

**INTERNATIONAL CLIMATE CHANGE
NEGOTIATIONS: BALI AND THE PATH
TOWARD A POST-2012 CLIMATE TREATY**

HEARING

BEFORE THE

**COMMITTEE ON FOREIGN RELATIONS
UNITED STATES SENATE**

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THURSDAY, JANUARY 24, 2008

U.S. SENATE,
COMMITTEE ON FOREIGN RELATIONS,
Washington, DC.

The committee met, pursuant to notice, at 2:38 p.m., in room SD-419, Dirksen Senate Office Building, Hon. Robert Menendez, presiding.

Present: Senators Menendez, Kerry, Bill Nelson, Cardin, Lugar, Corker, and Voinovich.

**OPENING STATEMENT OF HON. ROBERT MENENDEZ,
U.S. SENATOR FROM NEW JERSEY**

Senator MENENDEZ. Welcome to today's hearing, the committee will come to order. Senator Reid caught me on the floor, and I got a little detained.

We welcome everyone to today's hearing regarding the Bali Conference and international climate change negotiations. We'll hear from two panels, the first will focus on the administration's efforts to secure a climate change treaty. The second panel will provide important perspectives on the main issues that we have, that will have to be resolved for a post-2012 climate change treaty to become a reality.

I appreciate Chairman Biden, for allowing me to chair this most important hearing. It's also within the jurisdiction of the subcommittee, so we appreciate the opportunity. This issue promises to be one of the most important our committee grapples with over the next few years.

Climate change is not just a potentially devastating phenomenon, but also provides a chance for the United States to stand in solidarity with people around the world in a struggle to protect people's homes, their land, and their well-being. It is an opportunity to show leadership and improve how the world views our country.

Of course, leadership is also necessary because the effects of climate change will also be felt acutely here at home.

For instance, millions of people in my home State of New Jersey see the New Jersey shore and its 127 miles of beautiful white, sandy beaches as the only place to spend the summer. The Jersey shore is an irreplaceable treasure in my home State, but it faces an uncertain future in light of climate change. This treasure, literally, may not exist by the end of this century.

Because much of the shore is subsiding while sea level is rising, some studies have projected erosion on the scale of 300 feet inland.

In addition, the barrier islands which front our coast could be completely eroded away. That includes Atlantic City, which itself is built on a barrier island.

Not only does global warming mean relocating millions of people, and facing the potential of billions of dollars in property damage, but it would mean the end of an invaluable resource, treasured by generations. I know people don't want to wait until they start vacationing at the Pennsylvania shore.

We can't wait for hurricanes to creep northward and rip through New Jersey homes, like Katrina ripped through New Orleans. Waiting as increased temperatures cause savage droughts, means farmers will face barren fields, and American families could face shortages of food.

Five years ago, a heat wave killed an estimated 35,000 people in Europe. It would be foolish to wait to act against global warming until a heat wave of that magnitude strikes us here. We can't wait until the oven dings before turning down the heat.

But coming up with a solution to global climate change is not just about avoiding catastrophe, it is about seizing opportunity. A climate treaty could and should be one of the biggest driving forces of new, high-paying, high-tech jobs that this country needs. Finding new sources of power, and improving efficiency for the average American, this would mean lower gas prices, lower electric bills, and higher paying, high-tech jobs in the growing field of green energy. It's all part of the same equation, all part of a comprehensive effort.

The centerpiece of a comprehensive effort has to be an effective international treaty that will be enforced post-2012. It has to be a treaty that is strong enough to avert disaster, but one flexible enough to be ratified by the U.S. Senate. We cannot have another situation, like the Kyoto treaty, where a treaty was negotiated, but could not be ratified by our country. That means the U.S. Senate, and this committee, in particular, is perhaps the most important place in the world for the post-2012 climate treaty to be negotiated.

Bali has provided a very sparse framework for these negotiations to begin, and it is essential that we stay actively engaged with the process, so that negotiators from other nations understand the kind of treaty that can receive 67 votes here in the Senate.

Right now, given the many challenges facing such a treaty, it certainly seems like a daunting task. But if we, as a committee, are willing to be fully engaged in the climate treaty negotiation process, I think we can resolve these issues, and help form an agreement that can be ratified.

Probably the most important issue for this committee to resolve is whether the United States is willing to commit itself to mandatory emissions targets. As Mr. Connaughton may address in a moment, this administration has firmly opposed mandatory emission cuts. Going forward, this committee will need to be engaged on this issue, and try to determine which targets we can realistically commit ourselves to. Without such a commitment, it is unclear how we, as a planet, can reduce our emissions to avert the most dangerous effects of climate change.

Another substantive issue that will need to be addressed for a successful climate change treaty is China's unwillingness to be part of the solution. Some are convinced that China is focused on growth at any cost, and at any level of pollution. But others feel China is willing to embrace policies that will commit them to lower their emissions. We will need to resolve whether China is willing to entertain firm policy commitments that will reduce greenhouse gas pollution.

And it is not just the major emitting nations that a climate treaty must concern with, of course. There will also need to be mechanisms to require developing nations to protect tropical rain forests which serve as an essential carbon sink, allowing enormous amounts of carbon dioxide to be scrubbed from the atmosphere.

And vulnerable, developing nations will also need funds to adapt to climate change. Such funds could be used to acquire drought-resistant crops, build sea walls, restore wetlands, or even resettle those displaced by the effects of climate change. The next climate treaty must not just be about mitigating climate change and reducing emissions, but it also must be dealing with the inevitable effects of climate change.

In conclusion, the conference at Bali was a promising start that set the framework for international climate change negotiations, but the bulk of substantive work remains ahead of us.

I'm hopeful that today's hearing will begin a process whereby the committee can be in active communication with the White House, the State Department and other nations to help shape a successful climate change treaty. This issue is simply too important to risk failure. It is up to us, not only as policymakers, but as human beings, to stand in solidarity with people around the world who stand to lose their homes, their land, their ways of life, because of a problem to which America is significantly a part of.

I'd like to take a moment to highlight that we will be hearing—after the distinguished ranking member—from Senator Kerry who was in Bali to monitor these negotiations, and we appreciate his leadership on this. We look forward to giving him an extended opportunity to talk about his experiences.

[The prepared statement of Senator Menendez follows:]

PREPARED STATEMENT OF SENATOR ROBERT MENENDEZ

Welcome to today's hearing regarding the Bali conference and international climate change negotiations. We will hear from two panels—the first will focus on the administration's efforts to secure a climate change treaty and the second will provide important perspectives on the main issues that will have to be resolved for a post-2012 climate change treaty to become a reality. I would like to thank Chairman Biden and Ranking Member Lugar for allowing me to chair this important hearing. This issue promises to be one of the most important our committee grapples with over the next two years. Climate change is not just a potentially devastating phenomenon, but it is also a chance for the United States to stand in solidarity with people around the world in a struggle to protect people's homes, their land, and their well-being. It is an opportunity to show leadership and improve how the world views our country. Of course leadership is also necessary because the effects of climate change will be felt acutely here at home as well. For instance, millions of people see the Jersey Shore and its 127 miles of beautiful, white, sandy beaches as the only place to spend the summer. The Jersey Shore is an irreplaceable treasure for my home state but faces an uncertain future in light of climate change.

This treasure literally may not exist by the end of this century. Because much of the shore is subsiding while sea level is rising, some studies have projected ero-

sion on the scale of 300 feet inland. In addition, the barrier islands which front our coast could be completely eroded away—that includes Atlantic City which is itself built on a barrier island.¹

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But coming up with a solution to global climate change is not just about avoiding catastrophe; it's about seizing opportunity. A climate treaty could and should be one of the biggest driving forces of new high-paying, high-tech jobs that this country needs. Finding new sources of power and improving efficiency—for the average American this would mean lower gas prices, lower electric bills, and higher-paying high-tech jobs in the growing field of green energy. It's all part of the same equation, all part of a comprehensive effort.

The centerpiece of a comprehensive effort has to be an effective international treaty that will be in force post-2012. It has to be a treaty that is strong enough to avert disaster, but one flexible enough to be ratified by the United States Senate.

We cannot have another situation like the Kyoto treaty where a treaty was negotiated, but could not be ratified by our country. That means that the United States Senate and this committee in particular is perhaps the most important place in the world for the post-2012 climate treaty to be negotiated. Bali has provided a very sparse framework for these negotiations to begin, and it is essential that we stay actively engaged with the process so that negotiators from other nations understand the kind of treaty that can receive 67 votes here in the Senate.

Right now given the many challenges facing such a treaty, it certainly seems like a daunting task. But if we as a committee are willing to be fully engaged in the climate treaty negotiation process, I think we can resolve these issues and help form an agreement that can be ratified.

Probably the most important issue for this committee to resolve is whether the United States is willing to commit itself to mandatory emissions targets. As Mr. Connaughton [Pronounced Con-a-ton] may address in a moment, this administration has firmly opposed mandatory emissions cuts. Going forward, this committee will need to be engaged on this issue and try to determine which targets we can realistically commit ourselves to. Without such a commitment it is unclear how we as a planet can reduce our emissions to avert the most dangerous effects of climate change.

Another substantive issue that will need to be addressed for a successful climate change treaty is China's willingness to be part of the solution. Some are convinced that China is focused on growth at any cost and at any level of pollution. But others feel China is willing to embrace policies that will commit them to lower their emissions. We will need to resolve whether China is willing to entertain firm policy commitments that will reduce greenhouse gas pollution.

It is not just the major emitting nations that a climate treaty must concern itself with of course. There will also need to be mechanisms to require developing nations to protect tropical rainforests which serve as an essential carbon sink, allowing enormous amounts of carbon dioxide to be scrubbed from the atmosphere. And vulnerable developing nations will also need funds to adapt to climate change. Such funds could be used to acquire drought resistant crops, build sea walls, restore wetlands, or even resettle those displaced by the effects of climate change. The next climate treaty must not just be about mitigating climate change and reducing emissions, but also about dealing with the inevitable effects of climate change.

In conclusion, the conference at Bali was a promising start that set the framework for international climate change negotiations, but the bulk of the substantive work remains ahead of us. I am hopeful that today's hearing will begin a process whereby this committee can be in active communication with the White House, the State Department and other nations to help shape a successful climate change treaty. This issue is simply too important to risk failure.

It is up to us, not only as policy-makers, but as human beings, to stand in solidarity with people around the world who stand to lose their homes, their land, their

¹From Reports by Environment NJ and the Union of Concerned Scientists.

ways of life, because of a problem to which America significantly contributes. The sooner we throw our weight behind real solutions, the better off we all will be. Thank you.

And with that, we recognize the distinguished ranking member, Senator Lugar.

**OPENING STATEMENT OF HON. RICHARD G. LUGAR.
U.S. SENATOR FROM INDIANA**

Senator LUGAR. Well, thank you very much, Mr. Chairman.

Last week I returned from an extended trip to Central Asia and the Caucuses, in which I visited Kazakhstan, Turkmenistan, Azerbaijan, Georgia, and Ukraine. This region is emblematic of the challenges that we face as we discuss climate change, and the so-called post-Bali roadmap for international negotiations.

More than 15 years after the collapse of the Soviet Union, all five of these countries continue to struggle to develop their economies, to rebuild their infrastructure, and to address widespread pollution and toxic waste problems.

Central Asian hydrocarbon reserves are the subject of intense global, diplomatic, and economic competition. The race for control of the natural gas and oil in this region will impact energy equations throughout Europe and Asia. Russia is vying to monopolize energy flows from Central Asia, while other nations are hoping to secure access to these supplies as an alternative to current sources of energy.

Meanwhile, energy-rich states like Kazakhstan, Turkmenistan, and Azerbaijan, are considering how to maximize the economic benefits that will be derived from their oil and natural gas reserves. Given these stakes, climate change, and the post-Bali roadmap are distant, and truly hypothetical topics in Central Asian capitals.

One can engage officials in Baku, Astana, and Ashgabat about melting ice caps, flooding coastlines—even the fate of the polar bears—but they will say the concern for the global environment is all well and good, but they have to develop and use their fossil fuel resources to raise standards of living.

They will say that they live in a tough neighborhood, and have few economic options. They will say they have to sell the energy sources that will put even more carbon in the atmosphere. Clearly, they do not lack customers.

The picture is even more sobering when we consider China. That country's rapid economic growth and industrialization are obliterating old ways of thinking about the global economy. In 2007 demand for power generation in China expanded by a phenomenal 16 percent. This figure followed a 14-percent increase in demand for power in 2006. The Chinese coal plants that came online in 2006 alone, added a net 80 gigawatts of electricity generation to the Chinese system, an amount roughly equal to the entire electrical capacity of Great Britain.

Vehicle sales in China increased by more than 25 percent in 2006, as China passed Japan to become the second largest vehicle market in the world, behind the United States. The 7.2 million vehicles sold in China in 2006 were four-and-a-half times as many as were sold in China just 9 years earlier.

The resulting demand for transportation fuels has focused the Chinese Government on a global search for reliable oil supplies that pays little attention to the external behavior or internal human rights record of potential suppliers. Rapid industrialization in China, India, and other nations is rendering obsolete many well-intentioned approaches to energy security, climate change, and global economic policy.

I say all of this, not to diminish the problem of climate change, or to dismiss the grave security and economic threats that could come from ignoring it. My concern is that the debate over climate change must not become divorced from what is happening in China and India, and regions such as Central Asia. The global surge in energy demand cannot be restrained purely through negotiation, nor will arbitrary and unfocused goal setting related to carbon emissions, have much impact.

We need to sharpen the focus of our debate over climate change and the economic and energy factors connected to it. We have to recognize that energy and supply and demand issues are at the core of most foreign policy, economic, and environmental issues today. Technological breakthroughs that expand clean energy supplies for billions of people worldwide will be necessary for sustained economic growth.

In the absence of evolutionary changes in energy policy that are focused on these technological breakthroughs, we will be risking multiple hazards for our country that could constrain living standards, undermine our foreign policy goals, and leave us highly vulnerable to economic, political, and environmental disasters, with almost an existential impact.

The United States should recognize the steps to address climate change involve economic opportunities, not just constraints. As the chairman has pointed out, thanks to new technology, we can control many greenhouse gases with proactive, progrowth solutions. Such technology represents an enormous opportunity for U.S. exports.

But we have to have the will to develop, test, and implement these technologies on a truly urgent basis. The next President must demand that research projects related to battery technology, cellulosic ethanol, carbon capture and storage, solar and wind power, and dozens of other technological projects receive the highest priority within that administration.

We also have to create the financial incentives that move new technologies toward implementation on a national scale. To be successful, both parties must forgo traditional partisan posturing on these issues. In the interest of national security, many Republicans will have to be more flexible in accepting government mandates, Federal research spending, or other tools that might prove useful in jumpstarting specific innovations.

Meanwhile, many Democrats will have to reconsider their views on nuclear power, clean coal technologies, and other options that may not satisfy an ideal vision of environmental friendliness. With less than a year left in this administration, I remain hopeful that the United States will exercise global leadership in developing, deploying cleaner energy technologies that could transform the world

economy, and provide our best opportunity to mitigate the risks of climate change.

I look forward to the insights of our witnesses on this important topic.

Thank you, Mr. Chairman.

Senator MENENDEZ. Thank you, Senator Lugar.

Senator Kerry.

**STATEMENT OF HON. JOHN KERRY,
U.S. SENATOR FROM MASSACHUSETTS**

Senator KERRY. Mr. Chairman, thank you for having this hearing. And thank you for your important statement, which summarized the possibilities, as well as the challenges.

And likewise, Senator Lugar, as always, a perceptive and comprehensive statement about what we face here. I'd like to pick up on what you said.

No. 1, you said we've got to sharpen the focus on the debate. I couldn't agree with you more. And I think, if you're going to sharpen the focus, you have to begin to decide what your fundamental, scientific, beliefs are. And what the data tells you is incontrovertible.

To that end, you can't be half-pregnant on the subject of climate change, Mr. Chairman, and the ranking member. If you accept the fundamentals of the greenhouse concept—which are essential to the existence of life on earth because without a greenhouse, you don't have an average temperature of 57 degrees, and we don't have life, and you extrapolate from that the notion that you're filling up that greenhouse with additional gases that trap more heat, it's almost elementary. Any school kid can tell you what's going to happen, and that's what scientists have been telling us. It goes way back to the 1800s, when a Swedish scientist warned us of this possibility.

I say that because the science with respect to the change is incontrovertible. Last year, incidentally, has now been announced the warmest year on record, with the exception of 2005. We've got a series now, which has been a continuum for the last 12, 15 years.

I want to begin here, because I think it's important to what this committee is going to do. Senator Voinovich and Senator Corker, I know, have been spending a lot of time and doing their due diligence on this issue. And Senator Nelson has always been there, as well as others on the committee.

But this committee is going to be critical over the next 2 years and in what happens with the United States because this is, after all, a treaty we're talking about. And just as we played a significant role during the arms control years, Senator Lugar with Senator Pell, Senator Nunn, and others who were here at that time—we need to play that kind of role again.

I think it's really important to give a short history, and I want to do this fairly quickly. I appreciate the opportunity to speak before the panel, and I welcome Mr. Connaughton here. He's been at these things for awhile, and he does know his stuff. And I think—though I don't know whether he's limited by some of the positions of the administration, which we can explore—that he's knowledge-

able on the details of this issue, as were the people who represented the administration in Bali.

The problem is that you can't begin addressing this issue, with the urgency it requires, unless you put in a mandatory scheme. You can talk to any qualified, accepted, legitimate scientist—from Jim Hanson at NASA, to Bob Corel over at the Heinz Center, to John Holdren at Harvard, and a host of others—and what's interesting is that each of these scientists is expressing, as each week goes by, a greater level of alarm, not a lesser one. A greater level of certainty—not more doubt. And each of them finds that the evidence that Mother Earth herself is giving to us—feedback as we call it—is coming at a faster rate than they predicted, and in a greater quantity than they predicted.

So, as reasonable and prudent people, which we ought to be, charged with our responsibility to protect our country and do what's responsible for national security, the environment, future generations, et cetera—we need to process this information.

You look at the Antarctic ice sheet; you look at the Greenland ice sheet. The New York Times recently had a very dramatic story about the flow of rivers and the amount of water melting at the poles—a stunning reversal from a totally stable ice sheet in 1990. And there are potential dramatic consequences of a 16 to 23 increase in sea level, if those two sheets melted completely. Now, nobody can tell you if and when it may happen—I can't tell you, no scientist can tell you. What I can tell you is that we see striking evidence that we are moving in that direction at a faster rate.

So, the “do no harm” ethic ought to guide us here.

And I'll put this into a little over 20-years of perspective now. Back in 1988, Al Gore and I—on the Commerce Committee, held the first Senate hearings on global climate change. Four years later, we went to Rio for the Earth Summit, and to their credit, President George Herbert Walker Bush, Bill Reilly, and the administration participated and helped come up with the voluntary framework we put in place, which required us all to take steps to reduce emissions.

So, 20 years ago we came to an international agreement that we had to do something. The problem was, because it was voluntary, nobody did anything serious, despite some steps here and there. And so, I went to The Hague, and I went to Buenos Aires for further conferences and party meetings. And subsequently I went to Kyoto. I remember working with the Clinton White House senior staff member, Roger Ballentine, and others on the workup for how we would approach Kyoto, and what needed to be done.

Regrettably, a fundamental decision, an error was made in Berlin at a prior meeting. They decided to separate the developing countries from the less-developed countries—so-called Annex 1, from the Annex 2. And that really sowed the seeds for the ultimate failure of the United States to ratify the Kyoto Protocol.

Now, other countries would say the Treaty was not a failure, because a lot of them ratified it, signed up to it, and in fact, took steps to live up to it. Even some of our own communities in the United States today have taken action. Portland, Oregon, in its own efforts, is already at 1990 Kyoto levels, and it is going to get below them by doing innovative things with building codes and

transportation and recycling and so forth. And other cities—there's a conglomerate of mayors, some 4 or 500, that have come together to try to take these steps—are way ahead of the Federal Government in this effort.

But, what I want to focus on in terms of this committee, and those international meetings, is that out of the voluntary framework developed in Rio, ultimately came a mandatory framework—the Kyoto Protocol—for the simple reason that nothing else was going to do the job.

The mandatory framework failed for a number of reasons. One inescapable reason is that we never took the lead, we didn't participate, we didn't ratify it. And every country will tell you—every discussion I've ever had with anybody, anywhere, looks to the United States for leadership on this issue—that we have to. We're 25 percent of the world's problem. We're the world's biggest energy user, still—China about to catch us, but right now, we're still the biggest waster of energy.

You go to Europe, and when you leave your hotel room, the lights in the hallway don't turn on until you start walking through it. Escalators don't run until you get on them. In the United States, the lights are on all the time, the escalators are running all of the time—we just throw energy away, as if it doesn't cost anything.

Slowly, I think we're beginning to catch up to that. But, at the meeting in Bali—and I regret that because of votes in the Senate, I only had about 36 hours to be there—I met with the Australian delegation, the European delegation, the Small Islands delegation, the Indonesian delegation, the Indonesian President and Environment Minister, the Japanese delegation, and the Chinese delegation.

What I found most intriguing is that I've met with the Chinese delegation, for over 20 years now, and usually, and I'm sure Jim Connaughton would tell you this, it's a pretty bleak conversation. It doesn't really go anywhere. You talk to them, they look at you, you have some conversation, but no progress is made.

This time, we had a totally different, eye-opening conversation that really struck me. I'm interested to know if Jim had the same kind of reaction. It was very different. The Chinese are waking up and understanding this for a number of reasons. Their sacred glaciers are melting. Their agrarian society is being significantly impacted. The livelihoods of fishermen and other people are being affected.

In addition, they've got the Olympics coming up. They're trying to cope with their pollution, and they understand the problems that they have in their cities. Coal is obviously cheap and abundant in China—as it is in South Africa, India, here, and other places. Coal now accounts for 80 percent of China's emissions. And they're building the equivalent of one new pulverized coal-fired plant per week.

If that continues to happen over the next 10 years, and we build the 100-plus or so plants that we're supposed to build, it's "Katy bar the door." You might as well sit around and talk about adaptation, because the ability to mitigate the damage at that point is going to be significantly foregone.

What the Chinese are now talking about is not stonewalling, as they did in Kyoto, where they just refused to be part of the conversation. Now they're ready to sit down and discuss technical assistance, financing mechanisms, perhaps even joint ventures on R&D, which would be a brilliant idea, in my opinion, for us to engage in. Or there could be a triventre with India and others in a massive effort to try to come together to focus on clean-coal technology and other efforts.

Senator Stevens and I have now joined together. We have a bill to create three to five commercial-scale demonstration projects, here in the United States, which we ought to get out there as fast as we can, and then let the marketplace decide which one works most effectively. Then hopefully, if they work, we will be able to bargain, using that technology with the Chinese, Indians, and others, in an exchange either for credits or for some other instrument to create a joint effort that moves us forward in this endeavor.

As Jim will tell you, Bali was not meant to be a substantive negotiation. Bali was always a process meeting, to lay out the roadmap for the next 2 years, but the substance has to be engaged in now. The difficulty is that we currently have three potential tracks through which that substance is going to be discussed.

One track is under the United Nations, the UNFCCC, which we will take part in. And we're part of the ad hoc working group.

The second track is the Kyoto ad hoc working group, which we're not formally a part of, because we didn't sign onto Kyoto.

And the third track is the major emitters meetings, which President Bush has called, which will hold its next meeting at the end of January in Hawaii, but which many people in the European community and elsewhere view—with great skepticism, and even some alarm. They question whether or not it's an effort by major emitters who have wanted to avoid responsibility up until now, to kind of create a scheme outside of Kyoto, and outside of the United Nations, to subvert the U.N. process.

At some point, these three tracks have got to meld. They've got to come together into one effort. Perhaps we can be instrumental on this committee to help that happen and find a way to bring it together. In my opinion, the critical issue now, is the language that came out of Bali. It is language that has been floating around for some time, by which we all agree that we probably have to engage in mutual reductions, but that we're going to have common but differentiated responsibilities.

The real test here is how you give meaning to these words—common but differentiated responsibilities. For instance, we just passed our energy bill, and we're going to have a 35-miles-per-gallon requirement for vehicles that goes into effect in 2020. China will have a 36.7-miles-per-gallon requirement that goes into effect next year. Can they get credit for that? Will we credit them for that? How do you credit them for that?

China's engaging in fuel switching. China has ordered a 20-percent reduction in energy intensity usage, even as that curve goes up, as you referred to, Senator Lugar. So, will they get credit for that? How do they get measured credit for that? How will that fit into this overall reduction scheme?

This is the single, and I think Jim will agree with me, toughest hurdle we're going to have to get over in these next preparatory months. And the role we can play, my colleagues, is to really lay the groundwork for the next President, whoever that may be, Republican or Democrat, which we have the ability to do in this next year. There's a 2-year span—in 2009 in Copenhagen, the parties are coming together again for the final negotiation, hopefully, for the follow-up to Kyoto.

If we approach this correctly and do our work in this committee, over the next year and help give meaning to this common but differentiated responsibility, we can bring less developed countries to the table, by finding ways to give them credit for deforestation efforts, regulatory efforts on deforestation, alternative fuels, and other kinds of things. And they don't necessarily have to meet our standards on day one, which is their fear—that there is some sort of a Western conspiracy against their economic development. If they feel that we're legitimately on board, and we're moving down the road, I would bet everything on the fact that these less-developed countries will agree to a scheme that ultimately sees everybody meeting the same standard as the technology grows, and we advance.

I think in Bali, unfortunately, our delegation was not that well-received. The Papua-New Guinea delegate, at one point said, "If the United States isn't going to lead, at least get out of the way." And in the final plenary session, regrettably, our chief negotiator and highest representative, Paula Dobriansky, was booed for one solid minute, by a group of diplomats who, usually, are pretty restrained.

So, the United States has really got to start to shift on this and take the lead. And again, I think, Mr. Chairman, this committee has a unique opportunity to be able to contribute to that. We have cap-and-trade legislation that we can take up this year.

The final comment I'll make is that in my meetings with the European delegation, and with the Japanese and Australians, they were thrilled and excited by the fact that the United States Congress has several pieces of active legislation that are on the table—one on oceans acidification, one on bringing all of our science under one roof and promulgating it to our constituencies more effectively, one on adaptation, and, of course, the final one is the cap-and-trade bill.

They're excited that we seem to be ready to embrace this. Particularly, the business community, the U.S. CAP, major corporations, the Business Roundtable and others, are coming to this issue with an understanding of its urgency. And I can't think of any issue that's been in front of the Congress during the years that I've been here which presents us with a better opportunity to lead, and a more compelling rationale to get rid of the partisanship and get down to the business of making it happen.

Thank you, Mr. Chairman. Thanks for the extra time, I appreciate it.

Senator MENENDEZ. Thank you, Senator Kerry, for that indepth overview of both the issues, and the opportunities.

