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THE U.S. CLIMATE ACTION PARTNERSHIP REPORT

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

FEBRUARY 13, 2007

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED TENTH CONGRESS
FIRST SESSION

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BETTINA POIRIER, *Majority Staff Director and Chief Counsel*
ANDREW WHEELER, *Minority Staff Director*

[1]Note: During the 110th Congress, Senator Craig Thomas, of Wyoming, passed away on June 4, 2007. Senator John Barrasso, of Wyoming, joined the committee on July 10, 2007. .....

C O N T E N T S

THE U.S. CLIMATE ACTION PARTNERSHIP REPORT

TUESDAY, FEBRUARY 13, 2007

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

The committee met, pursuant to notice, at 10 o'clock a.m. in room 406, Dirksen Senate Office Building, the Hon. Barbara Boxer (chairman of the committee) presiding.

Present: Senators Boxer, Inhofe, Lautenberg, Carper, Klobuchar, Warner, Alexander, Bond, Sanders

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

Senator BOXER. The hearing will come to order.

Today we will hear from a group of leading corporations and environmental groups who have agreed on a road map for next steps to address the global warming challenge. They have banded together to issue "a call for action" on global warming. They have concluded that "we know enough to act" on global warming and that "Congress needs to enact legislation as quickly as possible."

I want to thank all parties for this report and let them know that I believe it makes an important contribution to helping solve the global warming problem. It is very important to note that this group includes some of the world's largest corporations, such as General Electric, DuPont, BP, Caterpillar, Alcoa, and includes key energy companies, such as Duke Power, Florida Power and Light, and PG&E from my home State of California. These companies produce products of all types. They use fuels of all types, including coal. And they are committed to being profitable for many years to come.

As the chairman of Duke Power noted on release of the report, Duke Power is the third largest user of coal in the United States. Yet all these companies agree that we need to act now to enact a mandatory program to address global warming. What is more, they agree on the targets for reduction, both in the short term and the long term. They agree that we need to stabilize worldwide atmospheric concentrations of CO_2 at 450 to 550 parts per million.

Their targets for emissions include reductions of 10 to 30 percent from today's levels within the next 15 years, and a 60 to 80 percent reduction from today's levels by 2050. These targets are consistent with what the scientists are telling us. And they are consistent with the targets set forth in the Sanders-Boxer bill, as well as

other bills introduced this Congress, which include cutbacks of 60 to 80 percent by 2050.

The companies and groups before us today also made clear that by acting now we can help, not hurt, our economy. They say that, and I think we have this on a chart, I am not sure, but I think—yes, that is it—"Each year we delay action to control emissions increases the risks of unavoidable consequences that could necessitate even steeper reductions in the future, potentially greater economic costs and social disruption."

The U.S. CAP report also makes the point that we need to enact an economy-wide program. As I have often said, I am very proud of my home State of California which enacted AB 32, an economy-wide global warming bill. The California law sets a mandatory cap on carbon pollution, including a 25 percent reduction from projected levels by 2020. And the California Governor's executive order includes a target to reduce emissions 80 percent from 1990 levels by 2050. Here is bipartisan leadership at its best.

California is leading the way in combatting global warming. And one of the companies here, as I said, Pacific Gas and Electric, has helped enormously by working hard to help increase California's energy efficiency, which is one of the highest in the Nation.

I continue to believe we should approach this problem with hope, not fear. I want to repeat that: I continue to believe we should approach this problem with hope, not fear. I am an optimist, and I believe we can solve this problem, and that in doing so, we will be better for it in every single way. The members of the Climate Action Partnership who are here today agree with this approach. They say that "In our view, the climate change challenge, like other challenges our country has confronted in the past, will create more economic opportunities than risks for the U.S. economy, and that addressing climate change will require innovation and products that drive increased energy efficiency, creating new markets, increased U.S. competitiveness, as well as reduced reliance on energy from foreign sources."

I so appreciate their comments, because I have watched for years those naysayers who said, when you act to protect the environment, you hurt the economy. The opposite has been proven. As business leaders that successfully compete in national and worldwide markets, these witnesses should know. We must face the challenge of global warming now. It is one of the greatest challenges facing our generation. With the help of these groups and businesses, like those in the Climate Action Partnership, with their help, this is a challenge we can and will meet.

Again, I want to say to all of you, I believe when history is written, this will be a turning point, that you stepped forward and saw your responsibilities. And it means a great deal to the American people, I believe. So I really again want to thank you so much.

With that, I will give Senator Inhofe such time as he would like to take.

[The prepared statement of Senator Boxer follows:]

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

Today we will hear from a group of leading corporations and environmental groups who have agreed on a roadmap for next steps to address the global warming challenge.

They have banded together to issue "A Call for Action" on global warming. They have concluded that "we know enough to act" on global warming and that "Congress needs to enact legislation as quickly as possible."

I want to thank these companies for their report and let them know that I believe it makes an important contribution to helping solve the global warming problem.

This group includes some of the world's largest corporations, such as General Electric, Dupont, BP, Caterpillar, Alcoa, and includes key energy companies such as Duke Power, Florida Power and Light and PG&E, from my home State of California.

These companies produce products of all types, use fuels of all types, including coal, and are committed to being profitable for many years to come. As the Chairman of Duke Power noted on release of the report, Duke Power is the third largest user of coal in the United States. Yet all these companies agree that we need to act now to enact a mandatory program to address global warming.

What is more, they agree on the targets for reduction, both in the short term and the long term. They agree that we need to stabilize world wide atmospheric concentrations of CO_2 at 450-550 parts per million. Their targets for emissions include reductions of 10-30 percent from today's levels within the next 15 years and a 60 percent to 80 percent reduction from today's levels by 2050.

These targets are consistent with what the scientists are telling us and they are consistent with the targets set forth in the Sanders bill, of which I am co-sponsor, as well as other bills introduced in this Congress.

The companies and groups before us today also make clear that by acting now, we can help, not hurt our economy. They say that:

"Each year we delay action to control emissions increases the risk of unavoidable consequences that could necessitate even steeper reductions in the future, at potentially greater economic cost and social disruption."

The U.S. CAP report also makes the point that we need to enact an economy wide program.

I am very proud of my home State of California, which enacted AB 32, an economy-wide global warming bill. The California law sets a mandatory cap on carbon pollution, including a 25 percent reduction from projected levels by 2020 and the California Governor's Executive Order includes a target to reduce emissions 80 percent from 1990 levels by 2050.

California is leading the way in combating global warming. And one of the companies here, Pacific Gas and Electric, has helped enormously by working hard to help increase California's energy efficiency, which is one of the highest in the Nation.

I continue to believe we should approach this problem with hope and not fear. I am an optimist, and I believe we can solve this problem, and that in doing so, we will be better for it in every way.

The members of the Climate Action Partnership who are here today agree with this approach. They say that "In our view, the climate change challenge, like other challenges our country has confronted in the past, will create more economic opportunities than risks for the U.S. economy" and that "addressing climate change will require innovation and products that drive increased energy efficiency, creating new markets. . . increased U.S. competitiveness, as well as reduced reliance on energy from foreign sources."

As business leaders that successfully compete in national and world-wide markets, they should know.

We must face the challenge of global warming now. It is one of the great challenges of this generation. With the help groups and businesses like those in the Climate Action Partnership, this is a challenge we can and will meet.

I look forward to hearing the witnesses' testimony.

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

Senator BOXER. Thank you, Madam Chairman. I appreciate your having this hearing today. The issue of climate change has taken a larger significance lately, and the subject of the day, mandatory carbon cap and trade. More and more companies that wish to profit

on the backs of consumers are coming out of the woodwork to endorse climate proposals in hopes of forcing customers to buy their products or to penalize their competitors.

Some companies are coming together in an attempt to profit from Government intervention where they have failed in the marketplace. Economists call this rent-seeking. But I think the Wall Street Journal is right: they are climate profiteers. These companies will gain market share against their competitors, while the economy flattens and jobs are sent to China, which in an ironic twist of fate will soon become the biggest emitter of CO_2, passing the United States by 2009.

Interestingly also about China is that people who are concerned about job flight, when you consider we haven't had a new coal-fired generating plant put online in 17 years, and they are cranking out one every 3 days, so there is more to come. Most of its victims are particularly small businesses that will no longer be able to compete, but the biggest losers won't be the businesses, but the American consumers.

And you know, you guys, you all look so solemn right now. This is a happy committee hearing isn't it, Barbara?

Senator BOXER. Well, for me it is. For you I don't think so.

[Laughter.]

Senator INHOFE. I really do believe, I spent 25 years in the real world as a CEO. I know something about how CEOs think. And I have wondered quite often, I really have, and I say this in a serious vein, would I, if I had the opportunity to make a bunch of money and answer to my stockholders, would I come forth and do something that I think is not in the best interests of America?

The proposal that we are talking about and others like it may be written in the form of Government regulatory mandates. But for all practical purposes, it is really a regressive tax on the American economy, where select powerful companies profited at the expense of seniors, the working class and the poor. These groups already pay disproportionately more than their monthly budget for energy. And this situation will only worsen under proposals like I see today.

Let me be real clear today, because we have to say what it is we are talking about, the largest tax increase in the history of America. I want to get some responses from Mr. Book and Mr. Smith on this, because in reality, that is what we are talking about, the very liberal group that, they came out and they were talking about what was the largest tax increase, it was the Omnibus Budget Reconciliation Act of 1993. I can go down and talk about the 10 things it did to increase taxes.

The total amount of taxes increased and the effect on the economy was $32 billion a year. This would be over $300 billion a year. So it is a much larger tax increase on the American people. We need to say what it is and talk about who is going to be paying for it.

I am told that the rush to do something about global warming has gained momentum. But the not so hidden secret is that more and more serious scientists and political leaders are voicing their discontent with both the hype and the symbolic approaches, that

masquerade as solutions that are designed more to line the pockets of its promoters than accomplish anything.

Now, when you stop and think about the scientists, and this is where you see the sense of panic that is coming from those individuals that all started with the United Nations, to make people believe that man-made gas is responsible for climate change, and you see the ones who are aligning, they are very aggressive leaders, Claude Allegre was one of the leaders in France, a very liberal socialist in France, he is a geophysicist, well, I am not sure what he was, but he is on both the French and the United States Academy of Sciences. Claude said, I don't have his quote here, but he said that warming may be due simply to natural variation and the debate appear to be about money.

Then just last week, this Nir Shariv, he is one of the top astrophysicists in Israel, he is now, and he was on the other side of this debate back when it started, back when the United Nations started all this stuff 15 years ago, and he is now saying that there is no proof of man's contribution, rather than natural variation. Same thing is true with David Bellamy from the U.K., he was one of them marching in the streets waving the flags, the dirty old man is responsible for climate change. And now he has come around to realize that the science flat is not there.

Then there are political leaders. Prime Minister Steven Harper once called the Kyoto Accord a socialist scheme designed to suck money out of rich countries. And just last week, and I really enjoyed this, because I know him personally, Czech President Vaklav Klaus, made clear his disdain for politics parading for science when he said "Global warming is a false myth and every serious person and scientist says so. It is not fair to refer to the United Nations panel, the IPCC is not a scientific institution, it is a political body, a sort of non-government organization of green flavor."

This is kind of interesting, because everyone is talking about what happened a week ago Friday when they came out with the fourth assessment. The fourth assessment isn't going to be out until next may. This was something for the policy. This was not the scientists, but the policymakers.

So anyway, that is what is happening. I guess what I am saying is, the science is not settled. I think everybody knows that, and since more and more people are coming to the other side, there is a level of panic that is setting in.

They don't have to agree with my position on the science to question the wisdom of a cap and trade approach. These proposals would do little and cost much. Moreover, as White House Spokesman Tony Snow stated last week, there is a carbon cap system in place in Europe and we are doing a better job of reducing our emissions here.

This is kind of interesting. They all jumped in western Europe, 15 countries signed onto Kyoto. Only 2 of the 15 countries, Sweden and Great Britain actually have met their targets. None of the rest of them have. So if you take all 15 countries, we have reduced the CO_2 emissions in this country far more, and we are not even a part of the Kyoto thing. Simple fact is that we can't continue to put pressure on demand for natural gas in this country while we curtail the efforts of producers who supply it.

Now, as Mr. Hamm knows, my State of Oklahoma is an ag State. The thing that I hear when I go around, and I am in the State every weekend, out in the western part of the State and the southern part of the State and rural Oklahoma, the chief problem that they are having right now, my farmers in Oklahoma, is the cost of fertilizer. The main thing that has driven the cost up is the price of natural gas. We can't demand significant emission reductions while Senators oppose the construction of new nuclear facilities. In short, we can't demand reductions from our fossil fuel sector unless these demands can be met. The result can only be further increasing the volatility of natural gas prices, continued and even increased job flight to countries that don't participate.

But the biggest cost will be to the consumers who will be forced to foot the bill for its climate problems. That is why we have decided to fight for consumers and plan to introduce the Ratepayers Protection Act, which is going to be something kind of interesting to a lot of utilities. Because I am going to ask them, and this Act provides that if this drives the cost up, you can't pass this on to your consumers.

So finally, I would just say that we know, and I don't criticize people for being here today who are going to make profits by a cap and trade system, because you have your board of directors to answer to, and I understand that.

Thank you, Madam Chairman.

[The prepared statement of Senator Inhofe follows:]

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

Madame Chairman, I appreciate you having this hearing today. The issue of climate change has taken on a larger significance lately. And the subject of the day is mandatory carbon cap and trade. More and more, companies that wish to profit on the backs of consumers are coming out of the woodwork to endorse climate proposals in the hope of forcing customers to buy their unnecessary products or to penalize their competitors.

Some companies are coming together in an attempt to profit from Government intervention where they have failed in the marketplace. Economists call this rent-seeking. But I think the Wall Street Journal was right. They are climate profiteers. These companies will gain market-share against their competitors while the economy flattens and jobs are sent to China—which in an ironic twist of fate will soon become the biggest emitter of carbon dioxide on the planet. Madame Chairman, not all companies have joined the climate profiteers. Most will be its victims, particularly small businesses that will no longer be able to compete. But the biggest losers won't be businesses, but American consumers.

This proposal and others like it may be written in the form of Government regulatory mandates, but for all practical purposes, it is really a regressive tax on the American economy, where select powerful companies profit at the expense of seniors, the working class and the poor. These groups already pay disproportionately more of their monthly budget for energy, and this situation will only worsen under proposals like we see today. Let me be clear—this is the biggest tax hike in U.S. history.

I am told that the rush to do something about global warming has gained momentum. But the not so hidden secret is that more and more serious scientists and political leaders are voicing their discontent with both the hype and the symbolic approaches that masquerade as solutions that are designed more to line the pockets of its promoters than to accomplish anything.

Among scientists, of course, there is Claude Allegre—the French Socialist, geophysicist, and member of the French and American academies of science—who has said that warming may be due simply to natural variation and that this debate appears to be about money. There is also Nir Shariv, one of Israel's top young astro-

physicists, who says there is no proof of man's contribution rather than natural variation.

And then there are the political leaders. Prime Minister Stephen Harper reportedly once called the Kyoto accord a "socialist scheme" designed to suck money out of rich countries. And just last week, Czech President Vaclav Klaus made clear his disdain for politics parading for science when he said "Global warming is a false myth and every serious person and scientist says so. It is not fair to refer to the U.N. panel. IPCC is not a scientific institution: it's a political body, a sort of non-government organization of green flavor.

You don't have to agree with my position on the science to question the wisdom of the cap and trade approach. These proposals will do little and cost much. Moreover, as White House spokesman Tony Snow stated last week, "there is a carbon cap system in place in Europe, we are doing a better job of reducing emissions here," Snow said.

The simple fact is that we cannot continue to put pressure on demand for natural gas in this country while we curtail the efforts of producers to supply it. We cannot demand significant emission reductions while Senators oppose the construction of new nuclear facilities. In short, we cannot demand reductions from our fossil fuel sector unless these demands can be met.

The result can only be further increases and volatility of natural gas prices, continued and even increased job flight to countries that don't participate. But the biggest cost will be to consumers, who will be forced to foot the bill for this climate chicanery. That is why I have decided to fight for consumers and plan to introduce the Ratepayer's Protection Act, which will protect consumers in regulated States from having their rates raised to pay any climate schemes.

Thank you.

Senator BOXER. Thanks very much.

I think it is very clear that the Ranking Member and I disagree on whether the science is settled. So just for the record, I believe the science is settled. There are always people, when there is a breakthrough in science, who continue to say, not true. There are still people who say that HIV doesn't cause AIDS. There are still people who say that there is no tie between smoking and cancer.

So we know that there will always be some naysayers. But what I find really interesting and important to note here is that the first argument against doing anything about global warming is how bad it is going to be for the economy. Now it is, it may be really good for some of our companies.

Senator INHOFE. I think I made that real clear, let's don't leave it on that note.

Senator BOXER. I didn't interrupt. I will be glad to give you some time if you want.

Senator INHOFE. Sure.

Senator BOXER. So you can't have it both ways and say it is going to destroy American business when you have American business here taking the lead on this. I also think it is quite unfair to cast aspersion on people who actually might have come to the decision that there is a need for corporate responsibility here. So I think that we should hear from the witnesses whether or not they are being motivated because they want to make money from this, or they are being motivated by the science and the fact that they want to be around, they want their corporations to be around in a world that is a predictable world. I think that is the basic question here. As we all come together, if we believe that there are going to be adverse impacts that are going to be very costly and dangerous for the world, then clearly we may be motivated to make sure that we take the steps necessary now so that we can have our companies thrive in the future. So I think there are many ways to look at this.

Senator Inhofe, if you would like some time.

Senator INHOFE. Yes, I think I made it very clear in my opening statement that there are some who will make money in doing this and I don't criticize them. I have been trying to make it clear that I wish there were more people in the U.S. Senate who had a 25 or 30 year experience in the real world, and they would understand a little bit more about some of the things that are going on up here.

But there are a lot of people who are going to be paying this huge, huge tax. It is going to cost a lot of money. We have some witnesses who I think can address that, Madam Chairman.

On the science thing, the only reason I keep bringing it up, the science, is those individuals who are on the other side are coming over in droves as they look at the new science. That is it.

Senator BOXER. OK. We could go on, but we won't.

Let's start with Mr. Darbee and we will work our way through. Mr. Darbee, we are very proud to have you here. Why don't you begin? And everyone will get 6 minutes.

STATEMENT OF PETER A. DARBEE, CHAIRMAN, CEO AND PRESIDENT, PG&E CORPORATION

Mr. DARBEE. On behalf of the PG&E Corporation and the U.S. Climate Action Partnership, or U.S. CAP, I would like to thank you for the opportunity to be here today.

PG&E is California's largest energy provider. Our company is also one of the Nation's cleanest utilities and we are an acknowledged leader in energy efficiency. U.S. CAP is a unique alliance of leading companies from diverse sectors of the economy and major environmental organizations. Our organization is here because we share a view that climate change is the most pressing environmental issue of our time and also because we agree that as the world's largest source of global warming emissions, our country has an obligation to lead.

No other country matches the U.S. in terms of our capital resources and its capacity for innovation. Our economy is the world's locomotive and U.S. CAP believes it is critical to get that engine pulling in the right direction on climate change. Toward that end, we have outlined an aggressive but entirely achievable set of public policy principles in a legislative framework. This morning I will talk about three areas in particular: improving energy efficiency; developing a smart grid for electricity; and making smart decisions about the diversity of the fuels that we use to generate electricity.

Keep in mind the backdrop is our recommendation favoring a program that creates a long-term price signal for carbon by creating a mandatory cap on greenhouse gas emissions, combined with a trading program that uses the market to establish that long-term price signal and lets companies figure out how best to meet the goals.

Let's start with energy efficiency. We haven't even scratched the surface of what the Nation can achieve here. A recent McKinsey study reported that through energy efficiency we can reduce the growth rate of worldwide energy consumption by more than 50 percent over the next 154 years, and we can do it using today's technology. A major step forward would be Federal action making it easier for the country's utilities to actively promote energy effi-

ciency. PG&E has been doing this for 30 years. We have already prevented 125 million tons of greenhouse gas emissions and helped California escape the need to build 24 additional large power plants.

During the last 30 years, we and others have seen California per capita energy utilization remain flat while in the rest of the United States, per capita energy use has risen by 50 percent. The key has been a policy called decoupling. It is a simple idea. It works by setting utility revenues at a fixed level sufficient to run the business and provide a fair return to investors.

But it has profound implications, because it means our financial health doesn't depend on selling more energy. We don't see it as a bad thing when customers use less of our product, and that is a good thing for the environment. U.S. CAP recommends that Congress incorporate this policy into Federal law or strongly encourage more States to do so. We would also like to see stronger national energy efficiency codes for buildings, equipment and appliances. By setting tough but achievable standards, Congress can help spur much-needed investment in new energy efficiency technologies.

An example of the nexus between energy efficiency and technology advancement is our work with the high-tech industry. PG&E worked with Sun Microsystems to develop an incentive program for energy efficient servers, garnering attention from a growing number of other major computing equipment manufacturers. We announced the first ever utility financial incentive program to support virtualization projects in data centers, which enables customers to consolidate their data centers. One major software firm, for example, was able to consolidate workloads from 230 servers onto just 13, representing an energy cost savings of more than 100,000 per year. Rather than burden this company, energy efficiency has created a competitive advantage for it. This same company is now creating a new product based on this approach.

A second area for action is creating the infrastructure for smart energy grid. We can turn the energy grid into an interactive network which in turn would exponentially multiply the options for creating efficiencies and using energy more intelligently. We have the technologies to do this now.

