when I say you can't breathe, you can't work, 13 million lost work days prevented. So give me a break. When you say that you are stopping the EPA from doing their job under the Clean Air Act, you are costing people. You are giving a sentence to people to have worse asthma, worse bronchitis, possibly premature death, losing an infant. Give me a break.

I am just going to say right here and now, because I think that Senator Johanns, he is very strong on his side of things, and I greatly respect him, we are going to be just as strong. There is not a day that goes by that I am not going to be talking with, not a day, physicians and people who are respected, the American Lung Association, they don't have any dog in the fight. They want to do what is right for the country.

So I just want to say to you, first of all, I think that your budget is a tough budget. You are cutting. But what is going on around this place is going against the American people. I will tell you that our side of the aisle here, because unfortunately it is shaping up to be a partisan battle. That is a shame. Senator Inhofe and I, when it comes to infrastructure, we are working hand in glove. We are not working together on this. He has a bill that is going to stop you from doing your job. I am going to take it to the American people, and he will as well. It is just the way it is, we just don't have agreement on this.

That makes me really sad. Sad for the people who, if they get their way, are going to get sick and die prematurely. That is the fact. We asked you to do this study and you did it. You have quantified the benefits, and they are tremendous.

So I know we are divided on this, it is painful for me. I don't enjoy that, it is tough for me, because I want us to work together. We are friends. But this is one area where it is going to be tough.

But each side is going to make its strongest case. All I ask you to do is tell the truth and follow the law. That is all I ask. I don't want you to exaggerate any benefit, I don't want you to play politics. You never do, you are always just very, you sit there and you just tell it like it is. I am encouraging you to do that.

Senator Inhofe.

Senator INHOFE. All right, thank you, Madam Chairman.

Hold up those charts, will you? I had a lot of thunder with these on the floor some time ago, but that was before you had your job, I say, Madam Administrator. I want to make sure you don't miss this.

Senator Barrasso mentioned some of these articles and some of them go way back. There are many, many more that he did. That was a consensus at that time. So there we have, 1974, Another Ice Age is Coming, and it quotes all the scientists down here. This is the prevailing thought at that time. There is not a person in this room that doesn't remember that. Remember, we are all going to die because of the ice age.

Now, the same magazine, *Time Magazine*, that is the same magazine and this is back in, I think, 2007, of the last polar bear standing on the last cube of ice. These things sell. There is no question about that. As long as you can convince people the world is coming to an end, you get their attention.

I don't know where, I think you were probably in New Jersey at the time, during the Bush administration, when they had the Clear Skies Act, isn't that correct? At that time, that would have been, if we had passed that, the largest reduction in emissions of SOx, NOx and mercury of any president, any administration in the history of this country. But it was held hostage, because they didn't have the CO₂ in there.

So it is kind of perplexing. You think all that poison is floating around in there, and we can bring it down, but unless you let us have our favorite "pollution," which I still don't think it is, then you are not going to be able to do it. So that was one of the problems we had.

Now, I have to say this also. If it is so certain that this problem exists, and that man-made anthropogenic gases are causing catastrophic global warming, why is it that the majority, the vast majority have not just, this is the current legislature, I am talking about the last legislature where the Democrats had large majorities in both the House and the Senate, that they weren't able to get—the most Senate votes that were out there to have some type of a cap-and-trade, which is essentially what you are trying to do, not you, but the Administration through regulation, the same time that that was going on, it was just, it was something that the most votes they could get in the U.S. Senate were about 32 votes.

We have actually had test votes. So we ran through the McCain-Lieberman legislation of 2003, the McCain-Lieberman of 2005, the Warner-Lieberman, the Boxer-Sanders, at one time we had that bill, Markey-Waxman, all those bills were just about the same. Yet they could never get above about 32 members of the U.S. Senate. Though the reason it is being pushed off on you is because they couldn't do it legislatively. We all understand that.

So you can sit around here and use these forums, these meetings, to talk about whether or not catastrophic global warming is due to man-made gases, but that doesn't really address what we are trying to do here. Yes, it does indirectly, because I said in my opening statement that one of the largest expenses that your department has is that regulation, which at the last hearing I think we determined it was not mandated by the courts, but it was offered as an option by the courts.

Let me just ask you something specific. On the Executive Order on improving regulations and the regulatory process, when the Administrator or the President said this, in his Executive Order, I thought it was really pretty good. Because we are really concerned as to what the costs are going to be. The Executive Order states that regulations should consider "the cost of cumulative regulations." Now, what does that mean to you, Madam Administrator?

Ms. JACKSON. The plain language of it is that we should look at regulations that might hit a sector, might accumulate.

Senator INHOFE. I would agree with that. So if you just look at some of them that we have talked about, the boiler MACT, the study there shows about probably 800,000 jobs at risk. The United Steelworkers Union, they did a study on this. It was said they will be sufficient to imperil the operating status of many industrial plants. In the Union's view, tens of thousands of jobs would be imperiled.

The ozone regulations, and my city of Tulsa, it would be one of those counties, I think, that if we were to adopt these standards, would be out of attainment. I know a little bit about how tough it is to be out of attainment, because that happened to us back when I was mayor of a major city, Tulsa, OK.

You can go on down this thing. The PM dust. The PM dust, this is farm dust. I had kind of an interesting news conference in southern Oklahoma, right when they came out with the idea that we might do the PM-10 dust. We had a lot of people there, a lot of cameras from around the country. I said, all right, folks, do you see what this is right down here, that is cotton. Down below it, that is dirt. This up here, that is wind. Now, are there any questions?

We don't have technology to do many of the things that we are talking about in all these MACTs that we have, whether it is refinery MACT or it is Boiler MACT or any of the rest of them. Utility MACT, the same thing is true. The Unions for Jobs and Environment, which includes many unions, including the Teamsters and the Mine Workers, they talk about the hundreds of thousands of jobs that are going to be lost.

Then of course one of them that I probably shouldn't bring up at this time, but there seems to be this commitment to try to do something about the process called hydraulic fracturing. I think we know that as of a study just in the last 12 months, we have the largest recoverable reserves in coal oil and gas of any of the countries out there. In fact, in gas, we have enough to run our country for 110 years.

Now, this is the problem that we have. Right now, look at what is happening in the Middle East. I don't want to go into all this thing, but we really do need to look at these regulations and see what the cumulative effect is. So what I would like to do is have you and your staff look at these things and perhaps we can just take maybe those six regulations and report to us, in your opinion, what types of jobs, the number of jobs it would lose and the amount of money that it would cost, which I think would be a reasonable expectation.