We certainly want to get to our two panels, and—but we certainly want to give our colleagues an opportunity.

Mr. Hagel. Senator Hagel.

Senator HAGEL. I'll wait for the witnesses.

Senator MENENDEZ. Senator Nelson.

Senator BILL NELSON. Mr. Chairman, I want to get on with the witness. I bring to the table the same concerns that all of us have up here, and that we've got to do something about it. And I bring to the table the representation of the State that has the most to lose by the rise of the seas. And if you doubt what I'm saying, take a look at the maps of what it would look like if the sea rises 2 feet in South Florida and the coast of Florida, and what it would be if it rises 3 feet or 4 feet. It is something that we must do, I'm a co-sponsor of the cap-and-trade legislation, and let's move on.

Senator MENENDEZ. Senator Corker.

Senator CORKER. I'd like to hear the witness, and I'll wait.

Senator MENENDEZ. Thank you.

Senator Cardin.

**STATEMENT OF HON. BENJAMIN CARDIN,
U.S. SENATOR FROM MARYLAND**

Senator CARDIN. Mr. Chairman, let me just make one brief comment. I just came from the hearing of the Environmental Public Works Committee where we had a hearing on the administration's denial of the California waiver on greenhouse gas emissions.

And I just want to make one observation—what Senator Kerry says is absolutely correct. International communities look to the United States for leadership and we haven't provided that leadership, and I'm very pleased we're having this hearing today on global climate change. It's critically important to the people of Maryland, it's critically important to the people of our Nation.

But, what I find very disappointing, Governor O'Malley, my Governor, testified before our committee said, "Look, if the Federal government's not willing to do what it needs to do in greenhouse gas emissions and global climate change, at least allow the States to be able to move forward." Seems like the same thing the international community was saying about our Federal Government. We're not only blocking international progress, we're blocking local progress.

And even our courts are telling the administration, "We need to do something about—EPA needs to do something about greenhouse gases."

So, I'm very happy we're having this hearing, I think it's critically important to our country and I thank you very much, and I thank Senator Kerry for his comments.

Senator MENENDEZ. Senator Voinovich.

**STATEMENT OF HON. GEORGE V. VOINOVICH,
U.S. SENATOR FROM OHIO**

Senator VOINOVICH. I think that most of what I would like to say has been said. The only point I would like to add is that we are now considering legislation that was voted out of the Environment and Public Works Committee that, quite frankly, has not been properly appraised by the Environmental Protection Agency or the Energy Information Agency. We can not deal with this problem here in the United States as if we were in a cocoon. I was very

pleased to hear Senator Kerry's remarks that there seems to be some receptivity by China and India and others. I remember when I visited India, my eyes burned the whole time in Delhi.

Chairman Klein, from the NRC, just returned from Beijing, where he talked about nuclear power with the Chinese, and he said that they are going to ban all automobiles during the Olympics—they have an enormous problem with air pollution.

I talked to Chinese Premier Wen Jiabao a couple of years ago about this, and he says, "I understand the problem, but jobs trump everything."

So the real issue here is how to harmonize what we're doing here in the United States, understanding that global climate change is not just our problem, but the world's problem. And I have serious concerns about a "cap and trade" program that would over a long period of time. I would rather see this country—and I wish the Presidential candidates were talking more about it—have a commitment to technology spend the money necessary to move this down the track much faster than we could under the "cap and trade" program. And that, in that effort, that we would not only deal with taking care of our challenges, but, hopefully, as Senator Kerry suggested, others would participate as well, and we could really do the job worldwide.

But your point is well-taken. We disallowed three coal-fired plants last month here in the United States. During that same period of time, China broke ground for eight of them.

I think that the time has come to move this to the front burner, spend the money necessary to do it and convince the American people that they're far better off with this investment early on in the game, rather than waiting several years to try to work it out and get the technology, and so forth.

We can do it. We had a Manhattan Project. When Sputnik went up, we had our Apollo Project. We can do it. We have the resources, we have the brains. And there are others around the world that could help us get the job done.

That's the real challenge, to work toward this on a global basis, but understand that the leadership is going to have to come from the United States of America.

PREPARED STATEMENT OF SENATOR GEORGE V. VOINOVICH

Mr. Chairman, I appreciate your having today's hearing. Just before recess, the Senate Environment and Public Works Committee was engaged in a debate concerning how best to deal with the issue of global climate change. After a flurry of hearings over a period of just a few weeks the committee on December 5, 2007, passed S. 2191, "America's Climate Security Act"—a bill introduced by Senators Lieberman and Warner.

While I acknowledge the commitment that Senators Lieberman and Warner have shown to addressing this issue, the legislation causes me great concern. Indeed, the bill contemplates a massive bureaucratic intrusion into American's lives that will have a profound impact on businesses, communities, and families with little or no impact on global temperatures.

The pace of committee action on this bill was unprecedented and belies the significant impact the bill will have on the United States and international economies, the environment and our quality of life. Climate policy development necessitates more than political will. This is one of the most important issues we have to deal with and members must be accorded the time to ensure an appropriate policy response.

The very mechanisms the bill advances to contain costs seem to be more the stuff of academic theorizing than sound analysis. We heard from no witnesses on the effi-

cacy of the “carbon board” and its ability to protect the economy; veiled allusions to the Federal Reserve Board only remind us of the decades of trial and error endured before that institution regularized its procedures.

Indeed, a recent analysis by Charles River Associates, provided a devastating critique of the policy proposal—estimating that by 2020 the policy would result in a net loss of as many as 3.4 million American jobs; an annual decrease in disposable income by as much as \$2,500; and annual losses in GDP of \$1 trillion.

Importantly, and to the point of today’s hearing, we have no assurance that the bill’s international provisions are adequate to ensure the effective participation of China, India, and other developing nations. The U.S. Senate clearly spoke to this issue through the Byrd-Hagel resolution, which stated that the United States would not adopt mandates to reduce greenhouse gas emissions without the participation of the developing world or that would result in harm to the U.S. economy.

Comprehensive energy and climate change policy should strike a balance among protecting the environment, keeping U.S. businesses and industries competitive, and ensuring long-term U.S. energy security. While I am committed to taking action to address this issue, S. 2191 fails to achieve this balance.

Climate change is global in its reach and economywide in its breadth. Unilateral reductions in the United States will do little to address the climate change. This is because China and other developing nations will continue to rely on coal to meet their energy needs. China now uses more coal than the United States, the European Union, and Japan combined. And it has increased coal consumption 14 percent in each of the past 2 years. To make matters worse, India is right behind China in stepping up its construction of coal-fired power plants—and has a population expected to outstrip China’s by 2030. Moreover, the Energy Information Agency, predicts that in 2030, carbon dioxide emissions from the developing world will exceed those from the industrialized countries by 57 percent.

Tackling the climate change problem is not something we can do alone. I agree that the United States should be a leader. But passing unilateral restrictions will more likely motivate newly industrializing nations to become “carbon havens” for manufacturing assets no longer competitive in the United States—fostering both economic and environmental problems—than encourage them to follow suit.

We have already seen an exodus of U.S. industry and manufacturing jobs to countries that do not share our environmental objectives. Fuel switching from coal to natural gas for electric power generation—accounting for almost 94 percent of the increase in domestic demand for natural gas since 1992—sending ripple effects throughout the economy because of its use as both a fuel and a feedstock for the production of everything from fertilizer, to plastics, to the heating of homes. In fact, it has contributed to a loss of over 3.1 million U.S. manufacturing jobs.¹ These sharp price increases continue to impair the competitive position of U.S. manufacturing companies in domestic and world markets. The chemistry industry is a case study of the impacts: It has gone from a \$19 billion trade surplus in 1997—the most successful export industry in U.S. history—to becoming a net importer of chemicals.

The regulatory mechanisms of the past will not be sufficient to address carbon emissions of today or the future. Addressing this issue is not as simple as scaling up the Acid Rain Programs trading mechanisms. First, it is abundantly clear that developing world does not desire our advice on carbon caps or taxes. China has vowed never to adopt a mandatory cap-and-trade program or anything that will remotely slow its economic growth. Second, what is needed to effectively deal with climate change is a technological revolution centered on how we produce and use energy.

Whether domestic or international, punitive policies—like a cap-and-trade program—will not spur this type of technology development. Indeed, the evidence suggests that compliance with cap-drive companies, quite naturally, to the least-cost compliance option—fuel switching or buying carbon offsets—instead of investment is needed, but more speculative technologies. Moreover, carbon caps will impose severe near-term cost, undermine economic growth, and therefore starve capital markets of the true tools needed to invest in innovation. As the National Institute of Standards and Technology found, “the overall health of the U.S. economy will affect the pace of innovation across all industries and technologies. A strong economy increases the pool of capital available for the purchase of new technology and for investment by companies in R&D.”²

Thank you. I look forward to hearing witnesses perspectives on this important issue.

¹U.S. Dept. of Labor.

²Future R&D Environments: A Report for the National Institute of Standards and Technology (2002) at 131 available at <http://books.nap.edu/>.

Senator KERRY. Mr. Chairman, can I—I know you want to hear from the witnesses, can I take 30 seconds, quickly?

Senator MENENDEZ. Yes.

Senator KERRY. Back when I was Lieutenant Governor, I had the privilege of chairing one of the Governor's Task Forces. I came out to Ohio and met with Dick Celeste, repeatedly, and we put together, with John Sununu, the first cap-and-trade emissions program for sulphur dioxide, which we replicated Federally in the Clean Air Act in 1990. And the industry kept saying, "Don't do this, don't—"

Senator VOINOVICH. Acid rain provisions.

Senator KERRY. Acid rain, correct. And the industry said, "It's going to cost \$8 billion, it's going to take 8 years, don't do it to us, it'll bankrupt us." To the credit of the Bush administration, they did it. The environment community said, "It'll only cost \$4 billion, and it'll take about 4 years," and guess what? It cost about \$2 billion, took about 2½ years. Why? Because no one was able to predict what happens when the country commits, and you start down the technology road. And when the technology is developed, and the private sector money is then chasing the regulatory structure—boom, it just takes over. And the same thing can, and will happen with respect of alternative new fuels and so forth. You have to believe in it. You have to believe in the technology. I believe in our innovative capacity.

Senator MENENDEZ. Thank you very much. Let me thank our witness for his patience. I'd like to welcome the Honorable James Connaughton to the committee today.

Mr. Connaughton is Chairman of the Council on Environmental Quality in the Executive Office of the President; he led the United States at the second week at Bali, and also heads the President's major economies process. In the interest of time, we'd ask you to keep your testimony to about 7 minutes, we'll include a full copy of your testimony in the record, and we welcome you to commence.

**STATEMENT OF HON. JAMES L. CONNAUGHTON, CHAIRMAN,
COUNCIL ON ENVIRONMENTAL QUALITY, EXECUTIVE OFFICE
OF THE PRESIDENT, WASHINGTON, DC**

Mr. CONNAUGHTON. Thank you, Mr. Chairman, and thank you so much for having this hearing so soon after Bali, and before we embark on what is going to be a very intensive many months ahead of us. I think this hearing and the guidance and feedback from this committee is very important so I appreciate that.

I also, particularly, want to call out thanks to Senator Kerry for coming to Bali. I would note that the remarks he gave in Bali were very constructive in helping to educate the international community on the needs, you know, what it takes for America to move forward on this issue, together, in a bipartisan way, and I thought those remarks were very well received, Senator Kerry, so thank you, thank you for that.

The Bali roadmap, it's called the "Action Plan," but it's referred to as the roadmap, was, in fact, a major achievement, because it was adopted by 188 countries, and it is the first detailed plan for negotiations that we've had on this subject, since the Berlin mandate, and I think in many ways, it has substantially improved on

the Berlin mandate, because it's comprehensive and because it really lays out some key components that responds to major developed countries, major developing countries, and of course, the lesser developed and small island states. So, it's a—it addresses what we have learned in the last 15 years, and I think provides us a good foundation for carrying forward into the generation that comes.

The United States is committed to working with other nations to agree on a global outcome. We have two abiding principles—the outcome needs to be environmentally effective, so it needs to work, and economically sustainable. Those two go together. Only an arrangement that meets both of these objectives can win public support both here and abroad.

To be environmentally effective, a new approach has to be truly global and involve measurable, reportable, and verifiable actions by the world's largest producers of greenhouse gas emissions that include both developed countries, and the major developing countries, alike.

The truth is this: At this point in time, without substantial participation by the major developing countries, greenhouse gas emissions are going to continue to rise rapidly over the next 50 years, even were the United States and other developed economies to cut our emissions to zero. The discussion 20 years ago was different, but the reality today is that reality.

To be economically sustainable, our actions need to hold the hopes of people everywhere for economic growth, energy security and improved quality of life. And to do that, we need to find ways to lower the cost of emission reductions. And that requires speeding up the development and deployment of technologies that will fundamentally improve the way we produce and consume energy.

These include the capture and storage of carbon emitted from coal power plants, and Senator Kerry, I know you noted that, in particular, in your remarks after Bali, and I know that's something that Senator Voinovich has been very focused on—more affordable nuclear power, as well as gigawatt-scale renewable power. We need to move from megawatts to gigawatts-scale renewable power. Biofuels, electric, natural gas, hydrogen and other clean alternatives to petroleum, and of course, greater efficiency.

Now, in the absence of technology advances in these areas, reducing global emissions at the scale necessary will essentially be impossible without significantly sacrificing economic growth globally.

The inverse is also true. By advancing technology in these areas, we can make substantial progress in a way that's consistent with growth and opportunity.

That's why in May, President Bush announced that the United States would work closely with other major economies to contribute to this new global arrangement under the United Nations, and I think Senator Kerry had it right—there has been some suspicion in the past about this process, but I think through Bali and after that, the initiative is now receiving broad, and increasingly greater, international support—including from the G-8 leaders, the Asian-Pacific Economic Cooperation leaders, and even U.N. Secretary, General Ban Ki-moon. I mean, they recognize that getting a small-

er group of countries together can make a meaningful contribution to the broader effort.

We hosted our first meeting in September, bringing together 17 of the major economies, and then guided by the consensus in Bali—and that's important—we now have a roadmap, and encourage you to read it, it's just four pages. And guided by this consensus, we're going to meet next week to discuss a work program that can focus on key elements that the major economies have something they can contribute to. The agenda is much broader, we will focus on a few key areas.

Let me give you an example of, I think, the areas where we can make the biggest contribution.

One, we do want to see a globally shared vision for a long-term global emission reduction goal. Two, we want to understand the role of national plans that include midterm goals, backed by a nationally appropriate mix of regulations, incentives, and public-private partnerships. Third, complementary to that, we need cooperative technology strategies, and other actions on a sectoral basis, and in particular, the big sectors, like fossil-power generation, personal transportation, and sustainable forest management, which account for almost all of the future growth in emissions.

This can be aided by innovative financing mechanisms, and importantly, the elimination of tariff and nontariff barriers for these clean energy goods and services. We can approve our emission accounting systems to verify progress and make sure it's comparable, and then we need to find ways, and this is the area that you have emphasized, Mr. Chairman, to help countries adapt to climate change and get access to technology, especially in developing countries. And this was a major innovation, and important plank of the Bali process. And, you know, Mr. Chairman, you've called particular attention to that, and that's been very important.

We do believe that we have a lot to contribute now, over the last 5 or 6 years, on a bipartisan basis, this Congress has come together with the President on a host of actions. So, let's look just at home.

President Bush recently signed energy legislation that mandates substantial midterm mandates for vehicle fuel efficiency, renewable fuels, and efficiency of appliances, lighting systems, and government operations. This law is mandatory and binding, and it's going to produce some of the largest emission cuts in our nation's history.

Our early estimates suggest that it will be more than 6 billion metric tons of greenhouse gases reduced by 2030. Chairman Dingell, at the hearing last week, suggested that his estimate shows it could be as much as 10 billion tons. I think by any measure, this is an enormous step forward for America, backed in a bipartisan way by this Congress.

But we're also working internationally. Last year, and this went largely unnoticed, the United States joined with key developing countries to forge a global, legally binding agreement, to accelerate the phaseout of hydrofluorocarbons. These are also potent greenhouse gases.

This accelerated phaseout includes China and India, and it's going to reduce greenhouse gases by at least 3 billion metric tons. That may, in fact, meet or exceed what the Kyoto Protocol would achieve by 2012, just to give you a sense of the scale of this.

The aluminum sector came together under the Asia-Pacific Partnership on Clean Development and Climate, and set very specific goals to cut emissions of peripheral carbons by 80 percent. This is a greenhouse gases that's 1,000 times or more potent than CO₂. And they're also working on new technologies for aluminum that will make it more efficient to manufacture.

This is an example where China and India—with American producers—have an agreed goal, the same goal, not one that's on a different schedule or different amount—it's the same goal. So, we have done this kind of thing when we break the problem into its component parts.

Finally, the United States and the European Union just—before going to Bali—have now jointly proposed in the World Trade Organization to rapidly eliminate the tariff and nontariff trade barriers that impeded investment in clean technologies and services.

We're also going to, then, pull together a big, clean energy technology fund—in our view, these go together. If we're going to provide low-cost financing, we need to eliminate the tariffs on the goods and services we're financing. Again, I would observe Senator Kerry, and thank you for including that as a focal area in your solutions component. There is no excuse today for tariffs on carbon-friendly goods and services. And the fact that we have them, it makes absolutely no sense. We—that's something we can do immediately if we work together globally.

Just briefly, on deforestation, which accounts for 20 percent of global emissions worldwide, we are seeing a change in attitude, especially in Brazil, Indonesia, the large forestry countries. What we need to work on are the strategies to turn that change in attitude into actual progress to the scale that's going to be necessary.

I think the same is true of China, Senator. It has been so different the last 2 years, the conversation with China, in terms of attitude. What we now have to find is the mechanisms to turn that into long-term actions. And that's something that we'll all need to work on together.

So, I look forward to your questions, I look forward to, in particular, a very constructive next year together, because the guidance from this committee, and the insights from this committee are centrally important to our success.

So, thank you.

[The prepared statement of Mr. Connaughton follows:]

PREPARED STATEMENT OF HON. JAMES L. CONNAUGHTON, CHAIRMAN, COUNCIL ON ENVIRONMENTAL QUALITY, EXECUTIVE OFFICE OF THE PRESIDENT, WASHINGTON, DC

The "Bali roadmap" is a major achievement adopted by all Parties who attended the 13th Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC) that will guide negotiation of a new post-2012 climate change arrangement by 2009. The United States is committed to working with other nations to agree on a global outcome that is environmentally effective and economically sustainable. Only an arrangement meeting both of these objectives can win public support.

To be environmentally effective, a new approach must be truly global and involve measurable, reportable, and verifiable actions by the world's largest producers of greenhouse gas emissions—developed and developing countries alike. Without substantial participation by developing economies, global greenhouse gas emissions will continue to rise over the next 50 years, even if the United States and other developed economies were to cut emissions to zero.

To be economically sustainable, our actions must uphold the hopes of people everywhere for economic growth, energy security, and improved quality of life. Lowering the cost of emissions reductions requires speeding up the development and deployment of technologies that will fundamentally improve the way we produce and consume energy—such as the capture and storage of carbon dioxide emitted from coal-fired power plants; more affordable nuclear and gigawatt-scale renewable power; biofuels, electric, natural gas, hydrogen, and other clean alternatives to petroleum; and greater energy efficiency. In the absence of technology and cost advances in these areas, reducing global emissions on the scale necessary will be impossible without significantly sacrificing economic growth globally.

In May, President Bush announced the United States would work closely with other major economies to develop a detailed contribution to a new global arrangement under the UNFCCC. This “Major Economies” initiative has received broad international support, including from G-8 and Asia-Pacific Economic Cooperation (APEC) leaders and U.N. Secretary General Ban Ki-moon. The United States hosted the first meeting in late September, bringing together 17 major economies accounting for more than 80 percent of the world’s economic output, energy use, and greenhouse gas emissions.

Guided by the consensus in Bali, the Major Economies plan to meet again next week to discuss a work program that can contribute to key elements of the Bali roadmap. In our view, such a work program would include discussion of: (1) A long-term, global emissions reduction goal; (2) national plans that include midterm goals, backed by a nationally appropriate mix of regulations, incentives, and public-private partnerships; (3) cooperative technology strategies and other actions in key sectors, especially fossil power generation, personal transportation, and sustainable forest management; (4) innovative financing mechanisms and the elimination of tariff and nontariff barriers for clean energy goods and services; (5) improved emissions accounting systems to verify progress; and (6) ways to help countries adapt to climate change and gain access to technology, especially for developing countries. In addition, we think it would be useful to discuss ways of structuring a post-2012 arrangement that would encourage, rather than deter, actions by major developing and developed countries, and incorporate positive, not punitive, ways to ensure accountability. We hope these discussions can produce tangible outcomes that can be endorsed at a Major Economies leaders meeting later this year. This would fulfill the G-8 pledge of last year for the Major Economies to make a “detailed contribution” to the U.N. negotiations.

For our part, the United States is already working on significant new global and national actions to combat emissions. Last year, the United States and key developing countries helped forge a global, legally binding agreement to accelerate the phaseout of hydrochlorofluorocarbons under the Montreal Protocol, which governs ozone-depleting substances. In this instance, the agreement will also produce a major climate change benefit by reducing greenhouse gases by at least 3 billion metric tons, probably meeting or exceeding what the Kyoto Protocol might achieve by 2012. The Asia-Pacific Partnership on Clean Development and Climate is also working with seven partners, the United States, China, India, Australia, South Korea, Canada, and Japan, in this fast-growing region to accelerate the adoption of clean technologies through over 100 projects and activities in major sectors such as power generation, cement, steel, aluminum, and buildings. For example, a majority of the world’s major aluminum producers have committed to goals tailored to their capabilities. These include: An 80-percent reduction by 2010 in perfluorocarbon (PFC) emissions (a very potent greenhouse gas) per ton of aluminum produced for the industry as a whole; at least a 33-percent reduction of fluoride emissions per ton of aluminum produced by 2010; and a 10-percent reduction in average smelting energy usage per ton of aluminum produced by 2010.

Here at home, President Bush recently signed energy legislation that mandates substantial, midterm requirements for vehicle fuel efficiency (40 percent improvement), renewable fuels (36 billion gallons annually), and efficiency of appliances, lighting systems, and government operations. This law—which is mandatory and binding—will produce some of the largest emission cuts in our Nation’s history. Our very preliminary estimate suggests the law will cumulatively reduce about 6 billion metric tons through 2030. Last week, the chairman of the House Energy and Commerce Committee stated the number could be as high as 10 billion.

The United States is working with other countries on a new multilateral financing mechanism to help accelerate use of cleaner, lower carbon technologies and infrastructure. And the U.S. and EU have jointly proposed in the World Trade Organization to rapidly eliminate the tariff and nontariff trade barriers that impede investment in clean technologies and services. The World Bank has estimated that removing such barriers from about 40 lower emissions technologies would lower the

cost of cutting emissions and increase clean technology trade by up to 14 percent a year. Along with Japan, the United States will continue its massive investment in cleaner, more efficient technologies and find ways to share this technology with other nations. Since 2001, the United States has invested nearly \$18 billion in research and development of these clean, lower carbon technologies and is providing more than \$38 billion in loan guarantees, as well as other measures, to help accelerate their deployment. We encourage other countries to step up their efforts.

Deforestation accounts for roughly 20 percent of global greenhouse gas emissions, so the United States is enhancing its efforts to conserve and expand the world's forests in ways that sustain their renewable bounty. The United States is also working on monitoring and adaptation tools, such as the Global Earth Observation System of Systems (GEOSS), a 72-nation collaboration that can help communities plan and prepare for the effects of climate variability and change.

Working through the UNFCCC and in concert with the Major Economies process, the United States is striving for a successful climate change arrangement that will attract broad international support. As President Bush put it: "We've identified a problem, let's go solve it together."

Senator MENENDEZ. Thank you, Mr. Connaughton.

We're going to start with 7-minute rounds, and I'll start off. Let me just ask you—many believe that real progress on forming a climate treaty can not happen until the United States adopts a domestic program of mandatory emission cuts, and expresses a willingness to embrace binding emission reduction targets in an international treaty. Now, that's something the administration has consistently rejected. Is there any hope that the administration will change its views, and be willing to endorse mandatory emission cuts? And if not—how do the administration think that voluntary programs will get the job done? Even in your own two-prong approach on behalf of the administration, environmentally effective, the last IPCC report said that the majority of voluntary agreements, "has not achieved significant emissions reductions beyond business as usual." That obviously has not been environmentally effective.

So, is there a possibility? If so, under what conditions would the administration accept mandatory emission cuts? And second, if not, how can you possibly make the case that voluntary programs, which—have been, I think, pretty universally recognized as not meeting the challenge—are going to cut the mustard?

Mr. CONNAUGHTON. On the first point, Mr. Chairman, I think there's been a longstanding misunderstanding of the administration's position. Our position has been the same as that of the Senate in its 95-0 resolution that we will not commit to binding international goals, unless the other major developing countries are also willing to step up and make commitments, consistent with their national circumstances. And so, when we talk about our rejection, it's in that context.

The Bali roadmap is now about creating the platform by which major developing and major developed countries come forward with action, and then what we'll have to see is, can those be translated into binding commitments. We will be open to that—there was a big skirmish in Bali, and this was not reported, but the big skirmish in Bali was actually about that point.

There was a very intensive effort by a few countries to further excuse any action in an international context for the next round, too. And that was not only unacceptable to the United States, it was unacceptable to a number of other countries. The United States just happened to be the country that gave voice to that, and

we had to earn a little heat for that, but it was important. It would have done us no good to return to—here, to this body, and say that we put, in effect, the same negotiating agenda that led to the failure of Kyoto. I mean, you would not have accepted that if we did that, and so, we had to take a little heat to be sure that we came back, at least, with that as a commitment from the major developing countries, and we got it. That's the good piece. We did get it. It was hard, but we did get it.

In terms of domestically, I did underscore in my testimony—we have chosen to pursue a policy where you break this issue into its component parts on the theory that you can make greater success faster. And I think this Congress has now proven that to be the point. We got consensus from this Congress on a level of ambition under a mandate on CAFE that people thought was inconceivable. This Congress is committed to a goal that was not as ambitious as the President called for—but still quite ambitious—on alternative fuels to petroleum, that will leap us ahead to cellulosic ethanol and other technologies that have very low greenhouse gas profiles.

This Congress adopted mandatory appliance standards, this Congress adopted just a breakthrough of provision on lighting systems, and I was pleased to work with Senator Boxer on the provision of the recent energy bill that's going to cut U.S. Government operation efficiency by 30 percent within 10 years, that's twice as fast as the historical average. Each one of those is a legal mandate.