For example, PG&E has the largest program in the country to install so-called smart meters, that provide for two-way communication between the energy supplier and the customer. This opens the door for opportunities like time of use metering that allows for informed consumer decisionmaking to efficiently utilize electric power or for maximizing the potential benefits of plug-in hybrid vehicles. U.S. CAP would like to see Congress develop tax incentives and reform measures that could help advance technology development and capital investment in these areas.

Finally, I will say a few words about how we can ensure an affordable, reliable and diverse supply of electricity from low greenhouse gas emitting sources, including renewable resources, natural gas, nuclear and advanced coal technologies. This is critical to ensuring that we meet our climate change objectives in a way that maintains economic growth. One major positive step would be extending Federal production and investment incentives for renewable energy sources for more than 1 year at a time. This would pro-

vide certainty for investors, reduce the costs of technology development and encourage fuller deployment of these clean sources of energy.

Another major step would be Federal help with developing cleaner conventional power sources, particularly coal. Coal is our most abundant domestic resource and we need to support its continued use in the context of our greenhouse gas reduction goals. We need to accelerate efforts to cost effectively capture and store carbon dioxide. Right now, the technology is expensive and questions remain. The Federal Government can help speed up progress and help drive down the cost. Congress should fund at least three large-scale development and demonstration programs. The U.S. should also set rules for capturing, transporting and storing carbon dioxide in order to provide clarity for investors.

I am an optimist. I personally believe we are going to meet the challenges we are talking about today. But as I have said, I am also a realist, and I recognize that doing so will be tough. We are going to need your continued support and leadership.

On behalf of PG&E and U.S. CAP, thank you for the opportunity to be part of a serious discussion on this very serious issue. We look forward to working with you going forward.

Senator BOXER. Thank you so much, Mr. Darbee. I am very proud of your testimony.

I would ask Senator Carper to introduce our next speaker.

Senator CARPER. With pleasure. I want to welcome each of our witnesses. I think I have had a chance to welcome you all personally.

It is a special privilege today for me to welcome Chad Holliday to the committee. In our church, we like to say that I would rather see a sermon than hear a sermon. When it comes to the DuPont Company, we see the sermon with respect to the commitment to the environment, and to husbanding and preserving our natural resources. They have been providing great leadership from within the chemical industry, now they are providing great leadership throughout the business community on a whole range of fronts.

I want to thank Chad for stepping up, I think big time, in helping to form this partnership and to provide a bit of leadership for it. I just want to say thank you, welcome. I believe we have reached a tipping point with the release of the call for action. We have reached a tipping point and I just want to commend each of you that are part of that for standing up and speaking out and providing common sense, pragmatic leadership at a time when we really need it.

Chad, welcome, we are delighted that you are here.

[The prepared statement of Peter A. Darbee follows:]

STATEMENT OF PETER A. DARBEE, CHAIRMAN, CEO AND PRESIDENT, PG&E CORPORATION

Chairman Boxer, Ranking Member Inhofe, and members of the committee, I am pleased and honored to appear before you this morning representing both my company, PG&E Corporation, and the U.S. Climate Action Partnership (U.S. CAP).

PG&E Corporation is an energy holding company headquartered in San Francisco, California and is the parent company of Pacific Gas and Electric Company. Pacific Gas and Electric Company is California's largest utility, providing electric and natural gas service to more than 15 million people throughout northern and central

California. PG&E is a recognized leader in energy efficiency and has among the cleanest electric delivery mix of any utility in the country.

The U.S. Climate Action Partnership, also known as U.S. CAP, is a coalition of leading businesses and environmental non-governmental organizations (NGOs), including Alcoa, BP America, Inc., Caterpillar Inc., Duke Energy, DuPont, Environmental Defense, EFL Group, General Electric, Lehman Brothers, Natural Resources Defense Council, Pew Center on Global Climate Change, PG&E Corporation, PNM Resources, and World Resources Institute. U.S. CAP has come together based on a shared understanding that climate change is an urgent issue, and that the United States both has a responsibility and opportunity to act now, act aggressively, and enact policies to stabilize and reduce greenhouse gas emissions, enhance energy security, and create economic opportunity by developing and deploying new technologies.

U.S. CAP has recommended a set of public policy principles and a legislative framework for Congress and the Administration, which will accomplish these goals. We developed this framework and these recommendations by putting the tough issues on the table, We challenged each other with hard questions. We debated. And we came together to move forward in those areas of common ground, This is difficult to do. It takes tenacity. And most of all, it takes mutual respect, humility, patience, compromise and a willingness to take the long-term view.

The members of U.S. CAP are committed to working with Congress and the Administration to do the same. On behalf of PG&E, I want to thank Chairman Boxer and the other members of this committee for hearing from the business and environmental communities and other stakeholders on this important issue. I believe that this dialogue will help to forge the kind of understanding needed to tackle this challenging issue.

THE CHALLENGE

As the head of a major energy company—and also as an American and a great believer in our Nation's unique place in the world-I believe the United States has a responsibility to be at the forefront of addressing global climate change.

If you look at U.S. greenhouse gas emissions compared with other nations, the level of emissions from sources in the U.S. is vastly disproportionate to our population. Our emissions are higher than those of China and India combined, where the population is more than 2.5 billion people.

If you look at our wealth and prosperity relative to other Nations, it's clear that we can afford to make a difference, and, if you look at our tremendous capacity for innovation, it's clear that we have the human capital to develop the solutions. By signaling to the market that we're serious about making progress on clean energy, we can stimulate investment and engage our best and brightest minds in this effort.

The longer we wait, the costlier the solutions will likely become. On the other hand, by acting now, we preserve valuable response options. We narrow the uncertainties. And we avoid the economic and social dislocation of drastic changes later.

DEVELOPING A RESPONSE

So, in the face of this challenge, where do we start? U.S. CAP has provided a roadmap for developing the kind of comprehensive approach that will be necessary to address global warming. At the core of the recommendations is a national, mandatory, market-based approach to reducing greenhouse gas emissions—a so-called 'cap and trade' program—that establishes clear short-, medium-, and long term goals and unleashes the power of the market to get the job done. In addition, U.S. CAP identifies action that should be pursued aggressively in advance of the implementation of a national cap-and-trade program, including a full court press on energy efficiency.

Taking this approach will create clarity for business; create consistency, by avoiding a State-by-State patchwork of emissions trading markets; create focus for a comprehensive national energy strategy; and allow us to begin to change the U.S. emissions trajectory today.

OVERVIEW OF U.S. CAP RECOMMENDATIONS

U.S. CAP provides recommendations on all the major components of legislation that could be developed to address this challenge, and many of these recommendations are focused on making the U.S. economy more energy efficient than it is today. In brief, these recommendations include the following:

- Policies and measures to facilitate the development and deployment of advanced transportation, power generation, and energy efficient technologies;

• Cost control measures, including the use of greenhouse gas emissions offsets, banking, borrowing, a strategic allowance reserve, and preferred allowance allocations;
• Inventory and registry so that we can identify both the most energy-intensive parts
of our economy and where the most cost-effective reductions can be achieved;
• Credit for early action, to both recognize actions already taken and encourage others to step up today; and
• Sector-specific policies and measures that complement an economically sound cap-and-trade system and create additional incentives to invest in low-GHG approaches in key sectors, including energy efficiency. These measures will be particularly necessary where near-term price signals are insufficient to deploy existing energy-efficient technologies or other market and regulatory barriers exist that impede their introduction or utilization.

In addition to outlining these major recommendations from U.S. CAP, I would also like to spend a little time addressing three key elements that provide the foundation for many of the recommendations—the importance of improving energy efficiency, the need to develop a "smart grid" for delivery of electric power to consumers, and the important role that decisions on electric power generation and fuel diversity play in the climate change equation.

ENERGY EFFICIENCY

A recent McKinsey study said that, through energy-efficiency, we could reduce the growth rate of worldwide energy consumption by more than 50 percent over the next 15 years. And McKinsey said we can do this using the technology we have available today.

A major step toward unleashing this opportunity in the U.S. would be Federal action making it easier for utilities to actively advocate energy efficiency. PG&E has been doing
this for three decades. Our energy efficiency programs, both electric and natural gas, have already prevented 125 million tons of greenhouse gas emissions. These programs also helped California escape the need to build 24 additional large power plants, and they've saved customers more than $9 billion.

And we are doing even more. Between 2006 and the end of 2008, we will invest an additional $1 billion in energy efficiency, avoid the need for another 600 megawatts (MW) of electric power, and save customers another S 1 billion. In fact, in 2006, we exceeded our targets and saved more than 160 MW of power and 10 million therms of natural gas.

The reason we can do this is that, under State law, our revenues are set at a fixed level by regulators. We collect what we need to run the business and provide a fair return to investors. Any overruns go back to customers. Any shortfalls are recovered Oater. This is known as "decoupling," and it means our financial health doesn't depend on selling more energy. It eliminates the financial disincentives that otherwise stand in the way of encouraging customers to use less of our products. Experience shows that this empowers utilities to become some of the most effective advocates for energy efficiency. This is especially true when you package this policy with incentives for utilities. Utilities should be provided an opportunity to earn a return on investments that save energy, just as they do when they invest in a new power plant, and that earnings opportunity should be tied directly to how well utilities help customers reduce their bills.

A number of states are already moving in this direction. U.S. CAP recommends that Congress bring all 50 states on board by either incorporating this policy into Federal law or taking steps to strongly encourage states to do so. We also need stronger energy efficiency codes for whole buildings, equipment and appliances. PG&E has worked for decades to help both State and Federal authorities set better energy efficiency standards. Progress at the Federal level has lagged recently, however, and we urgently need to reinvigorate it. And finally, it may be necessary to provide incentives for entities to go even further to seek energy savings.

Aggressive standards and incentive programs are a big reason that per capita energy usage in California has remained flat over the past 30 years, while the rest of the Nation has increased its per capita usage by 50 percent. During this time, California's economy has continued to grow at a rate that is equal to or has outpaced the U.S., and was the epicenter of the hi-tech and bio-tech revolutions-with many of the market leaders being energy efficiency pioneers themselves. Raising the bar at the national level will lead to new investment in next-generation energy efficient technologies and spark growth opportunities in other sectors

For example, recognizing the intense and persistent energy use of computing equipment, airflow management, and power conditioning systems in data centers, PG&E worked with Sun Microsystems to develop an incentive program for energy-efficient servers, garnering attention from a growing number of other major computing equipment manufacturers, who are also qualifying their premium performance equipment for incentive programs.

PG&E also announced the first-ever utility financial incentive program to support virtualization projects in data centers. Virtualization technology enables customers to consolidate their data centers and thereby significantly reduce their energy use. One major software firm, for example, was able to consolidate workloads from 230 servers onto just 13, representing an energy cost savings of more than $100,000 per year. This same company is now creating a new product based on this approach.

Many regions across the U.S. are experiencing new demands for electric infrastructure as data center operators construct new facilities. Data centers can use up to 100 times the energy per square foot of typical office space, so efficiency opportunities are significant. We are now working to expand the gains we've made, by leading a coalition of U.S. utilities to capture energy efficiency in data centers. Participants include the Northwest Energy Efficiency Alliance, TXU Energy, the New York State Energy Research and Development Authority, and NSTAR.

Our efforts do not stop in the U.S. We recognize that climate change is a global problem requiring a global solution. And, while we do not believe that U.S. action should be contingent upon global action, we do recognize that in order to make progress, all major emitting economies will need to contribute equitably. That is why PG&E is working cooperatively with the Natural Resources Defense Council, the State of California, and others as part of the U.S.-China Energy Efficiency Alliance. The Alliance works to exchange information and facilitate technology deployment, ultimately helping China reduce the energy intensity of its economy and providing economic opportunity and advantage to those that supply these energy efficient technologies and facilitate best-practice programs. A climate program therefore must build off of efforts like this and the Asia-Pacific Partnership in the near term, and create additional international linkages going forward.

And, finally, we are supporting the development and deployment of new energy efficient technologies and call on Congress to do the same. We implemented several emerging technologies projects in 2006, including integrated day lighting in schools and automated demand response controls. These projects set the stage for significant energy savings in the future and for creating economic opportunities for manufacturers and vendors.

In our State and for our company, energy efficiency is the "first energy resource." That is, before we look to add generation, we see what we can do to reduce demand. I believe the U.S. should make energy efficiency the Nation's first resource as well, and U.S. CAP's recommendations will go a long way toward achieving that.

SMART GRID

Maximizing the potential for energy efficiency, as well as distributed generation and some advanced transportation technologies, will require a "smarter energy grid, one that provides for two-way communication between energy consumers and energy providers. PG&E is installing 10 million Smart MetersTM— throughout our service area to provide the

infrastructure that will eventually support these technologies and offer new capabilities. Tax incentives and reform measures will be needed to advance these efforts nationally.

One example of a technology which would benefit from a "smarter grid is plug-in hybrid vehicles (PHEVs). Vehicle-to-grid technologies have the benefit of reducing oil use, enhancing the power grid, and reducing greenhouse gas emissions. For example, when the cars are not in use, energy from the batteries could be uploaded back to the system, reducing the need for peak power generation. This is important, because peak power often comes from the least efficient and least clean resources on the grid. And, PHEVs facilitate more efficient use of the electric grid, as these vehicles will mainly charge at night, when demand is otherwise low. And, in our State, this is also when some of our lowest emitting resources are powering the electric system.

POWER GENERATION AND FUEL DIVERSITY

In addition to using energy more efficiently, reducing demand, and implementing "smart grid." strategies, a significant emphasis and focus of any greenhouse gas reduction program must be on ensuring an affordable, reliable, and diverse supply of electricity from low-greenhouse gas (GHG) emitting sources. As with energy effi-

ciency, the latest research suggests we can be doing a lot more with what we have available today.

For example, currently, the U.S. is getting about 9 percent of its electricity from renewable sources. Excluding hydroelectricity, that figure is a little more than 2 percent. A number of states have set targets for increasing the supply of renewable energy.

In California, our target is to deliver 20 percent of our energy from renewable sources by the year 2010, excluding large hydroelectric sources. PG&E is on track to meet this goal.

But the Federal Government can make a tremendous contribution here. I believe one major positive step would be the extension of production and investment tax incentives for renewable energy sources for more than one year at a time. This would provide much-needed certainty for investors, reduce the cost of technology development, and encourage fuller deployment.

Washington can also play a leading role in researching and developing next-generation renewable power sources. I'm particularly intrigued by solar thermal technology. PG&E is also exploring the possibility of tidal and wave power off the coast of California. And, the sooner we can develop a good understanding of their viability, and their relative costs and benefits, the sooner we will be in a position to move forward.

It's also critical that we implement policies and initiatives to facilitate the development and deployment of lower GHG-emitting conventional power sources. A strong place to start would be increasing the efficiency of natural gas fired turbines. And, I personally believe we need to facilitate development of both new supplies and new infrastructure. For example, biogas from methane digesters is an opportunity we are pursuing to supplement natural gas supplies for our customers. Again, Federal investment and policies that support efforts in these areas would be very positive.

We are also hearing the beginnings of a national conversation about the future of nuclear power in our country. The advantages of nuclear power in a carbon-constrained world are considerable and must be acknowledged. But nuclear power also faces considerable challenges that must be addressed. It is an option that should be on the table.

Finally, we must address the issues surrounding the use of coal. About 40 states rely heavily on coal for their electric power and, nationally, the electricity mix is currently more than 50 percent coal. So, it is critical that we accelerate efforts to deploy advanced coal technologies that have the capability to cost-effectively capture and store carbon dioxide. Right now, carbon capture and storage technology is expensive, and questions remain. I am cautiously optimistic that the challenges facing this important fuel source can be addressed. And the Federal Government can help us get the answers we need more quickly and help drive down cost. Policy makers should fund at least three large-scale development and demonstration programs, to account for a diversity of locations, coal types, and storage formations. The U.S. should also establish the rules as soon as possible for how carbon dioxide must be captured, transported and stored. Without these rules, it will be difficult for investments to be made on the scale necessary to achieve our GHG reduction targets.

THE TIME IS NOW

Our country has a historic opportunity to change the way we produce and use energy in ways that will lower the threat of climate change and improve our environment. The optimist in Inc is certain that we're going to achieve this goal over the course of the next generation. But the realist in me knows that we can't take this outcome for granted. Achieving it will be a very substantial challenge. And that is why we have to come together as pragmatic, responsible participants in this effort.

On behalf of PG&E and U.S CAP, I want to thank you for the opportunity provided today. I appreciate the commitment of this committee to addressing this critical issue and I pledge my cooperation and support as this committee and Congress moves forward.

Thank you.

RESPONSES BY PETER A. DARBEE TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. I am aware of at least two reports by financial analysts (Bernstein and Citigroup) that identify some utilities that would be winners and losers under climate legislation. Both reports reached similar conclusions. In particular, they concluded that companies with non-emitting generation, like nuclear and renewables, would get a financial windfall. According to Wall Street analysts, the windfall for

some utilities would be in the billions of dollars. Would cap-and-trade legislation of the nature endorsed by USCAP benefit your company in terns of enhanced revenues or reduced costs?

PG&E Corporation is the parent company of Pacific Gas and Electric Company, which provides gas and electric service to more than 15 million people throughout northern and central California. Within California's policy framework, PG&E operates as a regulated utility, and does not complete directly with other energy providers. We do compete on a very limited basis with some municipal utilities within the State.

And, in the event that our company did receive an allowance of emissions allocations under a cap-and-trade program, the economic benefit of those allowances would go to our customers, who have already made significant investments in low carbon energy sources, energy efficiency and advanced energy solutions. Allowance allocations for the benefits of our customers will help to ensure they do not "pay twice" for carbon reductions.

As a regulated utility, the prices we charge, the services we provide, and the profits we earn are all largely determined by California State regulators. They ensure that our utility customers receive cost-effective, reliable, and responsible service, while providing the opportunity for our shareholders to earn a fair return, and no more.

PG&E's commitment to supporting cleaner advanced energy solutions is a value we share with our customers and is a fundamental reason why we have been an active voice on the issue of climate change for many years.

Through extensive research and debate on the issue of climate change, we have concluded at PG&E that the science is compelling, the risks immense, and the time for action is now.

We will continue to support policies that are consistent with these values and protect the interests of our customers and our State in the process.

Question 2. I understand that "early action" carbon credits awarded to your company under a cap-and-trade system would likely have a significant market value—is that correct?

Response. Consistent with our answer above, PG&E operates as a regulated utility, and does not complete directly with other energy providers. We do compete on a very limited basis with some municipal utilities within the State. In the event that our company did receive an allowance of credits for "early actions" taken to reduce emissions as part of a cap-and-trade program, the economics benefits of these allowances would go to our customers, who have already made significant investments in low carbon energy sources, energy efficiency and advanced energy solutions.

As a regulated utility, the prices we charge, the services we provide, and the profits we earn are all largely determined by California State regulations. They ensure that utility customers receive cost effective, reliable, and responsible service, while providing the opportunity for our shareholders to earn a fair return, and no more.

Question 3. Have you done any analysis of the financial impact on your company of greenhouse gas reduction scenarios? If so, what were the results of that analysis?

Response. PG&E has benchmarked its emissions, both for generating sources it owns and operates, as well as for the total mix of delivered electricity (i.e., owned and purchased), against others in our industry. That comparison is available in a document laying our PG&E's position on climate change as well as the steps we are taking to mitigate our greenhouse gas emissions. This document can be found on our website www.pgecorp.com. We update this comparison annually and publish that information in our Corporate Responsibility Report, also available on our website.

We believe that given our current emissions, profile and the investments we are making on behalf of our customers in low or zero emitting energy generation, energy efficiency, renewable generation and the "smart grid" technology will allow us to continue to provide responsive, reliable and cost-effective service to our customers under various greenhouse gas reduction scenarios, while at the same time ensuring a fair return to our shareholders.

Question 4. What is your estimate of the percentage of baseload generation that can be supplied by solar and wind energy without any threat of disrupting reliability if the grid?

Response. The amount of baseload generation that can be displaced by renewable resources depends on the other generating resources connected to the electric power grid. As an example, Denmark generates more than 20 percent of its electric power from intermitting resources on its system. Many studies have been done across the United States and globally to assess similar integration issues. The Utility Wind In-

tegration Group, for example, published a report on the subject last year, summarizing the results of many of those studies. The link to the study is included here and a copy is attached to the submitted response:

http://www.uwig.org/ewec06gridpresentation.pdf;
http://www.uwig.org/ewec06gridpaper.pdf

Studies on integrating intermitting renewable energy resources are also underway in California. For example, a project sponsored by the California Energy Commission just released its report. A link to the study is included here and a copy is attached to the submitted response:

http://www.energy.ca.gov/pier/final—project—report/CEC-500-2007-081.html.

The California Independent System Operator is also conducting an integration study, the results of which are expected to be released later in 2007.

STATEMENT OF CHAD HOLLIDAY, CHAIRMAN AND CEO, E.I. DUPONT DE NEMOURS AND COMPANY, INC.

Mr. HOLLIDAY. Thank you, Senator Carper, thank you, Chairman Boxer, Senator Inhofe for convening this hearing on a very important topic.

I am pleased to be here today representing DuPont, a 205 year old Science company. I am also here as a member of a unique partnership of companies and NGO's who have reached a consensus on action our country should take around the challenge of global climate change. We call this the U.S. Climate Action Partnership.

DuPont's environmental approach was shaped when atmospheric research on ozone depletion led to phaseout of chlorofluorocarbons, or CFCs, through the Montreal Protocol. It was during this period DuPont became more aware of the potential business and environmental implications of climate change.