One last thing. You went over 2 minutes, so I will.

The question came up by the Senator, I can't remember who it was, as to whether or not, they were talking about was there really

a threat of an ice age at one time. I would like to read you, from Dr. John P. Holdren, who was Assistant to the President for Science and Technology and Director of the White House Office on Science and Technology, and Co-Chair of the President's Council of Advisors, what he had written was, below is a direct scan of pages 76 and 77 of his book. He said, "The effect of a new ice age on agriculture and the supportability of large human populations scarcely need elaboration here. Even more dramatic results are possible. However, for instance, a sudden outward slumping in the Arctic ice cap induced by added weight," this is another ice age coming, "could generate a tidal wave of proportions unprecedented in recorded history."

So you have even the President's people who agree with me, Madam Chairman.

Senator BOXER. Oh, yes, and I think that this article that Senator Udall put in acknowledges that there were scientists who did call for the ice age, but that most of them did not. So why don't we just let people read this for themselves and decide.

I would ask if you would amend your request to not only include how many jobs and all of those things, but also how many days lost of work would be prevented, how many cases of asthma and premature mortality. If she is going to do that kind of thing.

Senator INHOFE. What I would like to do is go ahead and press mine, then if you can do yours. Because if we incorporate the two, it would be some time in 2014 before we get any kind of a reply.

Senator BOXER. I don't think so, because they have this. But OK, I will make a separate request, that if you were to back off and not do your job, which by the way, you have to do unless they change the law, but if you were to back off on all of these areas, and that is why I asked about mercury, arsenic and all these areas, if you could give us a notion of how many days we would lose on work and how many more hospital admissions and all of those breakdowns, if you could take the 2010 numbers and look at them going forward.

OK, now Senator Sanders, you are next.

Senator SANDERS. Ms. Jackson, I am sorry I didn't get a chance to hear all of your testimony. I heard about half of it.

The point that you were making in your testimony is that in fact, enforcing the Clean Air Act vigorously not only saves lives but it also saves money. Everybody in this room is concerned about the escalating cost of health care in this country. We are concerned about asthma, we are concerned about cancer, we are concerned about many, many illnesses which cause human suffering, as well as great expense to our system.

One of the funny things about Government, as everybody here knows, we could zero out your budget tomorrow and the end result would be that health care costs would explode. Or we can make sure you do your job well, and yet Medicare and Medicaid costs might go down.

Could you give us some examples of how investing in protecting our environment, whether it is clean air or clean water, ends up saving taxpayers money by preventing illness?

Ms. JACKSON. Yes, Senator. Probably the biggest example is that air pollution is down over the 40 years of the Clean Air Act by I

think 60 percent, almost 60 percent, while our GDP has gone up 207 percent. So what we have seen in economic studies, and not long ago we released some additional economic figures, is that the investment, and there are investments in pollution control technologies, whether it is air pollution or water pollution, not only those investments create jobs, because someone has to build that air pollution equipment or that water pollution equipment, but the savings in the health care arena are always greater when it comes to the Clean Air Act. Two to one is small. Usually we are talking 20 to 1, 30 to 1, we have seen as high as 40 to 1, \$40 of health benefit for every \$1 spent on emissions control.

Senator SANDERS. So what you are arguing is that at a time when we worry about escalating health care costs, investing in clean air and clean water not only keeps people healthy, but it saves us health care dollars down the road.

Ms. JACKSON. Senator, I am simply saying it is preventive medicine.

Senator SANDERS. Right. I would agree with that strongly.

Let me ask you a very simple but important question. We have heard today, and we hear repeatedly that global warming or the belief in global warming is kind of a fad, 40 years ago people were talking about global cooling, and there are differences of opinion, et cetera. Can you kind of bluntly share with us your assessment on where we stand in terms of the scientific community? I understand there are some differences of opinion. But in general, what is, to the best of your understanding, the scientific community saying about global warming?

Ms. JACKSON. My understanding is that there is overwhelming consensus amongst the scientific community that the climate is changing, and that it is caused, that man-made emissions of climate forcers, climate-changing gases, CO₂, methane and other gases, are contributing significantly to the change in our climate.

Senator SANDERS. We talk in this Committee not only about environmental issues, but the impact of environmental regulation on the economy. It is an important issue. Some of my friends think that some of the regulations which you are obliged to enforce are "job-killing" or "job-crushing." Can you say a few words about the economic benefits, economic benefits? I asked you a moment ago about the benefits in terms of trying to help us keep people healthy and raise the cost of health care. Talk for a moment about the economic benefits of the Clean Air Act, including innovation, manufacturing and export opportunities for American businesses.

Ms. JACKSON. The Clean Air Act, one of the unintended consequences is the growth of the American air pollution control industry. It is an American industry; we are the leaders in the world. It is a growing industry. Air pollution control equipment alone generated revenues of more than \$18 billion in 2007. It contributes to our trade surplus, because we export more of it than we need, so it contributes positively to our trade balance.

Our exports of environmental technology to China grew by 125 percent in the 2 years between 2002 and 2004. I can give you examples of individual rules. There is a recent study by Ceres and the University of Massachusetts that found that two of the updated Clean Air Act standards that EPA needs to establish for mercury

and soot and smog will generate nearly \$1.5 million jobs over 5 years. Because that is investment in our domestic economy. We are investing in clean air here at home to make our citizens healthier, and it creates jobs.

Senator SANDERS. So the bottom line is that investing in maintaining clean air and water creates jobs?

Ms. JACKSON. Yes, sir, just like investing in a road does. You are just investing in clean air and public health.

Senator SANDERS. OK. Madam Chair, thanks very much.

Senator BOXER. Thanks, Senator Sanders.

Senator JOHANNNS.

Senator JOHANNNS. Thank you, Madam Chair.

Administrator, recently the President, President Obama, with some degree of fanfare, announced a regulatory review process or framework that he was putting in place, I think in response to concerns by many in the business community about the over-regulation in the Administration. Are you subject to that?

Ms. JACKSON. Yes, sir.

Senator JOHANNNS. Tell me in what regard you would be subject to that. Is there a document you could give to the Committee that would show us what the new regimen will be at EPA?

Ms. JACKSON. Well, sir, there are two things. We are conducting a retrospective, a look-back review of our regulations. I don't have a document to give you yet. We are in the process of putting the work plan together for that at the request of the President and the White House. We will be producing that.