So, my view has been—and continues to be, both nationally and internationally—when you break the problem down into its smaller parts, you do the technical analysis that Senator Voinovich has talked about, you do the economic analysis that's critical, you can begin to set meaningful goals, and produce meaningful outcomes. It's only when you try to ball it up into one big basket that it makes the issue just much harder to advance.

I will just end with one of your colleagues who will go unnamed, but from the Democratic side of the aisle said, "You know, Jim, this climate change thing is kind of like the opposite of a snowball—the bigger it gets, the slower it goes." Perhaps if we deal with it in its component parts, we might be able to make more progress, faster.

Senator MENENDEZ. Well, let me ask you—that sounds simple enough, but the underlying issue doesn't get resolved simply by breaking it up. If not, we would have been there already.

Do you accept what Senator Kerry said as the scientific premise? Let's start there.

Mr. CONNAUGHTON. Well, the science has clearly strengthened, and the United States was instrumental in that occurring. We put \$2 billion in annually—

Senator MENENDEZ. I'm not asking you if it's strengthened, I asked you, do you accept the proposition that Senator Kerry laid out at the beginning of his opening statement?

Mr. CONNAUGHTON. Which proposition?

Senator MENENDEZ. That, in fact, where we're at with greenhouse gas emissions, where it's headed, and if you accept that science, then don't you have to respond to it?

Mr. CONNAUGHTON. Absolutely, the President actually has made that clear, and consistently.

Senator MENENDEZ. So, if that's the case, it seems to me that you're talking about the Energy bill as an example of some of the responses. But the Energy bill was stronger until the President threatened to veto it, and it was weakened pretty significantly.

I know in the past, the administration has talked about the Asian-Pacific partnership and the Montreal Protocol, but these efforts reduced the growth—the growth—of emissions that would have otherwise occurred. But even the most optimistic projections state that these policies do not result in actual reduced emission levels.

And even to the extent that we're talking about the Energy bill, how vigorous are we going to hear from the President in the State of the Union Address, to get the funding necessary to make at least those goals successful.

Mr. CONNAUGHTON. Well, first, Mr. Chairman, on the Energy bill, in fact the President's two goals for fuel and for vehicles were more stringent than that passed by the Congress. We wanted to see the targets hit—both of them—hit on much faster timelines than the ultimate compromise that was attained.

We were happy to sign the bills, but I think—

Senator MENENDEZ. But he did threaten vetoes before, though.

Mr. CONNAUGHTON. The vetoes did not relate to the car piece, the fuel piece, the appliances or the lights or the Federal Government operations—

Senator MENENDEZ. But there were veto threats.

Mr. CONNAUGHTON [continuing]. We opposed the tax increases that were an underlying component of that bill. We didn't think tax increases, especially the sale that was talked about, were necessary to making the progress that we could achieve through those other programs. So—

Senator MENENDEZ. You mean the incentives toward moving toward renewable energy sources?

Mr. CONNAUGHTON. No, actually; the tax credits and the other provisions dealt with other aspects. The President has been one of the strongest backers of incentives toward clean energy sources. We strongly supported the loan guarantee provision that is now over \$35 billion to get deployment of clean energy out there. The President's budgets are now getting close to \$4 billion annually on technology development and deployment, with strong support on a bipartisan basis from the Congress.

So, there's a lot more common ground there than we'd like to talk about. Because we end up fixating on sort of the top tier set of issues.

On the international level, Mr. Chairman, in the Asia-Pacific partnership, which I think is something this committee, I would love this committee to, you know, learn even more about—I give you the example of the aluminum sector. When I set an 80-percent reduction of PFCs, that was an absolute reduction of PFCs in that sector. We were doing something called the Methane to Markets Partnership, where we're getting absolute reductions in natural gas, from landfills, from coal mines, from agricultural operations and from leaking natural gas production systems in the major developing world—these are all, in those categories, we can achieve an absolute emission reduction.

You are correct, in the area of power, and in the area of fuel for personal transportation, you know, people driving their own cars, our current trajectory is to slow the growth at a more rapid pace. And that's why this new mandate in the Energy bill, is so important. And remember, the President called for that in the State of the Union last year.

And so you are correct there but that, the Congress itself, has recognized that the first step with respect to fuel and power, the first step is actually to slow the growth, and we're working toward the technology advancement that allows us to stop it, and then reverse it. But that will take a little bit longer.

Senator MENENDEZ. Senator Hagel.

Senator HAGEL. Thank you, Mr. Chairman.

Mr. Connaughton, welcome. In listening to Senators Lugar and Kerry, first with Senator Lugar's analysis of where he has been the last week, energy use—what Senator Kerry talked about, in regard to the Chinese and the use of coal, and—it seems to me, and it has always been, at least my sense of how we deal with climate change, is that you can not deal with climate change without dealing with the fundamental issue, and that is, the use and production of energy.

How we use energy, what kind of energy we use—and if we were to bypass that, or as Senator Lugar noted, to work around that in some abstraction, or some theory, or some set of mandates that we will apply to this that we're missing the essence of the issue. I think Senator Lugar's points were exactly right—there is no nation on earth that is going to hold itself hostage to its own self-interests. Whether that's jobs or growth or development, and it will not hold itself hostage to an incidental that may not, in their list of priorities, be as important as developing their country. That happens to be a fact of life.

So, I think the real issue is, then, how do we proceed? How do we, in effect, effectively deal with this issue? And we can have differences of opinion, to some extent within that range of how much are the glaciers leveling off and melting, but the fact is we've had climate change since the history of man, and we are now experiencing a significant degree of climate change.

Now, in the conversations that you have noted, and what some of the other conversations have been around this table, we have applied some attention to technology, as Senator Kerry talked about, R&D, resources, money. And of course, Mr. Connaughton, you are well aware, because we work closely with you that the 2005 Energy Policy Act, as a title, referenced the environment title, title XVI.

That was a title that I, essentially, wrote, along with the help of you and many colleagues. It was introduced in a bipartisan way, we had Democrats and Republicans, a significant amount of cooperation and what that title set up were loan guarantee programs, technology sharing, R&D, billions and billions of dollars to focus on this. Because, I don't know of an issue of this magnitude, certainly, or anything like it that has ever been solved without technology being the dynamic that produces the change required, in a world of 6½ billion people, where 40 percent of that demographic is under the age of 19 years old, and they don't know how they're going to exist, because they don't know what kind of work they're

going to have, if they're going to have any jobs. And that just happens to be reality.

And so my question is: How effective has that title been, at least in your opinion, to employ what we intended to be employed on R&D, sharing technologies with developing countries, doing what Senator Kerry has talked about, trying to stop those coal plants from being put in place, as much as we can, as much effect as we can have on another sovereign nation—what can we do? How have we used those resources? Are we funding those programs and those titles to the extent that we should be funding them?

If you could frame that up a little bit, because we do have, it seems to me, some mechanism in place, Mr. Connaughton, to deal with some of the issues that we're talking about here. It's specifically technology, R&D and the sharing of that with developing countries?

Mr. CONNAUGHTON. Thank you, Senator, and thank you for your long leadership and support and advice on this subject for now, for me, for almost 7 years.

The—you're going to the heart of it which is the, we've had four energy bills, I'm sorry, four climate bills passed by this Congress since 2000. One was the Energy bill of 2005, one was the Energy bill of 2007, one was the Farm bill with billions of dollars in conservation incentives that will enable sequestration, and the other was the passage of the new tax rule on expensing and dividends that's allowed our industry to reinvest in much more efficient processes. Four major pieces of climate legislation, they just weren't titled, "Climate."

But huge—in the bill you described, we are now at the point, it's taken us 2 years to pull the programs together and to now pull the budgets together to do what will be the world's largest commitment to advancing the technologies that matter, that we've ever seen. And again—bipartisan support, so this is not something which there's disagreement.

At the top of that list has been how do we get from here to there on producing power from coal with low emissions? We did it with acid rain in the eighties, nineties, and now, how do we do it with coal in the, you know, 2010s and 2020s. That is at the top of the list—if we don't figure that out, adaptation becomes even more important—it's very important now, but it becomes even more important. And we now have the tools to do it—with the loan guarantees, the tax credits, and the beefed up R&D investment, Congress plussed that up last year, stay tuned for our new budget with relation to that.

But we now need to take the U.S. commitment, and see if we can secure commitment in kind from all of the other major coal-using countries of the world.

We can't do this alone. We could prove it for America in the next 10 years, but if it's not ready to be deployed globally, you know, I think, Senator Kerry, you pointed out—a coal plant a week. You know, it's hard to go back from that.

So, we have to do that fast—specifically on international cooperation. That title that you were one of the authors of, has laid the foundation for, I think, more than a dozen international partner-

ships that we're now carrying out on technology cooperation, but also on technology deployment.

We were very disappointed this year when, at the last minute in the budget process, the leadership of the budget committees put some significant constraints on our ability to carry out these technology cooperation programs. And I don't know why that occurred, it was very disappointing, but it's critical to the next President, whichever party becomes next President—and I think we would like to work with this committee, perhaps, in speaking to the budget committees to remove some of those constraints, because one of the ways we get China and India, Brazil, South Africa, and Mexico to the table on making commitments, is our ability for very low-budget cost to provide the capacity-building and the sharing of our experiences and benchmarking of best practices. That's also good for our technology providers.

I think some of the—you know, again, I don't know who put that provision in at the last minute, but it's really going to impede our ability to help sell good old fashioned technology coming out of New Jersey, coming out of Massachusetts, coming out of Ohio, coming out of California, because we're not able to get those private sector folks together the way we'd like.

So, this is the core of that title—it's real, it's rolling up your sleeves, it's showing what can be done, it's great for American business, and it's also good for foreign business. So, it's a two-way street, so we'd like to do more with that title.

Senator HAGEL. Mr. Connaughton, thank you. Mr. Chairman, I appreciate your time. I might add that two members of the committee—and one of those members is here, Senator Voinovich—was one of the cosponsors of that bill, and added a tremendous amount in the actual drafting of the bill, as well, so thank you.

Senator MENENDEZ. Thank you.

Senator Kerry.

Senator KERRY. Thank you, thank you very much, Mr. Chairman.

Mr. Connaughton, you lost Senator Hagel, because you failed to mention the technology coming out of Nebraska—

Mr. CONNAUGHTON. Well, we're counting on them to be the Saudi Arabia of biomass.

Senator KERRY. I got it.

Mr. CONNAUGHTON. They're going to be powering all of our vehicles, very cleanly, we hope.

Senator KERRY. We do; we do hope that.

Mr. Connaughton, you and Andy Karsner gave a terrific briefing in Bali. In fact, people were sort of scratching their heads and saying, "Wow. Where is the double world, here?" Because you folks gave a—I'm sure you heard the reports—a solid briefing about the technologies and the ability to be able to respond and where we should go. But then your policy doesn't seem to match what you folks, technically, are capable of delivering.

Why is there this gap, between what you can talk about cogently, articulately, such as what technology can do, and the administration's urgency of getting that technology out with efforts to accelerate it.

Mr. CONNAUGHTON. Well, I think it goes to the core of any issue of this complexity, Senator, and thank you for pointing to this particular issue. All the subcomponents of what we're doing on an individual basis are actually very, very well-received—whether it's coal, whether it's the fact that the United States installed more renewable power last year than any other nation. The new funding that came out of the Energy bill of 2005—I mean, Europe is stunned at the level of ambition that we're doing on biofuels. That this Congress just put into law on biofuels, Europe is now trying—they set a goal that they're now walking back from, because it's too hard.

But it falls on the broader challenge that we faced when the President made clear, "We can't do Kyoto." And that, you know, that creates its own negative impression, and then the fact that getting new negotiations restarted just—it took us 6 years to get it restarted, so you have that—

Senator KERRY. But you see the problem, don't you? I mean, first of all, almost every one of those initiatives was started in the Congress. They didn't come from the administration, initially. Or Congress surpassed, by far, whatever it was that the administration talked about. They never even got, for a moment, as far as we wanted to go, because of resistance from the administration. So, that's point number one about what lends credibility, in this sense.

The other point is, rather than say, "We can't do Kyoto," say, "We can do better than Kyoto. We can do Kyoto-plus. Which is to get the less developed countries to be part of it. So, we want to do Kyoto, but we also want other people to participate."

That wasn't the message. It was, "Kyoto is dead and there is nothing else." And there has been nothing else for 7½ years. That's why there's this sense of urgency about the United States leading.

Which brings me to the next question. Why, if you are on board, did the administration resist at Bali an inclusion within the framework of the agreement of a reference to the IPCC goals? And the IPCC report?

Mr. CONNAUGHTON. Well, on your first point, Senator, I think I would respectfully disagree. The President laid out a series of strategies in 2002 that unfolded over the next 4 years. I was part of that process. And with bipartisan support we got, you know, almost all of that done. And I would also disagree, the President's level of ambition on a number of these areas exceeded the proposals from Congress, and others. In some, Congress exceeded the President's proposals. So, it's the give and take of that process.

But, I think there's—

Senator KERRY. Which proposal exceeded the Congress?

Mr. CONNAUGHTON. The President wanted to see 36 billion gallons of alternative fuels by 2017, and ended up—

Senator KERRY. And we have proposals to go well beyond that. We have a reputable portfolio goal of 20 percent, which you opposed. We have much more ambitious goals than that.

Mr. CONNAUGHTON. My point, Senator, is—in some areas the President was more ambitious, in some areas the Senate—

Senator KERRY. No; I can't find any area where he was more ambitious.

Mr. CONNAUGHTON. Well, I'd be pleased—we could walk through that, and I'd be happy to tell you tick for tick.

Senator KERRY. Well, I'm asking you to. I'm asking you to. I just answered the one that you gave me.

Mr. CONNAUGHTON. The Congress passed a CAFE bill that was not as stringent as the President's.

Senator KERRY. Senator McCain and I tried to get 40 miles per gallon a few years ago. We got 35 this year. That was more than what the President wanted—you guys opposed it. We tried to get it 3 years ago, 4 years ago. I led the effort on the floor with Senator McCain.

Mr. CONNAUGHTON. I can show you the President's proposal and call for new CAFE standards back in 2001.

Senator KERRY. Well, I don't want to, look, I don't want to—

Mr. CONNAUGHTON. Let's—leaving that aside, Senator, I do want to rest on the—

Senator KERRY. Ask Senator McCain, maybe he'll have more credibility with you on this. [Laughter.]

Mr. CONNAUGHTON. I think we can find that we have already achieved a lot more common ground than people pay attention to, and on that we can build some steps forward.

Senator KERRY. Well, let me come to this—

Mr. CONNAUGHTON. You had your other point, on the—

Senator KERRY. How possibly—I mean, coming back to the science. And you're a smart guy, and you understand this as well as anybody. If you're going to achieve the kinds of reductions we need to achieve, within a 10-year framework, or so. Jim Hanson says, "You guys have got 10 years to get this right." If that's true—do you accept that?

Mr. CONNAUGHTON. I don't want to accept it or reject it. The scientists speak for themselves—

Senator KERRY. Well, do you think it's a sound warning? Do you think if one of the top scientists in the United States says to us, "Based on the science, I think you guys have about 10 years," we should listen to it?

Mr. CONNAUGHTON. Let me put that into policy terms, because I don't want to speak for scientists. I find that always gets one in hot water.

In policy terms, I think we need, and must dedicate, the next 10 years to figuring out this low-carbon, coal equation. We can't afford to wait.

Senator KERRY. And at the rate that those pulverized coal plants are being built, do we not have to set a mandatory goal that will urge the economies, and the politicians, and the regulatory agencies all to move rapidly in the same direction?

Mr. CONNAUGHTON. We are all—we've already set specific benchmarks in some key areas—

Senator KERRY. Not a benchmark.

Mr. CONNAUGHTON [continuing]. On power generation—no, no, mandates—you've done it for cars, you've done it for fuels—

Senator KERRY. Do we have to set a mandatory reduction on emissions of greenhouse gases?

Mr. CONNAUGHTON. We already have mandatory reduction requirements that will reduce emissions of greenhouse gases. I know

the Congress is looking at more, we will be constructively engaged in that discussion.

Senator KERRY. But you're not willing to say here, today, that we ought to set a mandatory goal—

Mr. CONNAUGHTON. I'm not, but let me explain why, please, for a moment.

When you worked with your colleagues on the acid rain provisions of 1990, that came after the 10-year effort to figure out if we could have a cost-effective control technology for sulphur dioxide.

We are in the same point today on coal. We are now embarking on trying to figure out—as quickly as we can—how to produce power from coal with low CO₂ emissions. We haven't be able to prove that yet. And until you know that technology is available, and until you know at what cost it's available, it is as difficult to set a goal for that and turn it into a regulation, as it would have been to do cap and trade on sulphur dioxide back in 1980, instead of 1990.

Senator KERRY. Here's my respectful disagreement with that. The goal that we set in 1990, and as part of those negotiations did not have the kinds of warnings and catastrophic consequences of noncompliance that this does.

We are currently looking at a situation where more than 2,000 scientists, Presidents of countries, Finance Ministers, Environment Ministers, Trade Ministers, Prime Ministers, have all come together, and are currently changing their economies, and moving their policies, because they accept what those 2,000 scientists have said to us. Whereas 2 years ago they said, "We can allow 550 parts per million of greenhouse gases, and we can allow a 3-degree centigrade increase in the Earth before you reach the tipping point, tipping point of catastrophe, beyond which you can't come back."

Now they've revised it, because of all of that evidence I've talked about. And they're now telling us, those 2,000 scientists and all of those other countries, "It's a 2-degree centigrade increase, and it's a 450-parts per million."

We are, today, at 370 parts per million. We went up 100 parts per million in the industrial revolution. We are looking at a rate of increase with these other things coming on that we will go beyond the tipping point very quickly if we do not impose mandatory targets.

Now, either you see that potential and accept the science or, you just don't. You of put your head in the sand and say, "These guys are wrong," or their warnings aren't worth listening to. It seems to me it's one or the other.

Mr. CONNAUGHTON. Well, Senator, first, I want to agree with you on the urgency of this, and the urgency of figuring this pathway out. We do have to be careful about unintended consequences. And that—this goes to the core, it's called "leakage." You know this well, Senator, but others who, you know, who aren't so steeped in this—Senator Voinovich has spent a lot of time on this—we have to be thoughtful about the policy to be sure that we're getting the outcome we want.

Certainly, it would do us no good, for example, to put a cap on emissions from power generation that is so stringent that the only compliance choice is to fuel-switch to natural gas, or to move en-

ergy-intensive manufacturing to China and India and other places that don't take commitments. Because then the emissions go up over there.

And so, that's why I want to be very hesitant before leaping in, because you have to look at the specifics of the policy proposals to figure out if that's what's going to occur. And I actually think we would agree that those are things to be avoided, given the natural gas prices in Massachusetts and how important that is—especially to the poor people on fixed incomes—

Senator KERRY. Well, I understand that, it's—

Mr. CONNAUGHTON. We just want to be careful about that—that's all.

Senator KERRY. I know I've gone over my time, but I surely understand all of that. Look, I'm not setting out here, and sitting here to go back to the voters of Massachusetts and say, "Hey, you know, I fixed global climate change, and by the way, you don't have a job and we've destroyed our economy." I understand all that.

But, I just believe something different which folks at MIT, Cal Tech, Carnegie Melon, and many other places, are telling us we can do.

And I see these technologies staring us in the face, but I don't see us grabbing them and putting them out there at commercial scale and putting them into the marketplace.

You know, Vinod Khosla?

Mr. CONNAUGHTON. Oh, yes.

Senator KERRY. You ever met him?

Mr. CONNAUGHTON. He spoke at the first Major Economies meeting, we brought him in to talk—

Senator KERRY. He's now invested, along with others, in a solar thermal power plant out in Nevada. There's an Air Force base that's now being powered by it.

Mr. CONNAUGHTON. Yes; President Bush's administration funded that—

Senator KERRY. That doesn't take any fuel.

Mr. CONNAUGHTON. Yes.

Senator KERRY. With no fuel.

Mr. CONNAUGHTON. Yes.

Senator KERRY. The sun. That is providing electricity and turning the generators. There are things staring us in the face that would allow us to move more rapidly, and there's just a sense that, "We don't want to upset this; we don't want to upset that."

When we make the decision, and move the money and the incentives in the right direction, you watch the private sector race to the money. That is always what has happened around here.

Go back to water treatment facilities in the 1970s. We had 90–100 money, and nobody had one, and then all of a sudden every community cleaned up their rivers and their streams and lakes. Now we're going backward again. I mean, this is doable, but you have to embrace it with a little bit of enthusiasm.

Mr. CONNAUGHTON. On that point, we're in raging agreement, Senator.

Senator KERRY. Let's get the money. Show me the money.

Senator MENENDEZ. On that point of agreement, then, Senator—

Mr. CONNAUGHTON. Actually, we'll talk about that, I'll show you the programs. We're ready to go. We're at that exciting time. Especially on these challenges that have been overlooked.

Senator MENENDEZ. Senator Corker.

Senator CORKER. Well, thank you, I had to step out for a few minutes, and I hope I'm not being redundant in some of the questioning. But my understanding is you were asked a question by someone about how we, in fact, do create some sense of urgency, if you will, toward this and if you could just give me, sort of, 30 seconds to build off of—how do we, in fact, cause people that can solve the problems we're talking about, to have the kind of sense of urgency that is necessary, in the private sector—not in government—how do we do that without some forced goal, if you will?

Mr. CONNAUGHTON. Well, I'm pleased that today—different from even 2000—the enthusiasm and interest of the private sector is at an all-time high. I think the bipartisan attention here in America and the global—leaders are talking about this, certainly President Bush has been talking about this on a regular basis with leaders, especially in the last 3 years.

So, it's there, it's on the agenda. But now you get to the core of your question—sometimes a good old fashioned command and control mandate is the right tool. Sometimes a more innovative market-based system like a cap and trade is the right tool, and those both would impose regulatory costs.

Sometimes an incentive is the right tool, and in particular when it comes to the area of these advanced technologies are really expensive—like nuclear, like advanced coal, or even the large, gigawatt-scale renewables, like you described, Senator Kerry. There's where incentives can make a really big difference, because the private sector is ready to put up most of the money, they just need that extra bit to get you over the investment hump.

So, what I'm suggesting is, if you're thoughtful about what you're doing, you can pick the right tool for the right job. And, you know, one tool is not necessarily the right tool for all the jobs we need to do.

You also—there are signals. I mean, I think it's very clear that people understand that real constraints on carbon are going to be necessary as we go forward in the future, across the board. We know we can make a certain amount of progress on cars. We know that we can make a certain amount of progress on renewables. We have some questions about how much progress we can make, for example, in America, on coal and on nuclear. Because it's just hard to get a nuclear plant built and sited.

How do we get over those humps? You have to answer those questions first, because if you get too far ahead of yourself with the mandate, or you make the mandate, you know, out of alignment with the technology pathway, that's where you create these issues I described with Senator Kerry.

Please take my remarks as—we have tools now. I mean, that's the beauty of it, we have a lot of support now. So, we're not debating whether to do something, we're not debating that it should be urgent. We're just debating the how, and how fast in particular sectors. And so that's what we're about.

Senator CORKER. You know, the time that we've spent on this has really—in our own office—has been to see if there's not some way to align the interests of reducing carbon in our atmosphere with growing our GDP, with making sure that we break through and have new technology so that we're not so dependent on foreign oil. And it seems to me that thinking people ought to be able to come up with a way of doing that. We spent time in Brussels, and Paris and London and saw that what you said is true, I mean, there has been fuel switching, which has actually caused countries to be less secure with their energy sources, because of the cap and trade program. But, it seems like, that we as thinking people, ought to figure out a way to create a program that aligns all three of those goals.

One of those things that I think is so hurtful to us, as a country, is the way we pick winners and losers. And I've actually wondered whether the kind of cap-and-trade program that we've discussed would do away with that. That we would set standards, and whether it was nuclear or whether it was renewable or whatever, all would be in the game on the same basis.

And I do wonder—I have to tell you—I wonder how we can move ahead with these new technologies that you're talking about and that all of us care about, without there being some cost associated with not doing that. And it seems to me, and again, I've not signed on, but it's interesting to me—the cap-and-trade program might do that.

So, certainly from the standpoint of leakage, I understand that any cap-and-trade program that allows us, as a country, to burn carbon here, or emit carbon into the atmosphere and plant trees someplace else, and for us to think that's neutral is not a good program, OK? But it seems that with the administration and with all of us, we could figure out a way to make sure that we're more energy secure, to drive technology and to make sure that we're doing something that's environmentally friendly.

But, I don't think just wishing that to occur is going to make it happen. And in the process, we become even more dependent. And I'd like for you to talk about—in the minute, fifty-four I have left—some of the components that you think might make that work, and not be detrimental to our economy.

Mr. CONNAUGHTON. Well, first, we know we can do it, because this Congress just did it. It came together on an alternative fuels standard, worked out the compromise and set a level. And I can translate that into greenhouse gas reductions for you, it's going to slow the growth and it's going to stop the growth. And over time, once you get out to 2025 and beyond—it will start reversing the growth. So that Congress has just set a trajectory for greenhouse gases when it comes to fuel.

Now, we would have like to see that be performance based. It picks some winners and loser, it took—it's going to take longer to get to second generation, then—then we would have liked, but it was a good outcome.

But there's an example of, when you do the—get everyone together, do the math, look at technical feasibility, you can produce a reasonable outcome.

Now, that's supported by some incentives, as well. We're going to build, with the Congress's support, the world's first—we're going to join a number of other countries—in building the world's first cellulosic ethanol plants by 2010. We've got three of them going up, with that incentive. You know, the mandate wouldn't have produced that by 2010, we needed to do the incentive to do that by 2010.

As a result, Europe's doing them, China now want to build some, India wants to build some, and if we get the funding to help do technical support on that, we can help them achieve that.

So, that's why, again, we can be thoughtful if we look at the specific area where we want to make progress.

So I, again, I'm an optimist. But, we should do the work necessary—one thing we should be careful to avoid is putting a mandate on a mandate. And there's a tendency in this area to want to do that.

So, we now have five mandates—on fuel, cars, appliances—it would not seem to make a lot of sense to then create another mandatory system on top of that. And so, that's the other thing you want to be careful of, because that thing creates a distortion in the effectiveness of your policy. I don't think the Congress, you know, I think that will be an important discussion this year, for the Senate and the House in evaluating the new mandates against some of these climate change proposals on caps and trades—you've just got to find a way to reconcile those. So, that's something to watch out for.

Senator MENENDEZ. Senator Cardin.

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

I hear your rhetoric on urgency, but I don't see it matched by the policies of this administration. So, I agree, the issues of global climate change require urgency. I come from the State of Maryland, where we are one of the most vulnerable States to flooding, we've seen erosion on a lot of our waterfront areas, Smith Island is being lost right in front of our own eyes, an inhabited island on Chesapeake Bay. We see the water of the Bay warming, which is bad for sea grass and affecting diversity of the Chesapeake Bay. All of those reasons, there's an urgency, here, and you seem to embrace it, but then I take a look at the policy.