Since 1991, we have reduced our greenhouse gas emissions by 72 percent globally, and avoided $3 billion of energy costs. We made these changes because they earned solid returns for our shareholders and they help the environment. I am here today because I am absolutely convinced that Americans and American business can do our part to beat this global issue. We must know the rules of the road you want us to follow to reduce greenhouse gases. When you lay down the law, our universities, our companies, our national laboratories and individual citizens will lead the world in finding solutions.

As a catalyst for your process, U.S. CAP has developed five principal themes I will briefly cover. First, clear and strong near-term and mid-term goals are important to prepare for the long-term reductions that will be needed. Second, action across the entire U.S. economy will be required. However, one size does not fit all. Different approaches and timeframes will be required for different sectors of the economy.

Third, any solution must be economically sound and harness the power of the market. A Federal program should include market mechanisms such as cap and trade and additional policies and measures such as energy efficiency standards. Fourth, we must drive innovation and open up new markets by fighting aggressive technology through R&D. This recommendation is in complete harmony with the work the National Academies did for the Senate last year called Rising Above the Gathering Storm.

Five, we need to encourage early action and be fair. By recognizing voluntary actions taken to reduce emissions and addressing disproportionate economic impacts that may occur to economic sec-

tors, regions of the country or income groups is very important. U.S. CAP has offered detailed recommendations in some areas. In other areas, we have offered a range of possibilities without trying to specify exact details. My colleague with me today will give you more details and recommendations.

In closing, we do not have all the answers. I am sure you can improve on our recommendations. However, I am equally sure when we pull together we can deal with global warming and continue to have the world's leading economy. Thank you very much.

Senator BOXER. Thank you so much, Mr. Holliday, for that very succinct presentation.

Just for the benefit of members, we are going to go through the panel and then in order of arrival, I will go back and forth, I will give each member 10 minutes, so you can work in your opening statements. Senator Inhofe and I did have our opportunity to do that. So that is what we are going to do.

We are going to continue now hearing from Jonathan Lash, President of the World Resources Institute. Welcome.

[The prepared statement of Chad Holiliday follows:]

STATEMENT OF CHAD HOLLIDAY, CHAIRMAN AND CEO E.I. DUPONT DE NEMOURS AND COMPANY, INC

Thank you, Chairman Boxer and Senator Inhofe for convening a hearing today on this important topic. I am pleased to be here representing DuPont. I am also here as a member of the U.S. Climate Action Partnership (U.S. CAP), a group of companies and NGOs who have come together to forge a consensus view regarding U.S. action on the challenging issue of climate change.

At DuPont our goal is sustainable growth, which we define as the creation of shareholder and societal value while reducing our environmental footprint along the value chains in which we operate. Our sustainable approach to climate change is informed, in part, by our experience with chlorofluorocarbons in the 1980s. When atmospheric research on ozone depletion led to the Montreal Protocol and an international agreement to phase out the use of CFCs, DuPont led in that effort, and used our science to develop better replacement materials.

In the course of that work DuPont became more aware of the potential business and environmental implications of climate change. We believe that the science is sufficient to compel prudent action. Since 1991 we have reduced our own greenhouse gas emissions by 72 percent globally, and avoided $3 billion in energy costs. By 2015, we will further reduce our greenhouse gas emissions by 15 percent from a base year of 2004.

DuPont will continue to do its part, using our science to bring new products to market that help others reduce their emissions. These sustainable solutions include alternative energy sources such as photovoltaic solar cells and next generation biofuels, value-adding materials produced from agricultural feedstocks rather than petroleum like our DuPont™ Sorona® polymer fiber and biofuels, and energy efficiency aids such as next generation refrigerants and DuPont™ Tyvek® HomeWrap®. In addition, DuPont made a corporate commitment to acquire at least 10 percent of our power from renewable energy sources by 2010, and we are already more than halfway there.

While members of U.S. CAP have a range of reasons for joining the coalition, from a sense of the strength of the science to a desire for greater business certainty, we all believe that there is a leadership role for the U.S. to play in addressing this serious global issue. Prompt action by Congress is needed to enact a market-based program to reduce greenhouse gas emissions that is environmentally effective and economically sustainable.

Many of our members have already taken extensive voluntary actions to address their own greenhouse gas emissions. But voluntary efforts alone will not solve the problem—we need sound policy that takes broad, coordinated action across the entire economy. To achieve this, climate protection policy must be coupled with U.S. energy policies that result in diverse and adequate low-carbon energy supplies.

The U.S. CAP principles are built around the following central themes.

1. Clear and strong near- and mid-term goals are important to prepare us for the long term reductions that will be needed.

2. Action across the entire U.S. economy will be required. However, one size does not fit all, and different approaches and timeframes may be required for different sectors of the economy.

3. Any solution must be economically sound, and harness the power of the market. A Federal program should include market mechanisms such as cap and trade, and additional policies and measures such as energy efficiency standards.

4. We must drive innovation and open up new markets by funding aggressive technology R&D, demonstration and deployment programs.

5. We need to encourage early action, and be fair, by recognizing voluntary actions taken to reduce emissions, and addressing disproportionate economic impacts that may occur to economic sectors, regions of the country, or income groups in the early years of a program.

U.S. CAP has offered detailed recommendations in areas where we have been able to reach consensus. In some areas we have identified a range of potential policies without attempting to specify the ideal approach. My colleagues with me today will address these recommendations in greater detail.

In closing, DuPont has taken these actions and policy positions because they are the right things to do, both for business and the environment. We will continue to work hard to bring new products and technologies to market that will help address the global climate challenge. But business cannot solve the problem alone. Federal legislation will help create the marketplace that will drive innovation, economic growth, and environmental progress. DuPont is proud to be part of a growing group of businesses who believe that it is time for the U.S. to take action on climate change. We appreciate this opportunity to exchange views with you, and look forward to working with you to enact effective legislation.

STATEMENT OF JONATHAN LASH, PRESIDENT, WORLD RESOURCES INSTITUTE

Mr. LASH. Madam Chair, thank you very much. Distinguished members of the committee, thank you for the opportunity to speak to you this morning about an issue of compelling national and global significance.

I will follow Mr. Holliday by trying to summarize some of the key U.S. Climate Action Partnership recommendations. Our starting point is a goal in terms of emissions levels and a goal in terms of global concentrations of greenhouse gases. We set a range, 450 to 500 parts per million, because there is growing evidence that concentrations above those levels would create large-scale adverse impact to human populations, the natural environment and increase the risk of unpredictable and abrupt climate change.

In light of that goal, we recommend a pathway with targets to slow, stop and then reverse the growth of U.S. emissions, achieving emissions levels between 100 percent and 105 percent of today's levels within 5 years of enactment, between 90 percent and 100 percent of today's levels within 10 and between 70 and 90 percent of today's levels within 15 years of enactment. Just to be clear, that is a 10 to 30 percent reduction from today's levels by 2022.

We suggest a long-term goal of reducing emissions by 60 to 80 percent by 2050. There are four reasons to outline this pathway of steadily declining emissions. First, it is what is necessary to address the problem of global warming. Second, it provides a clear road map of future market conditions for companies making choices regarding new technologies and products. Third, it will encourage investors to support innovative low-carbon technologies. And fourth, it will enhance U.S. credibility in seeking international agreement, which is crucial.

Deep cuts in emissions will require fundamental changes in our energy systems over a period of decades, and legislation should focus on step-wise, cost-effective actions. Since markets play an important role in shaping behavior, we believe there needs to be a price for greenhouse gas emissions for all sectors of the economy. Our environmental goal and economic objectives can best be accomplished through an economy-wide market-driven system that includes a cap and trade program with specific limits on greenhouse gas emissions.

Cap and trade programs in the past, like the SO_2 program that Congress enacted in the Clean Air Act amendments in 1990, have demonstrated a track record of creating environmental value at an acceptable cost. That program was being debated in the Congress. There were many who thought the costs of controlling acid rain would ruin U.S. competitiveness. It did not, and the CO_2 cap and trade program will not.

According to the venture capitalist John Doerr, who endorses cap and trade as a solution to global warming, "The choice is clear. Are we going to innovative and prosper or stagnate and suffocate?"

Cap and trade provides both certainty and flexibility. Sources can choose whether to make reductions to buy credits. Innovators can invest in technology to produce and sell excess credits. Cap and trade creates a market that chooses the best solutions.

Just as a robust market can reduce the costs of reductions, there are several other program design features that can also help to reduce cots. One is the establishment of an offsets program, verified emissions reductions that are made by companies or farmers or other sources of emissions that are not within the cap but can be sold to regulated sources. Massachusetts, Oregon and Washington already require that power plant operators purchase offsets for a portion of their CO_2 emissions. The regional greenhouse gas initiative cap and trade program in the northeast will include such an offsets program.

If other control measures are used in climate policy, the U.S. Climate Action Partnership believes that they should be designed to first of all enable a long-term price signal that is stable and high enough to ensure investment in low and zero emitting technologies; second, that ensures the integrity of the emissions cap; third, to preserve the market's effectiveness in driving reductions.

Possible additional cost control measures might include a safety valve, borrowing, a strategic allowance reserve program and preferential allocations, or dedicated funding, technology incentives and transition assistance. The emissions allowance allocation system in a cap and trade program can be used to help mitigate economic transitions costs. Allocations can help regions or groups that are relatively more adversely affected by greenhouse gas emission limits and recognize those who have made investments in higher cost, low GHG technologies.

We suggest that a significant portion of allowances could be initially distributed free to capped entities and to economic sectors, particularly disadvantaged by a cap, including the possibility of funding transition assistance to adversely affected workers and communities. Free allocations to the private sector should be phased out over a reasonable period of time.

A word on coal. Coal supplies over 50 percent of our current electricity generation. It will continue to play an important role in the future. Policies are needed to speed the transition to low and zero emission stationary sources that can cost effectively capture CO_2 emissions for geological sequestration. I should note that the U.S. CAP didn't take a position s a group on any particular project, although individual members do have such positions. U.S. CAP also recommends moving forward with a fast track of activities and reductions that need not wait for a cap and trade program to begin. For example, companies like DuPont that reduce their emissions should get early credit for doing so.

Delay—I have about one paragraph. Delay will increase the costs of reductions, but it is important, reductions are important also as a stimulus for technologies that will make the U.S. competitive on tomorrow's markets.

Thank you very much, Madam Chair.

Senator BOXER. Thank you.

Next is Steve Elbert, Vice Chair of BP America. Welcome, Mr. Elbert.

[The prepared statement of Jonathan Lash follows:]

STATEMENT OF JONATHAN LASH, PRESIDENT, WORLD RESOURCES INSTITUTE

Chairman Boxer, distinguished members of the committee, good morning and thank you for inviting me to testify about a matter of compelling national and global significance. I am Jonathan Lash, President of the World Resources Institute. I appear today both in my capacity as President of WRI and as a partner in the U.S. Climate Action Partnership.

The World Resources Institute provides analysis and builds practical solutions to the world's most urgent environment and development challenges. We work in partnership with scientists, businesses, Governments, and non-governmental organizations in more than seventy countries to provide information, tools and analysis to address problems like climate change, and the degradation of ecosystems and their capacity to provide for human well-being.

The United States Climate Action Partnership started from the premise, as Mr. Holliday has noted, that we know enough now to know that we need to act on climate change, and that delay will only increase the costs of the action. Since the release of U.S. CAP's joint "Call to Action" the IPCC has reported its findings based on a review of all of the climate science of the last 5 years. As an individual who has worked on these issues for several decades, I have to say that report, in its dry scientific language, offers as stark a picture of the scale and immediacy of the environmental challenge we face as I have ever seen.

The 10 companies and four non-profit organizations that make up the U.S. CAP partnership reached rapid agreement on the need for an immediate and sustained effort to reduce U.S. GHG emissions and change our energy infrastructure. We worked hard to develop an interconnected set of recommendations for the general structure and key elements of a policy that would implement the six principles described by Mr. Holliday.

U.S. CAP recommends that legislation be designed consistent with limiting global atmospheric concentrations of greenhouse gasses to a level of 450-550 parts per million. There is growing evidence, scientists indicate, that concentrations above those levels would create large scale adverse impacts to human populations and the natural environment, and increase the risk of unpredictable and abrupt global changes.

In light of that goal, we recommend a pathway with targets that slow, stop and reverse the growth of U.S. emissions. Specifically, in "A Call for Action" we recommend a mandatory emissions reduction pathway of:

-Between 100-105 percent of today's levels within 5 years of rapid enactment

-Between 90-100 percent of today's levels within 10 years

-Between 70-90 percent of today's levels within 15 years

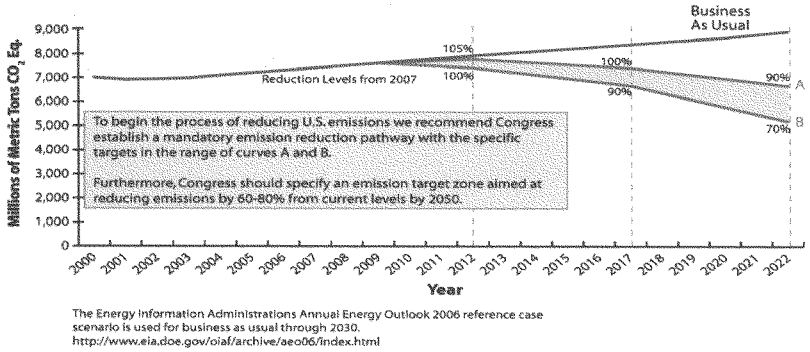
So, by 2023, we would have achieved reductions of 10-30 percent. We also recognize that to achieve our long-term goal, we will need to cut emissions by 60-80 percent by 2050.

There are four reasons why laying out the pathway of steadily declining emissions is important:

- It is what is required to control global warming;
- It will provide a clear road map of future market conditions for companies making choices regarding new technologies and products;
- It will encourage investors to support innovative low carbon technologies;
- It will greatly enhance U.S. credibility in seeking international agreement on reductions.

Figure 1 depicts the U.S. CAP recommended targets and timetables.

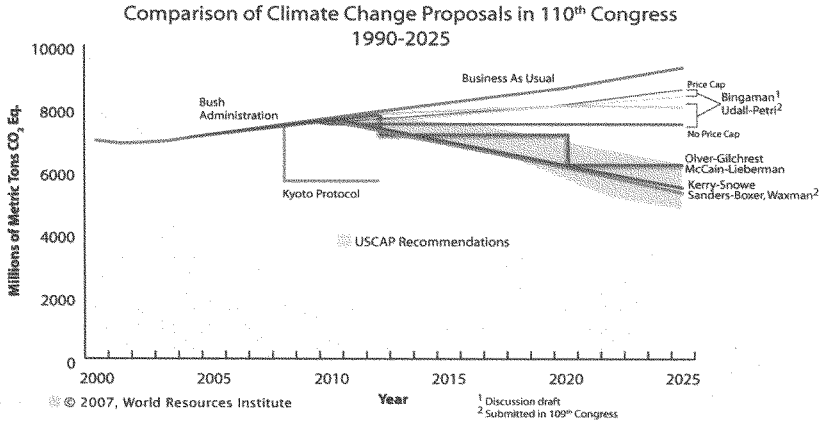
Figure 1: US CAP targets and timetables for 2000-2023



The Energy Information Administrations Annual Energy Outlook 2006 reference case scenario is used for business as usual through 2030.
http://www.eia.doe.gov/oiaf/archive/aeo06/index.html

In Figure 2, WRI overlays U.S. CAP targets with legislative proposals under discussion by Congress. U.S. CAP has not reviewed, and does not endorse any specific legislative proposal. Figure 2 represents WRI's analysis alone, and I offer it simply as a useful way to understand the importance of long-term goals, and the range of outcomes resulting from different proposals.

Figure 2: WRI overlay of US CAP with Congressional Proposals



Clearly, the emissions reductions that we recommend will require fundamental changes in our energy systems over a period of decades. Legislation should focus on a step-wise, cost-effective approach—U.S. CAP efforts focused on targets to help set us on a course over the next 20-30 years to bring new technologies forward and re-

duce emissions. Harnessing the innovation and entrepreneurial nature of the private sector requires that there be a roadmap and markets open to new technologies.

Since markets play an important role in shaping behavior, we believe there needs to be a price for GHG emissions for all sectors of the economy.

Our environmental goal and economic objectives can best be accomplished through an economy-wide, market driven approach that includes a cap and trade program with specific limits on greenhouse gas emissions. To offer the most reduction opportunities, we recommend that the program should cover as much of the economy as possible through either an upstream or hybrid program with stationery sources regulated downstream.

Cap and trade programs like the SO_2 program in the Clean Air Act have a demonstrated track record of creating environmental value at acceptable economic cost. As the program was being debated in Congress, there were many who thought the costs of controlling acid rain would ruin U.S. competitiveness. It did not, and CO_2 trading will not. According to venture capitalist John Doerr, who endorses cap and trade, "The choice is clear: Are we going to innovate and prosper, or stagnate and suffocate?"

An economy-wide cap and trade program will allow companies to review their options to control greenhouse gas pollution by making process changes, changing fuel, or purchasing allowances from other entities that can more cost-effectively cut emissions. This flexibility lowers the cost to the economy, and with a declining cap on overall pollution levels, it effectively achieves its environmental goals. For those sectors that are insensitive to price signals or that face market barriers, we recommend sector specific policies—my U.S. CAP colleagues will speak more to some of these recommendations in a moment.

Cap-and-trade provides both certainty and flexibility. Sources can choose whether to make reductions or buy credits. Innovators can invest in technology to produce and sell excess credits. Cap-and-trade creates a market that chooses the best solutions.

Just as a robust market can reduce costs, there are several other program design features that can help do that as well—one is the establishment of an offsets program. These are verified emissions reductions that are made by companies, farmers or other sources of emissions not regulated under the cap. The offsets must be real reductions that are verifiable, permanent and enforceable.

Massachusetts, Oregon and Washington already require power plant operators to purchase offsets for a portion of their CO_2 emissions and the Regional Greenhouse Gas Initiative cap and trade program in the Northeast will include an offsets program. Several years ago, WRI offset our emissions by helping a school in Oregon invest in a new high efficiency boiler. They had no funds for this upgrade which could offer significant emissions reductions. The new boiler reduced their energy costs, and we got "credit" for the environmental improvement. This type of program can be very cost-effective.

If other cost control measures are used in climate policy, U.S. CAP believes they would need to be designed to:

-Enable a long-term price signal that is stable and high enough to ensure that the investments in low and zero emitting technologies are not undercut.

-Ensure that the integrity of the emissions cap

-Preserve the market's effectiveness in driving reductions, investment and innovation.

Possible additional cost control measures include, but are not limited to, a safety valve, borrowing, strategic allowance reserve program, preferential allocations, dedicated funding, technology incentives and transition assistance.

An emission allowance allocation system in a cap and trade program can help mitigate economic transition costs. Allocations can help the regions or groups relatively more adversely affected by GHG emission limits and recognize those who have made investments in higher cost, low-GHG technologies.

A significant portion of allowances should be initially distributed free to capped entities and to economic sectors particularly disadvantaged by a cap, including the possibility of funding transition assistance to adversely affected workers and communities. Free allocations to the private sector should be phased out over a reasonable period of time.

U.S. CAP also recommends moving forward with a fast track of activities and reductions that need not wait for the cap and trade program to begin. For example, companies that can reduce their emissions now should get credit for doing so, and those that have been leaders to date should receive credit for early action.

We recommend legislation should establish a national registry no later than the end of 2008. In addition, the fast track policy program should establish a program that offers credit for early action, support aggressive technology research and devel-

opment, and include policies that discourage new investments in high-emitting facilities and accelerate deployment of zero and low-emitting technologies and energy efficiency. We recommend these fast track actions begin within one year of enactment.

We must act now if we are to preserve all our options for cost-effective greenhouse gas reductions and engage the international community. We in the U.S. must take the first step by reducing our own emissions. And we hope Congress will urge the Administration to re-engage the international community at it discusses post-2012 policies. International cooperation is necessary, and can also help to improve cost-effectiveness, but U.S. action is imperative from both an environmental and political perspective.

Thank you for the opportunity to join you today to share my thoughts and some highlights of the U.S. CAP recommendations.

STATEMENT OF STEPHEN A. ELBERT, VICE CHAIRMAN, BP AMERICA, INC.

Mr. ELBERT. Thank you very much, Madam Chairman, members of the committee. Thank you very much for inviting me to participate in this hearing on the U.S. Climate Action Partnership report.

I am Steve Elbert, Vice Chairman of BP America. I am pleased to be here today to express BP's support for the adoption of a mandatory and national climate change control program. I am going to focus my remarks on the important role of technology and policy design and the necessity to incorporate mechanisms that fairly address the various components of the transport sector.

In 1997, BP was the first oil and gas company to urge precautionary action on climate change. Since then, we have been active in addressing climate change through both open discussions on policy alternatives as well as through concrete business action. In 1998, the company set voluntary targets to reduce its own emissions. By 2001, our greenhouse gas emissions were dropped by 10 percent below our 1990 levels, and we have since continued to improve our emissions performance through energy efficiency projects.

Our investment in energy efficiency will total approximately $450 million by 2010. That investment has already returned approximately $1.6 billion through the end of 2005 through reduced energy costs. We expect to see continued energy and cost savings in coming years. Our experience demonstrates that energy efficiency is a cost-effective way of reducing greenhouse gas emissions.

In addition to focusing on our own emissions we are focusing on developing low carbon power. That includes natural gas, hydrogen, biofuels, solar and wind technologies. That is why BP is so pleased to be a member of this first of a kind partnership of major industrials, environmental organizations and Wall Street to call for a mandatory climate change program. U.S. CAP's report, A Call for Action, is an important milestone because of the diversity of its members who were able to reach a very quick consensus opinion recognizing the urgent need to adopt comprehensive climate policy.