Every regulation that we do is reviewed by us and then subsequently, by the White House Office of Management and Budget for compliance with the President's Executive Order.

Senator JOHANNNS. But let me ask, for example, the work you are doing on the climate change issues, would that now be reviewed? Are you going back to review all of that?

Ms. JACKSON. Our work plan is not done on the retrospective review. But we need to look at regulations that have been promulgated in the past by EPA. That is just what the Executive Order says, sir.

Senator JOHANNNS. So if somebody asks me, a constituent writes me a letter, I can quote you then in responding and saying that all regulations at the EPA are now under review, under the Presidential directive?

Ms. JACKSON. We are going to comply with the Executive Order in reviewing our regulations.

Senator JOHANNNS. OK. Just to get some numbers in the record, the House Bill, which has not been adopted on the Senate side, how much would that have reduced spending in the EPA?

Ms. JACKSON. I believe it is just over \$3 billion, sir.

Senator JOHANNNS. Could you convert that to a percentage for me?

Ms. JACKSON. It is about 30 percent.

Senator JOHANNNS. About 30 percent. Now, would it be your testimony today that if that were adopted that more people would have health problems, more people would die, is that the case you are making to this Committee today?

Ms. JACKSON. My testimony today is about the President's budget and the need to make thoughtful cuts that still preserve public

health. The CR itself has many provisions, including many riders, on EPA's authority as well. So I am not here to offer a detailed analysis of the CR, but rather, to explain the President's budget proposal.

Senator JOHANNNS. OK, but what I am trying to get to is, we have to decide. We have to make a thoughtful decision about what every budget should be. What I am trying to get a better understanding is, what is your testimony, if your budget is cut 25 percent, does that have health risks to it? Will more people die? What exactly are you trying to tell us?

Ms. JACKSON. My testimony, sir, is that the President's proposed budget does make cuts, but it makes them with a thoughtfulness that is intended to ensure that we preserve the fundamental core programs that ensure clean air and clean water for Americans. So for example, we increase categorical grants to the States, out of recognition, as a former State commissioner, that State programs are 90 percent of the permitting and enforcement, the implementation of our Nation's environmental laws. We do not cut those programs.

So there are many examples. But what I can talk about is the management recommendations we're making that I believe are quite thoughtful. They are not painless, they are cuts. But they are, in my opinion, thoughtful cuts.

Senator JOHANNNS. You talked about the increased costs relative to a hospital stay, and gosh, we all agree, if you go to a hospital, that costs money. The regulations that I have looked at, and I will just give you the regulatory effort, relative to farm dust, there is this regulation out there that we are trying to get changed that would cause containment for milk, which I think is just one of the most remarkable ones. I am saying that as gently as I can. It doesn't make any sense.

But those cost money too, don't they?

Ms. JACKSON. We actually have an exemption proposed for milk containers. There is no regulation for farm dust. So yes, if there were regulations, I guess there would be. But we are in agreement that we don't need to regulate milk.

Senator JOHANNNS. Were you slamming the gavel?

Senator BOXER. I think we are going to the next person. You can have another round. We are going to Senator Cardin. We only have 5 minutes each to go.

Senator JOHANNNS. Madam Chair, I don't mind that at all, as long as we all live by the same rule. If we are not living by the same rule, then an individual member is going to feel like they are being treated unfairly.

Senator BOXER. Sometimes the Ranking Member and the Chair take a little bit more time. But generally we try to stick to it. I made a mistake, I didn't notice that Senator Whitehouse came back.

Senator WHITEHOUSE. Thank you.

Administrator Jackson, I am a little bit concerned about the proposed budget effects on the State Revolving Funds, which look like they are up for drinking water and wastewater cuts of nearly a billion dollars. This is obviously an area in which we are way behind the curve. I think EPA has reported that we are \$600 billion in in-

infrastructure deficit for clean water and wastewater treatment. In Rhode Island, our list of water infrastructure projects is over \$1.5 billion and our Clean Water Finance Agency in 2010 had a lending capacity of just \$88 million.

We do take the support that we get to the State Revolving Fund, and we do leverage it with private borrowing. Tony Simeone, who runs the Rhode Island Clean Water Finance Agency, is kind of a magician at making more work and water infrastructure and jobs and clean effects out of the money that he gets. I would just urge you to reconsider the value, particularly the leverage value, of these investments.

I understand that some of my colleagues take exception to our use of the term investment, and they just think that everything is spending, spending, spending. But it is pretty clear that our clean water infrastructure and our wastewater infrastructure is vitally important to all of us. When we are this far behind in terms of where we should be, I think this particular definition of infrastructure is pretty hard to debate. This goes back to the Romans.

So I would hope that as we go forward, you might be willing to reconsider that, based on the leverage and jobs effects, in addition to the health effects of having better clean water and wastewater infrastructure. Perhaps you would like to respond.

Ms. JACKSON. My only response, sir, is that yes, it was a tough choice to look at the revolving funds and propose a cut there. The only solace we had was that we had put and seen a lot of money hit the streets through the American Recovery and Reinvestment Act. There was \$6 billion there in total, I believe, for water and wastewater. And 99 percent of it is obligated. I think a large percentage of it has already been spent. But there is a significant percentage that hasn't. So one of the things we thought was that we would certainly like to spend money there, but that we could spend what we had.

I just want to point out, I know the Ranking Member has left, but the last Bush SRF was \$1.5 billion. This is \$2.5 billion proposed. So it is not all the needs, certainly, but also remember, that this is a revolving fund, so money does come back as it is paid back into the fund.

Senator WHITEHOUSE. I would love to get an update from you also on the transport rule. Rhode Island is a very important beneficiary of that rule. We are a non-attainment State. It is not because of Rhode Island release that we are not an attainment State, it is because we are downwind of other States that decided that it was really good public policy on their part to build really high smokestacks, inject their pollution up into the high atmosphere, and let it rain down on my Rhode Island constituents.

There is not much I can do about it. As the Attorney General, I sued them. That lawsuit is still kicking around, as best I can tell. But you have the ability, with the regulatory point of view, to force the protection of far-away little lungs and older lungs, when the local economy thinks it is a really good idea to keep burning coal, project the waste up so it doesn't—actually, there are places where they are burning this stuff that are in attainment, because they have done such a good job of putting it up, so that it falls downwind onto Rhode Island.