So, let me just ask your opinion—we had a hearing, as I said earlier today—in the Environmental and Public Works Committee on the EPA's denial of the California waiver. An effort by the State of California to deal with greenhouse gases, as it did with smog, with a different standard on emissions.

Now, this is not one State. The number of States that have passed the California waiver would be 45 percent of all the vehicles we have on the roads of America today. And we know—as Senator Kerry pointed out, and as you agree—our use of energy in our cars is unmatched anywhere else in the world.

So, maybe you could just tell me—wouldn't it have been helpful to show some action, where we would have our States move forward—two standards in the country—one the Federal standard, the other California standard, where we could make a major impact on greenhouse gases, and show the international community

that we are taking action to deal with the problems of global climate change?

Mr. CONNAUGHTON. That goes to the core of your policy choice, Senator. And as a Baltimore boy, I've got the same sense of what happens to the great State of Maryland in this context. So—and I also care about the people that work in Maryland, to be sure that when we're moving forward with these policies, you know, that they're not losing jobs overseas where emissions are going up. So, we want to be careful about that.

When it comes to the California situation, I understand you spent many, many hours with Administrator Johnson, so I probably—we don't want to go over that again and again. But, I would observe—

Senator CARDIN. But I think it's important for America's international leadership.

Mr. CONNAUGHTON. Let me observe, Senator—action is required at all levels of government, across all sectors of the economy, over time, to address this. I will—let me give you this example—we opposed the RPS, the Renewable Power Standard in the Energy Bill—that is an area that we did oppose, because more than half the States covering the vast majority of our generation, had already set renewable power standards, consistent with their local circumstances.

So there was an example where we did not think a Federal solution was the right one, because each State has a different electricity market, and a different capacity to do renewables—Maryland has its own, and certainly Maryland's is different than California's. And so, having a one-size-fits-all for that didn't make sense.

When it comes to fuel economy, however, I think the opposite is true. We now have a bipartisan agreement on the level of ambition that our national fuel, our national vehicle fuel efficiency should achieve, and because it's a national average, Senator, the nation will achieve that level of fuel efficiency and the greenhouse gases associated with it.

Senator CARDIN. I think I know where you're heading.

Mr. CONNAUGHTON. But if you add California into the mix—let's assume California's "x" amount more stringent. That gets averaged out nationally. So, from an environmental perspective, you're not actually changing the equation.

Senator CARDIN. All right, you're saying—

Mr. CONNAUGHTON. So, so that's the issue.

Senator CARDIN. So you're saying that we shouldn't have individual policies as it relates to greenhouse gas emissions, it should be a Federal policy?

Mr. CONNAUGHTON. No; sometimes the individual State-by-State approaches are exactly the right way to go. Building codes is a good example of that.

Senator CARDIN. Thank you. And it also deals with developing the whole concept of federalism.

Mr. CONNAUGHTON. Absolutely.

Senator CARDIN. You know, we can learn what the Feds are doing.

So, I just would urge you to weigh in a little bit more on the EPA decisions in regards to these waivers. Because I think it's a critical—a huge mistake—that the administration has made in regards to these waivers. They're going to be litigated in the courts, they've already been rebuked once by the courts on the clean air—dealing with the dangerous effects of global warming, where the EPA denied it—you understand that, I understand that—it would be nice to have an agency working with us on a policy here, that's the Environmental Protection Agency.

Mr. CONNAUGHTON. But, Senator, let me ask you a question. If the assessment is that the national emissions reduction that will come from CAFE will not be substantially affected one way or the other by a more stringent California standard with the other States—I'm the environmental effectiveness guy. If we're not achieving much more with additional regulations, that's going to harm your guys or make—

Senator CARDIN. But that's not what the technical information shows. I'd be glad to share it with you, the technical information shows that there would be substantial reductions in the States in addition to the CAFE standards, and it's certainly more dramatic, quicker than the CAFE standards that kick in.

Mr. CONNAUGHTON. Yes; but those analyses didn't account for national averaging, that's all.

Senator CARDIN. Well, as Governor Rendell pointed out, for the people of Pennsylvania, they have good, scientific information.

And all we're saying is it be based upon scientific information.

Mr. CONNAUGHTON. I agree.

Senator CARDIN. That Pennsylvania acting on behalf of the citizens of Pennsylvania will affect the issues within the State of Pennsylvania, in addition to, of course, the whole region and international issues.

My point is this—it seems like the administration takes convenient arguments. They say, "Well, this is an area where we need uniformity, therefore the States can't act." And then the Federal Government can't act, because we need an international law or action before we do anything. We don't want to—and you sort of get into a situation where the United States is no longer a leader.

And, we all understand that it takes time to implement these policies. And if we had half of our States prepared to do more aggressive actions with all of the bills dealing with greenhouse gas emissions, that makes them a lot easier for us to meet the targets that ultimately you think we need to meet, and I think we need to meet. We all agree we're going to need targets, we're going to have to negotiate that. So, move. Do things. When opportunities present itself, if we have the courage of all of those States, prepared to move forward—why pull the rug out from under them?

Mr. CONNAUGHTON. Well, let's use Governor Rendell's program as an example on renewable power. He actually has very—

Senator CARDIN. I was talking about the California waiver.

Mr. CONNAUGHTON. Yes; but I'm going to give you the example. He has a very innovative program that included nuclear and coal, low-carbon coal—

Senator CARDIN. I think you're changing the subject on me, but—

Mr. CONNAUGHTON. No; I want to give this as an example, though. But the Federal renewable power mandate would have, basically, gotten rid of that. So, that's an example where the Federal approach would have actually harmed State action.

On cars, a decision made by a Democratic Congress, by a Democratic President back in the 1970s made clear that when it comes to cars, a national market approach makes a lot more sense than a State-by-State approach.

Senator CARDIN. One final question—do you agree or disagree with the administrator?

Mr. CONNAUGHTON. The decision of the Administrator was his to make, and I support it.

Senator MENENDEZ. Senator Voinovich.

Senator VOINOVICH. Thank you, Mr. Chairman.

I think that we're very fortunate to have Jim Connaughton chairing the Council on Environmental Quality. You've done an outstanding job, you've really devoted yourself to this issue of climate change and what this country should do about it, and I appreciate the fact that you've given the President a lot of very good information about it. We wouldn't be where we are today without your effort and expertise.

I'm going to read a couple of things to you, and I'd like to get your response. A recent Charles River Associates critique that came out of the EPA Committee estimated that by 2020, S. 2191, Senator Lieberman's Climate Security Act, would result in a net loss in as many as 3.4 million American jobs, an annual decrease in disposable income by as much as \$2,500, and annual losses in the GDP of \$1 trillion.

The EPA and the Energy Information Agency still have not done their analysis, but I'm interested to hear what they have to say.

Now, one other thing. Fuel switching from coal to natural gas to generate electric power accounted for almost 94 percent of the increase in domestic demand for natural gas since 1992, sending a ripple effect through the economy, because of its use as both a fuel and feedstock for the production of everything from fertilizer to plastics, to heating homes. In fact, it has contributed to the loss of over 3.1 million manufacturing jobs.

These price increases continue to impair the competitive position of the United States in manufacturing, and the domestic and world markets. What most Americans are not aware of is that the chemical industry has gone from having a \$19 billion trade surplus in 1997, to now being a net importer. Our environmental policies have had a dramatic impact on our economy and the loss of jobs.

And the question I have is: How do we deal with this climate change challenge that we have without the downside of these kinds of statistics that I've just read to you, assuming that most experts agree with them?

I remember dealing with the problem of acid rain when I was Governor of Ohio. I convinced American Electric Power to put on a scrubber that cost \$650 million. We wanted them to burn high-sulphur coal. We also gave them a subsidy of \$1 per ton of coal, so they went ahead and did it.

We encouraged AEP to put on a selective catalytic reduction, the new technology at the time. The plume from that caused them to

have to buy out a whole town because the technology wasn't working properly.

And we've talked about reducing mercury, but we all know that the technology, even for mercury, isn't as advanced as it should be, and we've been trying to reduce NO_x and SO_x, because that in turn helps reduce mercury.

Now, the issue is, how do we get on with this, and move quickly, without the downside of some of these statistics that I have read? What are the options? How do we deal with this as quickly as possible? Are there alternatives to some of the things that Senator Kerry has supported, in terms of a cap and trade program, that are very much like the Lieberman-Warner legislation. Are there options that we can undertake to get the job done?

Mr. CONNAUGHTON. The answer is yes. The first critical step is, coal accounts for more than 50 percent of the future growth of emissions. We have to figure out low-carbon coal emission technology, because if we don't, it's all over, anyway, because India and China are going to keep using their coal, South Africa, and the other places that Senator Kerry mentioned. And so we've got to do that, and we've got to do that as fast, and as appropriately as we can.

Senator VOINOVICH. Some people think that we've already got the technology.

Mr. CONNAUGHTON. Actually, we have—theoretically—have the technology. We've never actually built the darn things, put it up, put the CO₂ under the ground, warranted it, have the liability regime, have the ability to be sure, when you turn that power plant on, people's lights stay on. You know, your constituents don't like it when the lights go off or when the homes don't get heated. So, there's a lot that has to be done to do that—the engineering services—

Senator KERRY. That's why Senator Stevens and I have this—

Mr. CONNAUGHTON. Yeah, no—it's good.

Senator KERRY [continuing]. Five demonstration projects—put them out there tomorrow.

Mr. CONNAUGHTON. So, that's the most critical step. You at least have to do that. No real incentive, and no real mandatory program will make a difference until you figure that out. So, we have to know what that timeline is, and as I suggested, I think we should be pushing for a 10- to 15-year timeline on that. You can't go faster, but we should go at least as fast as we can. And so that's something we should focus on.

Then, hopefully, you can prove that this thing comes in the same cost-effectiveness scale as a clean-coal plant, or as a nuclear plant, or as a renewable power. If it's commercially competitive, then our problems are solved. If it's not commercially competitive, if there's a bigger delta than we can deal with, then you have to start looking at the incentive side of the equation more, or the regulatory side of the equation more.

But, until you figure out what that economic is, you'd be—it's very dangerous to suggest today that you can predict what that's going to be.

Senator VOINOVICH. Is there any way to harmonize a cap-and-trade program with technology?

Mr. CONNAUGHTON. Well, we've seen it sequenced in the acid rain example, where we knew the imperative—actually and perhaps I would—I think you would agree with me, Senator Kerry—the human health impacts of acid rain, and the natural resource impacts of acid rain were quite real and profound, and so I think there was urgency to that, too, just as there is urgency to this. I put them in—you know, American lives I put in the same category as long-term climate change, perhaps even more immediate—but we did the technology work first. We then designed the regulatory incentive policy around that. So, we didn't put the one in front of the other.

And so, I think that's where we need to go. We also have the related issue that relates to your point—

Senator VOINOVICH. What Senator Kerry is saying is that if you have some cap, he thinks that that would—

Mr. CONNAUGHTON. See, but it's capital-intensive, these big technologies—you're talking about a power plant that's really a petrochemical facility, with all the work of putting something underground. That's really expensive. It's so much cheaper to just build a natural gas turbine—even though it drives away the jobs, even though it causes the fluctuation in home heating prices, this Congress, then, has to subsidize home heating, which is largely because we're subsidizing natural gas—

Senator VOINOVICH. By the way, I didn't mention it—the heating costs in the city of Cleveland are up 300 percent from what they were in 2001. It's really impacting substantially on—

Senator KERRY. But, you know, Senator, I'm not proposing something out of the sky, by myself. In fact, I've met with the CEO of AEP. And AEP is now building another power plant with IGCC technology, and they've decided just to go ahead and do that. It's going to cost them more; it's about a 20-percent premium. But they understand the virtue of doing it. I met with the CEO Lou Hay of Florida Power & Light—they're moving in the same direction, and they're all part of U.S. CAP, which, you know, is the U.S. Climate Action Partnership, along with Dow Chemical, DuPont, Chuck Halliday and others.

Senator VOINOVICH. But the IGCC is not really certain what the impact will be on sequestering it.

Senator KERRY. But here's what I'm saying. Those CEOs, all of them, are pushing for this cap-and-trade regime. And the reason they want the cap-and-trade regime is because it creates a market structure, it creates certainty in the marketplace, they all know how they're being treated relative to each other, and it provides—assuming we accompany it with appropriate incentives, i.e., some tax credit, et cetera, or benefits—a rush to the technology which will then be, they believe, perfect.

Now, I listen to these CEOs, these are their companies, they're responsible to their shareholders, and they believe the benefits will be that the technology is going to move them, and that they can do this. They want it.

Senator VOINOVICH. I have to mention to you that the Department of Energy has 4 or 5 projects out right now, looking at the geology of sequestering—

Senator KERRY. Correct.

Senator VOINOVICH. And also looking at the issue of migration. And we're talking about 5 to 10 years to ascertain whether or not the geology—

Senator MENENDEZ. I appreciate the cross-discussion, and I know Senator Voinovich is controlling his time. And we have a second panel that has been waiting—

Senator VOINOVICH. We're about 10 minutes over, Mr. Chairman, I apologize.

Senator MENENDEZ. No, no, no, no; that's not the issue. And I understand Senator Kerry's passion, but I do want to hear from the second panel that's been waiting nearly 2 hours. I think they have a lot to say on this subject, as well.

So Senator Voinovich, if you want to finish up on your time—

Senator VOINOVICH. You've given me more than I'm entitled to.

Senator MENENDEZ. All right, with that, Mr. Connaughton, thank you for your testimony. The record will be open for two days, there may be other questions and we certainly would ask you to respond to them in a timely fashion.

Mr. CONNAUGHTON. Thank you, Mr. Chairman.

Senator MENENDEZ. Thank you very much for your testimony.

Mr. CONNAUGHTON. We look forward to close, constructive engagement with the committee.

Senator KERRY. Look forward to it. Thank you, Mr. Connaughton.

Senator MENENDEZ. Let me thank all of our distinguished second panel witnesses for their patience, let me ask them to join us at the witness table, and let me introduce them as they come up.

Mr. Elliot Diringer, who is the director of International Strategies, Pew Center on Global Climate Change; Mr. Jim Lyons, who is the vice president for Policy and communication for Oxfam America; Mr. Glenn Prickett who is the senior vice president for Conservation International; and Mr. John Castellani, the president of the Business Roundtable.

Again, we appreciate your patience, it's an important subject; it's great to have had Mr. Connaughton here, now it's great to have you here. And we would urge you to summarize your statements, and your full statements will be included in the record. With that, let me start with Mr. Diringer.

STATEMENT OF ELLIOT DIRINGER, DIRECTOR OF INTERNATIONAL STRATEGIES, PEW CENTER ON GLOBAL CLIMATE CHANGE, ARLINGTON, VA

Mr. DIRINGER. Mr. Chairman, Senator Kerry, thank you for the opportunity to appear before you today. My name is Elliot Diringer and I'm director of International Strategies for the Pew Center on Global Climate Change.

In summarizing my written testimony, I'd like to emphasize three points. First, we believe the post-2012 climate framework must establish binding international commitments for all major economies, although the type of commitment need not be the same for all countries.

Second, the Bali roadmap presents an unprecedented opportunity to forge a fair, effective, and comprehensive post-2012 agreement.

And third, the success of the Bali roadmap will depend on decisive leadership by the United States, both at home and abroad.

On the question of binding commitments—25 countries account for about 85 percent of global greenhouse gas emissions. Their participation is essential, not only from an environmental perspective, but from a political perspective, as well.

All have concerns about fairness and competitiveness. And for that reason, none can sustain an ambitious climate effort without confidence that the others are contributing their fair share. This requires some measure of accountability at the international level, and that can only realistically be achieved through binding international commitments.

The major economies are a very diverse group, however. Their per capita incomes and emissions range by a factor of 18. The post-2012 framework must, therefore, provide flexibility for different national circumstances and different national strategies. It can do so by allowing for different types of commitments.

We believe the appropriate form of commitment for the United States and other industrialized countries is a binding, absolute, economy-wide emissions target. Stronger targets are absolutely critical to drive emission reduction and to drive the development and deployment of carbon-friendly technologies.

At this stage, however, China, India, and other developing countries are very unlikely to commit to economy-wide emission limits. An alternative approach for them could be a policy-based commitment; a commitment to undertake national policies that moderate or reduce emissions without a binding economy-wide limit.

China, for example, has ambitious energy intensity and renewable energy goals. As Senator Kerry noted, China also has auto fuel economy standards more stringent than those recently enacted by Congress. Some version of these domestic policies could be put forward as international commitments. Of course, to be credible and effective, such commitments would need to be measurable, verifiable, and binding.

Another option is sectoral agreements, in which governments commit to targets, standards, or other measures to reduce emissions from a given sector. Sectoral agreements would be especially helpful to address competitiveness concerns in energy-intensive industries, whose goods are traded globally.

I would emphasize the need to integrate these and other elements in a coherent, binding framework. An ad hoc agglomeration of nationally defined programs will not produce the level of effort that is needed. Strong global action requires binding international commitments negotiated and agreed as a package.

We believe the Bali roadmap represents a historic turning point in the climate negotiations that initiates a process that, for the first time ever, offers the prospect of a comprehensive post-2012 package. While the process is less than ideal, we believe it is the best possible under the circumstances, in particular, given the reluctance thus far of the Bush administration to negotiate a binding international commitment.

The Bali roadmap calls for measurable, reportable, and verifiable mitigation actions, supported—in the case of developing countries—by technology and financing. It leaves entirely open the nature of

the actions and commitments to be negotiated. In this sense, the Bali roadmap puts no country on the hook for anything. But at the same time, it lets no country off the hook, either.

Unlike the 1995 Berlin mandate, which launched the negotiations leading to the Kyoto Protocol, the Bali agreement does not preclude the possibility of developing country commitments. This presents an unprecedented opening, one we must seize.

The success of the Bali roadmap depends ultimately on the willingness of each of the major economies to assume and fulfill a binding commitment, commensurate with its responsibilities and its capabilities. The willingness of other countries will depend, in large measure, on the willingness of the United States. As the world's largest economy and the largest historic emitter, the United States has a singular responsibility, not only to reduce its own emissions, but also to lead the international community in forging an effective global response.

To date, we have not delivered on either score. In our view, the United States must do three things to reverse this record and set the stage for a post-2012 agreement.

First, Congress and the President must move as quickly as possible to enact mandatory domestic limits on U.S. greenhouse gas emissions. Establishing a mandatory domestic program will enable the United States to negotiate with greater confidence and credibility. We will know what we can deliver and—having taking concrete action to meet our responsibilities—we can more credibly call on others to fulfill theirs.

Second, the United States must state unequivocally that it is prepared to negotiate a binding international commitment. As long as that remains in question, other countries will have a legitimate excuse to avoid negotiating commitments of their own.

Third, the United States should make clear the type of support it is willing to offer developing countries if they, too, assume appropriate commitments. Once we are prepared to negotiate a binding commitment, it will be reasonable for us to expect China and other major emerging economies to assume commitments, as well. That said, it also will be reasonable for these countries to expect that we and other industrialized nations will assist them in fulfilling their commitments.

Finally, I would like to note the critical role of the Senate in mobilizing and setting the terms of U.S. engagement. The climate debate in Congress has thus far focused primarily on questions of domestic climate policy. As we enter a new round of negotiations, it is vital that the Senate—which will have the final say on U.S. participation in a new climate treaty—advise this and the next administration on the framework of an acceptable treaty and be closely engaged in its development.

I thank you again for the opportunity to share our views, and I look forward to your questions.

[The prepared statement of Mr. Diringer follows:]

PREPARED STATEMENT OF ELLIOT DIRINGER, DIRECTOR OF INTERNATIONAL STRATEGIES, PEW CENTER ON GLOBAL CLIMATE CHANGE, ARLINGTON, VA

Mr. Chairman, Senator Lugar, and members of the committee, thank you for the opportunity to testify on the recent Bali climate change negotiations and the path

toward a post-2012 climate treaty. My name is Elliot Diringer, and I am the director of International Strategies for the Pew Center on Global Climate Change.

The Pew Center on Global Climate Change is an independent nonprofit, non-partisan organization dedicated to advancing practical and effective policies to address global climate change.¹ Our work is informed by our Business Environmental Leadership Council (BELC), a group of 44 major companies, most in the Fortune 500, which work with the center to educate opinion leaders on climate change risks, challenges, and solutions.

Mr. Chairman, I would like to commend you and the members of this committee for convening this hearing today. Over the past year, the U.S. Congress has for the first time engaged in a genuine debate over how—not if, but how—the United States should address global climate change. So far, this debate has focused primarily on questions of domestic climate policy. This is a critical first step. But as you know, meeting the challenge of climate change requires global solutions as well, and these are possible only with strong leadership from the United States. The U.S. Senate has a vital role in mobilizing and setting the terms of U.S. engagement in the global climate effort. This committee, with your leadership, can ensure the Senate is well prepared to fulfill that responsibility. We are very encouraged that you are initiating this process with this hearing today.

In my testimony, I would like to address four topics. First, I will offer our perspective on the post-2012 international climate framework—both what it must achieve, and how it should be structured. Second, I will assess the recently agreed Bali roadmap and the opportunities it presents. Third, I will outline key steps the United States must take to seize these opportunities. Finally, I will suggest a diplomatic strategy working within and outside the U.N. negotiating process, and the potential role of the Bush administration’s major economies initiative.

My key points are as follows:

- A post-2012 international climate treaty must establish binding international commitments for all the major economies. However, the form of commitment can vary. While the United States and other developed countries should commit to absolute economywide emission targets, other forms such as policy-based commitments are appropriate for the major emerging economies.
- The Bali roadmap represents a historic turning point in the international climate negotiations. By not excluding the possibility of developing country commitments, it for the first time offers the prospect of a fair, effective, and comprehensive post-2012 agreement.
- To ensure the Bali roadmap’s success, the United States must: Move as quickly as possible to enact mandatory domestic limits on U.S. emissions; declare unambiguously its willingness to negotiate a binding international commitment; and outline the support it will provide to developing countries if they, too, assume reasonable commitments.
- In addition, the United States should mount a major diplomatic initiative, working both bilaterally and multilaterally to clarify and advance the negotiating agenda and find common ground. The administration’s major economies process could lay important groundwork with agreement on elements such as a long-term climate goal and an international technology fund.

(1) The Post-2012 International Climate Framework Must Be Flexible but Binding

The Pew Center’s perspective on the post-2012 climate framework reflects not only our own detailed analysis but also the collective views of an impressive group of policymakers and stakeholders from around the world. As part of our effort to help build consensus on these issues, we convened the Climate Dialogue at Pocantico, a group of 25 individuals from government, business, and civil society in 15 key countries, participating in their personal capacities. The group included senior policymakers from Australia, Brazil, Britain, Canada, China, Germany, India, Japan, Mexico, and the United States. It also included senior executives from companies in several key sectors, including Alcoa, BP, DuPont, Exelon, Eskom (the largest electric utility in Africa), Rio Tinto, and Toyota. The group’s consensus report was released in late 2005 at an event in this room hosted by Senators Biden and Lugar.² Since that time, we have produced a number of analyses further elaborating on the Pocantico recommendations.³ I would like to highlight several key points.

¹For more on the Pew Center, see www.pewclimate.org.

²“International Climate Efforts Beyond 2012—Report of the Climate Dialogue at Pocantico” is available at <http://www.pewclimate.org/pocantico.cfm>.

³See Ian Burton, Elliot Diringer, and Joel Smith, “Adaptation to Climate Change: International Policy Options”; Daniel Bodansky, “International Sectoral Agreements in a Post-2012

Engaging All Major Economies—First, the post-2012 framework must engage all of the world’s major economies. Twenty-five countries account for about 85 percent of global greenhouse gas emissions. These same countries also account for about 75 percent of global population and 90 percent of global GDP. The participation of all the major economies is obviously critical from an environmental perspective, as all must take sustained action if we are to achieve the steep reductions in emissions needed in the coming decades to avert dangerous climate change. But the participation of all major economies is critical from a political perspective as well. All have concerns about fairness and competitiveness, and for that reason, none can sustain an ambitious effort against climate change without confidence that the others are contributing their fair share. We must agree to proceed together.

The Need for Flexibility—At the same time, we must recognize the tremendous diversity among the major economies. This group includes industrialized countries, developing countries, and economies in transition. Their per capita emissions, and their per capita incomes, range by a factor of 18. The post-2012 framework must provide flexibility for these widely varying national circumstances. As the kinds of policies that can address climate change in ways consistent with other national priorities will vary from country to country, it also must accommodate different national strategies. To achieve broad participation, a post-2012 treaty must allow for variation both in the nature of countries’ commitments and in the timeframes within which these commitments must be fulfilled.

The Need for Binding Commitments—Allowing diverse approaches does not mean that each country should be entirely free to decide for itself how it will contribute to the global effort. The failure of most developed countries to reduce their emissions as pledged in the U.S.-ratified U.N. Framework Convention on Climate Change demonstrates the inadequacy of a voluntary approach. A strong effort—one adequate to the challenge—will be possible only if national contributions are integrated in a common framework and reflected in binding international commitments. As I stated earlier, countries will deliver their best efforts only if they are confident that their counterparts and competitors also are putting forward their fair share of effort. To establish that confidence, there must be some measure of accountability at the international level, and that is best achieved through binding international commitments. If countries are accountable only to themselves, we will not achieve the critical mass of effort needed to deter global warming.

Multiple Commitment Types—A country’s commitment should be of a form appropriate to its level of responsibility and capacity and its national circumstances. For the United States and other developed countries, we believe the appropriate form of commitment is a binding absolute economywide emissions target. The United States was the first to advocate the use of targets and emissions trading to address climate change, based on its success in combating acid rain. This market-based approach also is reflected in most of the major bills before Congress aimed at limiting and reducing U.S. emissions. Within the international framework, stronger absolute targets for developed countries are absolutely critical to drive emission reduction and to sustain and strengthen the emerging greenhouse gas market.

We must accept, however, that China, India, and other developing countries are very unlikely to commit at this stage to binding economywide emission limits. With standards of living just a fraction of our own, they are fearful of jeopardizing their growing economies, and will have to be persuaded by the example of developed countries that a cap on emissions is not a cap on growth. For now, economywide targets are also technically impractical for most developing countries: To accept a binding target, a country must be able to reliably quantify its current emissions and project its future emissions, a capacity that few if any have.

As an alternative to binding economywide targets, developing countries could be encouraged to make policy-based commitments. Under this approach, countries would commit to undertake national policies that would moderate or reduce their emissions, without being bound to an economywide emissions limit. These commitments could be tailored to national circumstances and build directly on domestic policies. China, for example, has domestic energy efficiency targets, renewable energy goals, and auto fuel economy standards, and some version of these could be put forward as international commitments. Tropical forest countries could commit to policies to reduce deforestation. To be credible and effective, policy-based commitments would need to be measurable and binding, with mechanisms to ensure monitoring and compliance.