All of us are committed to working with the President, Congress and other stakeholders to enact well designed national legislation to slow, stop and reverse the growth of greenhouse gas emissions. You have already heard from some of my U.S. CAP colleagues about many of the areas we have reached consensus on policy principles and recommended actions and frameworks for mandatory national policy. One of those design principles concerns the critical role that technology must play to reach the goal of stabilizing at-

mospheric concentrations of carbon dioxide at the 450 to 550 part per million by 2050.

In order to slow carbon emissions in the near term, we must deploy the most cost-effective technologies that are available today to improve energy efficiency and reduce emissions. We must also develop new technologies for the longer term to stop and reverse the growth of these emissions. For that to happen, we need design policies that stimulate private investment into research, development and deployment. We believe this is best accomplished through the establishment of a market value for greenhouse gas emissions.

The U.S. CAP members agree that in addition to developing the long-term price signals associated with a carbon price, the parallel and complementary policies will be required in the early years to stimulate capital investment. A combination of these policies will provide the framework necessary for both short-term action using existing technologies and the future research and development to achieve the so-called game changing technological breakthroughs.

As the largest oil and gas producer in the United States and one of the largest retailers of transportation fuels, BP believes that all emitting sectors of the economy, including the transportation sector, both fuels and vehicles, must be included in nay national climate change policy. The U.S. CAP has identified a number of areas for consideration and we continue to work on policy options to address this very complex sector. We believe that parallel policies that address fuel specifications, vehicle design and customer behavior are necessary to achieve the reductions in emissions in the transport sector. BP and the U.S. CAP will continue to work with those who are committed to identifying cost-effective environmentally and economically sound solutions.

We believe that addressing the risks of global climate change is good for our customers and good for our shareholders. And we are convinced it is possible to develop legislation that will enable us to stabilize the climate and meet the energy needs of the country. But we need technological innovation to break the link between energy consumption and carbon emissions and still maintain strong economic growth. That is why BP is investing $8 billion over the next 10 years in BP Alternative Energy. We are investing in new solar technologies, wind power, hydrogen power and carbon capture with sequestration and state-of-the-art gas turbine technology.

Through these investments, we expect to reduce CO_2 emissions by 24 million tons by 2015. That is roughly the equivalent of making the city of Chicago carbon free. In addition, we have recently announced a $500 million research program to be housed at the University of California Berkeley and the University of Illinois. This energy biosciences institute will perform ground-breaking research aimed at applying biotechnology to production of new and cleaner energy, initially focusing on renewable fuels. This research will focus on every aspect of biofuels value chain from feedstocks and enzymes to conversion processes and onto new fuels. It will inform the actions of our own biofuels business segment and supplement the partnership we announced last year with DuPont, to introduce a new fuel, biobutanol.

We believe that strong support from the Government is necessary to spur innovation and that will in turn increase U.S. en-

ergy security and create new opportunities to boost U.S. competitiveness in the world. We look forward to working with the committee and others to help develop the legislation that will make this happen.

Thank you very much, Madam Chairman. I look forward to answering any questions the committee may have.

Senator BOXER. Thank you very much, Mr. Elbert.

And now on the other side of this, the next three witnesses, I want to welcome Kevin Book, Senior Analyst, Vice President, Friedman, Billings, Ramsey and Company.

[The prepared statement of Stephen A. Elbert follows:]

STATEMENT OF STEPHEN A. ELBERT, VICE CHAIRMAN, BP AMERICA, INC.

Madam Chairman, members of the committee, thank you for inviting me to participate in this hearing on the U.S. Climate Action Partnership report. I am Steve Elbert, Vice Chairman of BP America Inc. I am pleased to be here today to express BP's support for the adoption of a mandatory and national climate change control program. I will focus my remarks on the important role of technology in policy design and the necessity to incorporate mechanisms to fairly address the various components of the transport sector.

In 1997, BP was the first oil and gas company to urge precautionary action on climate change. Since then, we have been active in addressing climate change through open discussions on policy alternatives and through business action. In 1998, the company set voluntary targets to reduce its own emissions. By 2001, our GHG emissions were 10 percent below 1990 levels and we have since continued to improve our own GHG emissions performance through energy efficiency projects.

BP's investment in energy efficiency will total approximately $450 million by 2010. That investment has already returned approximately $1.6 billion through the end of 2005 through reduced energy costs. We expect to see continued energy and cost savings in the coming years. As our experience demonstrates, energy efficiency is a cost-effective way of reducing greenhouse gas emissions.

In addition to curbing our own emissions, we are focusing on developing low carbon power, including natural gas, hydrogen, biofuels, solar and wind technologies.

That is why BP is so pleased to be a member of this first of a kind partnership of major industrials, environmental organizations, and Wall Street to call for a mandatory climate change program. U.S. CAP's report, "A Call for Action," is an important milestone because of the diversity of its members who were able to reach a consensus opinion recognizing the urgent need to adopt comprehensive climate policy.

All of us are committed to working with the President, Congress, and all other stakeholders to enact well designed national legislation to slow, stop and reverse the growth of greenhouse gas emissions.

You have already heard from some of my U.S. CAP colleagues about many of the areas where we have reached consensus on policy principles and recommended actions and frameworks for a mandatory national policy.

One of those design principles concerns the critical role that technology must play to reach the goal of stabilizing atmospheric concentrations of CO_2 at 450-500 parts per million by 2050.

In order to slow carbon emissions in the near term, we must deploy the most cost-effective technologies that are available today to improve energy efficiency and reduce greenhouse gas emissions, while developing new technologies for the longer term to stop and reverse greenhouse gas emissions.

For that to happen, we need to design policies that stimulate private investment into research, development and deployment. We believe this is best achieved through the establishment of a market value for GHG emissions. The U.S. CAP members agree that in addition to developing the long term price signals associated with a carbon price, parallel and complementary policies will be required in the early years to stimulate capital investment.

A combination of these policies will provide the framework necessary for both short term action using existing technologies and future research and development to achieve game-changing technological breakthroughs.

As the largest oil and gas producer in the United States, and one of the largest retailers of transportation fuels, BP believes that all major emitting sectors of the economy, including the transportation sector—both fuels and vehicles—must be included in any national climate change policy. The U.S. CAP has identified a number

of areas for consideration, and we continue to work on policy options to address this complex sector.

We believe that parallel policies that address fuel specifications, vehicle design, and consumer behavior are necessary to achieve reductions of GHG emissions in the transport sector.

BP and the U.S. CAP will continue to work with those who are committed to identifying cost-effective, environmentally and economically sound solutions.

BP believes that addressing the risks of global climate change is good for our customers and our shareholders, and we are convinced it is possible to design legislation that will enable us to stabilize the climate and meet the energy needs of the country. But we need technological innovations to break the link between energy consumption and carbon emissions and still maintain strong economic growth.

That is why BP is investing $8 billion over the next ten years in BP Alternative Energy Company. We are investing in new solar technologies, wind power, hydrogen power with carbon capture and sequestration and state of the art gas turbine technology.

Through these investments, BP expects to reduce CO_2 emissions by 24 million tons per year by 2015. This is equivalent to making the City of Chicago carbon free.

In addition, we have recently announced a $500 million research program to be housed at the University of California Berkeley and the University of Illinois.

The Energy Biosciences Institute will perform ground-breaking research aimed at applying bio-technology to production of new and cleaner energy, initially focusing on renewable biofuels. This research will focus on every aspect of the biofuels value chain from feedstocks and enzymes to conversion processes and on through to new fuels. It will inform the actions of BP's biofuels business segment and supplement the partnership we announced last year with DuPont to introduce a new biofuel—biobutanol.

These investments on our part and the investments of our U.S. CAP colleagues are just a start.

And we believe that strong support from the Government is necessary to spur innovation that will in turn increase U.S. energy security and create new opportunities to boost U.S. competitiveness around the world.

We look forward to working with the committee and others to help develop legislation that will result in real emission reductions at the lowest achievable cost.

Thank you again Madam Chairman and I look forward to answering any questions the committee might have.

STATEMENT OF KEVIN BOOK, SENIOR VICE PRESIDENT, SENIOR ANALYST, FRIEDMAN, BILLINGS, RAMSEY AND COMPANY, INC.

Mr. BOOK. Madam Chairman, Ranking Member Inhofe and distinguished members of the committee, thank you for the privilege of contributing to the important discussion here today. The testimony I will provide is my own and does not represent the view of Friedman, Billings, Ramsey and Company. I should also point out, as an energy policy analyst for Wall Street clients, I don't take sides so much as I try to help them try and figure out what is going to happen next. So I appreciate the opportunity to be here participating in what is happening next.

This had led, by the way, to a number of intellectually honest discussions about climate change with policymakers, financial investors and corporate managers. In short, the nature of energy investments may present several challenges for policymakers crafting climate change mitigation strategies. As an initial act of conservation, I have cut my written testimony down to three and a half pages. So I will be happy to respond to any parts of the written record as well.

Senator BOXER. Mr. Book, we will put your full testimony in the record, as well as everybody else's.

Mr. BOOK. Thank you.

Energy investments require significant capital outlays over long periods of time, pushing financial returns far into the future. The prospect of regulatory change can introduce uncertainty that diminishes investors' perceptions of value. Forcing corporations to offer either higher guaranteed returns on debt or larger portions of equity ownership in order to secure financing. High capital costs can stall investment or crowd out discretionary R&D spending.

Second, the energy industry is characterized by large numbers that can magnify the impact of policy changes. In 2004, the EPA reported that U.S. fossil fuel combustion yielded more than 5,600 terragrams of carbon dioxide equivalent. More than 1,850 terragrams came from transportation; nearly 2,300 terragrams came from power generation. Keeping in mind that a terragram is one million metric tons, a fee of even $1 per metric ton across the economy would raise gasoline costs by approximately $1.25 billion per year and coal-fired power costs by approximately $2 billion per year.

Third, greenhouse gas emissions and economic output are closely linked. The sole annual decrease in U.S. greenhouse gas emissions during the past 15 years arrived as a result of the September 11th tragedies. Emissions fell 1.3 percent as the growth rate of GDP fell from 3.7 percent to 0.8 percent. When President Vladmir Putin ratified the Kyoto Protocol in November 2004, Russia's greenhouse gas emissions levels had decreased 32 percent since 1990, with the collapse of its industrial base. At $10 per metric ton, that meant about $10 billion per year in credit sales, an attractive option for a $613 billion economy.

But this wealth transfer ultimately rewards economic contraction, not the choice to reduce conventional energy production and increase green energy capacity.

Fourth, a tax on the end user consumption of greenhouse gas emitting fuels would provide the most economically efficient means of limiting emissions. But consumption taxes tend to be regressive and may negative impact GDP growth. As a result, many policymakers and stakeholders to this debate support market based cap and trade programs that offer corporations the flexibility to choose between making new capital investments, purchasing emissions credits of shutting down.

This strategy does have some shortcomings. Regulating corporations may mitigate some regressive income effects. But firms are still likely to pass through some portion of higher costs to all consumers. This approach could also weaken the price signals that motivate individuals to alter their consumption behaviors.

Fifth, unless regulated entities can engage in economic technologically viable green behaviors to earn credits for future use or sale, the cap in cap and trade becomes a tax on production that court hurt producers with thin margins or small cash reserves. Carbon dioxide from fossil fuel combustion makes up more than 80 percent of U.S. greenhouse gas emissions, far exceeding potential offsets available to regulated entities from projects that stem emissions of other gases.

Science may soon make great strides toward secure underground carbon dioxide sequestration. But this option is not available to U.S. emitters today.

Sixth, safety valves to protect economic growth could undermine emissions market dynamics. Because a safety valve price would need to be by definition lower than the projected market price for credits under conditions of scarcity. When prices spike, emitters would just pay the safety valve price and continue business as usual, unless this price is set so high that it forces the consideration of new capital investment in green technologies that offer sustainable production cost advantages.

Seventh, durability could be a concern. In December 2005, when Hurricane Katrina drove gas prices above $14 per million British thermal units, Massachusetts and Rhode Island stepped back from the regional greenhouse gas initiative. In 2012, Canada may face a choice of either paying that 1.3 percent of GDP to purchase credits or disable 30 percent of its GDP to meet its Kyoto targets. Investors are likely to be cautious about the possibility that high prices could motivate sovereign defection from or delayed implementation of proposed regulations.

To conclude, enacting an economy-wide cap and trade system too far ahead of the commercialization of cost competitive green alternatives may not be the most stable or efficient way to modify energy use behaviors to address global climate change. There may be greater value in providing incentives to the U.S. venture capital, private equity and capital markets to deliver cost competitive green technologies. Alternatively, it may make sense to take an incremental step with a market based regulation of stationary sources, similar to the Clean Air Interstate and Mercury rules, so long as it also motivates regulated entities to explore emerging carbon capture technologies.

Last, ongoing discussion may be further informed by an analysis of the comparative national and global economic costs of inaction and limited action vis-a-vis any comprehensive emissions control program.

Madam Chair, this concludes my prepared testimony. I look forward to any questions.

Senator BOXER. Thank you, sir.

Our next speaker is Mr. Fred Smith, President of the Competitive Enterprise Institute. Welcome.

[The prepared statement of Keven Book follows:]

STATEMENT OF KEVIN BOOK, SENIOR VICE PRESIDENT, SENIOR ANALYST FRIEDMAN, BILLINGS, RAMSEY & COMPANY, INC.

Thank you, Madam Chairman, Ranking Member Inhofe and distinguished members of the committee for the privilege of contributing to the important discussion taking place here today. The testimony I will provide is my own and does not represent the viewpoint of my employer, the Arlington, Virginia-based investment bank Friedman, Billings, Ramsey & Company, Inc.

As an energy policy analyst for Wall Street institutional clients, I evaluate potential investment impacts of Government and regulatory actions for the men and women who manage other people's money. This affords me an opportunity to engage financial investors, corporate management teams and policymakers in intellectually honest discussions regarding the challenges of balancing environmental stewardship with economic growth and national security.

My testimony today addresses three areas relevant to discussion regarding U.S. greenhouse gas emissions reductions: the nature of energy investments; potential unintended consequences related to market-based regulatory frameworks; and the durability of such frameworks when sovereigns confront serious economic hardship.

I. THE NATURE OF ENERGY INVESTMENTS

Energy investments require significant capital outlays over long periods of time, pushing returns for financial investors far into the future. The prospect of significant changes to regulations governing energy sector investments can introduce uncertainty that diminishes investors' perceptions of value. A dollar today, after all, is worth a dollar. A dollar next year is worth less than a dollar today because today's dollar could earn a year's interest in a bank account in the meantime. The 80 percent possibility of a dollar next year is worth still less.

Financial investors seek returns that outperform industry benchmarks. An investor's charter or institutional mandate may define the class and type of portfolio assets in which he or she might invest. These choices may vary considerably across different firms, funds and asset classes but, whatever the criteria, timeframe or style involved, investors generally seek to allocate the capital entrusted to their care to the highest-yielding investments among competing alternatives.

Capital-intensive firms compete for investor dollars to fund their operations. When investor perceptions of project value diminish, corporations must offer investors either higher guaranteed returns (in the case of debt) or larger portions of ownership (in the case of equity) in order to secure financing. When securities issuers and institutional investors cannot agree, investment may stall. When issuers face higher costs of capital for essential investment, it can deter discretionary spending on research and development and hurt long-term competitiveness.

Cost-of-capital concerns are unlikely to be the only reason why a number of emissions-intensive energy and industrial producers have asked Congress to quickly enact clear and enduring greenhouse gas emissions controls; by the same token, it is reasonable to assume that these concerns do play a role in corporate decision-making.

Other stakeholder communities have called for urgent action on climate change. Several environmental advocacy groups warn that recent warming trends may lead to irreversible feedback loops unless Governments can slow, stop and reverse global anthropogenic emissions in the near term. Still others have suggested that U.S. leadership might promote more-rapid uptake of new emissions standards by U.S. trading partners, including less-developed economies that are currently exempt from the Kyoto Protocol. Leaving aside the question of whether scientific data demand a rush to action, the nature of energy investments may present several challenges for policymakers considering actions to address climate change.

First, the energy industry is a world of large numbers and vast quantities that can magnify the impact of policy changes. According to 2004 EPA greenhouse gas emissions data (the most recent available), U.S. fossil fuel combustion yielded 5,656.6 $TgCO_2E$ (teragrams of carbon dioxide equivalent)[1]. Of this, 1,860.2 $TgCO_2E$ came from transportation and 2,290.6 $TgCO_2E$ came from electricity generation. The corresponding consumption data are also awe-inspiring. Our Nation uses more than 20 million barrels of oil each day and light-duty vehicles operating on American roads consume approximately 140 billion gallons of gasoline each year. Given that gasoline combustion yields approximately 20 pounds of CO_2 per gallon, these numbers add up quickly, making the annual carbon footprint of U.S. motor gasoline approximately 1,250 $TgCO_2E$.

This means that an economy-wide $1/metric ton CO_2 charge, whether as a tax or as a cost of purchasing emissions credits, would increase the cost of gasoline by approximately $1.25 billion per year. Likewise, coal-fired power plants generated approximately two billion megawatt-hours of electricity using approximately one billion tons of coal in 2005.[2] Because the combustion of one [short] ton of coal yields approximately two metric tons (2,000 kg) of CO_2 charging coal-fired generators $1 per metric ton of CO_2 would increase costs by approximately $2 billion per year at current consumption levels.[3]

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[1]IPCC methodology represents total emissions in terms of their "global warming power" using a standard unit of grams of carbon dioxide equivalency. By this mechanism, methane is 21 times more heat-trapping, making one gram of methane equivalent to 21 grams of CO_2. Total U.S. greenhouse gas emissions in 2004 were 7,074.4 $TgCO_2E$. Source: EPA Inventory of Greenhouse Gas Emissions and Sinks, 1990-2004, released April 2006. Table ES-3.

[2]EIA Electric Power Annual With Data for 2005, updated November 9, 2006.

[3]According to EIA Fuel and Energy Source Codes and Emissions Coefficients, burning one short ton (2,000 pounds) of anthracite yields 3,852 pounds of carbon dioxide. The ratios are higher for bituminous (4,931 lb/short ton) and lower for subbituminous (3,715 lb/short ton) and lignite (2,791 lb/short ton). The 2:1 ratio offers a convenient back-of-the-envelope estimate for discussion purposes. Note that carbon dioxide values are usually expressed in metric tons (2,200 pounds).

Second, recent history illustrates how policy changes that appear to modify small components of energy use may also meaningfully impact the economics of related and supporting industries. The Renewable Fuels Standard established by the Energy Policy Act of 2005 and the corresponding withdrawal of MTBE from the Nation's fuel supply increased the ethanol content of gasoline from approximately 3 percent to approximately 4.1 percent over the course of a year, a modest change. Although gasoline prices rose dramatically during periods of ethanol scarcity at the height of the summer driving season, this effect disappeared by the end of 2006 and gasoline prices have resumed their traditional relationship to crude prices and refinery margins. On the other hand, the year-on-year impact on corn prices was much starker. Actual corn prices realized by farmers in December 2006 rose to almost $3/bushel, more than a 50 percent increase above year-earlier prices of $1.92/bushel in December 2005.[4]

Third, the growth rates of energy use, greenhouse gas emissions and economic output tend to be closely correlated, although developed economies tend to operate more efficiently on a per-unit CO_2 basis. The U.S. economy currently grows faster than the growth rate of its energy use, fossil fuel use and overall greenhouse gas emissions (3.0 percent versus 1.2 percent, 1.2 percent and 1.1 percent, respectively).[5] On the other hand, the sole year of carbon emissions reductions during the past fifteen years arrived as a result of the September 11, 2001 terrorist attacks and associated economic losses—annual greenhouse gas emissions fell 1.3 percent and the growth rate of GDP fell from 3.7 percent to 0.8 percent[6].

Russia provides an even more marked example. Russian President Vladimir Putin ratified the Kyoto Protocol on November 5, 2004, fulfilling the second of two tests required under the treaty before its cap-and-trade system acquired the binding force of international law: a minimum of 55 countries had to commit to participate and the participating countries had to represent at least 55 percent of the world greenhouse gas emissions levels in 1990 (Russian participation contributed 17.4 percent of 1990 greenhouse gas emissions towards the cumulative total of nearly 62 percent). According to the U.N., Russian greenhouse gas emissions levels decreased 32 percent (from 2,974.9 $TgCO_2E$ to 1,944.8 TgCO2E) between 1990 and 2004 with the collapse of Russia's industrial economy.[7] At a credit price of $10/metric ton of CO_2, this lost capacity has a potential value of $10 billion per year in emissions credits sales, an attractive financial choice for a Nation that generated $613 billion in economic output in 2004. On the other hand, this wealth transfer ultimately rewards economic contraction instead of providing an incentive for Russia to reduce its "brown" (conventional) energy production and increase its "green" energy production.

In developing economies, income increases can spur greater transportation and electricity use of fossil fuels without the declining carbon intensity of GDP demonstrated by the U.S. In the absence of domestic reforms, it appears that China's transportation-related carbon emissions growth will continue to accelerate in the future, once that Nation's highway system (which essentially doubled in size between 1990 and 2003, with most of that growth during the final 4 years) expands to support the approximately 600 percent increase in per capita personal income and licensed drivers and more than fourfold growth in motor vehicles over the same period of time. Already, economic expansion has led to tenfold growth in Chinese greenhouse gas emissions between 1980 and 2000 and Chinese emissions reached 3,222.4 $TgCO_2E$ in 2002, making it the world's second largest source of greenhouse gases. Between 2002 and 3004, automobile ownership rose another 30 percent and, during that period, greenhouse gas emissions levels rose to 4,707.3 $TgCO_2E$.