But I very much hope that we come to a day soon when on a bright, clear, summer day, we are not hearing on the radio that today is a bad air day in Rhode Island, and infants and seniors should stay home.

Ms. JACKSON. Thank you. It is projected for finalization in June, Senator.

Senator WHITEHOUSE. Great, thank you.

Senator BOXER. Thank you, Senator.

Now we go to Senator Boozman.

Senator BOOZMAN. Thank you.

Thank you for being here, Ms. Jackson. There is concern about statements that have been made about using the Chesapeake Bay TMDL and the Florida numeric nutrient criteria in other areas of the country. Both of those decisions are under fierce scrutiny. The numeric nutrient criteria in Florida, some ecologists believe that perhaps there is actually harm being done to the ecosystem as a result of that.

In the budget, you are requesting \$6.6 million to address nutrient loading in the Mississippi River and Gulf of Mexico, specifically targeting non-point pollution. I also understand that you have a request for a computer model of loadings for the Mississippi River.

I guess the question is, are we laying the groundwork, are you laying the groundwork for a Gulf of Mexico TMDL with these actions?

Ms. JACKSON. The TMDL for the Chesapeake was a result of litigation. The work in Florida was the result of litigation, actually decided initially by the Bush administration before they left. The work in the Mississippi River Basin, which of course is huge, spans dozens of States, is work to address hypoxia in a cooperative manner through working with the States. Those are State programs for the most part, and I firmly believe that States are in the best position to address phosphorus and nitrogen pollution.

Senator BOOZMAN. So there is not current litigation going on in that regard, in that area?

Ms. JACKSON. No, sir, there isn't.

Senator BOOZMAN. So it is correct to say, then, that you are not pursuing TMDL in that area?

Ms. JACKSON. I think as a statement of fact, we do not have, I will double check it, but I want to make sure I give you an accurate answer, Senator. But I don't believe we are planning to do a TMDL specifically in the Mississippi watershed in the near future. But I will double check that for the record.

Senator BOOZMAN. That would be very helpful. These are important issues. The cost is tremendous. Much of it seems to be an unfunded mandate. It really does impact on the people near the systems. In that area, with it being such a huge area, would impact a tremendous area. So thank you very much.

Ms. JACKSON. Thank you. Just to point out, I do want to make clear that TMDLs or standards can be set by the States, and in fact are required by the Clean Water Act.

Senator BOOZMAN. They can be, and yet I know in Arkansas, we have instances where the State of Arkansas has wished for a certain standard, along with the State of Missouri. They were in complete agreement. You have chosen to overrule that and put your

particular standard in. So they can do that, but you all appear to overrule that all the time. So essentially, it is your standard.

Ms. JACKSON. I will check on the particulars, sir. Obviously, water flows. So what we are trying to do down in the Gulf of Mexico, by the time the water even reaches your State, but goes further down into the watershed, to assure that there is fairness, that no one has to bear the burden of someone upstream sending their pollution down and then it affecting users further downstream, who essentially don't have any headroom, because the water that reaches them already has a tremendous load.

So there is a role, in my mind, for the EPA to play because it is a regional issue. But we have to lean heavily on the experts at the State.

Senator BOOZMAN. Thank you.

Senator BOXER. Thank you. Thank you for that question, because I thought that was important and I learned a lot. So thank you.

Now we are going to turn to Senator Cardin. If there is no Republican coming back, we will go then to Senator Lautenberg.

Senator CARDIN. I am going to followup on this exchange, because I really do think that the House-passed budget is providing unfunded requirements on our States by repealing the Federal Government's support for programs that we were participating with the States.

So I want to go through this a little bit further, because in regard to the Chesapeake Bay, the TMDL of course is established under court, and the States are going to still be going forward with their TMDLs regardless of what the House bill provides, if it were to become law. The only thing the States are going to lose is your help. Am I reading that right?

Ms. JACKSON. Our help, because of the cuts to the categorical grants, I think they lose a lot of resources as well.

Senator CARDIN. That is a good point. Because we look at the EPA budget, and we say, gee, OK, we are going to cut these Federal programs. I started in a State, and I really do believe in federalism. Can you just go into a little more detail as to a 30 percent cut, and I know you are here to talk about the President's numbers, and not what the House budget is all about. But if there is a 30 percent cut, it is going to affect moneys coming to our States.

Ms. JACKSON. Yes, sir. I am trying to get—the categorical grants are cut by, I think, \$1 billion it looks like. Is that right?

Ms. BENNETT. No, that is what is proposed.

Ms. JACKSON. Excuse me. Yes, so I have the numbers somewhere, I will get them for you. But there is a significant cut to the State categorical grant programs, more than we are certainly proposing to increase them in 2012.

Senator CARDIN. Just so we understand what we are doing here, can you tell us the type of programs, the type of grants that the States are going to lose, or could lose as a result of the cut? That type of a cut, if it were implemented by Congress.

Ms. JACKSON. These are the grants that most States use to pay the salaries of the people who write air permits and water permits, who enforce the Clean Air Act, who enforce the Clean Water Act, who enforce the Safe Drinking Water Act. They are on the front

lines of implementing those laws, making those laws more than words on paper.

Senator CARDIN. Of course those laws are important, I am not going to back over the exchange you have had with other Committee members for public health and for clean air and clean water and all the above. The States are still going to be on the hook to get it done. They are just going to have to pay for it with their dime without having the Federal Government participate.

Ms. JACKSON. Yes, sir, there just won't be as much support to enforce and implement our Nation's environmental laws. I think probably common sense would say they won't be able to do as much.

Senator CARDIN. So they will get sued, and the courts will be active again. The point that my colleague just mentioned, the States are going to be in the worst position here, because they are going to be, we look to the States for their plans. They are going to be held accountable under the laws that we passed, as they should be, because we want to protect our water. We want to make sure our communities don't have streams that catch on fire, or we don't want to live in neighborhoods where we have high cancer rates, because of the pollutants that are being put into the water.

But other than, I am always amazed at my friends who talk about unfunded mandates. But then when it comes to budgets for the Federal Government to live up to its part of the deal, they seem to lose their passion for the Federal Government living up to its share.

Ms. JACKSON. The only other thing I would offer, sir, is that these are incredibly successful programs. We still have environmental challenges in this country. We have heard about many of them today during the hearing. But these are effective programs. The Clean Air Act, again, 30 to 40 to 1, the Clean Water Act has made numerous streams fishable or swimmable again. The work and investments in the Chesapeake Bay are—

Senator CARDIN. I was hoping you were going to mention the Chesapeake Bay. I was getting a little anxious there.