Climate Framework”; Joanna Lewis and Elliot Diringer, “Policy-Based Commitments in a Post-2012 Climate Framework”; and Daniel Bodansky and Elliot Diringer, “Towards an Integrated Multi-Track Climate Framework,” at www.pewclimate.org.

A third potential element of the post-2012 framework is sectoral agreements, in which governments commit to targets, standards, or other measures to reduce emissions from a given sector, rather than economywide. In energy-intensive industries whose goods trade globally—the sectors most vulnerable to potential competitiveness impacts from carbon constraints—sectoral agreements can ensure a more level playing field. Sectoral agreements also may be a practical way to engage developing countries not yet prepared to take on economywide commitments. Sectoral approaches are being explored by global industry groups in the aluminum and cement sectors. We believe they also are worth exploring in sectors such as power and transportation, where competitiveness is less of a concern but large-scale emission reduction efforts are most urgent.

In addition to these different types of emission reduction commitments, the post-2012 framework must address technology, finance, and adaptation. On technology and finance, it could include two types of agreements: The first, for joint research and development of “breakthrough” technologies with long investment horizons; the second, to broaden access to existing and new technologies by addressing finance, intellectual property rights, and other issues impeding the flow of low-carbon technologies to developing countries. On adaptation, the top priority within the climate framework should be assistance to those countries most vulnerable to climate change for national adaptation planning and implementation. But broader efforts to reduce climate vulnerability also should be integrated across the full range of bilateral and multilateral development support.

I would emphasize again the need to integrate these elements in a coherent framework. An ad hoc agglomeration of nationally defined programs will not produce the level of effort that is needed. Strong global action requires binding international commitments negotiated and agreed as a package. The framework must be flexible enough to accommodate different types of commitments, and reciprocal enough to achieve a strong, sustained level of effort.

(2) The Bali Roadmap is an Opportunity for a Fair, Effective Post-2012 Framework

I would like to turn now to the Bali roadmap adopted by governments at the U.N. Climate Change Conference last month in Bali. In our judgment, the Bali roadmap initiates a process that, for the first time ever, offers the prospect of a comprehensive international climate framework of the type I have just described. The process is far less than ideal. However, we believe it is the best that could have been achieved given present political constraints—the first and foremost of these being the unwillingness to date of the Bush administration to negotiate a binding international commitment.

The Bali roadmap in actuality encompasses two parallel negotiating processes. The first of these was launched 2 years ago under the Kyoto Protocol. Its aim is to negotiate post-2012 commitments for those countries that presently have binding targets under the protocol. As these countries are highly unlikely to assume new commitments on their own, however, a parallel process was needed to engage the United States and developing countries in the post-2012 negotiations. This second process, under the U.N. Framework Convention on Climate Change, was launched in Bali and is called the Bali Action Plan. Although these two processes are not formally linked, the expectation is that they will converge in a comprehensive agreement in 2009, with some commitments established under the Kyoto Protocol and others under the Framework Convention.

In our analysis, the ideal outcome in Bali would have been a negotiating mandate clearly specifying the types of commitments to be negotiated by different groups of countries. The Bali Action Plan, by contrast, is very loosely framed. With respect to mitigation, it calls for “measurable, reportable, and verifiable” actions on the part of both developed and developing countries. In the case of developed countries, it speaks of “mitigation commitments or actions,” and identifies emission targets as one option. In the case of developing countries, it speaks of “mitigation actions,” not commitments, “supported and enabled by technology, financing, and capacity-building.” The Action Plan specifically identifies sectoral approaches and measures to reduce deforestation as potential mitigation elements. It also calls for the post-2012 agreement to include provisions addressing adaptation, technology, and finance and investment.

In sum, the Bali Action Plan identifies the full set of issues that must be addressed but leaves entirely open the nature of the actions or commitments to be negotiated by any country or group of countries. In this sense, the Bali roadmap puts no country on the hook for anything. At the same time, however, it lets no country off the hook either. This, in fact, is what is most significant about the Bali agreement. The 1995 Berlin Mandate, which launched the negotiations leading to the Kyoto Protocol, explicitly excluded the possibility of new commitments for devel-

oping countries. Up until the Bali conference, developing countries had steadfastly maintained that posture. The Bali Action Plan does not expressly contemplate binding commitments for developing countries; with the United States not yet prepared to negotiate such commitments, developed countries can not reasonably be expected to. But the Bali Action Plan does not explicitly exclude the question of developing country commitments either. This presents a significant opening, one the United States must capitalize on if we are to achieve a fair and effective post-2012 agreement.

Under the Bali roadmap, this agreement is to be reached at the 15th conference of the Framework Convention parties in Copenhagen in late 2009. We believe that, even under the best of circumstances, this is an extraordinarily ambitious timeline. The reality is that negotiations will not begin in earnest until the United States is prepared to negotiate a binding commitment. Without a change in policy by the Bush administration, this can occur only when a new President takes office in January 2009. Even then, it will likely take the incoming administration a matter of months to appoint senior officials and develop a formal negotiating position. That will leave precious little time to meet the Bali deadline. We believe that as the deadline approaches, parties should revisit and revise it if necessary to allow time for a successful negotiation and avert what would be perceived as a dramatic failure at the Copenhagen conference.

(3) U.S. Leadership at Home and Abroad is Key to the Bali Roadmap's Success

I now would like to outline steps that the United States can take to ensure that the Bali roadmap leads to a fair, effective, and durable post-2012 agreement.

The success of the Bali roadmap depends ultimately on the willingness of each of the world's major economies to assume and fulfill a binding commitment commensurate with its responsibilities and its capabilities. The willingness of other countries to assume such commitments will depend in large measure on the willingness of the United States. As the world's largest economy and largest historic emitter, the United States has a singular responsibility not only to reduce its own emissions but also to lead the international community in forging an effective global response. To date, the United States has failed to deliver on either score. In our view, the United States must do three things to reverse this record and set the stage for a post-2012 agreement.

First, Congress and the President must move as quickly as possible to enact mandatory domestic legislation to limit and reduce U.S. greenhouse gas emissions. As a founding member of the U.S. Climate Action Partnership, or USCAP, the Pew Center strongly supports the establishment of a cap-and-trade system as the centerpiece of a mandatory Federal program with the goal of reducing U.S. emissions 60 to 80 percent by 2050. We are very encouraged by the progress achieved in the Senate toward enactment of such a program, and are fully committed to working with you and your colleagues toward that end. Domestically, a mandatory market-based program will stimulate technology development and deployment and give U.S. businesses the certainty and incentives they need to reduce emissions as cost effectively as possible. Internationally, a mandatory domestic target will enable the United States to negotiate with greater confidence and credibility. Having resolved what it is prepared to do at home, the United States will know far better what it is prepared to deliver abroad. And, having taken concrete action to meet its responsibilities, it can more credibly call on other countries to fulfill theirs.

Second, the United States must state clearly and unambiguously that it is prepared to negotiate a binding international commitment. As long as that remains in question, other countries will have a legitimate excuse to avoid negotiating commitments of their own. As I stated earlier, we believe that the United States commitment, and those of other developed countries, should be in the form of a binding absolute economywide emissions targets.

Third, the United States should make clear the type of support it is prepared to offer developing countries if they, too, assume appropriate commitments. Once we have demonstrated a willingness to reduce our own emissions and assume a binding international commitment, it will be reasonable for us to expect that major emerging economies such as China assume commitments as well. However, it also will be reasonable for these countries to expect that we and other industrialized nations will assist them in fulfilling their commitments. This is in part a matter of fairness, given our greater historic contribution to climate change and our greater capacity to address it. Indeed, we and other industrialized countries agreed in the Framework Convention to assist developing countries in their efforts to address climate change, and the Bali roadmap identifies such support as an essential element of a post-2012 agreement. However, providing such support is also very much in our self-interest, as we will bear the consequences if developing countries fail to act.

Support can be provided both on a bilateral basis and as part of a post-2012 agreement. A domestic cap-and-trade program, for instance, could allow for crediting of emission reductions in developing countries; additional incentives could be conditioned on the acceptance by developing countries of reasonable international commitments. Congress also could provide tax and other export incentives to support the adoption of U.S. clean energy technologies. A post-2012 agreement could establish an international financing mechanism and address issues such as intellectual property rights. Determining the appropriate forms and level of support requires a far better understanding of developing countries' needs and the barriers to achieving them. To the degree feasible, however, we believe that support for developing country efforts should take the form of market-based incentives that leverage private financial flows.

As I noted earlier, the Bali roadmap presents an unprecedented opening to engage developing countries more deeply in the climate effort. To seize this opportunity, the United States must come forward with an offer that fairly addresses the legitimate needs of developing countries, while being realistic about the nature and level of commitment that can be expected in return.

(4) Reaching Agreement Requires a Major U.S. Diplomatic Initiative

We believe that these three steps by the United States—enacting mandatory domestic emission limits, declaring a willingness to negotiate a binding commitment, and offering a package of incentives for developing country action—are essential preconditions for a comprehensive post-2012 climate agreement. But these steps must be accompanied by vigorous and sustained U.S. diplomacy both within and outside the U.N. negotiating process.

Within the U.N. process, the new Ad Hoc Working Group established by the Bali Action Plan must now agree on how it will take up the complex set of issues before it. Despite the tight deadline, it will not be feasible for the parties to go directly to negotiating commitments. First, they must come to a firmer common understanding of the central issues and the options for addressing them. Key among these are different commitment types and their potentials, specific technology needs, and financing mechanisms. The United States should fully engage in the Working Group process and help ensure that it focuses on the right issues in the right order.

Simultaneously, the United States should engage in intensive bilateral diplomacy to better understand the perspectives of other key countries and to seek common ground for a comprehensive agreement. Within the negotiations, issues often are debated only in general terms. To fully understand the concrete needs and concerns of other countries, it is better to engage them one on one. Trust and understanding developed on a bilateral basis will make a comprehensive agreement far more feasible.

The United States also can work outside the formal negotiating process to promote consensus among the group of major economies. The participants in the Pocantico dialogue I described earlier were among the first to urge a high-level dialogue among major economies as a prelude to formal post-2012 negotiations. The goal of the administration's major economies initiative is to reach consensus among these key countries in 2008 as a basis for a global U.N. agreement in 2009. However, the administration brings to this initiative a specific vision of the post-2012 framework—one based on nationally defined programs, rather than binding international commitments. There was little indication at the first major economies meeting in September that other countries support this approach. Still, by aiming for agreement on discrete elements, rather than a comprehensive approach, the initiative could in the months remaining make a significant contribution. In particular, if the major economies were to achieve consensus on a long-term climate goal, or on an international technology fund, as the President has proposed, these could serve as important elements of the post-2012 agreement envisioned in the Bali roadmap.

To summarize, I believe the Bali roadmap presents a historic opportunity to mobilize an effective multilateral response to climate change, and it is incumbent upon the United States to lead both at home and abroad to ensure its success.

I again commend the committee for bringing the attention of the Senate to bear on these critical issues, and I thank you for the opportunity to present our views.

Senator MENENDEZ. Thank you very much.
Mr. Prickett.

**STATEMENT OF GLENN PRICKETT, SENIOR VICE PRESIDENT,
BUSINESS AND U.S. GOVERNMENT RELATIONS, CONSERVA-
TION INTERNATIONAL, WASHINGTON, DC**

Mr. PRICKETT. Thank you, Mr. Chairman. And thanks so much for the committee for having me here, but more importantly for convening this hearing. And, like Mr. Connaughton, I'd also like to salute and thank Senator Kerry, not only for coming to Bali and being such an important part of that meeting, but for the leadership you've provided over more than 20 years in elevating environment as a theme, and U.S. foreign policy, and all of us in the conservation community appreciate that leadership.

I'm a senior vice president with Conservation International. I direct our climate team, which involves scientists and economists and communicators from over 45 countries, where we work to help governments and communities protect and restore forests, coral reefs, other endangered habitat, that provide vital livelihoods to people—to poor people in particular.

Climate change is one of our highest institutional priorities, both because climate change threatens that biodiversity and those human livelihoods, and also because the loss of biodiversity—particularly the destruction of tropical forests—is a major source of greenhouse gas emissions.

The Bali Conference was a watershed for us, really for three reasons, most importantly, as we've already discussed, because for the first time the world really came together and agreed that we need to have a global solution to climate change involving all countries. But importantly for Conservation International—and this is really what the committee has asked me to focus on, so I will, just for the next few minutes—because the world recognized for the first time that the conservation of forests and generally the conservation of natural ecosystems needs to be a critical part of that solution.

This is a key recognition because as we focus, as we should, on the need for new energy technologies to attack the problem of climate change, we can't overlook the importance of nature's own technology, biological diversity, that diversity of genes, species, and ecosystems that can help the global community mitigate and adapt to climate change. If we don't take immediate action to incorporate forests and biodiversity into our approach to climate change, we run the risk, both of missing major opportunities to reduce emissions and also undermining the efforts of poorer communities to adapt.

Let me just elaborate on those two points for a moment. Few people realize that the burning and clearing of forests and other changes in land use—especially in the developing countries—is the second largest source of greenhouse gas emissions after electricity generation. Because when trees are destroyed, the carbon contained in the biomass and in the soils is released into atmosphere, which contributes to global warming.

In fact, 20 percent of the world's greenhouse gas emissions result from tropical deforestation and land use change. And to put that in perspective, that's roughly the share of emissions coming from the United States or from China. And in fact, it's more than twice the emissions coming from all the world's cars and trucks combined.

For many developing countries—I would note in particular, Indonesia and Brazil—deforestation is the major source of their greenhouse gas emissions, and those amounts can be significant. If, for example, Brazil and Indonesia continue deforestation at current rates, the emissions from that deforestation could counteract some 80 percent of the emissions reductions agreed to in the current Kyoto Protocol.

According to the Intergovernmental Panel on Climate Change in its fourth assessment report, forest conservation and reforestation and improved forest management can provide up to 25 percent of the emissions reductions we need in the coming decades. The review by Nicolas Stern confirmed that finding. Forests are critical to taking carbon out of the atmosphere and mitigating the climate change problem.

But forest carbon isn't just any kind of carbon. It also plays—forests and other natural ecosystems play a critical role—in helping people adapt to the impacts of climate change, particularly poor people. Of the more than a billion poor people living in extreme poverty worldwide, some 90 percent depend on forest ecosystems for the services they provide: Fresh water, protection from storms and floods, pollenization of crops, and other services.

These healthy natural ecosystems and the services they provide will be increasingly important in the context of climate change, which—under which we anticipate more frequent droughts, floods, coastal storms, disease outbreaks. Nature provides the essential life support systems that poor people will rely on to adapt to climate change.

This committee was actually one of the first to recognize this. In fact, as I was preparing for this testimony, I went back and looked at the Foreign Assistance Act. Thirty years ago, in 1978, the Congress expressed concern when it enacted provisions for tropical forests in the Foreign Assistance Act about “the continuing, accelerating alteration, destruction, and loss of tropical forests in developing countries, which pose a serious threat to development and the environment. Tropical forest destruction and loss can result in, among other things, destabilization of the earth's climate.” This was 30 years ago, back in 1978. Properly managed tropical forests provide a sustained flow of resources essential to the economic growth of developing countries. So this is very much an American issue.

So where do we stand? Two critical things happened at the end of last year. First, of course, Bali, and as part of the Bali action plan, governments agreed that the post-2012 agreement should include policy approaches and positive incentives to reduce emissions from deforestation.

But importantly here in Washington, in marking up the—and taking action here in the Senate on the—on the Lieberman-Warner bill, important provision was made there to include a portion of the allowances under that cap-and-trade program for international forest conservation. We think more can be done there, but that action sent an important signal to the international community that forests need to be part of the solution.

So what happens next? The Bali roadmap, if you will, at this point is still a big blank piece of paper with, perhaps, national cap-

itals filled in, but there's a lot of detail left to be filled in, in between those national capitals if we're going to define how this program will work, particularly in the area of reducing emissions from deforestation.

There are a lot of tough technical questions on the table, most importantly, how do you effectively provide incentives for developing countries to actually reduce deforestation on the ground?

Some important technical questions—should we focus that support on countries where deforestation is a major problem today? That would give us the most verifiable reductions in emissions. But should we not also think about developing countries where deforestation pressures are not acute today, but will be in the future? This is an important debate that's going on.

Should we address emissions only at the national level? We talked about leakage in the last panel. If you encourage a country to reduce deforestation at the national level, you reduce the risk that a protected forest in one place could displace pressure and create emissions somewhere else. At the same time, many poor, developing countries don't have the capacity today to take action effectively at the national level.

Should we also not support project-level activity? That's another important issue on the table. We've been working closely with a group of other environmental organizations, including the Nature Conservancy, Environmental Defense, the Wildlife Conservation Society, and Defenders of Wildlife, on a set of principles that we think should be in place and that we would encourage the United States to promote. That we should allow and reward early action to encourage governments to take steps to reduce deforestation now, which relates to this question of national versus subnational activity.

That we need to require forest protection activities to produce broad benefits, not only for reducing carbon, but also for other environmental values, including biodiversity protection and to promote benefits to local communities.

To ensure that the forest carbon credits that result are of the highest quality, to make sure that we have a strong overall emissions cap and that these credits represent real, permanent, and verifiable emissions reductions with reliable measuring and monitoring. To ensure that the credits from these activities are tradable and existing in new market mechanisms. And to make international funding available to help build the capacity of developing countries to participate in the carbon markets.

And I would note that other governments are already moving quickly to act on this, the Governments of the United Kingdom, Norway, Germany, Australia, Japan, and the World Bank have all announced major commitments in the last few months to support developing countries to reduce emissions from deforestation.

And finally, we need to ensure that forest-dwelling communities, indigenous people, in particular, are included in this process. They have been the defenders of forests for centuries. They need to be involved in the decisionmaking on this and they need to benefit.

So finally, to wrap up, I just have three recommendations I'd like to make for this committee on the role that the United States might play in this effort.

First, is to strongly support the inclusion of reduced emissions from deforestation in the post-2012 agreement. This advances a number of U.S. national interests. First, it will enable the world to achieve far deeper emissions reductions at a reasonable cost than would otherwise be possible. It will allow developing nations to benefit economically by protecting their forests, rewarding them for a global service they currently provide for free, and reduce the financial incentive to liquidate vital natural resources for short-term gain. And it will allow developing countries to contribute to resolving the climate change problem without sacrificing their economic development.

Second—and this will be taken up by my colleague from Oxfam—but we would really strongly encourage the United States to support full funding for adaptation efforts, and ensure that those adaptation efforts include protection of the forest, the coral reefs, the other healthy ecosystems that poor people will depend on increasingly in the future.

And finally just to close, I would note that outside of the international negotiating process, there's a critical role the United States can play, and that's in providing direct support to developing countries, to protect their forests and their biodiversity, as well as to improve energy efficiency and develop and deploy environmentally sound, low-carbon energy technologies.

As I mentioned before, this is an American issue. For 30 years now the United States has led the world, as I believe, the first donor to recognize the importance of these investments. In the last few years, we haven't increased that support as much as we should have. We've been focused on some other priorities in our foreign assistance, and environment has sort of fallen by the wayside a little bit. There have been some important efforts, like the Tropical Forest Conservation Act. There's a very important bill in the Congress now, the Tropical Forest and Coral Conservation Act, but overall funding for international conservation activities has essentially remained flat, and it's actually been a challenge. And the Congress has been a—and this committee have been, tremendous supporters in encouraging the administration to maintain that funding.

There's an important leadership opportunity now to significantly reinforce our leadership in international conservation and directly support developing countries to reduce emissions from deforestation.

Thank you for the time.

[The prepared statement of Mr. Prickett follows:]

PREPARED STATEMENT OF GLENN T. PRICKETT, SENIOR VICE PRESIDENT AND EXECUTIVE DIRECTOR OF THE CENTER FOR ENVIRONMENTAL LEADERSHIP IN BUSINESS, CONSERVATION INTERNATIONAL, WASHINGTON, DC

Good afternoon, Mr. Chairman and members of the committee. I am Glenn T. Prickett, senior vice president and executive director of the Center for Environmental Leadership in Business at Conservation International. I lead CI's team on global climate change, which involves scientists, economists, policy analysts, and communicators from our many country programs around the world. Thank you for the opportunity to testify today.

CONSERVATION INTERNATIONAL AND CLIMATE CHANGE

Conservation International believes that the Earth's natural heritage must be maintained if future generations are to thrive spiritually, culturally, and economically. Our mission is to conserve the Earth's living heritage, our global biodiversity, and to demonstrate that human societies can live harmoniously with nature.

CI is an international organization with a board and a staff of nearly 1,000 people drawn from more than 45 countries where we work in the Americas, Africa, Asia, and the Pacific. We employ cutting-edge science to conserve threatened species and ecosystems in ways that contribute to human well-being, both of the communities where we work and of people around the world. We work in partnership with local governments, communities, nongovernmental organizations, and the private sector. Business partnerships are particularly important to us. We work with corporate leaders ranging from Wal-Mart, to Starbucks, to Bank of America to demonstrate that the private sector can be a force for conservation and economic growth through better business practices.

Climate change is one of our highest institutional priorities, both because climate change threatens biodiversity and the benefits that people derive from healthy ecosystems, and because the loss of biodiversity—especially the destruction of tropical forests—is one of the largest causes of human-induced climate change. We have been a leader for nearly a decade in helping to address both the impacts of climate change on biodiversity—how to anticipate those impacts and design appropriate conservation responses—and to reduce emissions from deforestation and land-use change.

The Bali Conference was a watershed event in creating new momentum for a global solution to climate change. CI had a significant presence in Bali, primarily to advise and support national delegations from the countries in which we work. Many important questions were on the table in Bali, including emissions targets, technology transfer, funding for adaptation and others. While CI has an interest and a point of view on all of these issues, at the request of the committee, I will focus my comments on the issue of forests.

IMPORTANCE OF HEALTHY ECOSYSTEMS

All people and all societies depend on the Earth's natural bounty for survival. Of the 1.2 billion people living in extreme poverty worldwide, nearly 90 percent depend on forest ecosystems and the services they provide, such as freshwater, protection from storms and floods, and crop pollination, for their livelihoods. Forests provide billions of dollars in benefits to the rural poor that would otherwise be required from local governments or international assistance organizations.

Healthy natural ecosystems and the services they provide will be increasingly important in helping poor communities adapt to the impacts of climate change, which will include more frequent or intense droughts, floods and coastal storms, and disease outbreaks. Natural forests and biodiverse landscapes help to moderate droughts, severe storms, floods and the spread of pests and diseases. As tragic examples of this, neither Hurricane Katrina nor the Asian tsunami would have been as devastating to coastal communities had mangroves and coral reefs not been cleared years earlier.

This committee was among the first to recognize the strategic value of healthy tropical forests and other ecosystems over two decades ago. In enacting sections 117 and 118 of the Foreign Assistance Act, the Congress expressed its concern about

[T]he continuing and accelerating alteration, destruction, and loss of tropical forests in developing countries, which pose a serious threat to development and the environment. Tropical forest destruction and loss . . . can result in . . . destabilization of the earth's climate. Properly managed tropical forests provide a sustained flow of resources essential to the economic growth of developing countries.

CLIMATE CHANGE IMPACTS

Human-induced global climate changer¹—upsetting the balance of nature—is the greatest threat to our long-term health and security. The IPCC's fourth assessment report documents impacts that are already occurring and will worsen in coming decades. Sea level rise and warming of the oceans subject coastal areas to flooding and

¹“Global warming” is most traditionally used to refer to the increase of the Earth's average surface temperature, due to a buildup of greenhouse gases in the atmosphere. “Climate change” is a broader term that most often refers to long-term changes in climate, including average temperature and precipitation.

more intense storms. Changes in climate, particularly rainfall patterns, threaten food security in some of the world's poorest regions. Expanded ranges for infectious diseases worsen public health crises. As these incidents escalate, they will tax global humanitarian efforts and scarce funding sources, as well as threaten global security and diplomatic relations.

A large and expanding body of scientific evidence indicates that biological and ecological systems may be among the most sensitive to climate change. CI believes that stabilizing the concentration of carbon dioxide in the atmosphere at or below 450 ppmv² is crucial in order to restrict temperature increases to less than 2 °C above preindustrial levels. Limiting climate change to this degree will help avoid significant risk of intolerable environmental disruptions and irreversible species loss. Every day we postpone reductions in CO₂ emissions and maintain current trends, we increase the need for more costly and restrictive emissions reductions. Stabilization will require immediate, aggressive, and innovative action.

Even with immediate, aggressive, and innovative climate change mitigation actions, we know that significant climate change is expected due to the 1 trillion tons of greenhouse gas emissions released to the atmosphere over the past two centuries. As a result, the world is already committed to at least a 1 °C global mean temperature rise, with some regions potentially experiencing several times higher temperature increases.

Signs that climate change is already occurring, and having drastic impacts on biodiversity and human welfare, include:

- Amphibian extinctions in Costa Rica resulting from changing rainfall and air temperature patterns;
- Drastic reductions in Adelie penguin populations around Antarctica due to ecosystem changes resulting from melting polar ice;
- Listing of the polar bear on the U.S. endangered species list due to decreased polar ice coverage;
- Threats to livelihood strategies of arctic peoples from melting ice shields and permafrost;
- Increasing desertification impacting rural lifestyles in Africa.

PUTTING NATURE'S TECHNOLOGY TO WORK

We stand at a critical point in history. The twin challenges of climate change and energy security require us to innovate, to reduce our environmental footprint, and to become more efficient and productive in the way we use energy and natural resources. As we pursue new technologies to tackle these challenges, we must not overlook the opportunity to harness nature's own technology—the biological diversity of species, genes, and ecosystems—to help the global community mitigate and adapt to climate change cost effectively and immediately. If we don't take immediate action to incorporate forests and biodiversity into our approach to climate change, we run the risk of missing major opportunities to reduce emissions and undermining the efforts of poor communities to adapt.

Few people realize that the burning and clearing of tropical forests and other land use changes is the second largest source of greenhouse gas emissions, after electricity generation. Tropical forests store more carbon than any other terrestrial ecosystem. When they are destroyed, the carbon they contain is released into the atmosphere and contributes to global warming. With 19 million tons of CO₂ entering the atmosphere from deforestation each day, tropical deforestation and other land use changes produce some 20 percent of all the world's greenhouse gas emissions. To put that in perspective, tropical deforestation accounts for more than twice the emissions produced by all the cars and trucks in the world.