Finally, policymakers may wish to consider that Washington timelines are often shorter than those that govern energy projects. Congress appropriates money on an annual basis and reconvenes every two years. Presidential terms are only 4 years long and the Federal Government balances its budget in five-year windows. Even the six-year terms of U.S. Senators fall short of the time periods that may be required to approve permits for new refineries (a seven-year story), to produce oil from

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[4]These prices could potentially normalize somewhat if USDA early planting reports suggest new acreage has come on-stream.

[5]Inventory of Greenhouse Gas Emissions and Sinks, 1990-2004, released April 2006. Table ES-8.

[6]Source: Bureau of Economic Analysis.

[7]U.N. Framework Convention on Climate Change, Highlights from Greenhouse Gas (GHG) Emissions Data for 1990-2004 for Annex I Parties, p. 16, released November 2006 Chinese emissions reached 3,222.4 TgCO2E in 2002, making it the world's second largest source of greenhouse gases. Between 2002 and 2004, automobile ownership rose another 30 percent and, during that period, greenhouse gas emissions levels rose to 4,707.3 $TgCO_2E$.

the Arctic National Wildlife Refuge (optimistically, 8 to 10 years) or to fully upgrade the efficiency of the U.S. passenger vehicle fleet (potentially 15 to 20 years).

II. UNINTENDED CONSEQUENCES OF MARKET-BASED SYSTEMS

A tax on the end-user consumption of greenhouse-gas-emitting fuels would provide the most economically efficient means of limiting emissions. The shortcomings of this approach have been well documented. Consumption taxes tend to be regressive and, depending on their magnitude, they may negatively impact the growth rate of GDP. Significant new taxes also appear politically unviable at the present time. In light of these shortcomings, many policymakers and industry stakeholders have supported market-based cap-and-trade programs.

Cap-and-trade programs offer several advantages. In theory, a market-based mechanism for emissions reductions will offer corporations the flexibility to choose between undertaking new capital investment, purchasing emissions credits from cleaner producers or shutting down production entirely. Cap-and-trade systems should reward those participants who outperform established targets or meet goals ahead of scheduled dates by allowing them to monetize accumulated credits through sale to other entities. Imposing a cap-and-trade program is unlikely to provoke an adverse capital markets response, either. To the extent that financial investors can account for emissions credits or capital projects within their revenue and cost projections, a clearly-defined cap-and-trade trajectory can be factored into long-term equity valuations.

But cap-and-trade mechanisms also have shortcomings. The architecture of a credit-trading system requires policymakers to consider which entities will be regulated, how allowances will be allocated and whether or not to provide for a "safety valve" in the event that market prices for credits materially exceed entities' economically sustainable ability to pay. The Senate Energy and Natural Resources Committee treated these topics during its climate summit on April 4, 2006. Testimony offered during that event appeared to suggest regulating mobile sources upstream (at the refinery or extraction site) in order to facilitate implementation and stationary sources downstream (at the smokestack) to encourage end-user innovation.

Although placing the regulatory burden on the shoulders of corporations could mitigate regressive effects for low-income consumers, it may not eliminate them entirely: power producers and oil companies are likely to pass through some portion of higher costs to the entire consumer population. This approach could weaken the price signals that might motivate individuals to alter their consumption behaviors.

The principle of cap-and-trade is likely to work best under circumstances where regulated entities can engage in economic, technologically-viable, green behaviors to earn credits for future use or sale, as in the case of the scrubber installations during phase I of the Acid Rain Program and, more recently, the hundreds of thousands of megawatts of scrubbed capacity planned by U.S. coal-fired power plants in order to meet Clean Air Interstate Rule targets. Otherwise, a cap becomes, in practical terms, a tax on production that may impose the greatest impact on producers with the thinnest margins or the smallest cash reserves.

Carbon dioxide (CO_2) from fossil fuel combustion makes up more than 85 percent of U.S. greenhouse gas emissions, far outstripping potential offsets available to regulated entities from projects that stem emissions of gases like landfill methane, or PFCs and HFCs from industrial production. Although science may soon make great strides towards secure sequestration of CO_2 in underground reservoirs, this option is not available to U.S. emitters today. Likewise, it may be years or decades before the Nation can rely upon predominantly green energy sources that replace today's conventional energy production, like second generation, waste-based biofuels, electric cars powered by hydrogen fuel cells and new electric generating capacity from nuclear power plants.

Several legislative proposals address the challenge of implementing a cap-and-trade system within an economy that depends on today's industrial technology by allocating large blocks of credits to existing emitters in early years and decreasing these allocations in subsequent years. This, too, may lead to unintended consequences. During the 1995-1999 first phase of Acid Rain Program sulfur dioxide (SO_2) credit trading, coal-fired emissions sources in operation prior to 1996 were given allowances of 2.5 lb. SO_2 per million British thermal units (mmBtu). Although the biggest emitters faced the lowest per-Btu cost of retrofitting and quickly amassed a bank of 11.65 million emissions allowances (30 percent of total allocation), most power plants east of the Mississippi preferentially turned to a different brown mechanism for meeting their targets (switching to lower-sulfur coal from the Powder River Basin) instead of the green choice to install flue gas scrubbers.

The large bank of emissions allowances kept prices low (in the $100-200/allowance range) and gave utilities the freedom to delay capital expenditures, but utilities' wait-and-see strategy later exhibited several weaknesses. First, rail dislocations out of the Powder River Basin increased effective fuel costs for utilities by driving demand for sulfur credits. Second, when the 2005 Gulf of Mexico (GOM) hurricanes disabled a significant proportion of GOM natural gas production, noncommercial traders bet that power utilities would need to fall back on high-sulfur coal to generate electricity, bidding the thinly-traded market for sulfur emissions allowances up above $1,500 per ton.

A similar set of challenges could confront a cap-and-trade mechanism that includes a "safety valve" to protect economic growth. Most safety valve proposals would enable regulated entities to pay a defined maximum price per metric ton of CO_2 emitted in the event that credit prices exceed established thresholds. This may present a politically appealing compromise, but it could also undermine the market dynamics built into a cap-and-trade system because a safety valve price would need to be, by definition, lower than the projected market price for emissions allowances under conditions of scarcity. When credit prices spike, the expected result would be for regulated entities to pay the safety valve price and continue business as usual, unless the safety valve price is set high enough to make emitters willing to consider new capital investment in green technologies that would offer regulated entities sustainable production cost advantages.

III. DURABILITY OF REGULATION

The first Kyoto compliance phase officially begins in 2008 and continues through 2012, although the EU Emissions Trading Scheme began on January 1, 2005 and electronic trading of Kyoto Clean Development Mechanism credits is scheduled to begin in April of this year. The first phase of the Regional Greenhouse Gas Initiative (RGGI) commences in 2009 and California's Global Warming Solutions Act requires enforceable greenhouse gas regulation to begin in 2012. As this august body and other Federal authorities continue their deliberations on climate change, recent events have led some institutional investors to wonder about the durability of existing and proposed climate change regulatory frameworks, particularly once these frameworks begin to require emissions cutbacks sufficiently austere to threaten economic sovereignty.

Canada's 1990 greenhouse gas emissions totaled 598.9 TgCO2E. The Kyoto Protocol set Canada's 2012 target at approximately 563 $TgCO_2E$, a 6 percent reduction from 1990 levels. 2004 emissions totaled 758.1 TgCO2E, partly as a result of carbon-intensive unconventional oil production in Alberta's tar sands. Evaluating at 2004 levels, this puts Canada 195.1 $TgCO_2E$ behind pace. If Canada's emissions continue to grow as they did between 2000 and 2004 at 1.15 percent per year, 2012 levels could reach 854 $TgCO_2E$, widening the gap against the Kyoto target to 290 TgCO2E. If emissions allowances rise as high as they did when the EU Emissions Trading Scheme market price peaked at approximately $39/metric ton of CO_2 in April 2006, Canada's annual compliance cost could exceed $11.3 billion, or about 1.33 percent of GDP. This may seem like a bargain compared to actually reducing emissions, however. A November 2006 study by the Canadian Manufacturers and Exporters lobby projected that reducing Canada's GHG footprint to meet its target would result in annual compliance costs in 2012 of $255 billion, representing approximately 30 percent of GDP.

In December 2005, as the parties to the RGGI prepared to commit to the regional, multilateral emissions reduction pact in the wake of Hurricanes Katrina and Rita, Massachusetts and Rhode Island decided not to sign the December 15, 2005 Memorandum of Understanding (although both states rejoined the program earlier this year). Massachusetts Governor Mitt Romney justified this move at the time by expressing his concern that power utilities could incur unlimited costs if they exceeded emissions limits. Massachusetts had plausible grounds for concern: winter was fast approaching and natural gas futures were above $14/mmBtu, a situation that threatened to markedly increase State reliance on coal-fired power.

Investors evaluating the share prices of potentially-regulated entities or considering investment in offset projects or secondary-market emissions credits (as noncommercial traders) are likely to be cautious about the possibility that high prices could motivate sovereigns to defect from, or delay implementation of, proposed regulatory mechanisms.

IV. CONCLUSION

An economy-wide, cap-and-trade system to control greenhouse gases that goes into force too far ahead of the development and commercialization of cost-competitive

"green" alternatives may not be the most stable or most efficient mechanism by which the United States can modify energy use behaviors in order to address global climate change. A market mechanism may give emitters and financial investors greater flexibility than a system of direct taxation or strict, per-unit regulation, but there may be greater value in providing incentives for the United States' robust venture capital, private equity and capital markets infrastructure to deliver cost-competitive technological solutions to emissions challenges without imposing nationwide caps. Alternatively, it may make sense to take an incremental step by enshrining in law a market-based regulation of particulates from stationary sources similar to the Clean Air Interstate Rule and Clean Air Mercury Rule in a way that gives regulated entities financial motivations to explore emerging carbon capture technologies. Last, ongoing discussion may be further informed by analysis of the comparative national and global economic costs of inaction and limited action vis-a-vis the costs of any comprehensive emissions control program.

This concludes my prepared testimony.

RESPONSES BY KEVIN BOOK TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. Mr. Book can you provide more insight as to who will be the most heavily affected subgroups of the U.S. popuations? Proportional to income, what population groups spend the most money on energy?

Response. Senator Inhofe, in general, Americans whith the lowest disposable incomes will be most affected by increases in the price of power. In addition. those States with the highest proportions of coal-fired generation will be most affected by the imposition of a surcharge for greenhouse gas emissions. The chart on the nect page should help explain this relationship. The data represents statewide averages for February 2007 (when I appeared before your committee), although the most recently available population numbers are from July 2005. This should not materially affect the conclusions. In short, the 10 States highlighted in yellow (AK, CA, IA, MA, ME, NJ, NY, OR, RI, VT) are the least affected by GHG costs for generation. The 10 States highlighted in blue (AL, HI, IL, KY, MT, NC, ND, TN, WV, WY) are the most affected.

Sensitivity of Statewide Disposable Income to Power Prices in Proportion to Coal Fired Generation

State	Feb 2007 Consum. (MM KWh)	Population (MRA = 2005)	Feb 2007 Avg. Price, cents/kWh	Per Capita Power Payment	Monthly Disposable Income	Pwr as % of Monthly Dis. Inc.	% coal fired generation	Sensitivity
AK	199	663,861	8.57	$25.70	$2,968	0.87%	12%	0.10%
AL	2,888	4,557,808	14.46	$91.62	$2,428	3.77%	44%	1.65%
AR	1,654	2,779,154	8.02	$47.73	$2,240	2.13%	30%	0.64%
AZ	2,141	5,939,292	8.46	$30.50	$2,522	1.21%	24%	0.29%
CA	6,839	36,132,147	14	$26.50	$3,086	0.86%	1%	0.01%
CO	1,388	4,665,177	9.15	$27.22	$3,162	0.86%	49%	0.42%
CT	1,214	3,510,297	18.68	$64.60	$3,985	1.62%	15%	0.24%
DE	436	843,524	11.96	$61.82	$3,089	2.00%	44%	0.88%
FL	8,718	17,789,864	10.88	$53.32	$2,768	1.93%	23%	0.44%
GA	4,870	9,072,576	8.47	$45.47	$2,583	1.75%	44%	0.77%
HI	228	1,275,194	22.41	$40.67	$2,878	1.39%	96%	1.34%
IA	1,269	2,966,334	8.65	$22.69	$2,347	0.97%	2%	0.02%
ID	778	6,271,973	7.25	$14.67	$2,693	0.55%	66%	0.36%
IL	4,160	1,429,096	5.76	$168.48	$3,010	5.60%	38%	2.13%
IN	3,393	12,763,371	9.96	$26.48	$2,606	1.02%	75%	0.76%
KS	1,119	2,744,687	7.54	$30.74	$2,736	1.12%	50%	0.56%
KY	2,867	4,173,405	6.85	$47.06	$2,376	1.98%	74%	1.47%
LA	2,370	4,523,628	9.12	$47.78	$2,068	2.31%	13%	0.30%
MA	1,849	6,398,743	16.87	$48.75	$3,691	1.32%	18%	0.24%
MD	2,946	5,600,388	9.39	$49.39	$3,460	1.42%	60%	0.85%
ME	431	1,321,505	14.12	$46.05	$2,604	1.77%	5%	0.09%
MI	2,786	10,120,860	10.38	$28.57	$2,760	1.04%	46%	0.48%
MN	1,955	5,132,799	8.58	$32.68	$3,114	1.05%	53%	0.56%
MO	3,271	5,800,310	6.37	$35.92	$2,658	1.35%	60%	0.81%
MS	1,601	2,921,088	8.44	$46.26	$2,110	2.19%	15%	0.33%
MT	429	935,670	8.17	$37.46	$2,449	1.53%	96%	1.47%
NC	5,377	8,683,242	8.79	$54.43	$2,546	2.14%	52%	1.11%
ND	454	636,677	6.2	$44.21	$2,616	1.69%	100%	1.69%
NE	922	1,758,787	6.35	$33.29	$2,801	1.19%	51%	0.61%
NH	404	1,309,940	14.69	$45.31	$3,201	1.42%	18%	0.26%
NJ	2,285	8,717,925	12.84	$33.65	$3,648	0.92%	13%	0.12%
NM	526	1,928,384	8.71	$23.76	$2,304	1.03%	67%	0.69%
NV	715	2,414,807	11.36	$33.64	$2,990	1.13%	33%	0.37%
NY	4,245	19,254,630	15.93	$35.12	$3,376	1.04%	15%	0.16%
OH	5,207	11,464,042	8.57	$38.93	$2,707	1.44%	68%	0.98%
OK	1,781	3,547,884	7.58	$38.05	$2,444	1.56%	29%	0.45%
OR	1,981	3,641,056	7.64	$41.57	$2,675	1.55%	15%	0.23%
PA	5,219	12,429,616	10.29	$43.21	$2,908	1.49%	50%	0.74%
RI	268	1,076,189	13.25	$33.00	$3,013	1.10%	0%	0.00%
SC	2,637	4,255,083	8.87	$54.97	$2,363	2.33%	34%	0.79%
SD	439	775,933	7.18	$40.62	$2,635	1.54%	44%	0.68%
TN	4,198	5,962,959	7.42	$52.24	$2,592	2.02%	56%	1.13%
TX	16,180	22,859,968	11.36	$53.35	$2,705	1.97%	20%	0.39%
UT	589	2,469,585	7.92	$16.89	$2,338	0.81%	78%	0.63%
VA	4,657	7,567,465	7.97	$49.05	$3,199	1.53%	35%	0.54%
VT	197	623,050	14	$44.27	$2,777	1.59%	0%	0.00%
WA	3,741	6,287,759	6.99	$41.59	$2,951	1.41%	24%	0.34%
WI	2,005	5,536,201	10.51	$38.06	$2,797	1.36%	47%	0.64%
WV	1,330	1,816,856	6.12	$44.80	$2,268	1.98%	91%	1.80%
WY	259	509,294	7.25	$36.87	$3,065	1.20%	97%	1.17%

= 10 U.S. states with highest sensitivity to changes in coal generation cost

= 10 U.S. states with lowest income sensitivity to changes in coal generation cost

Source: FBR Research

Question 2. I was struck by your testimony that meeting the Kyoto Protocol by reducing emissions would cost Canada $255 billion in 2012, or 30 percent of its GDP. This is an astounding figure. it underscores not only how difficult carbon reductions are, but also that many Nations will choose instead to simply transfer wealth to other countries. What are your thoughts?

Response. Thank you for your question Senator. My thoughts are four-fold on this issue.

First, it is my personal view that national security is the foundation of economic growth. Safe societies produce stable, equitable and fast-growing economics. It is not entirely clear that any one Nation can consider its sole contributions to climate change or to environmental security as a part of its national security equation unless it is willing to declare war on another to keep seperate environmental and national security. It os also appropriate to consider the goal of national security as the first priority of a sovereign Government, which puts that Government potentially in conflict with broader, global goals of climate change abatement and remediation.

Second, there appears to be a wealth effect associated with climate and environmental stewardship. When economies reach acceptably high average levels of wealth and acceptably high minimum levels of social welfare, they can afford to slow the rate of change in their growth by internalizing the costs of environmental stewardship, as the United States has done under the Clean Air Act. Healthy air, land and water supplies preserve economic gains by preventing the erosion of property values and minimizing the social costs of illness and resource insufficiency.

Third, wealth transfers between emitter Nations and recipient Nations may not encounter greater stewardship by the emitter Nation, nor greater capacity for the private and public sector emitters within that Nation to envest in less-emitting technologies.

Fourth, wealth transfers may not benefit, and could potentially harm, the recipient Nation. Autonomous distributions of wealth between an economically fast-growing industrialized Nation (e.g. the United States) and a developing, less-deveoped, or recently-diminished economy (e.g. sub-Saharan African Nations or several of the former States of the Soviet Union) are unlikely to promote a generalized increase in social welfare, economic capacity or environmental stewardship in the Nation that receives the money unless factors that promote social stability are already in place. The benefits of wealth transferred from the industrialized world to the developing world may be more likely to be misappropriated by Nations in the thrall domestic turmoil or sectarian violence.

STATEMENT OF FRED L. SMITH, JR., PRESIDENT, COMPETITIVE ENTERPRISE INSTITUTE

Mr. SMITH. Thank you, Chairman Boxer, Senator Inhofe, members of the committee. I am Fred Smith, President of the Competitive Enterprise Institute, a pro-market and as you see, not necessarily pro-business always, policy group.

CEI examines the wisdom of regulatory policy in a wide array of issue areas. As my written testimony notes, CEI believes that the risk of global warming must be set off against the risk of global warming policies. The proposal to create a carbon cartel advanced by the Climate Action Partnership is one of those policy risks, a serious one, I believe.

America normally puts people in jail who create anti-consumer cartels. We do not seek to encourage such behavior, nor do we grant such cartels legal protection. Affordable energy, the democratization of the elite privileges of the past we believe has been a good thing. Cartel-induced price increases we think are not.

The Climate Action Partnership, an alliance of environmental and business groups, has been promoted as an example of responsible leaders seeking to protect our planet. Perhaps. But when businessmen seek politically to achieve what they cannot achieve in the marketplace, we should all be a bit skeptical. Judge Stiegler, the Nobel price winner, often said that businessmen often believe that competition, like exercise, is good for other people.

America has a tradition of economic interest groups cloaking their search for monopoly profits under some convenient moral clause. The Baptists and Bootlegger paradigm that I document in my testimony, that paradigm explains unfortunately much of American politics. I think it explains the rationale of the partnership.

The partnership of course recommend so-called market mechanisms. The creation of a rationing system that would raise the cost of carbon based energy benefiting their preference, their products. But markets are institutions that freely allow individuals to exchange on a voluntary basis goods and services. In a market, the

participants determine both the price and the quantity of the good or service involved.

The proposals pushed by the partnership would have the cap, the amount of energy we are allowed to use in our daily lives, determined politically. The goal of such politically contrived markets is for Government to steer for the business and consumers to row. Some free markets.

Many advising business have argued that further regulation, global warming regulation is inevitable, that business must gain a seat at the table, they must seek regulatory certainty. There is a naivete in all this, what I have sometimes referred to as Lucy and the regulatory football. Lucy holds the ball for the business community, but when they get ready to kick it, it slips out of their grasp.

Business regs, good ones, bad ones, just fix the regulation and let us get back to business. It is an admirable goal in its own way, but it is very naive. Business it not about certainty. This is a fool's search.

An example. Some oil and gas businessmen initially imposed ethanol subsidies, believing that these would destroy energy markets. But they soon decided that that was too negative and they signed off on a 5 billion gallon ethanol mandate. Did this gain them regulatory certainty? Not really. We are now to a 35 billion gallon mandate, and the discussion of the Farm Bill haven't even begun.

An even more sobering attempt is provided by the late and unlimited Enron. That firm was a significant and early champion of the efforts now going on to create a carbon cartel. Enron had many skills, including great expertise in energy trading, an expertise that you in California came to experience more directly. Enron lobbied hard for the United States to join the EU in rationing carbon based energy. Enron thought, then may have well been corrected, that their expertise would allow them to dominate the carbon rationing market. Monopolies are always popular from those who manage the monopoly.

The internet, incidentally, is filled with conferences and excited language by hedge fund managers who seem pretty skeptical of the reality of global warming alarmism but boy, are they excited about the profit potential of a massive energy rationing market that will operate globally.

Cap and trade, of course, is going to encounter some practical problems. Many of you know it, the partnership is certainly aware of those. Firms routinely make rational investments which increase energy and material efficiency. Those are good things. But should such conventional investments receive extra credits? How can we distinguish the business as usual investments that are ongoing all the time from the new actions sought by the environmentalists? Of course, if everyone were above average, a Lake Woebegon world, we would have a more efficient economy. But we haven't found ways to do that in education, we are not likely to find ways of doing that in the economy as a whole.