But you have a modest increase in the Chesapeake Bay program, I think you take it up to \$60 million or something, no, \$65 million. Your budget takes the Chesapeake Bay program up to \$65 million.

The House-passed budget would reduce that by about \$25 million. Now, I can tell you what is going to happen. That means that the grants that go to the six States will be reduced. The grants that go to the organizations, the private organizations that are partners with us in cleaning up the Bay, that do the shoreline erosion protection programs, that do the school programs where school children literally go out there and not only cleanup the Bay, but understand what it is all about. It is those programs that we are going to lose. It is going to be more difficult for us to meet the TMDLs that have been established by the courts if we don't have the resources coming in in partnership with the State and private sector. It is just going to make it more difficult for us to meet those standards.

Ms. JACKSON. That is right, Senator. Remember, some of that goes to, it is leveraged by work and money with USDA to help the agricultural sector, who are vital partners in this work.

Senator CARDIN. The bottom line, to the people of Maryland and the surrounding States, means that there is a greater risk that will go back to restrictions on the rockfish, greater likelihood we will have continued problems with oysters. It will hurt our economy. It will hurt the beach communities, where we have to close beaches on more and more days. That is what is at stake here. So that is why we do get a little bit emotional about what is being done in the other body.

I thank you very much for your commitment to this area.

Senator BOXER. Thank you, Senator.

Senator Lautenberg.

Senator LAUTENBERG. Thanks very much, Madam Chairman, and welcome, Administrator Jackson.

I just want to make a short statement, if I may, Madam Chair, including my time.

Senator BOXER. Yes.

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

Senator LAUTENBERG. Politicians talk a lot about how Congress should be more like the everyday Americans, who sit at their kitchen tables and try to plan their household budgets, and crunching the numbers, see what they can and can't afford. But no American would try to balance their family's budget by cutting out money for batteries for a hallway smoke detector, or putting off a set of new brakes for the family car.

It would be just as reckless for Congress to sacrifice the public's health and safety in the name of fiscal austerity. Yet this is precisely what our colleagues on the other side of the aisle have proposed. The House Republicans want to slash funding for environmental protection by nearly one-third, stripping this vital agency of its ability to enforce laws and keep the air our children breathe and the water they drink clean.

If we really want to reduce the tax burden on hard-working Americans, we ought to make the polluting industries pay to clean up the messes they make. That was the standard that was in play a few years ago, right? It worked well. Right now, taxpayers spend more than a billion dollars every year to clean up neighborhoods made toxic by irresponsible industries. It is not fair.

So today, I, with several of my colleagues as co-sponsors, Senators Whitehouse, Cardin, Menendez, Feinstein, Murray and Senator Merkley, this legislation would reinstate the fee on chemical and oil companies to bond the cleanup of Superfund sites. I am pleased that President Obama included polluter pays in his proposed EPA budget.

But the House Republicans would rather let polluters off the hook altogether. I don't know how conscience permits one to say, well, we can't afford clean air, we can't afford clean water. Look at their children in the face and say, oh, I am sorry, I would like for you to be able to drink that water, but maybe if you do it with a sieve or something like that, you will be all right. That is how nonsensical that sound to me.

So for example, the House Republicans proposed subverting the EPA's ability to carry out the Clean Air Act. Since it has become

law in 1970, the Clean Air Act has protected our health and the environment from dangerous, toxic air pollution. In 2010, it prevented more than 160,000 premature deaths and more than 1.7 million child respiratory illnesses. It is fantastic. The Clean Air Act's economic benefits are also clear. When air pollution is severe, health care costs soar and productivity plunges. Businesses know employees who can't breathe are employees who can't work.

So gutting the Clean Air Act will do nothing to help our economic recovery, and nothing to close our budget deficit. I agree, we have to fix the Nation's budget challenges. But no American would try to balance their household budget by skimping on their kids' safety. Just the same, Congress should not be putting austerity above public health.

I will make a comment about the budgetary situation that we find ourselves in. Every financial statement has two elements. One, there are costs. There are costs for operating, for material. The other is revenues. I for one would have to pay more tax if we eliminated the tax cuts that were done in the Bush years and have continued. I will tell you, if I could put another firehouse in my neighborhood or another Clean Water standard that my kids can't drink now from the fountain, we buy bottled water like so many people, if we could do that, I would gladly pay the tax. That is like an investment. When I ran a business, we put more money out at times than we had in hand. But we knew that we were doing the right thing.

That is one thing, I wish, Madam Chairman, I know how desperately you want to do the right thing and how stymying it is to hear, oh, we can't afford it. We can't afford the toll on our children that it will take if we don't get on with this. I think those who created the pollution should pay for it. Thank you very much.

Senator BOXER. Thank you for your statement.

Senator Boozman, do you want to make your concluding remarks, and then I will see if the Senator wants a second round. I know Senator Carper has sent me some questions I am going to ask you as well.

Senator BOOZMAN. No. I have a question that I would like to submit for the record, and if you would respond, that would be good. We appreciate you, Ms. Jackson, and Ms. Bennett being here. We appreciate your testimony.

Senator BOXER. Thank you so much, Senator.

Senator Whitehouse, why don't you take your time, and then I will do some questions from Senator Carper.

Senator WHITEHOUSE. Thanks. I just wanted to add one thing, because in this room, in particular, we hear a lot of things said about the extent and the effect of carbon pollution in our environment. It is sort of an odd chamber to be in, because you can get into utility boardrooms, and they get it. You can go to the American people, they clearly get it. You can go to the scientific community, and they are appalled that we haven't taken action more readily, because the scientific record is so compelling.

Yet, other than the ExxonMobil boardroom, I can't think of a place other than this building in Washington where we get more confusion sown about where we are. Some of the stuff just, as I understand it, just isn't very debatable or negotiable.

Over the last 800,000 years, 8,000 centuries, the atmosphere has varied fairly steadily between containing 170 and 300 parts per million of carbon dioxide. That is not theory, that is measurement. So I don't think there is any responsible debate about that point. In 1863, the Irish scientist John Tyndall determined that carbon dioxide in the atmosphere traps more heat as the concentration goes up. That is textbook science, it has been textbook science for a century. That is not in dispute either.