For many developing countries, deforestation is the largest source of greenhouse gas emissions, and in many instances, these deforestation emissions are globally significant. Brazil and Indonesia, for example, are the third and fourth largest sources of greenhouse gas emissions, after the United States and China, and land use change accounts for 70–90 percent of their total emissions. If deforestation in Brazil and Indonesia continues at current rates, their emissions alone could counteract ~80 percent of the carbon emissions reductions agreed to in the Kyoto Protocol.³

According to the IPCC, forest conservation, reforestation, and improved forest management, particularly in developing countries, can provide up to 25 percent of the emissions reductions needed in the coming decades. The Stern Review reinforced this finding and concluded that “curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions and has the potential to offer significant re-

² ppmv (parts per million by volume).

³ Santilli et al., “Tropical Deforestation and the Kyoto Protocol,” pg. 268 (2005).

ductions fairly quickly.” Protection and expansion of forests will also provide numerous additional environmental, economic, and social benefits, particularly in some of the world’s poorest countries, including protection of biodiversity, restoration of degraded lands and watersheds, clean water, and enhanced and diversified incomes for the rural poor (which may provide communities with a safety net to protect against the impacts of climate change).

WHAT HAPPENED IN BALI?

In December, two important events—one international and one domestic—created new momentum behind using nature’s technology to combat climate change by protecting and restoring forests.

- In Bali, the Parties to the U.N. Framework Convention on Climate Change (UNFCCC) adopted the “Bali Action Plan,” which outlines the scope, timeline, and process for governments to reach agreement over the next 2 years on a post-2012 international framework to avoid dangerous impacts from climate change. A key element of this Action Plan will be negotiation on the role that forests will play in a post-Kyoto agreement, including incentives to reduce emissions from deforestation and forest degradation (REDD). While we recognize that there are still tough decisions to be made on the road to Copenhagen in 2009, this is a tremendously important development for climate stabilization, sustainable development, and biodiversity protection.
- In Washington, the Senate Committee for Environment and Public Works voted to advance America’s Climate Security Act. The bill includes significant steps to reduce emissions from a variety of sources, including measures aimed at preventing deforestation and promoting forest restoration. While we believe that these provisions can be strengthened, the committee’s vote sent an important signal to the negotiators in Bali that protecting tropical forests can and should play an important role in the world’s response to climate change.

This important new focus on forests should not distract attention from the need to reduce emissions in the energy sector through improved energy efficiency and the development and deployment of low-carbon energy technologies. We need a comprehensive set of strategies to take on what may be the greatest challenge of our time with every tool at our disposal.

CREATING AN EFFECTIVE PROGRAM TO REDUCE EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION (REDD)

The inclusion of REDD in the Bali Action Plan is a welcome sign that all governments are committed to a more prominent role for forest conservation as a legitimate mitigation strategy in a post-2012 agreement. The discussions at Bali highlighted a number of outstanding questions about how such a system would operate, which will need to be resolved in the negotiations over the next several years. It will be important for the United States to have a clear position on these questions to ensure that the REDD mechanism results in effective forest protection on the ground that makes a measurable difference for the climate, for local communities, and for biodiversity. These questions include:

Should the financial incentives to compensate for reduced deforestation come from market or nonmarket sources, or both? Market sources offer the most promising, long-term and sustainable financing flows to compensate REDD activities in developing countries. There may be circumstances, however, where nonmarket financial sources are more appropriate. For the United States, this should mean an increase in the bilateral and multilateral support that we provide for forest conservation and restoration. It will be essential to develop a REDD mechanism that: (a) Delivers real and verifiable emissions reductions that abate climate change; (b) generates confidence in the carbon markets to promote investment in these types of mitigation strategies; (c) delivers fair and competitive prices for REDD credits, on par with fossil fuel-based credits; and (d) is designed in such a way that biodiversity and people are positively impacted. In particular, the interests and rights of forest peoples and other poor and vulnerable groups that depend on forests must be addressed and they must be included in the discussions.

Greenhouse Gas Accounting—should national reference scenarios be the only baseline reference, or should there be a combination of national and subnational approaches? Leakage⁴ is one of several issues that must be incorporated into a

⁴Leakage: Changes in emissions that take place beyond the boundary of the project but are attributable to the project activity are called emissions leakage. We need to quantify new and

REDD framework. National reference scenarios offer a viable structure that can help minimize the risk of leakage within a given country; however, getting to national reference scenarios may take time, and in that time period, significant forests will be lost. The recent Bali decisions on REDD include modalities to test national and subnational approaches, based on country circumstances. We believe that these provisions are critical to allow participation of countries that are unable to assess and mitigate deforestation at the national level immediately; however, these activities would need to be carefully measured, monitored, and reported to ensure they lead to overall national emissions reductions.

Given the magnitude of current deforestation emissions and the threat of continued and even increasing emissions, and given that the knowledge and technology exists to stop deforestation and thereby drastically reduce GHG emissions immediately, we strongly recommend a system that:

- Allows and rewards early action to encourage governments to take steps to reduce deforestation quickly. Without this incentive for early action, significant time (and biodiversity) will be lost and potential emissions avoided will not be realized as quickly and at the scale required.
 - Requires forest protection activities to produce broad benefits for the environment, including biodiversity protection, and to promote sustainable development objectives to the greatest extent possible.
 - Assures that forest carbon credits are of high quality in order to bolster a strong overall emissions cap by requiring that such credits represent real, permanent, and verifiable emissions reductions, with reliable measuring and monitoring and appropriate accounting for leakage.
 - Ensures that REDD credits are included and tradable in existing and new market-based mechanisms to stimulate emissions reductions.
 - Makes international funding available to help build the capacity of developing countries to participate in REDD activities and in forest carbon markets more generally, which will allow for more rapid and effective emissions reductions.
- Others are beginning to act:
- The United Kingdom, Norway, Germany, Australia, Japan, and other countries are directing large sums of money toward international forest protection and adaptation efforts.
 - The World Bank's Forest Carbon Partnership Facility is one global mechanism that will support capacity-building for national-level activities.
- Involves indigenous and other forest-dependent peoples in the process of decisionmaking, planning, and implementation related to REDD, including benefit distributions, and addresses traditional and formal tenure.

CONSERVATION INTERNATIONAL'S FOREST CARBON PROJECT EXPERIENCE

The conclusions and recommendations detailed above are drawn from CI's extensive experience providing leadership and working with diverse partners to understand the important role of forests and to develop effective and innovative mechanisms to optimize their potential for climate change mitigation and adaptation. Our engagement covers a broad spectrum, including:

- Partnerships with governments, NGOs, and other groups on over 20 innovative forest carbon initiatives underway or in development across three continents (Africa, Asia, and South America). These include forest protection, restoration and reforestation activities.
- A partnership to develop the first approved small-scale afforestation/reforestation project under UNFCCC's Clean Development Mechanism, a native forest restoration project in China. With the Government of Madagascar and local partners, CI also contributed to the development of the first avoided deforestation project selected by the World Bank's BioCarbon Fund.
- Convener and founding member of the Climate, Community & Biodiversity Alliance (CCBA), a partnership among some of the world's leading companies, NGOs, and research institutions. This Alliance produced and promotes a set of standards that can be used to evaluate land-based carbon mitigation projects in the early stages of development. The CCB Standards foster the integration of best-practice and multiple-benefit approaches into project design and evolution. To earn approval under the CCB Standards, projects must satisfy 15 required criteria to demonstrate compelling net benefits for fighting climate change, conserving biodiversity, and improving socioeconomic conditions for

additional emissions occurring offsite and take them into account in assessing the emissions reductions achieved.

local communities. They are now the leading international standards giving assurance of high quality of multiple-benefit forestry, agroforestry, and avoided deforestation carbon projects.

- Establishment of the Indigenous and Traditional Peoples Initiative (ITPI) which focuses specifically on the intersection of indigenous issues, rights and policy, and conservation. Currently ITPI is working with international and regional indigenous groups to build a coalition to address indigenous capacity on climate change related topics at local to international scales.

THE ROLE OF THE UNITED STATES

The inclusion of international forest protection and restoration in a post-Kyoto Framework and in U.S. climate policy will enable the world to achieve far deeper emissions reductions, at a reasonable cost, than would otherwise be possible. It will allow developing nations to benefit economically by protecting their forests—rewarding them for a global service they currently provide for free—and it will reduce the financial incentive to liquidate vital natural resources for short-term gain. It will also allow developing countries to contribute to abating climate change without sacrificing economic development. The United States should be a strong advocate for including effective, environmentally sound, and socially equitable mechanisms to protect and restore forests in a post-2012 agreement.

The Bali Action Plan also emphasizes the need to support developing countries in their adaptation efforts. Healthy, diverse ecosystems will play a vital role in helping both people and nature cope with the inevitable impacts of climate change. Ensuring adequate funding, and a strong programmatic focus on biodiversity protection, through the Adaptation Fund and other mechanisms should be a priority for the United States.

At this time, there is a great need for the international community to come together, and particularly for the major economies to develop a common approach, to ensure that we provide a stable climate and a livable Earth for our children and for future generations. In the year ahead, there will be important opportunities to discuss with other nations' goals, targets, and strategies needed to reduce emissions. These opportunities include the U.S.-led Major Economies Meetings, the G-8 summit in Japan, and many intercessional meetings of the UNFCCC. The goal of the United States in all of these meetings should be to provide leadership to encourage adoption by governments of an aggressive target and effective strategies to reduce emissions significantly in the years to come.

Outside of the international negotiating process, the United States should renew its leadership in providing support to developing countries to protect forests and biodiversity, to improve energy efficiency, and to develop and deploy environmentally sound, low-carbon energy technologies. The United States led the world as one of the first donor nations to recognize the importance of these investments for developing countries themselves and for the world. Sadly, we have fallen behind in our commitment to these vital priorities. We can and should restore our leadership on international conservation.

As a global leader, the United States has an opportunity to promote new and innovative climate solutions—both in scope and scale—that are cost effective and efficient. This should be done here at home, in our bilateral relationships, and as a key player in the international process.

We look forward to working with the administration and with Congress to ensure that a comprehensive, inclusive, and verifiable structure is put in place to achieve these multiple benefits to the global community.

Senator MENENDEZ. Thank you.

Mr. Lyons.

STATEMENT OF JIM LYONS, VICE PRESIDENT FOR POLICY AND COMMUNICATION, OXFAM AMERICA, WASHINGTON, DC

Mr. LYONS. Thank you, Mr. Chairman, Senator Kerry, Senator Voinovich. It's a pleasure to join you this afternoon.

I'm vice president for Policy and Communications at Oxfam America, and I have to tell you, Mr. Chairman, I'm also a native son of New Jersey, and at the risk of alienating Senator Kerry, a big Giants fan.

Let me state at the outset that we believe that this committee can play a critical role in overseeing and shaping the United States

participation in the negotiations to follow from Bali. And we certainly look forward to working with you and your colleagues in that endeavor.

We've come to see climate change as a true global threat, and certainly one of the greatest challenges that we face in attempting to promote sustainable development and to reduce global poverty. In our operations from Africa and Latin America, to East Asia, and in the southeastern United States, our staff and partners are already seeing the consequences of climate change, and attempting to respond to its impacts.

Over time, the science indicates that weather extremes, food and water scarcity, and climate-related public health threats are projected to displace between 150 million and 1 billion people as climate change unfolds. Thus, the lives of millions of people around the world are likely to be threatened by climate change. Beyond the obvious and immediate impacts on the poor and vulnerable communities, the consequences of global warming could undermine global stability and ultimately national security.

The Bali action plan or roadmap sets out a framework for international negotiations on a post-2012 agreement that will focus on four key areas: Emissions reductions, adaptation, finance, and technology. And I'll briefly address all of those elements.

Oxfam agrees with many countries that advocated Bali for emissions levels that would keep total warming as far as possible below the 2 degrees Celsius mark above preindustrial levels, and that total emission levels should reflect that global warming threshold. This is consistent with the report of the IPCC, which indicates that the needs of developing countries, to adapt to climate impacts, are likely to be much more severe beyond that threshold.

The broad outlines of a global deal on climate change did become evident in Bali. It will require developing countries to commit to take nationally appropriate steps to cut emissions. But it will also require developed countries to shoulder their fair share by leading the way in undertaking emissions cuts and by providing the necessary assistance to developing countries to adopt lower emissions pathways and to adapt to severe climate impacts. In this regard, I believe the Bali agreement is truly a global framework for action.

I'd like to briefly focus on a critical part of the path forward, and that is the way in which the United States and other developed nations help developing countries adapt to the consequences of climate change. Financing and other assistance for vulnerable countries facing the impacts of climate change is the central element of this global deal. This seems fair and appropriate, since those around the world who are least responsible for the emissions causing climate change, will bear many of the consequences of climate change and suffer the greatest burdens.

And, according to the IPCC, even with significant reductions in global greenhouse gas emissions, climate impacts in vulnerable developing countries will far outstrip their ability to cope.

The Bali action plan provides a solid basis for creating the necessary adaptation assistance, calling for improved access to adequate, predictable, and sustainable financial resources, and financial and technical support in the provision of new and additional

resources for both adaptation and emission reduction activities in developing countries.

The plan emphasizes the need for innovative sources of funding to assist developing countries in meeting the cost of adaptation. In fact, we believe an opportunity is at hand for the Congress to take a bold and innovative step in helping developing countries adapt to global warming consequences.

As has already been alluded to, the climate legislation that recently was reported by the Environment and Public Works Committee designates a portion of revenues to deal with two important issues—one is the issue of deforestation.

But a second—and we think, essential—issue, is redirecting a portion of auction revenues to be used for adaptation funding and assistance in developing countries. If approved by the United States, this approach could serve as a model for the kind of adaptation funding mechanisms developed countries could adopt as a part of any international agreement.

Ultimately, to achieve substantial shifts in emissions trajectories in developing countries, an effective post-2012 global deal will require countries with greater economic capacity—including the United States—to help developing countries meet their growing energy needs in a more environmentally friendly way.

All of you today have addressed the important opportunities for the United States to provide clean energy technology to developing countries, and to invest in the development and the implementation of that technology.

We believe U.S. businesses and workers can benefit from the technological innovation and green jobs, generated by a push to provide clean energy technology, goods, and services to developing countries seeking to transform their energy use. Moreover, by playing a global leadership role in the expansion of clean energy technology, the United States can help reduce greenhouse gas emissions while alleviating poverty and promoting international development, stability, and security. This is a clear opportunity for U.S. leadership and an effective partnership between government, business, and nonprofits working in the developing world.

In conclusion, Mr. Chairman, as I noted earlier, this committee can play a particularly important and unique role in moving the Bali negotiations forward and ensuring U.S. engagement and leadership in that effort. The Lieberman-Warner climate change bill provides an important first step in financing adaptation work in developing countries and the means of alleviating global warming effects. This is good for those in greatest need, and good for the United States from a national security, and economic standpoint.

As a final note, we believe that it's particularly important for this committee to pay close heed to the major economies meeting process that has been launched by the Bush administration. Our primary concern is that most climate-vulnerable countries are not at the table, and therefore have no opportunity to express their concerns about climate impacts, emission reduction targets, and adaptation needs. And I think you would agree, Mr. Chairman, that this approach to negotiating is like trying to make an important policy decision in the Senate, with only one party at the table. It's just not going to happen.

Thank you for the opportunity to address you today, we look forward to working with you to ensure that the United States is at the forefront of efforts to provide global leadership on the environmental challenges that are presented to us by climate change, and also captures the important opportunities that can result from a creative and innovative approach to dealing with this challenge.

[The prepared statement of Mr. Lyons follows:]

PREPARED STATEMENT OF JAMES R. LYONS, VICE PRESIDENT FOR POLICY AND COMMUNICATIONS, OXFAM AMERICA, WASHINGTON, DC

Good afternoon, Mr. Chairman and members of the committee. I am Jim Lyons, Vice President for Policy and Communications of Oxfam America. Oxfam is an international development and humanitarian organization. This afternoon, I am pleased to be able to discuss with you the outcomes from the 13th Conference of the Parties to the United Nations Framework Convention on Climate Change and the 3rd Meeting of Parties to the Kyoto Protocol, in Bali, Indonesia, in December, and a way forward from those negotiations.

CLIMATE CHANGE: A SIGNIFICANT THREAT TO THE WORLD'S MOST VULNERABLE PEOPLE

We have come to see climate change as one of the greatest challenges to our efforts to promote sustainable development and reduce global poverty. In our operations spanning Africa, Latin America, East Asia, and the United States itself, our staff and partners are already responding to the serious impacts of climate change, from increasingly severe weather events to water scarcity.

Ninety-seven percent of all natural disaster-related deaths already take place in developing countries, and the estimates of climate change's contribution to worsening conditions are disturbing. By midcentury, more than a billion people will face water shortages and hunger, including 600 million in Africa alone. Weather extremes, food and water scarcity, and climate-related public health threats are projected to displace between 150 million and 1 billion people as climate change unfolds.

As the science indicates, poor and vulnerable communities around the world will increasingly bear the brunt of the consequences of global warming, threatening the lives of millions of people and potentially undermining global stability and security. Oxfam is committed to addressing both the causes of climate change and the consequences for those least able to adapt to its impacts. These impacts, and the resulting increases in global poverty, will undermine global stability and security.

THE GLOBAL DEAL MADE POSSIBLE BY BALI

Following two weeks of intensive talks on a wide range of issues, the negotiations in Bali resulted in a Bali Action Plan, or "roadmap," that sets out a framework for international negotiations on a post-2012 agreement updating the Kyoto Protocol and the Framework Convention on Climate Change. Negotiations on a post-2012 agreement are scheduled to be concluded in December 2009.

The Bali Action Plan frames a new effort to address climate change. A rough guide to the road for global negotiations has been established in four key areas—mitigation (emissions reduction), adaptation, finance and technology. The Senate, and the Foreign Relations Committee in particular, will play a crucial role in overseeing and shaping the United States role in those negotiations. We hope to be able to work with you to ensure that those who are most deeply affected by climate impacts are at the center of the global discussions.

The exact destination for the Bali roadmap, and the speed at which countries will travel to get there, still remain highly uncertain. Indeed, we were disappointed by aspects of the Bali Action Plan that left unsettled some key guidelines for the way forward. In particular, the representatives of the United States, aided at key moments by Canada and Japan, refused to allow the inclusion of clear, science-based objectives for the total reductions in greenhouse gas reductions that the negotiations should achieve.

Oxfam agrees with the many countries that advocated at Bali for emissions levels that would be consistent with keeping total warming as far as possible below 2 degrees C/3.6 degrees Fahrenheit above preindustrial levels and that total emissions levels should reflect that global warming threshold. The Intergovernmental Panel on Climate Change (IPCC) reports indicate that the impacts of climate change, and the needs of developing countries to adapt to climate impacts, are likely to be much

more severe beyond that threshold. Unfortunately, the United States said repeatedly, to the consternation of many other countries, that it did not want to “prejudge” the outcome of a post-2012 agreement by including total emissions objectives.

Nonetheless, the Bali roadmap is unprecedented and offers significant opportunities that can be seized upon in the coming 2 years of negotiations. For the first time in international climate negotiations, a process has been established in which all countries—both developed and developing—will discuss their respective responsibilities to cut emissions. This creates an opportunity for the United States to fully re-engage in international climate talks. And it also means that developing countries have become a central part of discussions around emissions, although the Bali roadmap also makes clear that their obligations will be different in nature from rich country obligations and that their actions should be clearly contingent on the provision of financing and technology by developed countries.

This outcome is largely due to one of the most important developments that occurred in Bali: An insistent and powerful determination on the part of developing countries to shape the negotiating agenda, including a willingness to be flexible when it was required. To move negotiations forward, developing countries made clear that they were prepared to engage in addressing emissions, but that other key issues for them must also be addressed in a forthright and substantive manner. The dramatic final moments of the Bali summit illustrated the readiness of developing countries to take “measurable, reportable, and verifiable” actions regarding emissions, supported by developed country assistance to developing countries with “measurable, reportable, and verifiable” financing, technology, and capacity building.

At many points, the desire of developing countries to find a way forward was met by resistance from United States representatives on issues such as funding for developing countries harmed by climate impacts. In the end, however, the broad outlines of a global deal on climate change become evident in Bali. It is a deal that will ask developing countries to take “nationally appropriate” steps, but also must fundamentally require developed countries to shoulder their fair share both by leading the way in undertaking, emissions cuts and by providing the necessary assistance to developing countries to adopt lower emissions pathways and adapt to severe climate impacts. As we move into these negotiations, the ability of the United States to play a leading role in shaping a future global agreement will depend on our readiness to recognize the concerns and perspectives of developing countries.

ADAPTATION

For many developing countries, the provision of financing and other assistance for vulnerable countries facing the impacts of climate change is a central element in this global deal. As countries such as Bangladesh, Uganda, and the Alliance of Small Island States underscored at Bali, those around the world who are least responsible for the emissions causing climate change will bear many of its greatest burdens. The IPCC has noted that, even with significant reductions in global greenhouse gas emissions, climate impacts in vulnerable developing countries—including severe weather events, water scarcity, flooding, decreases in agricultural productivity, spread of disease, and migration and refugee crises—will far outstrip the available resources in those countries to cope.

Based upon World Bank data and other relevant analyses, Oxfam has estimated that globally poor countries will require at least \$50 billion a year to address the consequences of global warming. Just prior to the Bali negotiations, the United Nations Development Program estimated in the most recent Human Development Report that the adaptation needs of developing countries will be more than \$80 billion a year.

The Framework Convention on Climate Change already obligates developed countries, including the United States, to provide assistance to developing countries adversely affected by climate change. However, thus far financing through international funding mechanisms has not topped \$150 million. The United States contribution to the Least Developed Country Fund and the Special Climate Change Fund established under the auspices of the Framework Convention has been “zero.” Developing countries have therefore stressed that an equitable post-2012 global agreement must involve substantial new and additional resources to meet these adaptation needs.

At Bali, Bush administration negotiators strongly objected to references to new funding sources, once again arguing that outcomes of a post-2012 agreement should not be prejudged. In spite of these objections, the Bali Action Plan provides a solid basis for creating the necessary adaptation assistance. The negotiating mandate includes “improved access to adequate, predictable and sustainable financial resources

and financial and technical support, and the provision of new and additional resources” for both adaptation and emissions reduction activities in developing countries, and specifically calls for “innovative means of funding to assist developing country Parties that are particularly vulnerable to the adverse impacts of climate change in meeting the cost of adaptation.”

The Bali roadmap also outlines a number of adaptation issues that will be addressed in negotiations, including providing support for vulnerability assessments, financial needs assessments, capacity-building and response strategies, and the integration of adaptation actions into sectoral and national planning. The negotiating mandate also addresses the development of risk management and risk reduction strategies, including insurance, as well as disaster reduction strategies.

Much work remains to be done to bring these opportunities to fruition over the next 2 years of negotiations. It will be especially crucial to develop what the Bali Action had itself calls “innovative” funding mechanisms for adaptation in addition to more conventional government funding.

Perhaps most important, the United States Congress may be able to provide one of the most effective tools for enhancing resources for developing country adaptation. The climate legislation recently reported by the Senate Environment and Public Works Committee, titled the Lieberman-Warner Climate Security Act, designates a portion of the revenues from the auction of greenhouse gas emission permits to be used for adaptation assistance in developing countries. Similarly, Germany has signaled its intention to designate a portion of auction proceeds from a cap-and-trade system to developing country adaptation. If approved in the United States soon, this type of mechanism could serve as a model for the kind of adaptation funding mechanisms developed countries could adopt as part of an international agreement.

In addition to recognizing the need for new, additional resources for adaptation, negotiators in Bali also reached agreement on implementation of the Adaptation Fund for developing countries that was created under the Kyoto Protocol. The Bali decision enables this special Adaptation Fund to get up and running in 2008 with initial funding from a small 2-percent levy on all transactions under the Clean Development Mechanism, a mechanism which allows entities in developed countries to offset excess emissions by purchasing carbon credits from projects in developing countries.

Implementation of the Adaptation Fund was an issue that had remained unresolved from earlier negotiating sessions, in large part because of a dispute between developing and developed countries about which institution should oversee its operations. At Bali, a compromise was reached. The Global Environment Facility, which many developing countries felt has not adequately met their needs and is governed by a council controlled by developed countries, will be the day-to-day implementing body for the fund. But the adaptation operations of the GEF, including its choice of projects and programs, will be overseen by an executive board comprised of a majority of developing country representation from the countries that belong to the Kyoto Protocol. Although the United States is not a Party to the Kyoto Protocol and thus does not participate in the Adaptation Fund, we should certainly take note of this significant step forward in making the fund operational.

EMISSIONS REDUCTION AND CLEAN ENERGY TRANSFER

In addition to adaptation issues, the Bali roadmap also creates important negotiating opportunities involving clean energy technology transfer to developing countries. In the Bali Action Plan, the transfer of clean energy technologies is closely linked to a broader set of objectives around emissions reductions in developing countries.

In Oxfam’s view, producing meaningful outcomes regarding “nationally appropriate” emissions levels for developing countries will require a clear delineation of the appropriate roles and responsibilities of different countries at different levels of development. For instance, it should be kept in mind that India has approximately only one-quarter of the total and per capita greenhouse gas emissions of China. China, whose emissions levels, in total, are currently at or exceeding U.S. emissions by some estimates, still has only one-quarter of the per capita emissions of the United States. Further, many developing countries are already undertaking significant efforts to increase energy efficiency and the use of clean energy technologies.

Ultimately, to achieve substantial shifts in emissions trajectories in developing countries, an effective post-2012 global deal will require countries with greater economic capacity, including the United States, to provide financing to help developing countries transform their emissions pathways. From the first day of the Bali meeting, when developing countries pressed for the inclusion of technology transfer in implementation negotiations for the Framework Convention and Kyoto Protocol, it

was clear that clean energy technology issues would be a central concern of the negotiations. The concluding moments of the Bali negotiations underscored the concern. The conference ended with adoption of the language proposed by India and other developing countries that technology, financing and capacity-building support from developed countries would be provided in a “measurable, reportable, and verifiable manner.”

The agreements reached at Bali also call for the development of an energy technology transfer “programme” at the Global Environment Facility and a negotiating mandate on “effective mechanisms and enhanced means for the removal of obstacles to, and provision of, financial and other incentives for scaling up of the development and transfer of technology.” As with adaptation, the challenge now is to ensure that these negotiating opportunities are brought to fruition with significant commitments in a post-2012 agreement and that implementation provides real environmental and social benefits on the ground in developing countries. Technology transfer for clean energy can be a key dealmaker as the negotiations move forward.

Moreover, the United States stands to gain tremendously from an effort to provide clean energy technology to developing countries. Our economy and workers can benefit from the technological innovation and “green jobs” generated by a push to provide clean energy goods and services to developing countries seeking to transform their energy use. Moreover, by playing a global leadership role in the expansion of the clean energy sector, the United States can help reduce greenhouse gas emissions while alleviating poverty and promoting international development, stability, and security. We should view the challenge of addressing developing countries’ role in climate change as an opportunity for U.S. leadership rather than a threat.