The European game playing experience with this process is worrisome and should worry all members of this committee under the CAP program. Because it is very dangerous to turn loose such a political football in the political environment. Hot air credits, one Nation State playing games another Nation State, a cap and trade

system would stimulate the same kind of political feeding frenzy we have seen in Europe, we have seen in the biofuels area. There are major causes, we have heard, of rationing energy. Yet there are no obvious gains, even if one accepts the alarmist views of global warming. No one is proposing any carbon use curtailment that would do anything meaningful to reduce the theoretical threat of carbon use. The current proposals are all pain, no gain. The carbon cartel will profit, consumers and small business will suffer. Why?

Business should recognize that the suppression of carbon based energy is costly. It was after all the shift from renewable fuels, that is wood and charcoal, to carbon fuels, coal, oil and natural gas, that triggered the explosive economic growth of the last two centuries, almost 1,800 percent in the 20th century. But that growth was also accompanied, as people have noted, by a slight warming, about .7 degrees. If that warming had been prevented, how much economic growth would we have been willing to sacrifice for that?

Research to evolve some non-carbon affordable energy source is ongoing, nothing yet on the horizon. Nuclear faces political opposition, wind and solar still remain niche energy sources.

Senator BOXER. Sir, could you wrap it up?

Mr. SMITH. I will. What we should be doing is considering auctioning off the credits, considering energy taxes, more honest, more transparent. But an even better method would be for business to stop playing politics and return to its core role of wealth creation. A wealthier world will be better able to address the real problems of today in the U.S. and the world, and to essentially increase our resiliency to address future risk. It will not enrich some special interests. It is that motivation, the enrichment of special interests, not civic virtue, that I fear motivate those pushing for the creation of a Government-sponsored carbon cartel. Thank you.

Senator BOXER. Mr. Hamm, you are Chairman and CEO of Continental Resources, Inc. We welcome you.

[The prepared statement of Fred L. Smith Jr. follows:]

STATEMENT OF FRED L. SMITH, JR., PRESIDENT, COMPETITIVE ENTERPRISE INSTITUTE

Thank you, Chairman Boxer and members of this committee for inviting me to testify today on the Climate Action Partnership's recent plan titled "A Call for Action" and what it could do to the American economy. I am Fred Smith, President of the Competitive Enterprise Institute (CEI), a free-market public policy group focusing on regulatory issues. I am aware that CEI is regarded as a contrarian voice on the science of climate change. However, this hearing is not about the science. I am here to talk about the economic effects of the Climate Action Partnership's policy recommendations, and so I am happy for the purposes of this discussion to accept all the scientific arguments behind their proposals.

By taking that issue off the table, I hope that we can proceed to discuss the economic issue without the obfuscation of wrangling over the science. I also hope that members of this committee will recognize that attempts to allege "climate denialism" in response to my points are ad hominem attacks not worthy of consideration.

The theme of my testimony today is that some business leaders joining with environmental pressure groups to promote a policy does not necessarily mean that the policy is good for the economy or for the American people. In general, if a company's stance on an issue appears to be too good to be true, it probably is. Strange alliances such as these—businesses allying with lobby groups to demand more regulation of those businesses—are actually all too common in history, and the motivation is rarely altruism.

We are all indebted to Professor Bruce Yandle of Clemson University for introducing us to the concept of "Baptists and Bootleggers." His theory's name, first elu-

cidated in 1983,[1] is meant to evoke 19th century laws banning alcohol sales on Sundays. Baptists supported Sunday closing laws for moral and religious reasons, while bootleggers were eager to stifle their legal competition. Thus, politicians were able to pose as acting to promote public morality, even while taking contributions from bootleggers.

I shall argue, with evidence, that there appears to be something similar going on here. The environmental pressure groups active in the Climate Action Partnership are the Baptists, providing a moral screen to the Bootleggers, in this case the energy and manufacturing companies. I shall outline how the policies laid out in the Partnership's "Call for Action" actually stand to benefit the companies at cost to the economy and consumers. Then I shall reveal how, by their actions and in their own words, the Partnership's commercial members are fully aware of this. Finally, I shall demonstrate how this sort of alliance is unfair and inegalitarian and argue that, if legislators and businesses really want to change behavior to reduce greenhouse gas emissions, a much different policy instrument should be preferred.

Before I begin, though, a quick word on the issue of "regulatory certainty": We often hear businesses claiming that they are operating in an area of political risk, and that legislation on an issue will give them what they call "regulatory certainty." Yet it is well known that Congress cannot bind its successors and that agencies with devolved powers make new rules and regulations and alter existing ones all the time. It is nave to think that legislation offers regulatory "certainty." The only certainty is that regulatory costs will grow unpredictably. The risk of proposed legislation is often far less than that of enacted legislation.

Let us begin by examining the policy at the heart of the Partnership's plan, the regulatory capping and trading of greenhouse gas emissions. Cap and trade, as it is known, is often described as market-based, because there is buying and selling involved. This is a misnomer. In fact, cap and trade is an ugly combination of two of the greatest ills to affect the market economy over the past 200 years—cartelization and central planning.[2]

The central planning issue should be obvious. The cap of cap and trade is a target for emissions set by Government agencies. The knowledge problem, however, rears its ugly head. Those agencies never have enough information to set the cap at the right level. All economic decisions involve trade-offs and the trade-offs involved in restricting greenhouse gas emissions are mighty indeed.

We have seen an excellent example in the past few weeks. The mandate that every gallon of gasoline sold in this country should have a certain amount of ethanol added to it has caused a massive increase in the amount of the U.S. corn crop used to make ethanol. In turn, this has caused a sharp rise in the price of tortillas in Mexico, leading to all sorts of social problems there. Did the legislators consider this unintended negative consequence when they passed the law? I don't think so. Did the agencies that administer the program consider it? I very much doubt it. A greenhouse gas cap would have even more negative consequences. To suggest that we can account for all of these is to fall into what the Nobel prize-winning economist Friedrich Hayek termed the fatal conceit. There will be costs to an emissions cap that no one has yet thought of.

Turning to the expected economics, the figure below represents a loss to the economy under a carbon cap that we can predict. It is a deadweight loss, reflecting an unrecoverable reduction in real incomes caused by the cessation of economic activity. That is a cost to the economy that we can measure.

Yet it is the remaining economic activity that reveals the dark secret of cap and trade; it creates a modern-day cartel—a carbon cartel, or what the Wall Street Journal aptly called BigCarbonCap— with all the negative consequences that go with cartelization. When emitters are given permits reflecting their right to emit a certain amount of greenhouse gases, those permits represent a scarcity rent: a new, artificial scarcity has been created in something people previously did without charge. People will pay for this new right, but the money that is used to pay for it is not new money. It represents the capitalized value to existing users of the benefits they get from fossil fuels and the other sources of greenhouse gases. It is already accounted for in balance sheets, investment portfolios, collateral for loans and so on. That value is now extracted from its current use and sent elsewhere instead—into the hands of the carbon cartel.

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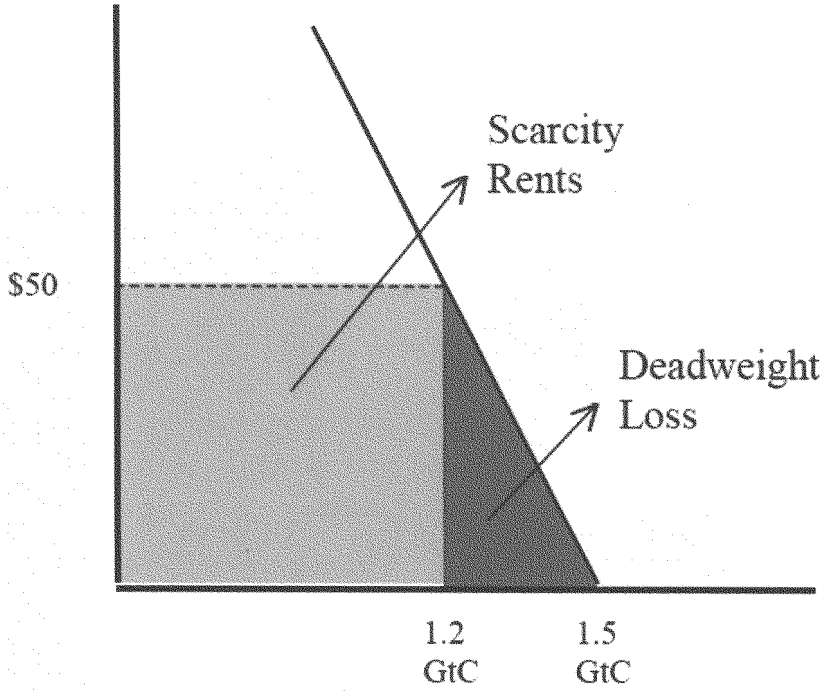
[1]"Bootleggers and Baptists: The Education of a Regulatory Economist", by Bruce Yandle. Regulation, Viewpoint column, 1983

[2]For more on this see Ross McKitrick's paper, "What's wrong with regulating carbon dioxide emissions," available at http://www.cei.org/pdfs/McKitrick.pdf

This is what advocates of this policy refer to as the wealth that such rationing would create. However, transferring wealth from some companies and all consumers to special interests does not create new wealth.

As a result of this cartelization, energy costs rise, consumer prices rise, real wages fall, and output and employment fall. We know those are the effects of cartels, which is why we used to put the people who set up cartels in jail. Yet the Climate Action Partnership wants legal blessing for this new cartel. Any legislation enacting cap and trade would actually ennoble a new generation of robber barons and provide legal protection for their profiteering activities.



[Note that in the diagram above, the amount of wealth transferred from consumers to cartel members greatly exceeds the overall loss to the economy. Most analyses of the Kyoto Protocol, the McCain-Lieberman bills, and other cap-and-trade proposals miss this crucial point. EIA analyses, for example, estimate the impacts of carbon policies on energy markets and the macro-economy, but not the wealth transfer effects. Cartelization reduces overall economic output, to be sure, but consumers take an even bigger hit.]

We can actually see this process in operation in Europe as we speak. The European Union's Emissions Trading Scheme has had a rocky first few years. Yet, according to the latest figures from the U.S. Energy Information Administration, its prime achievement has been not a reduction in greenhouse gas emissions—European CO_2 emissions continue to rise at a faster rate than America's since Kyoto was agreed to in 1997—but an actual increase in energy prices coupled with vastly increased profits for the utilities who benefited from the creation of the European carbon cartel. In Britain and Germany electricity and gas prices leapt by over 60 percent in 2005.

If that wasn't enough, another incentive to businesses to support cap and trade comes from the way that it can massively add value to otherwise routine efficiency savings. Under the Kyoto Protocol, for example, companies in the developing world that reduce output of the greenhouse gas HFC-23 are allocated carbon credits representing the amount of carbon dioxide-equivalent that they reduce. In total the amount of credits so allocated are worth about $5.9 billion when sold to countries that want those credits. Yet reducing HFC-23 is actually a simple process, achieved by installing scrubbers at a modest cost. According to a study published in the jour-

nal Nature last week[3], installation of those scrubbers could have been financed by loans or grants at a total cost of about $130 million. Thus almost $6 billion has been diverted away from other uses into the pockets of industry in the developing world. This is a massively inefficient way of achieving modest emissions cuts. Worse, it has now become apparent that China is creating HFCs—with 12,000 times the global warming potential of CO_2—for the purpose of being paid to destroy them under Kyoto. This is what such schemes have always created, from the British in India offering bounties for poisonous cobras—which led to mass breeding of the creatures—to the modern-day version of that ploy.

So let us turn to the companies involved in the Climate Action Partnership, beginning with Duke Energy Corporation, which formed in May 2005 when Duke Energy merged with Cinergy. An October 2006 study by the Pew Center on Global Climate Change includes an eye-opening table on the per-ton cost of Cinergy's various greenhouse gas emission reduction projects in 2004.[4]

Table 8

Cinergy's 2004 GHG Fund Projects

Project	Total Incremental Funds	Annual Tons of CO_2 Reduced	Average $/ton CO_2 (2004-2009 projected)
On-System			
Heat Rate Improvement Projects at Generation Stations	$1,940,000	349,882	$1.11
Markland Dam Software Upgrade	$285,000	7,400	$7.70
Hybrid Cars	$20,000	26	$153.85
Renewable Energy Demonstration Projects *	$55,000	35	$314.29
Off-System			
The Nature Conservancy Reforestation Project	$180,000	1,000	$36.00
Vestar-Oldenburg Academy Energy Conservation Project *	$90,000	62	$290.32
Cincinnati Zoo Education Center Solar Project *	$150,000	33	$909.09
EPRI Research Project	$250,000	---	
Total All Projects	$2,970,000	358,438	$1.66
On-System Projects and Reductions	$2,300,000	77.4 percent	
Off-System Projects and Reductions	$670,000	22.6 percent	

* Small demonstration projects are more expensive than the costs per ton that Cinergy would accept for full scale utility projects.

The table shows that 97 percent of Cinergy's emission reductions came from efficiency improvements in its overwhelmingly coal-fired electric generating stations. Cinergy's investment of $1.94 million in efficiency upgrades reduced the company's carbon dioxide (CO_2) emissions by 349,882 tons. This works out to a cost of $1.11 per ton of CO_2 reduced.[5] Suppose Cinergy were awarded early action credits for those reductions, Congress enacts Phase I of the McCain-Lieberman Climate Stewardship Act, and CO_2-equivalent permits sell for $15 a ton in 2010 and $45 a ton in 2025, as estimated by the Energy Information Administration.[6] In that case, Cinergy would reap a windfall profit of between 1263 percent and 3990 percent, for a much smaller cost incurred, that in many of their markets they have already passed along to consumers anyway.

[3]Michael Wara, "Is the global carbon market working?", Nature 445, 595-596 (8 February 2007)

[4]Andrew J. Hoffman, Getting Ahead of the Curve: Corporate Strategies That Address Climate Change, Pew Center on Global Climate Change, October 2006, p. 72.

[5]Someone looking at these numbers might conclude that reducing emissions in general, for most companies, is going to be cheap—that we can have Kyoto without tears. What the table more likely indicates is that Cinergy is an inefficient producer of electric power. The less efficiently a company converts coal to electricity, the cheaper it will be for that company to reduce energy-related carbon emissions.

[6]EIA, Analysis of Senate Amendment 2028, the Climate Stewardship Act of 2003, http://www.eia.doe.gov/oiaf/analysispaper/sacsa/index.html.

Another telling example is DuPont. In a press release[7] timed to coincide with publication of the Summary for Policymakers[8] of Climate Change 2007, also known as the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, DuPont called for legislation to curb greenhouse gas emissions, stating: "We believe that voluntary measures, while constructive, are not sufficient to address an issue of this magnitude by themselves."

A document[9] that I retrieved courtesy of Archive.org gives us a peek at DuPont's original business strategy vis-a-vis carbon cap-and-trade schemes. Page 2 of the document ("Positive Returns on Greenhouse Gas Investments," Dec. 2002) reports that in the late 1990s, DuPont invested $50 million to reduce nitrous oxide emissions from production of adipic acid, a chemical used to manufacture nylon. Nitrous oxide is a greenhouse gas (GHG) with roughly 310 times the global warming potential of carbon dioxide.[10]

Here's the key part:

"By 2000, DuPont had reduced GHG emissions across the company by 63 percent from the base year of 1990, for a reduction equally 56.2 million metric tonnes (on a CO_2-equivalent basis). In a hypothetical market for emission credits, assuming that (a) DuPont was awarded a tradable allocation amounting to 90 percent of its 1990 emissions, and (b) an average market price of $10 per metric tonne of CO_2, then the GHG reductions as of 2000 have a potential market value of $472 million per year—an extraordinary return on investment."

Extraordinary indeed! Under a mild cap-and-trade program, similar to the one envisioned in Sen. Jeff Bingaman's draft legislation,[11] DuPont would realize more than a 900 percent return on investment.

The Pew Center study notes that in 2004, DuPont sold its nylon business, Invista. This removed Invista's emissions from DuPont's baseline as well as terminated DuPont's ownership of the related emission reductions. However, the Pew report also notes that DuPont, through a manufacturing process, eliminated emissions of HFC-23, "an unintended byproduct from the production of HCFC-22, a common refrigerant."[12] HFC-23 has 12,000 times the global warming potential of CO_2. The Pew report does not tell us how many tons of HFC-23 DuPont reduced, or at what cost per ton. Perhaps DuPont would be willing to share this information with the committee. If so, it would then be a simple matter to calculate how many carbon dioxide-equivalent permits DuPont would stand to gain under an early action credit program, and how much profit DuPont could clear assuming a market price of a mere $10 per ton of CO_2 reduced.

The Pew study also reports that DuPont's investments in energy efficiency saved the company $2 billion since 1990, though it is not clear from the text how much of that $2 billion is net savings. In any event, by using energy more efficiently, DuPont reduced its greenhouse gas emissions by 420 million metric tons. That translates into a $4.2 billion windfall if DuPont is awarded credits for early action under a future cap-and-trade program, again assuming carbon dioxide allowance prices of $10 per ton.

Next, let's consider Alcoa. The Pew study notes that although Alcoa, for business reasons, invested in energy efficiency, "the primary focus of Alcoa's GHG reduction efforts thus far rests in reducing perflourocarbon (PFC) emissions through anode effects and increasing the use of recycled materials."[13] Alcoa has reduced its PFC emissions by over 75 percent since 1990. The two types of PFCs—Perflouromethane (CF4) and Perflourethane (C2F6)—have 5,700 and 11,900 times the global warming potential of CO_2, respectively.

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[7]DuPont Supports Findings by Intergovernmental Panel on Climate Change: Company Calls for Action by Government, Business, February 2, 2007, http://onlinepressroom.net/DuPont/NewsReleases/

[8]Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policymakers, http://www.ipcc.ch/SPM2feb07.pdf

[9]Partnership for Climate Action, Positive Returns on Greenhouse Gas Investments: The DuPont Experience with Advancing Environmental Goals, December 2002, http://web.archive.org/web/20040405185605/http:/pca-online.org/our—work/docs/GHG—investment—return.pdf

[10]EIA, Comparison of Global Warming Potentials from the Second and Third Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC), http://www.eia.doe.gov/oiaf/1605/gwp.html.

[11]The Energy Information Administration estimates that, under Bingaman's proposal, "allowance prices rise from just over $3.70 per metric tons CO_2-equivalent in 2012 to the safety valve price of $14.18 metric tons CO_2-equivalent in 2030." EIA, Energy Market and Economic Impacts of a Proposal to Reduce Greenhouse Gas Intensity with a Cap and Trade System, January 2007, p. vi, http://www.eia.doe.gov/oiaf/servicerpt/bllmss/pdf/sroiaf(2007)01.pdf.

[12]Hoffman, Getting Ahead of the Curve, p. 90.

[13]Hoffman, Getting Ahead of the Curve, p. 102.

It is cheaper to recycle aluminum than to produce aluminum from virgin materials, due to the immense difference in energy costs. The Pew study notes that "aluminum produced from recycled materials requires only five percent of the energy needed to make primary aluminum," with the result that "almost 70 percent of the aluminum ever produced is still in use today," and the "amount of aluminum recycled in 2004 equaled the total amount of primary aluminum produced in 1974." In other words, recycling aluminum is a big part of what Alcoa and other aluminum companies do for a living.

Nonetheless, Alcoa wants to get emission credits for this ordinary, profit-seeking, business activity. Here's an excerpt from Alcoa's public comment, in June 2002, on the Department of Energy's proposal to transform the voluntary reporting of greenhouse gas emissions program (VRGGP), established under section 1605(b) of the 1992 Energy Policy Act, into a program awarding "transferable credits" for voluntary emission reductions:

"For example, we support an update of section 3.5.6 from your Volume I of Sector Specific Issues and Reporting Methodologies" related to estimating project effects of recycling. This document should be updated and expanded to quantify entity emissions reductions associated with increased recycling and material reuse. From our studies, the recycling of materials such as aluminium products can provide significant holistic emissions reductions advantages because aluminium and other metals consume less energy to produce than from virgin materials and these recovered metals are durable and can be recycled and reused over and over again."[14]

In the jargon of greenhouse accounting cognoscenti, Alcoa wants windfall profits for "anyway tons"—credits for doing (or not emitting) what the company would do (or would not emit) anyway, for purely economic reasons.[15] In short, they want to be paid for activities they have already undertaken because they are profitable. The Pew study reports that, "Of greatest concern to Alcoa is climate change legislation that does not recognize companies for taking early action. Alcoa seeks the use of a 1990 baseline for determining allocations."[16] committee members may wish to ask Alcoa how many transferable credits the company believes it should be awarded on account of its recycling activities since 1990, and whether this remains such a pressing matter should Congress prefer instead an energy tax which is far less inefficient?

The Pew study notes that, "Unlike Whirlpool, which seeks to retain credits for the improvements in energy consumption its products may offer, Alcoa does not lobby for gaining credits for emission reductions by users of its products."[17] Well, bravo to that! But the committee should be aware that not all aluminum companies abstain from claiming credit for other people's emission reductions. For example, Alcan Aluminum Corporation, in its public comment on the 1605(b) program, suggested that aluminum companies—not automakers or motorists—receive credit for emissions avoided due to the use of aluminum in automobile manufacture. Alcan explained that, "for each ton of aluminum that displaces the use of steel in a midsize sedan, over the life cycle of that automobile there is a net reduction of 20 tons of GHG emissions. These reductions need to be recognized."[18]

Next, let's consider General Electric. In this case, the business motivation to support Kyoto-style policy has more to do with expanding markets for its products than with reaping windfalls for anyway tons. GE is a world leader in manufacturing nuclear reactors, natural gas turbines, wind turbines, and integrated gasification combined cycle technology. The demand for these products will increase much faster in a carbon-constrained world. GE wants Governments the world over to grow its business with regulations and mandates.