Since the Industrial Revolution, industrialized societies have been pumping carbon into the atmosphere at astonishing rates. We are up to seven to eight gigatons in the last decade annually. A gigaton is a billion tons. I don't think that figure is in any serious dispute.

So the conclusion that when you release multiple gigatons of carbon into the atmosphere every year, it is going to go up, is not a very challenging theory to take on board. Put more in, find more there. It is really not that complicated. You draw conclusions from that, when you are adding a lot more, the concentration would go up. That is something that we also don't theorize about, we go out and we measure it. The measure now is that we are over 390 parts per million, which is outside of a bandwidth that we have lived in for 8,000 centuries.

That is a pretty big chatter strip to go driving across and pretend that everything is going to be just OK and you don't have to worry. It is pretty easy to do trajectories, too, that is not complicated. We do trajectories all the time. You can plot where we are going on a graph and it takes you to 688 parts per million in the year 2095 and over 1,000 parts per million in the year 2195. Because some of this is irrecoverable once it gets started, that is a matter of some concern for us now, because those are boundaries we haven't been outside, not in 800,000 years, but in millions and millions of years.

We are taking a huge bet on what happens to our species and to our planet. Very cool-headed industries, like the property casualty insurance industry are making huge bets based on this science every day.

So I just want to try to kind of bring a moment of reality to this extraordinarily peculiar room in which this remains the subject of debate. I know that there are big industries out there that don't want to hear it. I know that big industries can have a lot of sway in this particular institution. I think with some of the people around here, frankly, Galileo would not have a shot. He had a similar predicament. He had science and he had pressure. He yielded to pressure, although he is alleged to have whispered "I recant, but the plants stay their courses."

I don't know whether that is true or not, but don't recant. Because the planets will stay their courses. These rules are not rules that we have made up. They are laws of science, they are the rules by which our world operates. There comes a point where denying them is more than just irresponsible.

Ms. JACKSON. Senator, can I just respond a bit, maybe to give you a little bit of comfort? I know you mentioned ExxonMobil, but I saw a piece of good news yesterday. Even Rupert Murdoch and his news corps, they own Fox News, they own, I believe, the *Wall Street Journal* and others, entities that sometimes have a field day

with my agency or the issue of climate change. He put out an announcement that they have become carbon-neutral across their global operations, and that their projects pay for themselves in less than 2 years on average, that they are lighting retrofits and PC shutdowns to systemic changes like moving to video-conferencing and carbon foot-printing.

So I do believe, that as you mentioned, this is good for business, good for our future, and very much doable through a simple desire to do it. So thank you.

Senator WHITEHOUSE. Indeed, it is actually an economic win, because it allows us to compete effectively in hugely developing, rapidly growing industries that we would otherwise fall behind in and lose jobs and economic position to. So thank you.

Senator BOXER. Thank you very much.

Just tagging on to that thought, isn't it true—thank you, Senator Whitehouse—that carbon pollution comes out of the same stack as other forms of air pollution? So when you go to reduce carbon, you are also reducing smog-forming pollution, toxic soot? My understanding is, contaminants such as mercury will be reduced, lead and other heavy metals. We know those pollutants harm the development of the nervous system, including the development of the brain. Infants and children are especially at risk.

So it isn't as if, if we are going after carbon pollution and we are doing it in the right way and we are bringing it down, aren't we also making people healthier, because of all those co-pollutants that are in the air with the carbon?

Ms. JACKSON. Many of the same sources, whether it is dirty vehicles, which we are working to clean up under the President's Clean Car program, or power plants emit carbon pollution, but they also emit smog, soot, mercury.

Senator BOXER. I think that is really important. It is one of the reasons, just in my home State, I will tell on my friend, we had a really interesting referendum in California, Prop 23. It said very simply, we should delay our carbon pollution reduction effort until our economy improves. We have 12.4 percent unemployment. Now, this, California is considered a blue State, it is really a purple State. We have less than 50 percent Democrats, less than 50 percent Republicans. We have a lot of Independent voters.

The oil companies, Texas oil companies, came in and they spent millions of dollars, versus the American Lung Association, basically that is what it was. It was the most extraordinary thing, it was 60–40, actually 61 percent said let's not delay. Now, mind you, all it said was, delay until the unemployment rate goes down to 5 percent. So it is not that they canceled it, they couldn't win.

So I think the issue that I am trying to say to my friends, and I respect each and every one of them, if you look at the American Lung Association's nationwide polling, done by a Republican and Democratic polling firm, we should be united in this. I am not saying we should agree with every single comma and quotation mark. But in general, we should be united, if we represent the American people.

I also wanted to correct something Senator Inhofe said, and put into the record the actual vote on the Lieberman-Warner. He said it got 30 some votes. It actually—we were 6 votes short of 60. We

had, I forget exactly how many were there—48 were there, and we had letters from the others, like Senator McCain, who was out campaigning, that they would have voted for cloture.

So the high water mark was 54 votes. Not enough. We had nine Republicans say at that time they were for a climate change bill.

Now, it has eroded, there is no doubt about it, there is no question about it. But that doesn't change what you need to do, Madam Administrator. You need to follow the law. I hope we will support you.

I wanted to just pose these questions, very important questions, and I agree with the thrust of these comments, from Senator Carper. He says—can you please keep your answers concise? First, he says, it is his understanding that the diesel engine standards adopted by the agency in 2007 only affect new engines, and they have no impact on the existing fleet. Is that correct?

Ms. JACKSON. That is correct.

Senator BOXER. Then he says, I understand that there are about 11 million of existing diesel engines in use, like in the school buses that take our kids to schools. Some of these engines and vehicles can last for decades. Is he correct in that understanding as well?

Ms. JACKSON. That is correct.

Senator BOXER. He says, his understanding is that dirty diesel exhaust is deadly. In fact, a person in this country is more likely to be killed by diesel soot than by a firearm or a drunk driver. It is also his understanding that we have American technology that can retrofit or replace dirty diesel engines. That technology reduces diesel emissions by 90 percent. Is he correct on the diesel technology and the diesel public health concerns?

Ms. JACKSON. Yes, Chairman. I can't confirm the comparison, but certainly they are deadly emissions, and they do kill.

Senator BOXER. He says, finally, Administrator Jackson, if there are millions of existing diesel engines not affected by the 2007 rule, these engines can last for decades, spewing deadly emissions. Would you agree with me that there are tremendous remaining opportunities to provide for diesel emission reductions under DERA?