CONCLUSION

As I noted earlier, the Senate and this committee, in particular, have an important role to play in guiding and overseeing the U.S. engagement in the negotiations that follow the recent meeting in Bali. The United States has a new and unique opportunity to engage with developing countries and to assist them in adapting to the serious climate consequences they face while moving to lower emissions pathways. We can create a global deal, but only if the United States is proactive and responsive to developing countries’ concerns and perspectives.

It will be particularly important to watch the Major Economies Meeting process that the Bush administration has created in order to ensure that it does not distract from the central task at hand in the post-2012 multilateral negotiations in the United Nations framework. One of our central concerns with the Major Economies’ structure is that the vast majority of the most vulnerable countries are not at the table and are therefore unable to raise their concerns regarding climate impacts, adaptation assistance, and urgently needed emissions reduction targets. At the end of the day, only a process that is inclusive of all countries and responsive to their needs and concerns will produce the global agreement needed to address the global crisis that climate change presents.

Thank you for the opportunity to address you today. We very much look forward to working with you to ensure that the United States is in the forefront of addressing the enormous challenges presented by climate change and recognizes, as well, the global opportunities that can result.

Senator MENENDEZ. Thank you very much.

What part of New Jersey were you from?

Mr. LYONS. Fort Lee.

Senator MENENDEZ. Fort Lee?

Mr. LYONS. And a Rutgers graduate.

Senator MENENDEZ. Well, you’re hitting all of the cylinders, here.
[Laughter.]

Senator MENENDEZ. Mr. Castellani—we won’t even go there.

Mr. Castellani.

STATEMENT OF JOHN J. CASTELLANI, PRESIDENT, BUSINESS ROUNDTABLE, WASHINGTON, DC

Mr. CASTELLANI. Thank you, Mr. Chairman. Senators Voinovich and Kerry, I too appreciate the opportunity to testify here today and I’m neither from Massachusetts, Ohio, nor New Jersey.

I'm president of the Business Roundtable, and the Business Roundtable—

Senator MENENDEZ. Now we know where you're from. [Laughter.]

Mr. CASTELLANI [continuing]. Is an association of Chief Executive Officers of leading U.S. companies, collectively these companies represent more than \$4.5 trillion in annual revenues, and employ more than 10 million people.

In the last few years, climate change has vaulted into the top two of issues that these CEOs have engaged in, and has gotten their direct attention. Roundtable members agree that there is increasing evidence that the Earth's climate has been warmed over the last century, and that greenhouse gas concentrations have increased in the atmosphere due to rising worldwide emissions of them.

We believe that steps to address global warming are prudent now, even while science continues to evolve, and our goal should be one of slowing increases in greenhouse gas concentrations in the atmosphere and ultimately stabilizing them at levels that will address the risk of climate change.

How we achieve these reductions is a much-debated issue within our membership. While we have many members who support cap and trade legislation, many others favor different approaches, including a carbon tax. But nonetheless, there is strong agreement that we must adopt an emissions reduction path that allows for continuing economic growth in the United States and globally.

And that's why the Roundtable has emphasized the need to design any new framework to encourage the development of new technologies, avoid unnecessary costs, and maintain affordable energy supplies.

We also need the ability to adjust the pace of emissions reductions, as we better understand the capabilities, limitations, and costs of new technologies, and the timetable for their employment.

No discussion of climate change can look at the United States in isolation from the rest of the world. Climate change is global in both its causes and impacts and we believe requires a global response.

We have called for a comprehensive international agreement, which establishes an equitable and effective global framework for addressing climate change that maintains U.S. and global economic growth. Under this agreement, all major emitting countries should commit to appropriate emission reductions, and the role of developing nations is critical, because their emissions are growing at a rapid pace, and will soon exceed those of the developed world.

We think the just-concluded conference of parties, the COP in Bali, was a positive and constructive step toward a new global framework. We are pleased that the United States supported the Bali roadmap, and we will be actively engaged in the process going forward. The Roundtable believes that U.S. leadership in international climate negotiations is essential.

We also believe that the Bali roadmap opens the door to meaningful developing nation participation in the climate change agreement, with key developing nations committee to take actions to reduce emissions that are measurable, reportable and verifiable.

The Bali roadmap does not address what steps either developing or developed countries will agree to take, and this will be a difficult subject which will be the focus of the negotiation process, and we understand that the obstacles to reaching agreement are large.

We believe the United States needs to lead by example in this process, but we need to be mindful of the complex economic inter-relationships we have with other major emitters. We need to challenge developing nations to take tangible and meaningful actions, but not insist on impossible measures that would damage their economies.

At the same time, we need to set realistic milestones for developed nations that assure that economic growth is not stifled, and that technological innovation is encouraged. In the end, the successful transfer of technology from developed to developing nations, may be the best tool to achieve emission reduction progress around the globe.

Our government faces the difficult task of negotiating an international agreement at a time when there are some divisions over what the policies are that we should adopt domestically. In particular, we don't have a consensus on what emission reduction targets should be set, and whether we should achieve these targets through a cap and trade program, a carbon tax, or some other approach.

But unfortunately, this debate may not be resolved until 2009, well into the implementation of the Bali roadmap. During this interim period, we need to proceed on parallel tracks, both internationally and domestically. We believe this will require close and continuing coordination between the executive branch officials representing the United States in the international negotiations, and the congressional leadership, so that evolving policies here in the United States are well-aligned with our negotiating positions.

Business leaders like our CEO members should be—and want to be—as part of that process. We believe it will be very important for smaller groups of countries to meet outside of the U.N. process, to develop areas of agreements and work through difficult issues.

We do support the continuation of the major economies dialog. We will support a dialog in other venues, such as the upcoming G-8 meeting in Japan. In fact, business leaders from the G-8 countries—including the Business Roundtable leaders—are planning a series of meetings in 2008 in parallel with the G-8 process, and climate will be an important part of that agenda.

Now, let me reiterate that no matter how complex the negotiations, and difficult the challenges, the members of the Business Roundtable recognize and support the fact that action must be taken.

Thank you for the opportunity to testify, and I look forward to your questions.

[The prepared statement of Mr. Castellani follows:]

PREPARED STATEMENT OF JOHN J. CASTELLANI, PRESIDENT,
BUSINESS ROUNDTABLE, WASHINGTON, DC

Good afternoon, Mr. Chairman and members of the committee. I appreciate the opportunity to testify today. My name is John Castellani. I am President of Business Roundtable (BRT).

Business Roundtable is an association of chief executive officers of leading U.S. companies with \$4.5 trillion in annual sales and more than 10 million employees. Member companies comprise nearly a third of the total value of the U.S. stock market and represent more than 40 percent of all corporate income taxes paid to the Federal Government. Roundtable companies are technology innovation leaders, with \$90 billion in annual research and development (R&D) spending—nearly half of total private R&D spending in the United States.

SUMMARY

In my testimony, I will first discuss Business Roundtable CEOs' work on the important and interrelated issues of climate change and energy security. Then I will turn to the subject of today's hearing: The international dimension of climate change and the path toward an international agreement following last month's Conference of the Parties in Bali, Indonesia.

Roundtable CEOs agree that there is increasing evidence that the earth's climate has been warming over the last century and that greenhouse gas (GHG) concentrations have increased in the atmosphere due to rising worldwide emissions of GHGs. We believe that steps to address global warming are prudent now even while the science continues to evolve. Our members have a range of views and preferences regarding the policy tools that should be used to address the warming threat. However, we agree on the need for collective actions that will lead to the reduction of GHG emissions on a global basis with the goal of slowing increases in GHG concentrations in the atmosphere and ultimately stabilizing them at levels that will address the risk of climate change.

Collectively, the Roundtable believes that climate change is global in both its causes and impacts and requires a global response. We have called for a comprehensive international agreement which establishes an equitable and effective global framework for addressing climate change. Under this agreement, all major emitting countries (including China, Brazil, and India) should commit to appropriate emission reduction goals.

The 13th Conference of the Parties (COP) which occurred in Bali, Indonesia, from December 3–15, 2007, represented a positive and constructive step toward a new global framework which BRT applauds. This conference was at times acrimonious and divisive but in the end resulted in agreement on a negotiating roadmap for achieving a new global climate agreement by the end of 2009 that would be in place by 2012. For the first time, key developing nations committed in Bali to take "nationally appropriate mitigation actions . . . in a measurable, reportable and verifiable manner." This commitment is nonspecific and could encompass many different options but it opens the door to meaningful developing nation participation in a climate change agreement.

We are pleased that the United States supported the Bali roadmap and will be actively engaged in the process going forward. BRT believes that U.S. leadership in international climate negotiations is essential. Nonetheless, we should be under no illusion that the upcoming negotiation process will be easy or free from conflict. The obstacles to reaching agreement remain large. In Bali, an impasse was reached between the U.S. and EU over whether common emission reduction targets should be set for developed countries and what level of reduction these targets should achieve. The debate at Bali over emission targets for developed nations mirrors in many ways the debate we are having domestically in Congress over climate legislation. Unfortunately, that debate may not be resolved until 2009, well into implementation of the Bali roadmap. During this interim period, there needs to be close and continuous coordination between the executive branch officials representing the United States in the international negotiations and the congressional leadership so that evolving policies here in the United States are well aligned with our negotiating positions. Business leaders, like our CEO members, should be an integral part of this process. We believe that all venues—including the major emitter's initiative launched by President Bush and the G-8 summit in Japan—should be used to encourage dialogue among the major players.

BUSINESS ROUNDTABLE'S CLIMATE POLICY STATEMENT

In the last few years, climate change has vaulted into the top tier of issues that have engaged the direct attention of our CEOs. Many of our CEOs have devoted considerable time to understanding the science with the help of outside experts on climatology and atmospheric chemistry; they've talked to policymakers to understand the range of options under consideration domestically and internationally; and they've looked hard at their product portfolios and investment strategies to understand how they might be affected in a world of carbon constraints. Working closely

with many Members of Congress, the administration, NGOs, and others, several prominent CEOs within our ranks have taken highly public positions on the seriousness of the climate challenge and what to do about it.

With interest rising across the business community, early last year we at Business Roundtable convened a dialogue among CEOs from a diverse set of economic sectors, including utilities, oil and gas, chemicals, autos, manufacturing and financial services. We did our homework by surveying the range of views among CEOs and consulting with scientists, NGOs, congressional leaders and the administration. Additionally, many companies have had conversations with employees to gain their perspective. Then our CEOs sat down to hammer out a statement that merged their differing perspectives. We did not achieve common ground on all the issues but made progress in some very important ways. Development of our policy statement was spearheaded by Chad Holliday, chairman and CEO of DuPont and chair of BRT's Environment, Technology & the Economy Task Force.

The BRT policy statement, issued on July 17, 2007, is attached to my testimony. It represents one of the first times that a broad cross-section of business leaders from every sector of the U.S. economy has reached consensus on the risks posed by climate change and the need for action. The statement acknowledges that "there is increasing evidence that the earth's climate has been warming over the last century and that increases in the earth's temperature are affecting many global ecosystems, especially the polar areas." It notes that, concurrent with this warming trend, "greenhouse gas (GHG) concentrations have increased in the atmosphere due to rising worldwide emissions of GHGs." The statement then emphasizes that "the consequences of global warming for society and ecosystems are potentially far-reaching" and steps to address the risks of such warming are prudent now even while the science continues to evolve. While recognizing the remaining uncertainties, the statement calls for "collective actions that will lead to the reduction of GHG emissions on a global basis with the goal of slowing increases in GHG concentrations in the atmosphere and ultimately stabilizing them at levels that will address the risk of climate change."

Our CEOs also agreed on many of the elements of an effective long-term strategy to achieve this goal. Our statement highlights the many opportunities to improve energy efficiency that exist throughout the economy—in residential and commercial buildings, motors and other industrial equipment, home appliances, cars and trucks, and the production, distribution, and use of electricity. We also highlight the importance of accelerating the development of efficient, low carbon technologies and the need for increasing R&D investment in the public and private sectors to speed the process of technological change and innovation. These technologies are essential to reducing GHG emissions while meeting rising energy demands to support economic growth. We make clear that the responsibility for taking action lies not just with government but with the private sector and that our companies should act now without waiting for legislative mandates. Thus, the statement calls on our members to make commitments to reduce their emissions, report publicly on their progress and spend more on climate-related R&D.

In fact, we are now in our fifth year of implementing a program to motivate our members to take voluntary action to reduce emissions and track their accomplishments. Business Roundtable's Climate RESOLVE (Responsible Environmental Steps, Opportunities to Lead by Voluntary Efforts) is the only broad-based business initiative dedicated to helping its members reduce their GHG emissions through one-on-one counseling, learning sessions, workshops, networking opportunities and exposure to member company best practices. The initiative has spurred greater awareness of climate issues in the business community and motivated many companies to develop policies and strategies for managing their emissions. More than 70 percent of Business Roundtable's membership has enrolled in Climate RESOLVE. A list of these companies is attached to my testimony.

Our members understand that the United States is moving toward a new policy framework on global warming and that Congress is considering bills that will demand substantial reductions in GHG emissions. Within our membership, there is a range of views and preferences on the policy tools that will best achieve that objective. Some members support cap-and-trade programs; others are partial to carbon taxes, technology initiatives or other approaches. Similarly, some members support mandatory approaches; others do not.

In an organization as diverse as Business Roundtable, it would be surprising to have unanimity on an issue this complex and far-reaching in its impact. Nevertheless, without recommending specific policies, our climate change statement outlines specific benchmarks that should be used to judge policy proposals by Congress or the administration. These benchmarks are in large part focused on assuring that

we can meet the challenge of global warming without harming our economy or U.S. competitiveness.

For example, our statement stresses the need to align emission reduction targets with the expected timelines for deploying advanced technologies and the ability of our economy to reduce its carbon footprint in an economically sustainable manner without increasing shortages of energy and raw materials, price spikes or other threats to economic growth. It also outlines key criteria for all policy proposals, including whether they are flexible and maximize the use of markets, minimize complexity and transaction costs, operate in a transparent manner, provide predictability and certainty to business, and foster innovation and business opportunities. Finally, our statement urges that our policy framework be flexible enough to make course correction as climate science evolves and we better understand the economic consequences of climate policies.

BUSINESS ROUNDTABLE'S ENERGY RECOMMENDATIONS

While the subject of today's hearing is climate change, I would be remiss if I did not underscore the important connections between energy and climate policy. Concerns about energy security are a top priority for our CEOs. In our latest economic survey, unveiled in early December 2007, 32 percent of CEOs said that energy costs were their greatest cost pressure, tied with health care costs (also 32 percent). This is not a surprising finding in light of the recent spike in crude oil prices to nearly \$100 per barrel. In June 2007, we released a comprehensive set of energy policy recommendations developed through a consensus-driven process led by CEOs from multiple sectors of the economy. Entitled "More Diverse, More Domestic, More Efficient: A Vision for America's Energy Future," this report calls for a more diversified and domestic-based energy supply mix, increased energy efficiency and a greater investment in new energy technologies. Our CEOs feel strongly that we cannot afford to ignore any pathway that will contribute to stable, clean, and affordable energy supplies. This includes ethanol and other biofuels, nuclear power, greater access to conventional domestic oil and natural gas reserves, coal-to-liquids, coal gasification, and energy efficiency.

As we address climate change, we must devote equal attention to maintaining reliable and affordable world supplies of energy, which are essential to reduce poverty, improve public health, and raise living standards around the globe.

THE BALI ROADMAP: WHAT WAS ACCOMPLISHED AND WHAT LIES AHEAD

Climate change poses a daunting political and economic challenge to the world community. As our policy statement recognizes, climate change is global in both its causes and impacts and requires a global response. Focusing on the United States or all developed countries alone will not achieve sufficient reductions in worldwide GHG emissions to stabilize atmospheric concentrations at meaningful levels and therefore could cause the world's developed nations to incur large economic dislocation without any corresponding benefit.

The Kyoto Protocol imposes emission reduction obligations only on the developed (or Annex I) countries. As members of this committee are well aware, the absence of commitments by developing nations was a major factor behind the Senate's 1997 Byrd-Hagel resolution overwhelmingly opposing the Protocol's ratification. Since then, the leading developing countries—notably China and India—have experienced surging economic growth, with a corresponding growth in their GHG emissions. China has now overtaken the United States as the world's largest GHG emitter, and developing nations will account for a growing percentage of total worldwide emissions as their economic growth and energy consumption continue to outpace those of the developed world. Excluding major developing economies from an international climate change framework—which was unacceptable 10 years ago—is even less of an option today.

Our climate policy statement unequivocally calls for a comprehensive international agreement: "An equitable and effective global framework for addressing climate change should be put in place, under which all major emitting countries (including China, Brazil, and India) are committed to appropriate emission reduction goals." We also emphasize that U.S. leadership in establishing this global framework is essential.

The 13th Conference of the Parties (COP) which occurred in Bali, Indonesia, from December 3–15, 2007, represented a positive and constructive step toward a new global framework which BRT applauds. This conference was at times acrimonious and divisive but in the end resulted in agreement on a negotiating roadmap for achieving a new global climate agreement by the end of 2009 that would be in place

by 2012. We are pleased that the United States supported this roadmap and will be actively engaged in the process going forward.

There are many issues that were left unresolved at Bali but a number of aspects of the roadmap represent a promising point of departure for further negotiations:

1. For the first time, key developing nations committed to take “nationally appropriate mitigation actions . . . in a measurable, reportable, and verifiable manner.” This commitment is nonspecific and could encompass many different options, but it opens the door to meaningful developing nation participation in a climate change agreement. As our statement reflects, BRT believes that tangible emission reduction commitments by developing nations are essential for U.S. acceptance of a new climate agreement.

2. Equally important is the roadmap’s recognition of the importance of addressing deforestation in developing nations through “policy approaches and positive incentives,” including a framework for pilot initiatives, signaling that an effort to prevent deforestation will be part of the post-2012 package. This is consistent with BRT’s climate policy statement, which recommends that a new international framework should “address tropical deforestation, which contributes roughly 20 percent of total anthropogenic GHG emissions.”

3. Also positive is the roadmap’s recognition of the role of technology development and transfer in supporting emissions reduction progress in developing countries through the use of financial and other incentives. This focus is consistent with the recognition in BRT’s statement that “expanding penetration of [new] technologies in developing economies where emissions are rapidly increasing is an urgent priority.”

4. The roadmap does not prescribe a one-size-fits-all approach to reducing GHG emissions but recognizes the value of “various approaches, including opportunities for using markets to enhance the cost-effectiveness” of reduction measures. Given the interest of our members in a broad range of emission reduction tools which minimize costs, we were pleased by this recognition.

5. We were glad to see encouragement in the roadmap for “cooperative sectoral approaches and sector-specific actions.” We believe there is promise in encouraging industries with global scale and reach (particularly those which are energy-intensive) to work together on common technology platforms, metrics, and targets for reducing emissions. Initial steps in this direction have already been taken under the auspices of the Asia-Pacific Climate Initiative and bilateral exchanges between the United States and some of its trading partners. Sector-based approaches could play an important role in an international agreement in bridging the gap between developed and developing nations.

Although these areas represent important progress, we should be under no illusion that the upcoming negotiation process will be easy or free from conflict. The obstacles to reaching agreement remain large. In Bali, an impasse was reached between the United States and European Union over whether common emission reduction targets should be set for developed countries and what level of reduction these targets should achieve. The final Bali roadmap attempts to place bounds on this debate without resolving it. The roadmap calls for the parties to consider:

Measurable, reportable, and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives by developed country Parties, while ensuring the comparability of efforts among them, taking into account differences in their national circumstances.

This language encompasses a broad range of actions—including voluntary and differentiated individual country commitments at one end of spectrum to binding and uniform reduction targets at the other—and therefore leaves a broad field for negotiation between now and the end of 2009.

The debate at Bali over emission targets for developed nations mirrors in many ways the debate we are having domestically in Congress over whether to adopt a cap-and-trade system and at what levels and by what dates to reduce emissions under that system. Ultimately, a consensus here in the United States would go far to shape our international negotiating position. That consensus does not exist today—among our Members in the Congress or between the administration and the Congress—but the U.S. political process over the next 2 years will move us toward greater clarity in one direction or another. There needs to be close and continuous coordination between the executive branch officials representing the United States in the international negotiations and the congressional leadership so that evolving policies here in the United States are well-aligned with our negotiating positions. Business leaders, like our CEO members, should be an integral part of this process.

As the Bali roadmap is implemented, we should not lose sight of the complex web of economic relationships between the United States and China, which is key to the

outcome of climate negotiations because of its role as the world's top emitter. China is both a competitor and economic partner. Our members both export products to China and rely on Chinese manufacturing operations. U.S. companies have major investments in Chinese enterprises while China is becoming an investor in U.S. financial institutions. China, like the United States, is a large importer of petroleum products and natural gas and shares our interest in moderating increases in energy costs. U.S. consumers benefit from low-cost Chinese exports and these exports are an important source of jobs for Chinese workers. There are obviously stresses in the United States/Chinese relationship, but there are mutual benefits. We need to carefully weigh the full range of strategic issues between the United States and China as we examine what commitments each country should make to tackle GHG emissions under a new climate treaty.

The Bali roadmap sets in motion a negotiating process under the U.N. 1992 Framework Convention on Climate Change, with the goal of reaching an agreement under the Convention between all the signatories, including developing and developed countries. This process will of necessity be cumbersome and difficult to manage because of the large number of participating countries. We therefore believe it will remain very important for smaller groups of countries to meet outside of the formal U.N. process to develop areas of agreement and work through difficult issues. President Bush took an important step in this direction by convening the "major economies" in Washington, DC, in September. We strongly support continuation of the major economies dialogue and note that it has been endorsed by the two major Democratic Presidential candidates. We support dialogue in other venues such as the upcoming G-8 meeting in Japan. Business leaders from the G-8 are planning a series of meetings in 2008 in parallel with the G-8 process and climate will be an important agenda item. BRT will take a leadership role in these meetings.

Thank you again for the opportunity to testify here today and I look forward to your questions.

Senator MENENDEZ. Thank you for that very constructive statement.

We're going to go through a round of 7 minutes. Since it seems there will be a few of us, and certainly I have a few questions I'd like to pick the brains of everybody who's on this panel.

Generic question to any of you—you heard Mr. Connaughton. From my perspective, he painted a very rosey picture. I'm wondering where you might have a divergence of views as where we be moving towards, particularly as we consider the Bali process and moving towards a treaty that can pass in the Senate. So, I'd open that up to anyone who wants to make a comment.

Mr. Lyons. Since you're reaching.

Mr. LYONS. Well, I alluded to this in my testimony, Mr. Chairman, but our concern with the major economics dialog is that it adequately recognize the impacts of climate change on developing countries and the stake that developing nations have in a global solution to climate change. It's all well and good to have that dialog, and hopefully it leads to some creative solutions. But it must take into account the consequences for developing nations. It must recognize the role that developed nations play, and have played in terms of affecting climate change. And it needs to ensure that solutions are found so that developing countries impacted—through no fault of their own, as a result of the increase in greenhouse gases—are given the assistance, whether financial, through technical support, or through the transfer of technology, to find a way to deal with the consequences.

Senator MENENDEZ. Anyone else?

Mr. DIRINGER.

Mr. DIRINGER. I think we would differ on the fundamental nature of the type of framework that's needed in the post-2012 context. The vision that's been put forward by the administration is

essentially a voluntary framework. The President would like to achieve consensus on a long-term goal, but in their vision, individual countries would then be left free to decide for themselves what types of actions they would take to contribute to that goal. There would be no negotiation of those actions, and they wouldn't be reflected in binding international commitments. And as a consequence, we don't think it really would generate a critical mass of effort.

That vision was reflected in the negotiating position the administration took in Bali. The text that it put on the table talked about domestic and national actions, no reference at all to commitments. This same vision is what animates the major economies process.

On the conceptual level, we support the idea of a major economies dialog. We ourselves convened a dialog called "The Climate Dialogue at Pocantico" back in 2005, and one of the specific recommendations from this group of 25 individuals from 15 countries, was convening a high-level dialog among the major economies as a way of developing consensus. With the explicit understanding that that consensus would then be carried over into the formal negotiations within the U.N. framework.

Now, that is the presumed goal of the administration's major economies initiative, as well. It is meant to contribute to a global agreement under the U.N. system in 2009. But the agenda, as it's been framed by the administration, is again with a vision toward a voluntary approach.

So, in the time that's left, I don't think that the administration really is in a position to achieve a broad consensus on a comprehensive approach, through the major economies initiative.

At the same time, it's possible that this initiative could produce agreement on some discrete elements that might, in fact, make a constructive contribution to the U.N. negotiations, in particular, if the major economies process were to produce agreement on a long-term climate goal, or if there were to be agreement on some form of international technology fund, as the President has proposed—each of these would be a significant contribution that would, then, make it easier to conclude a U.N. agreement establishing binding commitments.

Senator MENENDEZ. Mr. Prickett, let me ask you, many developing forested nations argue that they must be compensated, if they're going to forgo certain economic opportunities in favor of protecting a rainforest.

Do you have any sense of the amount of money that would be needed worldwide for a program to be successful?

Mr. PRICKETT. Thank you, Mr. Chairman. The—that's actually a research project that we and others have started to work on, but I should say no—no one has come up with a single dollar figure on what it would take.

To elaborate a little on that, however, the—

Senator MENENDEZ. Well, since there's not a hard dollar figure, do you envision aid being given potentially in the form of emissions offsets?

Mr. PRICKETT. Yes. So, the inclusion of forests in the Bali action plan may seem pretty straightforward if you read it on the face of it, but it was actually a big watershed change in where the process

had been. And if you go back to the negotiation of the Kyoto agreement, forest conservation was left out of that, quite deliberately, there was concern at the time that we didn't know how to ensure that we could do effective forest conservation in a way that could be verified. But there was also concern that to invest in protecting forests might take the focus off needed investments and action in improving energy efficiency, and deploying clean energy technologies.

That changed with, really, some hard work, and particularly by some developing countries, known as the Coalition for Rainforest Nations, led by the governments of Costa Rica and Papua-New Guinea. They, with the support of NGOs, some of the ones I've mentioned, some very important individuals, like Stu Eisenstadt, who had actually negotiated the Kyoto treaty for the Clinton administration—Nicholas Stern, many people began to realize that that was a mistake, and forests need to be taken out of the picture.

Compensation is a word that sounds like the developing countries would be getting something for nothing. In our view, it's actually the other way around—they've actually been providing something for nothing for many years, they've been providing a service to the world, in terms of sequestering carbon, and minimizing the greenhouse—minimizing climate change, in the form of protecting their forests. The sad reality is they have a lot of financial incentives to deforest, they don't have a lot of very concrete financial incentives to conserve. So, this is really about rewarding developing countries for an environmental service that they have been providing for free.

As I said, there are a lot of tough questions, not the least of which is, how much will it cost? But also in terms of how do you structure the program, so that while in principle it makes sense, in practice you actually get real conservation on the ground, and the money doesn't evaporate.