Finally, PG&E's economic interest in a national cap-and-trade program is, I believe, similar. The company's Web site says that, "With significant hydro-electric and nuclear resources, the CO_2 emissions rate for PG&E's electric-generating operations is now among the lowest of any utility in the country. When factoring in the power we purchase from other sources, the emissions rate associated with the electricity we deliver to our customers is approximately 58 percent less than the aver-

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[14]Kenneth Martcheck, Alcoa, Public Comments on Doe's Notice of Inquiry on Ways to Enhance the Existing Greenhouse Gas Registry, June 5, 2002, https://ostiweb.osti.gov/pighg/ghga0202.idc.

[15]For more on this topic, see Statement of Marlo Lewis on S. 388, Committee on Energy and Natural Resources, U.S. Senate, April 14, 2005, http://www.cei.org/pdf/4481.pdf.

[16]Hoffman, Getting Ahead of the Curve, p. 108.

[17]Hoffman, Getting Ahead of the Curve, p. 109.

[18]Comment of Brenda Pully, Alcan, Public Comments on Doe's Notice of Inquiry on Ways to Enhance the Existing Greenhouse Gas Registry, June 5, 2002, https://ostiweb.osti.gov/pighg/ghga0202.idc.

age among utilities nationwide."[19] This means that if Congress enacts carbon caps on power plant emissions, PG&E will gain an instant competitive advantage over power producers that rely more on coal and less on nuclear, hydro, natural gas, or wind. PG&E's national market share will grow not because it lowers its prices, but because Congress raised its competitors' prices.

If anyone should be in any doubt about the attractiveness to unscrupulous businesses of a Baptist and Bootlegger alliance in favor of cap and trade schemes, let us consider the poster child for shady modern business practices, Enron. Enron became one of the biggest corporate boosters of the Kyoto Protocol. Enron was a natural gas distributor, and Kyoto would kill coal-fired electric generation, boosting demand for Enron's product. Enron's energy traders also expected to make juicy commissions on the purchase and sale of carbon credits and profits from creating the trading markets for those credits. According to an internal Enron memo, Kyoto would "do more to promote Enron's business than almost any other regulatory initiative outside of restructuring the energy and natural gas industries in Europe and the United States."[20]

In addition to all its political lobbying and contributions, Enron became a founding member of the Pew Center on Global Climate Change's Business Environmental Leadership Council, a leading industry group pushing the Kyoto agenda. Enron chairman Ken Lay, along with Fred Krupp of Environmental Defense, served on the President's Business Council for Sustainable Development, during the Clinton Administration.[21] They also served on the board of the Heinz Center for Science, Economics, and the Environment, along with former Alcoa CEO and Treasury Secretary Paul O'Neill. The sort of rent-seeking we see now is nothing new. Yet we should recognize that, had Enron's lobbying efforts succeeded, the United States would have ended up with a costly regulatory scheme designed to redistribute wealth from the American people to politically powerful special interests like Enron.

Now, there is a simple way to mitigate somewhat this problem of rent-seeking, but I cannot imagine that it would be attractive to the businesses involved in the Climate Action Partnership. It involves the auctioning of credits at their initial allocation. Auctions reveal what the bidders know about the prize's value. Yet those who win the auction do so because they bid more than anyone else thinks the item is worth. As such, businesses in Europe have argued strenuously against auctions. They currently have a free lunch and are unwilling to pay for it.

Yet even auctioning still involves costs to the economy. A 1997 study by Resources for the Future found that even auctioned tradable permits were about five times costlier to the economy than implementing a simple carbon tax, even when both systems were designed to achieve the same level of emissions control.

What the economics of this situation suggest is that, if you are thinking about the economy as a whole—and legislators should be—cap and trade is a disastrous idea. To an extent, Professor Greg Mankiw of Harvard is right: If we do want to do something about the various externalities of fossil fuel use by reducing use of those fuels, a carbon tax is the least worst option. Yet, as Mankiw argues, such a course of action should also include a reduction of regulations that burden the market. A correctly-priced carbon tax, for instance, should replace all sorts of other measures aimed at reducing the externalities of fossil fuel use. A well-designed carbon tax would mean that we had no further need for CAFE regulations, for instance, or certain elements of the Clean Air Act. As Tim Harford, author of The Undercover Economist, has written:

[T]he whole point of a green tax is that while we know what we want—lower carbon emissions, fewer accidents, less congestion—we do not know the best way to get there. We cannot afford to stop all pollution. The aim is to stop the low-priority activities and not the high-value ones. And the judge of what is really important should be each individual, not a posturing politician. The green tax should send the same signal to each individual. They can decide for themselves whether or not those shooting and fishing weekends are worth the price.

On the other hand, we should also consider whether we need to pay for the externalities. Nobel prize-winning economist Ronald Coase suggests we don't always need to. There may be cheaper ways of obtaining reductions in externalities than taxation, such as the development of new technology. Or, as I have argued repeatedly in the context of global warming, building resiliency in society so that the externalities become less costly is probably the most cost-effective way of dealing

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[19]PG&E, Global Climate Change: Risks, Challenges, Opportunities, and a Call to Action, p. 6, http://www.pgecorp.com/corp—responsibility/pdf/GlobalClimate—06.pdf.

[20]Paul Georgia, "Enron sought global warming regulation, not free markets," February 3, 2002, http://www.cei.org/gencon/019,02898.cfm.

[21]http://clinton4.nara.gov/PCSD/Members/index.html.

with the potential problem. Consider that, for a fraction of the cost of the Kyoto Protocol, we could solve all the major problems that global warming could exacerbate. We could feed Africa, provide clean drinking water, reduce malaria to an exceptionally rare disease, and build sea defenses to protect those people of the world who live in low-lying areas. All of that now for a fraction of the cost of attempting to change the weather in 100 years' time.

Such an approach, of course, requires a vibrant economy and a free market. We should remember that capitalism at heart is an egalitarian mechanism. That's why it's the American way. As the renowned economist Joseph Schumpeter wrote over half a century ago:

It is the cheap cloth, the cheap cotton and rayon fabric, boots, motorcars and so on that are the typical achievements of capitalist production, and not as rule improvements that would mean much to the rich man.µ Queen Elizabeth [the First] owned silk stockings. The capitalist achievement does not typically consist in providing more silk stockings for queens but in bringing them within reach of factory girls in return for steadily decreasing amounts of effort.

Capitalism becomes an engine of inequality when it is distorted by a ruling elite—aristocracy in the U.K. or big corporate cartels and their legislative allies in the United States. The corporations we see baying for a cap and trade program are out to enrich themselves without thought for the poor. For these people, environmentalism is the opiate of the masses, keeping them quiet by making them think that what's bad for them is good for the planet. A fair approach, an egalitarian approach, is to let the market work its magic for the good of all, rather than stacking the deck to enrich the few. That's the egalitarian message, that's the American message, that's CEI's message. Thank you.

RESPONSES BY FRED L. SMITH JR. TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. Environmental special interest groups outspend the oil and gas industry significantly in elections by a factor of at least three to one. I believe the same is true for all public policy groups as well. In your estimation, how much money is given to those urging immediate action on climate change compared to contributions to those groups that advocate caution before leaping?

Response. CEI probably devotes more resources to climate and energy policy than any other group opposed to regulatory climate policy, and our entire budget for all programs including environmental risk, technology policy, entrepreneurship, and insurance is about $4 million. The annual budgets of the leading groups promoting climate regulation are far bigger. Here is a partial list from Bonner Cohen's The Green Wave: Environmentalism and Its Consequences (Capital Research Center, 2006, p. 167):

- National Wildlife Federation, $100,534,318 (2004)
- Sierra Club, $91,843,757 (2004)
- Natural Resources Defense Council, $57,303,087 (2004)
- Environmental Defense, $43,661,043 (2003)
- Defenders of Wildlife, $25,729,780 (2003)
- Earthjustice, $21,090,378 (2004)
- World Resources Institute, $16,179,169 (2003)
- Greenpeace, $15,913,343 (2004)

Many pro-Kyoto groups raise significant funds from direct mail and membership dues. However, many also receive significant funds from foundations. In this connection, I attach an excerpt ("Resource Rich") from a forthcoming doctoral dissertation by Angela Logomasini, CEI's Director of Risk and Environmental Policy. Angela notes that, according to the Chronicle of Philanthropy 2005, charitable foundations contributed more than a billion dollars to eleven environmental organizations in 2004.

According to official Senate records, in 2002, Free Market Environmental groups like CEI spent a total of $200,000 on direct lobbying of Congress. In contrast, mainstream environmental groups spent more than $8.6 million on direct lobbying. Please see Angela's Excel document titled "Direct Lobbying."

The environmental movement's substantial resources and lobbying efforts have been effective in setting the agenda, framing the debate, enacting legislation, and adopting regulations. Angela documents this in her Power Point presentation titled "The Green Lobby."

Feel free to use the information in these attachments, but please cite Angela and CEI, as the documents are pre-publication items.

Question 2. You testified about a dead-weight loss to society from carbon caps. I realize some companies may make money, but could you elaborate on how it will affect the economy as a whole?

Response. The most important factor affecting the economic impact of a carbon cap is its stringency—how much and how fast carbon dioxide (CO_2) emissions are to be reduced. In a forthcoming CEI paper, University of Guelph economist Ross McKitrick examines the impacts of the caps proposed in the Boxer-Sanders, Kerry-Snowe, and Lieberman-McCain bills—roughly a 70 percent reduction in U.S. carbon emissions by 2050. McKitrick notes that the long-term historic rate of U.S. emissions intensity decline is 1.7 percent annually. He examines the impacts under two scenarios: (a) emission intensity continues to decline at the historic rate, and (b) emission intensity declines at double the historic rate—i.e., 3.4 percent annually—every year from 2012 until 2060. "Either way," he comments, the implications for the U.S. economy are "sobering."

If emissions intensity continues to decline at 1.7 percent annually, given projected US population growth, holding to the emission caps outlined in the three bills will require real GDP per capita to decline between approximately 52 and 77 percent between now and 2060, compared to a projected growth of 197 percent under the base case. This results in 2060 real average income between 85 percent and 93 percent below what it would be without the legislation.

If, on the other hand, emissions intensity declines at 3.4 percent annually from 2012 through 2060, given projected U.S. population growth, holding to the emission caps outlined in the three bills will effectively eliminate growth in U.S. real GDP per capita. Instead of real average income growing 197 percent by 2060, as in the base case, under the three cap-and-trade proposals, real average income will change between +13 percent and -46 percent. This results in 2060 real average income between 66 percent and 84 percent below what it would be without the legislation.

McKitrick then considers what would be required to meet the emission reduction targets and maintain 2.2 percent real per capita annual income growth, assuming a wildly optimistic 5.1 percent annual rate of emission intensity decline. In that case, there would have to be substantial cuts in U.S. population growth. The Lieberman-McCain proposal would allow some growth in population, up to 363 million in 2030 (compared to 390 million in the base case), but all three caps would require population cuts by 2050. Lieberman-McCain would require a population of 355 million, Kerry-Snowe would require 321 million and Sanders-Boxer would require a population of 167 million. These are, respectively, 27 percent, 34 percent, and 65 percent below base case population levels.

Question 3. How does carbon rationing affect the poor?

Response. Carbon rationing is regressive, because the poor spend a larger share of their income on basic necessities like food, clothing, rent, and energy. The Congressional Budget Office, in its April 25, 2007 report, Trade-offs for Allocating Allowances of CO_2 Emissions, clearly states:

Regardless of how the allowances were distributed, most of the cost of meeting a cap on CO_2 emissions would be borne by consumers, who would face persistently higher prices for products such as electricity and gasoline. Those price increases would be regressive in that poorer households would bear a larger burden relative to their income than wealthier households would.

Millions of U.S. families already feel pinched by the high costs of gasoline, electricity, and home heating oil. A cap-and-trade program would push energy prices even higher.

Question 4. Can you discuss further the concept of a cap-and-trade cartel?

Response. Brian Mannix, a former official in President Carter's Department of Energy, was the first to call cap-and-trade a "carbon cartel," in column published by the Heartland Institute (http://www.heartland.org/Article.cfm?artId=1063).

Mannix noted that, as in OPEC, cap-and-trade places a ceiling on energy production, albeit on energy from all fossil fuels, not just oil. Also, as in OPEC, a cap-and-trade program allocates production quota—a.k.a. emission allowances, permits, credits—among the participants. As in OPEC, the value of the quota (credits) comes solely from the politically-imposed restriction on supply. And, as in OPEC, the scheme transfers wealth from consumers to quota holders.

One difference between cap-and-trade and OPEC is that more special interests get to profit at consumer expense. For example, even if alternative energy companies hold no credits, the cap skews the market in their favor. In addition, because emission credits are tradable quota, traders make money from the scheme as well. The rent-seeking coalition is huge, as Mannix explains:

The profits potentially available to the carbon cartel are measured in tens of trillions of dollars. Those profits would take a variety of forms around the world: tax

revenues to Governments; bribes to government officials; valuable carbon "credits" and "allowances" that Governments allocate to favored parties; and many, many jobs for diplomats, politicians, regulators, tax collectors, lawyers, and lobbyists. Other winners would include the industries that compete with carbon-based fuels: hydro-power (mostly Government owned), nuclear (still a long-shot in the U.S.), and such "alternative" energy sources as windmills and solar.

Mannix also explains a chief difficulty in enacting a cap-and-trade program how to divide up the booty:

The carbon cartel's organizers face a key challenge: how to allocate the spoils in a way that produces a winning and sustainable coalition. Right now the Kyoto formula favors Europe over the U.S.; we can expect to see concessions designed to bring the U.S. on board. These are likely to be designed specifically to influence U.S. politics: Some additional share of the booty will be made available to U.S. companies with perceived political influence, or to labor unions—perhaps the coal miners. Further concessions will be needed to bring countries like China and India on board. This is what is being negotiated in all those international meetings: not the world's climate, but the division of the carbon cartel's plunder.

The bottom line, though, is that cap-and-trade is not win-win but zero-sum. Consumers get fleeced:

The big losers, of course, will be consumers everywhere. The carbon cartel is counting on the fact that the world's consumers are poorly informed and poorly organized. Right now Bush is their champion and protector, though few of them realize it and he may not fully appreciate it himself.

Thank you again for inviting me to testify. I hope these answers help the committee with its deliberations.

STATEMENT OF HAROLD HAMM, CHAIRMAN OF THE BOARD, CHIEF EXECUTIVE OFFICE, CONTINENTAL RESOURCES, INC.

Mr. HAMM. Good morning, Madam Chairman, Senate committee members.

I am the Chairman and CEO of Continental Resources, Inc. I am also the Chairman of the 1,700 member Oklahoma Independent Petroleum Association, and immediate past president of the National Stripper Well Association.

Continental is a mid-size independent oil and gas exploration and production company. Last year, Continental invested over $300 million drilling 180 oil and gas wells in the U.S. My professional training is in geology and my job is to find oil and gas, which I have done successfully for the past 35 years.

I am concerned about the impact human activities have, not only on our plan, but on future generations. As a parent of 5 children, grandfather of 10 and the CEO responsible for over 350 employees and their families, clearly we should make reasonable efforts to keep our air and water free from pollution. While I do not believe the science of global warming is proven or settled, energy efficiency and cost effective deployment of technologies that emit little or no greenhouse gases, such as wind, solar and other renewable energy sources are mostly no-brainers.

Our priority should be consideration of the direct causes of global warming and action to correct those conditions which can be affected by mankind. Those conditions include pollution of the world's streams, rivers and oceans, clear-cutting of vast equatorial rainforests, denuding of the vegetation across Africa, encroachment of deserts in China, Africa and the Middle East and general overpopulation conditions of the world.

Let's first talk about the Kyoto Protocol. Only 2 of the original 15 EU countries will meet their Kyoto Protocol targets. Any policy ignoring the fact that developing countries are accelerating their CO_2 emissions will doom our children to a lower quality of life as

a result. The Kyoto Protocol will cost the average family of four $2,700 per year. Our GDP will flatten and jobs will move overseas. Yet CO_2 emissions will continue to arise. Then what will our childrens' sacrifices have been for?

I strongly disagree with the recommendation for fossil fuel producers to purchase allowances equal to the emissions estimated to be released when a fuel is combusted. While characterized as a purchase of an allowance, the economics are similar to President Clinton's 1993 Btu tax. Senators from both parties quickly realized the high cost the Btu tax would have on the U.S. economy and the average American family and that proposal was withdrawn.

The report noted that care should be taken so that policies do not merely push emissions from U.S. facilities to overseas operations. The imposition of this Btu tax would have that effect, because domestic oil and gas production activities would be subject to more costly greenhouse gas emission regulations than other producing countries.

The domestic oil and gas industry already has higher finding costs and producing costs than that of imported oil and gas. The use of CAP proposed Btu tax would further disadvantage industry and lead to a reduction in domestic oil and gas production.

Our domestic stripper wells which produce 10 barrels of oil per day or less, approximately 1 million barrels per day, and contribute 20 percent of our total domestic production would be particularly impacted. These wells have the highest production costs and lowest profit margins yet are the most stable category of production in the U.S. with the very shallow decline. That is practically in a stable State.

The U.S. leads the world in eliminating pollution by 50 percent reduction in the last 30 years. We have accomplished this while simultaneously growing our economy and stabilizing energy use. Through oil patch boom and bust cycles, I have witnessed the devastating, far-reaching impact of job loss on families, and it is not something that I nor you should contemplate lightly. Climate legislation that costs the American family businessman and future generations loss of jobs, a lower quality of life and climbing CO_2 emissions, despite our best efforts, is not good policy.

That is my testimony. Thanks.

[The prepared statement of Harold Hamm follows:]

STATEMENT OF HAROLD HAMM CHAIRMAN OF THE BOARD, CHIEF EXECUTIVE OFFICE, CONTINENTAL RESOURCES, INC.

Good morning Madam Chairman and Senate committee members. My name is Harold Hamm. I am the Chairman of the Board and Chief Executive Officer of Continental Resources, Inc. I am also the Chairman of the Board of the Oklahoma Independent Petroleum Association (1,700 members) and immediate past-President of the National Stripper Well Association, which represents operators of oil wells only capable of producing 10 barrels per day or less.

Continental Resources is a mid-size independent oil and gas exploration and production company headquartered in Enid, Oklahoma. Last year my Company invested over $300 million drilling 180 oil and gas wells in the United States. My professional training is in geology and my job is to find and develop oil and gas; which I have done successfully for the past 35 years.

I want to first state that I am concerned about the impact our human activities have, not only on our planet, but on future generations. As the parent of 5 children, grandfather of 10 grandchildren, and the CEO responsible for over 350 employees and their families, clearly, we should make reasonable efforts to keep our air and

water free from pollution. While I do not believe the science of global warming is proven or settled, energy efficiency and cost-effective deployment of technologies that emit little or no greenhouse gases, such as wind, solar and other renewable energy sources are "no brainers."

Let's first talk about The Kyoto Protocol.Only two of the original 15 EU countries will meet their Kyoto Protocol targets. One year after the Protocol was signed, Britain and China's emissions have steadily been climbing. China's emissions will eclipse America's carbon emissions in 2009. Any policy that ignores the fact that developing countries are accelerating their CO_2 emissions will doom our children to a lower quality of life as a result.

The Climate Change Stewardship Act would cost the American economy 1.3 million jobs according to Wharton Econometric Forecasting Associates. Through many boom-and-bust periods in the oil patch, I have witnessed the devastating, far-reaching impact of job losses on a family and it is not something that I, nor should you contemplate lightly.

One recommendation with which I strongly disagree is the requirement for fossil fuel producers to purchase allowances equal to the emissions estimated to be released when the fuel is combusted. While characterized as the purchase of an allowance, the economic substance is similar to President Bill Clinton's BTU Tax proposed in 1993. At that time, Senators from both parties quickly realized the high cost the BTU Tax would have on the U.S. economy and on average American families and that proposal was withdrawn.

The report noted that care should be taken so that policies do not merely push emissions from U.S. facilities to overseas operations. The imposition of this BTU Tax would have that effect because domestic oil and gas production activities would be subject to more costly greenhouse gas emission regulations than other producing countries.

The domestic oil and gas industry already has higher finding and producing costs than other countries from which we import oil and gas. The proposed BTU tax would further disadvantage the industry and lead to a reduction in domestic oil and gas production.

Our domestic stripper wells (those producing 10 barrels of oil per day) would be particularly impacted. These wells have the highest production cost and lowest profit margins. This production is the most stable category of production in the U.S. and has a very, very shallow decline and is, in fact, practically in a stable state. Stripper wells contribute 20 percent of our domestic production (approximately 1 million barrels per day).

The "upstream" program recommended by the U.S. CAP which requires fossil fuel producers to be covered by allowances that equal the emissions released when the fuel is combusted is exactly the type of costly regulation that will devastate the domestic oil and gas industry without having a direct effect on global greenhouse gas emissions.

The Kyoto Protocol will cost the average family of four $2,700 per year. Our GDP will flatten and jobs will move overseas, yet CO_2 emissions will continue to rise, then what will our children's sacrifices have been for?

Furthermore, the cap-and-trade approach to reduce greenhouse gas emissions has never been implemented on the scale being discussed and could have significant, adverse, and unanticipated effects on the U.S. economy.