Ms. JACKSON. Yes, there are tremendous opportunities remaining.

Senator BOXER. OK. I ask unanimous consent to enter into the record a letter from 15 organizations representing local water agencies, State officials, conservation and environmental organizations, as well as organizations representing the construction and engineering trades, that call on Congress to reject drastic spending cuts to EPA wastewater and water quality programs that were included in H.R. 1, which is the House Continuing Resolution that we are looking at at the moment. I wanted to make sure we got those into the record. Without objection, Water Environment Foundation, the National Association of Clean Water Agencies, Associated General Contractors of America, American Public Works Association, National Association of Clean Water Agencies, Association of Metropolitan Water Agencies, President of American Rivers, President and CEO of CMAA, American Society of Civil Engineers, Vice President, Industry and Government Affairs at the Vinyl Institute, American Sports Fishing Association, California Association of Sanitation Agencies, Chesapeake Bay Foundation, Association of

California Water Agencies, Association of State Drinking Water Administrators, Council of Infrastructure Financing Authorities.

[The referenced information was not available at time of print.]

Senator BOXER. That is a very powerful endorsement of your work. I wanted to include it.

Anything else, Senator Boozman?

Senator BOOZMAN. Yes, ma'am. The only thing I would like to do is enter a letter to you from 10 of your colleagues that was dated June 6th, concerning some of their concerns.

[The referenced information follows:]



June 6, 2008

The Honorable Harry Reid
Majority Leader
United States Senate
S-221, the Capitol
Washington, D.C. 20510

The Honorable Barbara Boxer
Chairman, Committee on Environment and Public Works
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Leader and Chairman Boxer:

As Democrats from regions of the country that will be most immediately affected by climate legislation, we want to share our concerns with the bill that is currently before the Senate. We commend your leadership in attempting to address one of the most significant threats to this and future generations; however, we cannot support final passage of the Boxer Substitute in its current form.

We believe a federal cap and trade program must not only significantly reduce greenhouse gas emissions but also ensure that consumers and workers in all regions of the U.S. are protected from undue hardship. A federal cap and trade program is perhaps the most significant endeavor undertaken by Congress in over 70 years and must be done with great care. To that point we have laid out the following principles and concerns that must be considered and fully addressed in any final legislation.

- **Contain Costs and Prevent Harm to the U.S. Economy:** We hope that you recognize, as we do, the inherent uncertainty in predicting the costs of achieving the emission caps set forth in this or any climate legislation. While placing a cost on carbon is important, we believe that there must be a balance and a short-term cushion when new technologies may not be available as hoped for or are more expensive than assumed. There are many options to deal with the issue and all should be up for discussion in order to meet our environmental and economic goals. Ultimately, we must strive to form a partnership with regulated industries to help them reduce emissions as they transition from an old energy economy to a new energy economy which will protect both our environment and our economy.
- **Invest Aggressively in New Technologies and Deployment of Existing Technologies:** There is no doubt that we need a technological revolution to enter into a low carbon

economy. It is critical that we design effective mechanisms to augment and accelerate government-sponsored technology R&D programs and incentives that will motivate rapid deployment of those technologies without picking winners and losers. We also want to include proposals to provide funding for carbon capture and storage and other critical low carbon technologies in advance of resources being available through the auction of emission allowances. We also need to aggressively deploy existing energy efficiency technologies now to retrofit millions of homes, buildings and manufacturing facilities to reduce electricity costs for everyone.

- **Treat States Equitably:** Just as some groups of consumers will be more severely affected by the cost of compliance, so too will our states. The allocation structure of a cap-and-trade bill must be designed to balance these burdens across states and regions and be sufficiently transparent to be understood.
- **Protect America's Working Families:** Any legislation must recognize that working families are going to be significantly affected by any cap and trade legislation. Price relief for these families must be included in any federal cap and trade program. For instance, one way to provide some relief would be to provide additional allowances to utilities whose electricity prices are regulated, which would help to keep electricity prices low.
- **Protect U.S. Manufacturing Jobs and Strengthen International Competitiveness:** The Lieberman-Warner bill contains a mechanism to protect U.S. manufacturers from international competitors that do not face the same carbon constraints. If this mechanism does not work, or is found to be noncompliant with the World Trade Organization, then the program needs to be modified or suspended. The final bill must include enhanced safeguards to ensure a truly equitable and effective global effort that minimizes harm to the U.S. economy and protects American jobs. Furthermore, we must adequately help manufacturers transition to a low carbon economy to maintain domestic jobs and production.
- **Fully Recognize Agriculture and Forestry's Role:** Agriculture and forestry are not regulated under the bill but they can contribute to reducing emissions by over 20% domestically. Furthermore, international deforestation contributes to 20% of global greenhouse gas emissions. Strong, aggressive and verifiable offset policies can fully utilize the capabilities of our farmers and forests. A strong offset policy can also reduce the costs of a cap and trade program while maintaining our strong environmental goals.
- **Clarify Federal/State Authority:** Congress should adopt a mandatory federal cap-and-trade program that will be the single regulatory regime for controlling greenhouse gas emissions. Existing state laws and initiatives should be integrated into the federal cap-and-trade program where the policies do not conflict. Federal uniformity in this area should be made clear in the statutory language to prevent conflict in regulation, preserve overall efficiency, and ensure harmonization of regulations. Where a conflict exists, federal law needs to clearly prevail.

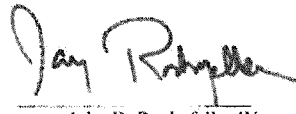
- **Provide Accountability for Consumer Dollars:** The cap and trade program developed in the Lieberman-Warner bill has the potential to raise over \$7 trillion. Much of these funds will be indirectly paid for by consumers through increased energy prices. The federal government has a fundamental obligation to ensure these funds are being spent in a responsible and wise manner. The development of any cap and trade program must recognize the sensitivity of this obligation and eliminate all possibility of waste, fraud or abuse.

We look forward to working with you to ensure that any final bill will address the problems of climate change without imposing undue hardship on our states, key industrial sectors and consumers.