But, we think it's—from a standpoint of principle and policy, it's absolutely the right thing to do. Our commitment as an organization, and we would encourage the United States to really focus—both the Congress and the administration—on answering some of these tough questions, about how do you actually get it done effectively on the ground.

Your question about markets versus foreign assistance—we think the answer is both. We need to have continued and increased foreign assistance, but the amount of funding available through the carbon markets, will likely be an order of magnitude more than the amount of funding available through official development assistance. So, if we're really going to attack the problem at scale, we need to find a way to get forest conservation creditable in both current carbon markets, and new carbon markets that will emerge in the post-2012 timeframe.

Senator MENENDEZ. Thank you.

Mr. Lyons, let me ask you very quickly; we talked about adaptation funds, and you testified over \$50 billion per year would be needed to do that. Do you see that being a potential—not just adaptation, but development?

Mr. LYONS. Well, actually, the estimate that we generated, Mr. Chairman, the \$50 billion, which was trumped, if you will, by a

UNDP study that came out right before Bali that estimated the adaptation costs in excess of \$80 billion. This estimate was in addition to existing development aid.

That's a sizable investment. So, I would concur that some creative means need to be found not only for financial support, but also through the transfer of technology and other tools, to provide that additional assistance.

I think with regard to the forest issue, I just want to comment that I concur—I was actually responsible for negotiating that component of the Kyoto Treaty in The Hague. Unsuccessfully, I might add. At that time, frankly, there was simply a great deal of disbelief and an unwillingness to accept adaptation as a solution because many people believed that it would make it too easy for developed countries and business interests to put off the tough decisions required to reduce emissions.

I think times have changed, and we've come to recognize that we need more creative solutions, and that the science clearly indicates that there's a benefit in retaining forests. Our only concern is that local peoples and local communities impacted by a decision to conserve forests, be a part of that discussion. They still need to make a living from those forest resources, and hopefully, will do so in a sustainable way.

Senator MENENDEZ. Thank you.

Senator VOINOVICH.

Senator VOINOVICH. Mr. Chairman, you had an opportunity, all of you, to hear the statistics that I gave in terms of the Charles River Associates critique of the Lieberman-Warner Bill, and as I mentioned, we still haven't got an analysis by the EPA or the Information Agency.

If, when they come back with their study, those statistics are the same as what I've just quoted, would that have any impact on your position on the kind of legislation that we should adopt to deal with the climate change situation?

Mr. Castellani, you represent the business community. I've made some comments about the cost of natural gas. I don't know, whether you folks have ever captured what impact that's had on the U.S. economy, but I'd sure be interested.

Is there another way of getting this job done without the downside of some of these, the numbers that I've just shared with you?

And last is the issue of public diplomacy. If you really think about where we are today, we are probably at our lowest in terms of public diplomacy, we've been hurt substantially. I think one of those things that has hurt us is the fact that we didn't sign on to the Kyoto Treaty, and I would be interested in your thoughts, if we really aggressively move forward with this, what impact would that have on our public diplomacy in terms of some of these countries that don't think very much of us?

Mr. CASTELLANI. Senator, the numbers you cited on the impact of the natural gas situation is both something we should see institutionally of the unintended consequences of a well-meaning public policy action. We went into the role of utilizing greater natural gas for power generation, when we thought natural gas was unlimited in its supply, and found out that it was quite the opposite.

Interestingly enough, when I was an executive at Tenaco, at that time, we couldn't give it away at a buck ninety a million. And, now we are approaching in the \$7 and \$8 range at its peaks.

We think the regimes—we don't know the exact answer, we've got to the point, you know we got to the happy point, that I think the chairman recognized that we're no longer arguing about whether or not this is real, what we're arguing about is what the best way to achieve—

Senator VOINOVICH. I agree—I want to get the job done. I'm very very concerned about this and the urgency of it, but the issue is how do we get it done in the most effective way?

Mr. CASTELLANI. We think to the extent that it can be done by mechanisms that mimic market actions. They are most effective, but they are not complete. There has to be some other subsidization. But what we do know is that whatever path is chosen has to be flexible enough so that if it turns out to be needed to be modified because of better science or better understanding of its impact, but that flexibility is built in. I think the biggest fear we have is we would rigidly go do a path, even if that path takes us down the wrong—into the wrong direction. So, I can't tell you now whether cap and trade is better than carbon tax, we have members on both sides and very thoughtful members. Senator Kerry mentioned some of them on the cap and trade. They are leaders. We have as equally—

Senator VOINOVICH. I have seen some of them about cap and trade. They've been in my office, and they say "I'm for it, but" and their "but" interferes with somebody else's "but."

Mr. CASTELLANI. Right. What we're trying to do is do the kind of detailed economic analysis that tries to do that, but there is a bias for action, and I think you saw that with American Electric Power and their investment in other companies making, and they've been leaders in it. I guess we would ask for flexibility as close to mimicking market actions, and driving at market actions, as possible, but understanding that we're still all learning the best approach.

Senator VOINOVICH. Anybody else?

Mr. DIRINGER. Senator Voinovich, I first would want to stipulate that yes; there will be costs, I wouldn't suggest otherwise. I recently saw an overview of a number of economic studies, including the Charles River Associates study, and these were analyses of a number of bills before Congress with target levels in the general range of those in the Lieberman-Warner bill. And looked at collectively, these analyses suggest GDP impacts of less than 1 to 2 percent in 2050.

At the same time, the GDP is projected to nearly triple in that timeframe. So they seem to suggest a fairly modest impact at the economy-wide level.

The other thing we need to keep in mind is that these cost analyses, these models don't take into account the benefits of action, and economics suggest that, in fact, the benefits of avoiding climate change impacts will far outweigh the costs of taking that action. There was an analysis, not too long ago, from OMB, which looked back over environmental regulation in the United States—

Senator VOINOVICH. But are there any other alternatives to this that would get us to the goal sooner? Well, I mean—

Mr. DIRINGER. Well, one of the lessons that comes from the models, and putting aside the specific number that might come from any particular analysis, one thing they all tend to agree on is that a market-based approach, like a cap and trade approach, is far more cost-effective than a command and control approach, and that's something that's consistent across the models.

Now, at the same time, we have to recognize there are going to be costs, and those are going to fall most heavily on certain regions and on certain sectors, and we need to design our cap-and-trade program in a way that takes that into account. And one way Congress can deal with that is through the allocation process. We think that ultimately really, what we need to address the competitiveness issue, is an international agreement ensuring that all countries are, in fact, contributing their fair share, and providing a level playing field.

On your question about public diplomacy, certainly I think taking a leadership posture on this issue would go a long way toward helping to reestablish the multilateral credentials of the United States. I wouldn't put that just in a public diplomacy context. I think that if we are serious about getting to a post-2012 agreement, apart from whatever we do within the formal negotiations, we're going to need a very vigorous bilateral diplomatic strategy. There's no substitute for meeting one on one with countries to understand better their needs and concerns and finding common ground. And that will have to be an essential component of our diplomatic strategy.

Senator VOINOVICH. Mr. Chairman, I just finished the Joe Nye's book "Soft Power." He presents a number of options we ought to consider in terms of public diplomacy and enhancing our position in the world. I think we are going to be looking at some of those ideas. Certainly, the next President must. That means we're going to have to reallocate some of the resources that we now are putting to other areas, and put them into public diplomacy efforts.

Mr. PRICKETT. Senator Voinovich, I wanted to tackle both of those questions together, they're both very good.

Senator VOINOVICH. Your mike is off.

Mr. PRICKETT. Is that louder—

Senator VOINOVICH. That's fine. Go ahead—my hearing aids are on.

Mr. PRICKETT. The two questions together, the public diplomacy and the other question, to hit the goal in a less expensive way. We were supportive of the Lieberman-Warner bill, because in part, it takes a strong stand on the U.S. leading a reduction in emissions. At the same time there needs to be a global solution, and one of those things to get the most cost-effective solution is to really think about how you invest in emission reductions outside of the United States.

I talked about capital—being an good example that is both a relatively inexpensive source of CO₂, but also very important program in its own right for the development and the environmental benefits it provides for developing countries. Energy efficiency is another tremendous example of this, McKinsey, last year I believe

just released a study saying that more than half of all the new power plants that the world expects to build could be made unnecessary by aggressive investments in energy efficiency.

In the United States, we started to pursue that, but there's tremendous opportunity to help developing countries India, Indonesia, Brazil, even China deal with some of their energy problems by improving energy efficiency.

Senator VOINOVICH. Mr. Chairman, one thing I would like to mention is that I think the PEW study that talked about energy efficiency right here in this country. One thing that's been really stymieing it is new source review. If we could make these plants more efficient, we would, I think, substantially reduce the amount of carbon that's going into the air. But as of now, we have not done that. That's low-hanging fruit that we could move on rapidly if we were willing to come up with a policy that's understandable and doesn't cause the problems associated with new source review that we have today.

Mr. PRICKETT. If I could, just to close on the public diplomacy points. I fully agree with that. Unfortunately, we've tended to see the international climate debate as "for Kyoto" or "against Kyoto." What happens in the next round of negotiations, independent of that, the United States were to amount a major effort to help developing countries invest in climate solutions that also make a lot of sense for their economy, for their environment, for our economy that would be tremendous asset in the public diplomacy.

This administration has done a tremendous job for example, boosting our commitment to Africa and foreign assistance, boosting our commitment to HIV/AIDS and infectious disease. A program like that to invest in climate solutions and international energy security and natural resource conservation can be a very powerful tool of public diplomacy, as well as, a way to get to the climate solution in the most economically efficient way.

Mr. LYONS. If I could just add one point for you to think about. The origins of our modern aid development system, go back to the sixties—creation of the Foreign Assistance Act, the Agency for International Development and the Peace Corps. These institutions were all designed to help provide assistance to developing countries, in part to address a moral obligation, but also to address the U.S. security interests in a cold-war era where the United States wanted to lead in a new direction. I think it's important to recognize that climate change actually provides us a unique opportunity to demonstrate that once again. With regard to climate change, we have more knowledge and we certainly have more tools—the markets, financial assistance, other approaches—to address the problem. So, if we're creative about this, I think it would benefit U.S. interests and benefit developing countries, if the United States were willing to assert leadership on climate change.

Senator VOINOVICH. Thank you.

Senator MENENDEZ. Thank you, Senator. Let me thank all of our witnesses who testified on this most important topic. On this last round of discussion here, I would say that having spoken with Senator Biden, I know that he has a very significant interest in this and will be pursuing it as the chair of the full committee, certainly myself as the chair of the subcommittee, we will be working with

him on this issue. And obviously, you have seen there is some significant interest by the members.

We appreciate all of your testimony and your responses, this is just the first of a series of hearings the committee will hold on the post-2012 climate change treaty.

The record is going to remain open for 2 days so that committee members may ask other questions.

Senator MENENDEZ. If you do receive a question, we ask that you answer it in a timely fashion.

Once again, we give our thanks. And with that if there are no other comments, the committee is adjourned.

[Whereupon, at 5:17 p.m., the hearing was adjourned.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

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

Thank you, Mr. Chairman, for holding this hearing on the international climate change negotiations in Bali.

Global warming presents a great threat to our planet. This is a problem that will affect not only us, but people all around the world and for generations to come.

I am very pleased that the recent talks in Bali have put the world in a path to develop a new international agreement to this global problem.

It is important that the new agreement be comprehensive and strong in order to adequately forestall catastrophic global warming.

As chairman of the Environment and Public Works Committee I have worked to further Congress's work on global warming. Last year, we held 23 global hearings culminating on December 5 when we voted to send the Lieberman-Warner Climate Security Act to the full Senate for consideration.

This historic vote signals a rapidly growing commitment to take meaningful action on global warming by capping emissions. We look forward to seeing the bill on the floor of the full Senate in the near future.

I am hopeful that strong action from Congress to compliment the action already being taken at the State and local level around the country can encourage other nations to act as well and ultimately lead to a strong international agreement on this issue.

In Bali we made some progress but this was in spite of the foot-dragging from the Bush administration. The President tried to treat the world the way he consistently treats Congress—his way or the highway.

The main difference in this instance is that in Congress he has supporters, but in Bali he had no supporters. Thankfully, at the last minute the administration relented and we now have a chance to resume our environmental leadership in the world.

The Bali roadmap establishes a framework for the negotiations to proceed for a new agreement to address global climate change. It is a good first step, but that is all it is: A first step. We still have a long road ahead and we cannot achieve our goal without firm reductions in our global warming pollution.

It will take resolve and strong commitment to develop an adequate response to fully address global warming but we can and we must do it.

I continue to face this issue with hope, not fear and believe that we can solve this problem and be better for it.

Responses to Additional Questions Submitted for the Record by Members of the Committee

RESPONSE TO ADDITIONAL QUESTION FOR THE RECORD SUBMITTED
BY SENATOR MENENDEZ TO JIM LYONS, VICE PRESIDENT FOR POL-
ICY AND COMMUNICATION, OXFAM AMERICA

Question. Mr. Lyons, you have testified that over \$50 billion per year will be needed to fund adaptation efforts. If history is any guide the United States could be providing a quarter of these funds. Is it possible that these funds can both help address the issues of adaptation and also promote development or is this a zero sum game?

Answer. Providing assistance to the most vulnerable communities in developing countries to adapt to the consequences of climate change is essential to economic development in those countries and can also create important synergies with development. Developing countries will face many of the most devastating consequences of climate change, including water scarcity, severe weather events, floods, declining agricultural productivity, and increases in disease. In addition, these impacts in many cases will lead to many broader problems—economic and social destabilization, migration and refugee crises, and conflicts over natural resources. As has been noted by many observers, including the Intergovernmental Panel on Climate Change, developing countries will be hardest hit by these impacts because of a lack of financial resources to respond, impacts on natural resources that disproportionately affect rural communities, and the geographic locus of many impacts in tropical and subtropical areas.

The result will be declining economic standards in vulnerable developing countries. In order to address the widespread economic consequences of climate change, it will be essential to assist developing countries in building their resilience to face climate impacts. Without that assistance, efforts already underway to promote economic development and poverty reduction will likely be stalled or even reversed. Additionally, in most cases, efforts to build resilience and the ability of communities to adapt to climate change will also strengthen economic development and growth. For example, adaptation and resilience-building should include improved irrigation systems and water conservation techniques to address water scarcity; improved sanitation and water control systems to address flood impacts; crop diversification and improved types of seeds to cope with food security impacts; restoration of critical ecosystems, including coastal buffers, to provide protection from severe weather events; and strengthened primary health care systems to address increased disease threats. In addition, adaptation requires in-

creased access for affected communities to climate and weather information and access to new tools such as micro-insurance.

All of these approaches to adaptation in developing countries will help to strengthen economic development—and will often, in fact, be necessary to improving the economic prospects of developing countries. Indeed, one of the principal objectives of adaptation and resilience-building should be to fully incorporate climate responses into national development planning. This will help to create the greatest level of synergies possible between economic development and efforts to adapt to climate impacts. Moreover, taking these actions can also create tremendous benefit for U.S. businesses in developing countries, particularly for those that can provide critically needed products for adaptation, such as water sanitation technology, or that act to protect their supply chains from climate impacts, such as water scarcity, in ways that also benefit local communities.

RESPONSES TO ADDITIONAL QUESTIONS FOR THE RECORD SUBMITTED
BY SENATOR MENENDEZ TO ELLIOT DIRINGER, DIRECTOR OF INTERNATIONAL STRATEGIES, PEW CENTER ON GLOBAL CLIMATE CHANGE

Question. Mr. Diringer, what can this committee do to ensure that we do not face another situation where the rest of the world has ratified a climate treaty, but the United States is left behind? What do you believe the U.S. Senate and more specifically this committee should do over the next two years to ensure that whatever agreement that is signed can also be ratified here in the United States?

Answer. We believe there is little risk of countries bringing into force a new climate treaty without the United States. While other developed countries were willing to assume binding targets under Kyoto without the United States, most are unwilling to do so again without U.S. and developing country commitments. The greater risk is that, without effective U.S. leadership, there will be no new climate treaty.

The U.S. Senate and the Foreign Relations Committee can play a vital role in ensuring that the negotiations launched in Bali lead to an agreement that can be ratified by the United States. Specifically, with the committee's leadership, the Senate can develop and express its view on the broad terms for U.S. participation in a new climate agreement, and can press to ensure that this view is reflected in the U.S. negotiating position. In addition, in its consideration of domestic climate legislation, the Senate can include provisions to encourage major emerging economies to assume some form of binding climate commitment.

It is important that the United States' negotiating partners have clear and realistic expectations of the terms under which the United States will join a binding climate treaty. A principal means of expressing the Senate's view of those terms is S. Res. 30, passed by the committee in March 2007. With new negotiations now underway, the resolution's passage by the Senate should be a priority. Hearings by the committee can help prepare for this vote by exam-

ining key issues, such as ongoing mitigation efforts in other countries, global technology and finance needs, and options for structuring a post-2012 agreement. One key objective should be a realistic assessment of the types and levels of commitment that developing countries could undertake. The committee also should consider establishment of a formal or informal Senate observer group to closely monitor the negotiations.

We believe domestic climate legislation provides another important opportunity to promote an effective international agreement. Under the Bali Action Plan, the United States and other developed countries agreed that future mitigation actions by developing countries are to be “supported and enabled by technology, financing and capacity-building.” The United States can begin to provide that support, pending completion of an international agreement, through domestic climate legislation. Specifically, we believe legislation should: 1) provide market-based incentives by recognizing in a U.S. cap-and-trade system verified emission reduction credits from developing countries; and 2) provide support for capacity-building and technology deployment in developing countries.

Domestic legislation could provide additional incentive for developing country commitments by clearly signaling the United States’ intent to increase such support upon entry into force of a comprehensive new climate agreement. This could be done by establishing that U.S. emitters would be allowed greater user of emission credits from developing countries; by declaring Congress’ willingness to accept a binding international target more stringent than the domestic cap-and-trade target, with the additional reductions to be achieved through international offsets; or by pre-authorizing an enhanced level of assistance to be provided by the United States bilaterally or multilaterally.

Question. Can the Major Economies Process serve a useful role going forward? How does the rest of the international community view this process? In pushing this process and pushing agreements within individual economic sectors has this administration put the cart before the horse? In other words should we be embracing binding emissions targets before we try to get developing nations to embrace other binding policy commitments?

Answer. Based on the conclusions of our Climate Dialogue at Pocantico (www.pewclimate.org/pocantico.cfm), the Pew Center has for some time encouraged a high-level dialogue among the major economies with the goal of reaching a consensus as a basis for a formal agreement under the UN Framework Convention on Climate Change. That is the stated objective of the Major Economies Process. However, the process is unlikely to achieve consensus on the fundamental elements of a post-2012 agreement, in part because of the administration’s timeline, and in part because the administration has not proposed a level of effort by the United States sufficient to induce stronger action by developing countries in particular.

Many other governments were initially concerned that the Major Economies Process could undermine the UN negotiations. At this stage, it appears such concerns have subsided and the process is seen as a potentially valuable forum for exchanging views among

the major economies and scoping out potential areas of agreement. Other governments—both those participating and those not among the major economies—will continue to be vigilant about the process not deterring the UN negotiations. In order for a post-2012 agreement to be effective, the major economies must assume commitments simultaneously, although the forms of those commitments and the compliance periods may vary. Therefore, it is not premature to be discussing developed and developing country commitments simultaneously, whether in the negotiations or in forums such as the Major Economies Process. However, it is likely that in order for the major economies to agree on commitments, the United States must first establish mandatory domestic emission reduction targets.

Question. Mr. Diring, at the end of the day what can we realistically expect China to commit itself to? Are binding emissions targets possible? If not what other forms of policy commitments might they put on the table?

Answer. In our judgment, China is unlikely to assume a binding economy-wide emissions limit in a post-2012 agreement for a number of reasons. One important reason is that it and most other developing countries presently lack the capacity to measure their emissions with sufficient rigor to enforce or demonstrate compliance with an economy-wide target. For that same reason, even if China were prepared to assume such a commitment, it would be a mistake for other governments to accept it as a basis for China trading international emission allowances.

We believe China and other countries are more likely to assume other types of commitments that do not entail binding economy-wide emission limits. For some, it may be possible to accept targets (absolute or intensity) on specific sectors, rather than economy-wide. Another option is policy-based commitments, in which a country commits to implement a specific national policy or set of policies that will deliver emission reductions. China, for instance, has a national energy intensity goal, renewable energy targets, and vehicle fuel economy standards—none of which were enacted for climate reasons, but all of which help to reduce or avoid greenhouse gas emissions. Some version of these policies could be the basis of policy-based commitments. To be credible, such commitments would need to be measurable, reportable, and verifiable—the criteria agreed to by all countries in the Bali Action Plan.

In seeking commitments from China and other major emerging economies, it is important to be open to commitment types that fit their national circumstances, capacities, and policy cultures. In the final analysis, whatever form a commitment takes, our aim with China, as with all countries, should be a commitment to do more than it would without an agreement. Only when countries see that others are prepared to do their fair share will they put forward their best efforts. What China will commit to, therefore, depends in part on what the United States and others are prepared to put on the table, in terms of both their own efforts and their support for stronger developing country action.

RESPONSE TO ADDITIONAL QUESTION FOR THE RECORD SUBMITTED
BY SENATOR MENENDEZ TO JOHN J. CASTELLANI, PRESIDENT,
BUSINESS ROUNDTABLE

Question. Mr. Castellani, most commentators seems to believe that China and India will not be willing to accept binding emissions targets, but they might be willing to accept increased efficiency standards, higher fuel mileage standards or other measures that can result in emissions reductions. Do you think our business community will be able to accept a situation where the U.S. is subject to mandatory emissions reductions and emerging economies such as China and India are not?

Answer. The Business Roundtable believes that a new international agreement on climate change must impose responsibilities on developing as well as developed countries. As I indicated in my testimony, the Bali roadmap takes an important step in this direction, calling on developing countries to take actions to reduce emissions that are enforceable, verifiable and measurable. It is unrealistic to expect that developing countries will commit to identical emission reduction targets and timetables to those agreed to by developed countries. At the same time, we are at an early stage in the negotiations and believe a broad range of options should be on the table. We would not want to rule out the possibility that developing countries would accept credible emission reduction targets under appropriate circumstances, recognizing that the stringency of these targets would need considerable discussion.

Meaningful progress toward global emission reduction goals will not be possible unless developing countries at some point stop emissions growth and achieve absolute reductions. In addition, the economic interests of the United States require that emission reduction burdens be apportioned fairly among major economies. What this means in practice will require considerable analysis and discussion as we continue to develop domestic legislation and engage in further dialogue with our principal trading partners. Our members intend to be active participants in that process as it progresses.

RESPONSES TO ADDITIONAL QUESTIONS FOR THE RECORD SUBMITTED
BY SENATOR MENENDEZ TO GLENN PRICKETT, SENIOR VICE PRESIDENT
OF BUSINESS AND U.S. GOVERNMENT RELATIONS, CONSERVATION
INTERNATIONAL

Question. Mr. Prickett, many developing forested nations argue that they must be compensated if they are to forgo certain economic opportunities in favor of protecting the rain forest. Do you have any sense as to the amount of money needed worldwide for such a program to be successful? And do you envision such aid being given in the form of emissions offsets for developed nations?

Answer. I cannot say with confidence at this time what magnitude of financial incentive would be required to reduce CO₂ emissions from deforestation to safe levels. This will be analyzed and negotiated over the next few years in the context of the Bali Plan

of Action. As a general point of reference, the Stern Report estimated that the opportunity cost of halting deforestation in 8 countries responsible for 70 percent of global CO₂ emissions from deforestation would amount to \$5-10 billion per year. This estimate includes only the direct costs associated with forgone revenue from alternative land uses (e.g. agriculture, timber, livestock, etc.). It does not include the costs of administering forest conservation programs or the opportunity costs associated with forgone revenue from secondary processing of the commodities that would have been produced on the protected lands. So the actual costs for an effective global forest conservation program may be higher.

Financial incentives for developing countries to reduce emissions from deforestation could come from the purchase of emissions credits by private-sector actors in regulated and voluntary carbon markets or from government-to-government aid programs and other public sources of funding. Most likely a combination of the two will be required. Only carbon markets will likely mobilize the magnitude of resources needed. This will require that international REDD (Reduced Emissions from Deforestation and Forest Degradation) be explicitly included in the post 2012 international agreement and in U.S cap-and-trade legislation. Additional funding will also be required from government aid programs and other public sources to fund forest protection efforts that don't qualify for emissions trading (because of questions about additionality, for example) or for which carbon credits alone do not provide sufficient funding. The United States has an opportunity to lead in this area by expanding its support for forest conservation through USAID and other development assistance programs.

Question. Mr. Prickett, on December 19, 2007 you were quoted by the New York Times as saying:

This is a problem of economic transformation, not environmental regulation.

The transformation needed . . . will require the same level of focus and initiative that the Bush administration is devoting to the war on terror. No political leader in the U.S. is approaching this issue yet with anywhere near the seriousness required.

What in your estimation would a politician have to do or say to exhibit the seriousness you believe this problem requires?

Answer. My comment to Tom Friedman, made during our trip to the Bali Climate Conference, was referring to the lack of discussion of climate change in the current Presidential campaign. I appreciate the leadership that members of the Senate Foreign Relations Committee and other members of Congress have taken on this issue, particularly Senator Kerry for his presence in Bali and his many years of leadership on this issue. But I was referring specifically to this year's Presidential candidates, and I continue to believe that the issue is not receiving the leadership it deserves in the public debate.

Solving the climate change problem will require a transformation in the way the world produces and uses energy, as well as the elimination of tropical deforestation. In the U.S., this will require

a significant price on carbon-in the form of a steep carbon tax, an aggressive cap on emissions, or both-complimented with stronger efficiency standards for buildings, electrical appliances, and automobiles. It will require increased public investment in research and development of technologies for production of carbon-free energy and greater productivity in the use of energy and natural resources. It will require modernization of the U.S. electric transmission system. On the international front, the United States must negotiate aggressively for a more effective, long-term international agreement to replace the Kyoto Protocol when its first commitment period ends in 2012. The United States must also expand dramatically (at least five-fold) our bilateral assistance to developing countries-the fastest-growing sources of emissions-to protect and restore tropical forests, to improve energy efficiency, to develop carbon-free energy technologies, and to promote sustainable agriculture.

The American people need to be mobilized to support this ambitious set of policies. Solving the climate problem will not be easy, and it will cost money. But investing in clean energy, in resource productivity, and in biodiversity conservation will strengthen our economy, enhance our national security, and restore America's standing in the world. Achieving these goals will require focused and sustained leadership from the American President. It will require the same level of focus that the current Administration is devoting to the global war on terror. We have yet to see any of our candidates for President exhibit this degree of focus on the issue.