Sincerely,




Debbie Stabenow



John D. Rockefeller IV



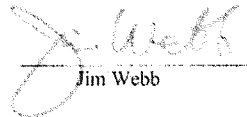
Carl Levin



Blanche Lincoln



Mark Pryor



Jim Webb



Evan Bayh



Claire McCaskill



Sherrod Brown



Ben Nelson

Senator BOOZMAN. The other thing is, you mentioned the referendum that you had concerning that. I think that is the correct way to do things. We can debate the merits of climate change and things like that. But my concern and the concern of many others is that the agency, this agency, other agencies, are trying to do things that they don't have the statutory authority to do. It has been pretty clear, I think, serving in the House and now over here, that in the past, the cap-and-trade legislation, the rewrite of the Clean Water Act, it has been pretty clear that Congress, the majority of Congress has not gone along with that.

I would say that if we try and do that through a regulatory approach that that is wrong. I think most Members of Congress would agree with that.

Senator BOXER. Well, Senator, let me respond to you, because you are right in the way you are representing the views of the current Senate. There is no question that the stated view is, Congress should act on a specific bill on carbon pollution. Here is the problem. The same people who say Congress should act to control carbon won't support any bill to do it.

So we are left with the Clean Air Act. Now, as you well know, I am sure, because you were over there in the House, the Bush administration stopped any and all forward motion on carbon pollution reduction for the entire time they were there. A lawsuit that was filed wound its way to the Supreme Court, and the Supreme Court decided the issue. The Bush administration argued carbon pollution is not covered under the Clean Air Act.

In a very clear-cut decision, and the words of which are seared in my memory, they state, that is absolutely untrue, that in fact, and you can just read the Clean Air Act yourself and see it, it says that the agency, they can act to protect the public from all pollution, and these are the words in the Clean Air Act, including pollution related to climate change.

So I wasn't surprised that the Supreme Court found in favor of that. So your role is to follow the law.

So let me just get this on the record. I think the Senator is being very straightforward. There are people who think EPA is not following the law. So I want to get you on the record. My interpretation of what the Supreme Court said, in a very clear decision, is once an endangerment finding is made, and that finding was made, based on most of the work done in the Bush administration, once the endangerment finding was made and the decision was made that carbon pollution is dangerous to the public, do you not have the responsibility to act to reduce carbon pollution?

Ms. JACKSON. Yes, Chairman. Once an endangerment finding is made, EPA must, must, the statute is clear, the word is must. Just to go one step further, for the Ranking Member, the decision also said that EPA could not simply choose not to deal with the issue of endangerment, that we couldn't be arbitrary and put the issue to the side. We had to make a scientific finding one way on the issue of that of greenhouse gas pollution. So that is the endangerment finding.

We are not alone in this. There was some interesting correspondence that came out from the past Administration, the person who had my job before me, who reached the same scientific conclusion

and said that there was simply no way to deny the fact that greenhouse gases endanger public health and welfare.

Senator BOXER. I would ask unanimous consent to place into the record the exact words of the Court. They said, "Because greenhouses gases fit well within the Clean Air Act's capacious definition of air pollutant, we hold that EPA has the statutory authority to regulate the emission of such gases."

So all I ask is that you follow the law. I think that there will be attempts to tie your hands. It is very open, it is not, you know, in every way. To me, to me, it is a nightmare. Because there are real life consequences of these things. All you have to do is read the endangerment finding. Put that aside, all you have to do is read what happens when our kids in utero get exposed to mercury, or when our elderly and all of our families get exposed to the fine particulate matter. This is serious business.

That is why 70 percent of the people or more support the EPA. That is what the question was: do you support the Environmental Protection Agency's role in going after this pollution. It was done in a fair and square way, and 70 percent.

So again, it hurts my heart that we have to have these arguments every time. But that doesn't dissuade me, as Chairman of this Committee, we are going to keep on doing it.

I just want to say thank you to you, Administrator Jackson. You are patient, you are caring, you are very forthcoming to both sides. I just think you are a terrific Administrator. Frankly, I think most of us agree with that, regardless of our party.

So thank you so much for this. We stand adjourned.

[Whereupon, at 4:20 p.m., the committee was adjourned.]

[Additional statement submitted for the record follows:]



**American Water Works
Association**

The Authoritative Resource on Safe Water SM

March 2, 2011

The Honorable Barbara Boxer
Chair, Senate Committee on Environment and Public Works
The Honorable James M. Inhofe
Ranking Member, Senate Committee on Environment and Public Works
The Honorable Benjamin L. Cardin
Chair, Senate Subcommittee on Water and Wildlife
The Honorable Jeff Sessions
Ranking Member, Senate Subcommittee on Water and Wildlife

Dear Senators,

As the Senate Committee on Environment and Public Works takes up the difficult work of guiding the 2012 budget of the U.S. Environmental Protection Agency, the American Water Works Association (AWWA) urges the committee to weigh certain key factors in budgeting the state revolving loan fund program for drinking water.

We realize that under the current budget climate every federal program may have to carry its fair share of belt-tightening. We ask, though, that the committee and the Congress remember that reliable water systems are necessary for a community's public health, fire protection and economic viability. Further, the U.S. Conference of Mayors has estimated that one dollar invested in water and wastewater infrastructure increases private output in the gross domestic product by \$6.35 in the long term. The U.S. Department of Commerce has stated that adding one new job in local water and wastewater creates 3.68 jobs in the national economy.

The need to repair, replace and overhaul the nation's water systems is immense. While more than 90 percent of water/wastewater infrastructure is funded locally, EPA's own "Drinking Water Infrastructure Needs Survey and Assessment" shows that the nation's drinking water utilities will need \$334.8 billion in infrastructure investments over the next 20 years. Much of the nation's water infrastructure was built more than 100 years ago and is aging rapidly.

Customer rates and other local charges are and will remain the primary means of paying for water service and infrastructure, but the scope of needs in many communities requires additional assistance. In addition to demonstrating leadership by encouraging good asset management and appropriate rate setting, the federal government can also increase access to capital while limiting the cost to the federal government. This requires continued investment in the SRF programs for drinking water and clean water.

AWWA is the world's largest educational and scientific organization dedicated to the promotion of safe drinking water. Our 60,000 members work as community water providers, federal and state regulators, environmentalists, academics and scientists, and reside in all 50 states. Our utility members serve 80 percent of the U.S. population.

While the United States has long enjoyed safe, reliable drinking water, we must maintain and upgrade our drinking water infrastructure to keep that water safe and reliable for the future. Since its creation in 1996, the drinking water SRF program has become one of the most important tools available to communities seeking to improve their drinking water systems. Further, as a revolving loan program, the SRF will provide funding for additional water infrastructure projects down the road.

We look forward to continuing to work with the Committee on this and other issues.

Sincerely,



Tom Curtis
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