Though experts debate whether global climate change is affected by greenhouse gas emissions, we can be certain that allowance systems recommended by U.S. CAP will reduce domestic oil and gas production, increase our dependence on foreign sources of energy and have high costs to the U.S. economy and average American families.

Our priority should be consideration of the direct causes of global warming and action to correct those conditions which can be affected by mankind. Some of those conditions include pollution of the world's streams, rivers, and oceans, clear-cutting of the vast Equatorial rain forests, denuding of the vegetation across Africa, encroachment of deserts in China, Africa, and the Middle East, and general over-population conditions of the world.

The United States continues to be a leader in cutting pollution across the board. In the last three decades we have significantly cleaned up our waterways and cut air pollution by more than half. We have accomplished this while simultaneously growing our economy and increasing energy use.

Climate legislation that costs the American family, the American businessman, and America's future generations the loss of jobs, a lower quality of life and CO_2 emissions that continue to climb is not good policy.

Senator BOXER. Thank you very much, Mr. Hamm.

Now we are going to go to Senator Carper, followed by Senator Alexander. Each will have 10 minutes. You can incorporate your opening statement, whatever you want to do.

Senator CARPER. Madam Chairman, thank you very, very much.

To our witnesses, thank you very much again for joining us and for your testimony.

What I would like to do is start off by just reading a sentence or two from the conclusion of Mr. Smith's testimony. Then I am going to ask Mr. Darbee, Mr. Holliday and Mr. Elbert just to ponder these words and respond to a question. Here is what Mr. Smith said at the end of this testimony: "The corporations we see baying for a cap and trade program are out to enrich themselves without thought for the poor. For these people, environmentalism is the opiate of the masses, keeping them quiet by making them think that what's bad for them is good for the planet."

What brings you here today baying, if you will, for a cap and trade program? Are you out to enrich yourselves, your shareholders, at the expense and with no thought for the poor? Mr. Darbee?

Mr. DARBEE. Senator, a cap and trade program does not have any impact on the impacts of PG&E and Pacific Gas and Electric Company. As I outlined in my presentation, we operate under decoupling. So if we sell more or less electricity, we are indifferent, neutral to that. And there is no way that we can make more return for our shareholders as a result of the cap and trade program. Our return is limited currently to the 11.35 percent allowed by the California Public Utilities Commission.

Senator CARPER. What is our motivation, personal or corporate, for being here today, sir? Spending all this time to put together the partnership and to come here, not just today, I know you have been here in the Capitol at least two or three times in the last month or so. Why?

Mr. DARBEE. In short, it is to do the right thing, Senator. Two years ago when I came into the job of CEO, I asked the question, do we have a position on the environment and on climate change. The answer is, we have no official position. So we undertook a process of scientific inquiry, where we met with roundtables of scientists. And coming out of that, the senior management team of our company and I concluded that yes, the climate is warming. Mankind is likely responsible and the need for action is now.

So out of a belief that this was the right thing to do and the responsible thing, in being a corporate leader, we took this position. That is why I have come back three times in the last month to Washington to make this point.

Senator CARPER. Mr. Holliday, let me ask this. What is your motivation? Why all this time and energy are you putting into this endeavor?

Mr. HOLLIDAY. Senator, with our 15 years' experience focusing on ways to reduce greenhouse gases and have good return for our shareholders, we see a large variety of solutions at work. That is what we have been doing in our country. We think by understanding the rules of the road and our terminology here in the United States, our companies can be leaders. We see a whole suite of technologies that can solve these problems. We think the uncer-

tainty of what regulation will do is holding companies back. So we are motivated because we think we can actually lead in this and our country can lead.

Senator CARPER. Thank you. Mr. Elbert.

Mr. ELBERT. I would echo my colleague's comments as well. BP has been involved and concerned about climate change since 1997. My motivation, I think, much like the members of the committee, I represent a constituency of 36,000 employees and substantially more thousands of shareholders. Frankly, this is the direction that they have asked us to take. It is the direction that we think from a business point of view is the right direction to take. Our own experience with our internal cap and trade program that we put in place in 1998 demonstrated to us the value of that type of program. It captures the lowest hanging fruit first, so to speak, at the lowest cost. It has been good for business.

Senator CARPER. Mr. Book, I have a question for you. Senator Alexander and I and others have worked for several years to craft legislation that focuses specifically on one sector, CO_2 emissions from the utility sector stationary sources. Our legislation also calls for reductions in sulfur dioxide emissions, nitrogen oxide and mercury for three of the pollutants, with the exception of mercury, we call for a cap and trade approach.

While I support the notion of an economy-wide approach for reducing, slowing the growth of CO_2 emissions, stopping the growth of CO_2 emissions and reversing the growth of CO_2 emissions, I think something at least 2 or 3 of you have actually said today, I think we have to get started somewhere. And the legislation that we have proposed actually seeks to do that.

I would ask of you, why, and your testimony you seemed to suggest at the end, at least, that the best approach is a sector-specific approach, like the one that Senator Alexander and I and others have embraced. Why do you think that is maybe the best way to proceed at this point in time?

Mr. BOOK. Senator, the history of the sulfur dioxide cap and trade program for acid rain reduction has been, I think all would agree, a success, provided flexibility between two different types of choices that emitters can make. They could choose whether or not they wanted to switch coal or they could decide whether or not they wanted to take installation of new capital equipment.

There is a precedent there. Companies are being regulated in that fashion today under the Clean Air Interstate and Mercury Rules. It represents probably a tentative step forward with greater clarity than the indistinct step of putting a burden on refiners and oil companies without knowing whether or not it will change the way drivers behave.

Senator CARPER. Thank you. Mr. Darbee, if I can come back to you for a moment. PG&E has worked with Senator Alexander, myself and some of our colleagues for a number of years on the electric sector, which I have just talked about here and with which you are familiar, I believe. How would the approach that we have developed help in the context of implementing the U.S. CAP economy-wide approach?

Mr. DARBEE. The issue of climate change is a very complex subject, as you know, Senator. I believe when one is dealing with very

complex subjects, sometimes it is easier to break it down into smaller sections, smaller problems. So there is merit in your approach, which is to start with one industry, get that right and then focus on another industry. So the U.S. CAP group believes that it is appropriate to have an economy-wide program. However, it is quite possible that the most effective way to implement that program would be on an industry by industry basis.

Senator CARPER. All right, thank you.

Chad, again, one of the central themes of the U.S. CAP is the need to address all sectors of the economy. The U.S. CAP approach also recognizes that, as we have said here today, one size doesn't fit all. Different timeframes, different approaches may be required for different segments of the economy. Let me just ask, what do you think is the best approach for industrial and the manufacturing sector?

Mr. HOLLIDAY. I think very much like the BP example, within DuPont, we put in an internal cap and trade type program, which allowed the funds to go to the best projects. We saw the creativity come out in our people, and then we saw the kind of major improvements we were able to make, like the 72 percent reduction in gases. I think it is that approach that works.

Whether the legislation is passed all at once or in pieces, you must decide. I think being able to understand the impacts of legislation in one place on another part of the economy is very important in your final decisions.

Senator CARPER. Let me follow up if I can. The kind of approach that Senator Alexander and I have put forth, what would we need to do to get the industrial and the manufacturing sector ready to participate in the kind of cap and trade approach that we have proposed and which it looks like you have already implemented at DuPont?

Mr. HOLLIDAY. I think it is understanding the total legislation that will come is important. So if you understand one piece but there could be three other pieces, it would create a problem, is critical. That is why I think you could at least envision the total plan. What I think you will find is companies will be very much like DuPont, because our employees and our shareholders are asking us to take leadership in these areas. I think companies will stand up and do that.

I have seen a change in the last 2 years. I think you might find a different response today than you would have two or 3 years ago when you first started the legislation.

Senator CARPER. Thank you.

Another question, if I could, for Mr. Elbert. Mr. Elbert, as we well know, the transportation sector is a huge portion of our carbon emissions in the U.S. I think utilities, as I recall, are about 40 percent of the CO_2 emissions and I think the transportation sector is maybe another 40 percent or so.

More fuel efficient vehicles clearly is part of the solution. But can you tell us about the role of the fuels industry in reducing greenhouse emissions?

Mr. ELBERT. Sir, I would be happy to. Roughly we would look at the transportation sector in three segments. One is the vehicles themselves, the other the fuels and the other is just customer be-

havior. We think that there is opportunity for improvement to reduce greenhouse gas in all three of those sectors.

with regard to the fuels in particular, there are, we believe, through technology, newer better fuels that can be developed. I think the industry has shown a track record of developing different specialized kinds of fuels to meet existing regulation. What we have done is take a step forward prior to the regulation and said, we can develop different, better fuels. We formed a partnership with DuPont to develop just one of those fuels and then we have put quite a bit of money into a 10-year program that we think is going to unlock quite an exciting new suite of opportunities in the realm of biofuels that are both good energy performers in terms of how your car operates, as well as being softer on the environment.

Senator CARPER. My time has expired. I look forward to hearing a little bit more today about biobutanol and your partnership in its development.

Senator BOXER. Senator, thank you, because I think those questions were really important to be asked. Thank you.

We are going to hear from Senator Alexander for 10 minutes, followed by Senator Klobuchar.

Senator ALEXANDER. Thank you, Madam Chairman. I want to thank the witnesses, all of them, for their testimony. It is very helpful for us to hear such good arguments on several sides of the point.

Mr. Book, I want to make sure I understand what you said in your conclusion. I think I do, but let me go back over it a little bit, following up on what Senator Carper said. You say alternatively, it may make sense to take an incremental step by enshrining in law a market-based regulation of particulates from stationary sources similar to the Clean Air Interstate Rule and Clean Air Mercury Rule in a way that gives regulated entities financial motivations to explore emerging carbon capture technologies.

Now, market based, particulates from stationary sources would include sulfur, is that right, and nitrogen and carbon as well?

Mr. BOOK. Those are gases, but yes, they would as well.

Senator ALEXANDER. And you say similar to the Clean Air Interstate Rule, that is the new rule that EPA Bush Administration put in place, which in my opinion is an improvement from a clean air point of view over the Clear Skies proposal that the President had made. Then you mentioned the mercury rule. Now, the mercury rule is, the Administration's mercury rule is cap and trade, if I am not mistaken?

Mr. BOOK. That is my understanding, yes.

Senator ALEXANDER. My concern about that is that that leaves mercury hot spots, such as the Great Smoky Mountains, where I live, mercury is heavier. And then you go on to say, plus financial motivations to explore carbon capture technology, which you say is not generally available or not available at all in the United States. Is that what you said? What is the status of carbon capture technology right now in the United States, the availability of it?

Mr. BOOK. Senator, I believe there are some important questions yet to be answered by science and by the market. The first two of these is what happens when you sequester significant amounts of

gas underground. Can it be stored? Does it escape? Does it have geologic impacts that we should be concerned about?

The second is how much does that cost relative to the next best alternative, or other alternatives, including doing nothing. And nothing may not be the preferred alternative overall, in the long term. But in the near term, particularly financial investors tend to be very shy about making investments in technologies that are on the leading edge or not ready for prime time.

Senator ALEXANDER. But I would be correct in saying, the way I read it is the way you said it, I think, which is that you suggest an alternative might be a bill like the one Senator Carper and I have been working on, which doesn't go the whole way, which says we know that coal-fired power plants produce about 40 percent of the carbon. We have some experience since 1990 with the cap and trade system there. We can learn from that how it might work and what the cost to the economy would be of dealing with coal-fired power plants. And then based on what we learn there, we can take other steps if they seem warranted. Does that seem to you to be a reasonable approach without asking you to endorse every provision of a bill we haven't yet introduced?

Mr. BOOK. Yes, Senator, it is consistent with what has been suggested in my contact with institutional investors. They are much more enthusiastic about technologies that exist today. When they are managing your money, you don't, after all, want them betting on stuff that isn't there yet.

Senator ALEXANDER. Yes. And Madam Chairman, the legislation that Senator Carper and I are working on has, basically adopts the standards of the Clean Air Interstate Rule for NO_x and SO_x, more or less. It is a little stronger on mercury and then tries to address reasonable steps toward carbon.

Let me go to Mr. Darbee. I want to ask you about the west, Mr. Darbee, as we work on our bill. I understand there are no coal-fired power plants in California at all, is that right?

Mr. DARBEE. I believe that is correct, Senator. A small amount of coal-fired power is sent in by transmission lines.

Senator ALEXANDER. And even though 50 percent of the electricity that the United States uses is produced by coal, none of it is, almost none of it is in California?

Mr. DARBEE. That is correct.

Senator ALEXANDER. Now, the Bush Administration's Clean Air Interstate Rule that I was just talking about issued in 2005 doesn't apply to the west if I am correct. Am I correct about that?

Mr. DARBEE. I am not certain, Senator.

Senator ALEXANDER. Anyone know the answer to that?

Mr. DARBEE. My understanding is it——

Senator ALEXANDER. Well, what I am trying to get to is whether, as we work on our bill, it makes a difference to you and to other western utilities if the CAIR Act, as it might be put into law, does apply to the west? Would it create a problem? What are you doing about SO_x and NO_x in California or so far as you know in other parts of the west? Is there just not a problem with it?

Mr. DARBEE. In California currently, the vast proportion of the power is produced by hydro resources, nuclear resources or natural gas, which don't tend to produce SO_x and NO_x. However, not in our

territory but in southern California, a not insignificant amount of power has been produced by power plants out of State that generate power from coal. So legislation relating to SO_x and NO_x would impact on those out of State generating facilities.

Senator ALEXANDER. Out of State would mean in the west, but not in California?

Mr. DARBEE. That is correct, Senator.

Senator ALEXANDER. So where, Idaho, Arizona?

Mr. DARBEE. Arizona, Nevada, Idaho would be exempt.

Senator ALEXANDER. So what SO_x and NO_x standards are there now for those western coal-fired power plants?

Mr. DARBEE. I am not certain, Senator, since they relate to out of State and I haven't really become an expert in that area.

Senator ALEXANDER. OK. Mr. Elbert, I know you're BP America. But BP is very much associated with the establishment of United Kingdom emissions trading program and the European Union emissions trading scheme. Some say that that EU emissions trading scheme has been a failure. Is that right or is that wrong?

Mr. ELBERT. I think you would have to ask the folks in the EU to comment on that. I would say what it does do is gives us a model, it gives us a model to look at for the United States what things we think would work and what things would not be appropriate, would not work.

Senator ALEXANDER. Mr. Elbert, would you think that an approach such as that suggested by Senator Carper and which I discussed with Mr. Book would be a reasonable first step toward dealing with climate change in the United States?

Mr. ELBERT. Just from what you have described, I would say yes. What we are interested in from U.S. CAP and from BP, we are interested in a national program, a mandatory program, one that covers all sectors of the economy and one that both sets some short term and medium term goals, but has a clear vision for the future. We do believe that in the fullness of time, we need to get to a 60 to 80 percent reduction by 2050.

So in a sense, any train that is leaving the station, anything that is moving us in that direction we are for. We would like to see some commitment to the end game.

Senator ALEXANDER. Mr. Lash, Mr. Holliday, do you have any comment on the wisdom or lack of wisdom of taking a first step that deals only with carbon from coal-fired power plants as opposed to an emissions, economy-wide controls?

Mr. LASH. Senator, two observations. The SO_2 trading program was narrow because the range of leading sources of SO_2 was relatively narrow. It was possible to focus on a very limited set of sources. CO_2 is emitted by every part of the economy, not just utilities but also automobile drivers, buildings, manufacturers. So the U.S. CPA recommendations were very clear in recommending that a pathway be established that for all those sectors gives a signal about investment and about the need to make future reductions.

We did not take a position with respect to any specific proposal about where to begin or how to begin, so long as it is part of that larger road map that gives both Mr. Holliday and Mr. Elbert clear signals about future investment.

Senator ALEXANDER. I see my time is about up. That is a good point. That a good distinction. But I believe it is true that coal-fired power plants produced about two-thirds of all the SO_2 in our country.

Mr. LASH. Of the SO_2.

Senator ALEXANDER. Yes, of the SO_2. They didn't produce it all, they produced about two-thirds. And coal-fired power plants produce about 40 percent of all the carbon. And the carbon from coal-fired power plants is growing at a much more rapid rate, nearly twice as fast as carbon emissions generally.

Mr. LASH. I believe the utility sector produces 40 percent of carbon. But I don't think all of that is coal.

Senator ALEXANDER. Well, the utility sector, nuclear is 20 percent. So it doesn't produce nay. Hydro is 7, it doesn't produce any.

Mr. LASH. Oil and gas, while they produce much less per Btu, also produce CO_2 emissions.

Senator ALEXANDER. They do, but they don't produce as much electricity in the United States.

Mr. LASH. Coal is a little over half the electricity in the United States.

Senator ALEXANDER. Right. Thank you, Madam Chairman.

Senator BOXER. Senator Alexander, I just wanted to make a point before we go to Senator Klobuchar and then Senator Warner. My understanding is the Parada bill that passed the California legislature and the Governor signed says that any electricity that is imported that is derived from coal has to be clean coal. So right now we have entities in California that are not renewing contracts, because it is not clean coal.

So my answer to your question is, and I would have to do more research, but the cleaner coal that we have, the cleaner power that we get from the utility sector, the better it is for our State. Because right now, we are stopping importing that dirty coal. So I think it helps us at the end of the day to have a Federal law that address clean coal and clean utilities.

Senator ALEXANDER. Thank you, Madam Chairman. I should say out of fairness to Mr. Book's conclusion, he did emphasize and I didn't very much in my question of him the importance of encouraging technologies to deal with clean coal and other provisions.

Senator BOXER. Absolutely, thank you.

Senator Klobuchar, you have 10 minutes, followed by Senator Warner, who has 10 minutes. Please proceed.

Senator KLOBUCHAR. Thank you. I want to thank all the witnesses today, particularly those from the business community involved in the Call for Action that you were willing to come here today and talk about your vision and what we can do in a bigger way, beyond what we are doing. I especially appreciated the emphasis in the report on the short term and long term goals and the cap and trade system and the focus on discussing renewable fuels as well.

I am from Minnesota, the land of 10,000 lakes. Most of them are frozen now. But despite that, there is an overwhelming concern in our State about global warming. It comes from snowmobilers who don't have enough snow to people who ice fish, who find that year by year, it takes longer and longer for them to be able to put their

fish houses out, to major business who either are based in Minnesota or who have a presence in Minnesota, from Excel Energy to General Mills to Target. So I appreciate your business leadership in this area.

This committee, under the leadership of our Chairman, has focused on this, which I appreciate. Other committees I am on, the Commerce Committee, had a hearing last week in which we talked about the concerns about elevating politics over science. It was a bipartisan hearing and I appreciated Mr. Darbee, your talking about bringing scientists in. Because there is some concern that we haven't been getting the truth facts out of some of the Government scientists.

I am also on the Agriculture Committee and I am actually preparing to introduce a climate change incentive program as part of the Farm bill. So you can keep in mind as you talk about fuels, Mr. Elbert, as you were before, the idea here is to promote cellulosic ethanol and to create incentives for farmers who want to reduce their consumption of fossil energy by using renewable resources to have incentives for carbon sequestration practices. Then also to provide incentives for farmers to grow perennial grasses and biomass crops that can be made into carbon neutral cellulosic ethanol.

My first question was just in that area of carbon sequestration off of the agriculture area, but into some of the things you talked about in the report about carbon sequestration technologies and projects and the energy in the power sectors. Could you talk about the challenges and opportunities of those types of proposals?

Mr. LASH. We had very clear agreement among the U.S. CAP members that we need to accelerate work on capture and storage technologies. That would include investment in pilot plants to demonstrate the technology. That is the first step. Europe is now investing in building several plants. The Department of Energy is just in the process of deciding on a first few demonstration plants. It is also the recommendation that Congress needs to initiate the process of setting the rules that would define the measures for safety and reliability in terms of carbon storage, which I believe Mr. Book also referred to. Without that set of rules and without the initial demonstrations, it is very hard to predict the cost.

In the long term, there is great optimism that that technology is going to be available and play a crucial role.

Senator KLOBUCHAR. Thank you. I also want to talk a little bit about the cap and trade program. I believe that harnessing the power of the market through cap and trade is a vital part of the solution. Your report talks about two possibilities for a cap and trade regime. One is an upstream program that is focused on fossil fuel providers or a hybrid program that includes both upstream and downstream caps.

Could you talk a little bit about the debate and dialog about those two types of programs and what you see as the key considerations for determining the most effective way to implement cap and trade?

Mr. LASH. Thank you for the question, Senator. To be clear about the U.S. CAP recommendation, we didn't make a call between those two.

Senator KLOBUCHAR. I know. I just was wondering what the debate was.

Mr. LASH. The advantage with upstream is it is very simple. The fewer sources that the cap is applied to, the simpler the administration. The difficulty with upstream is that upstream producers, refineries, coal mines, don't have very much control over how the product is used or the technology by which it is used, which means they have less capacity to reduce emissions. The further downstream that you push a cap, the more complicated it is to administer, because there are more and more sources included. But the better you are able to reach the decisionmakers who control the level of emissions, essentially what we were suggesting is that you need to find a mix that works relatively effectively at aiming at the sources that can make the reductions without making it unmanageable.

I think Mr. Book pointed out that if you go all the way upstream, essentially the cap operates like a tax. It just adds to the tax all through the economy. You don't know how much you will get in terms of reductions.

Senator KLOBUCHAR. Anyone else?

Mr. HOLLIDAY. I think the key aspect of whichever form of cap we have has to preserve the free market. So that would be the criteria we would look at, is to make sure that the creativity of Americans and American business can respond. DuPont does business in 70 different countries. What we have seen is the ability of the financial system working with the national labs, with companies, we can find solutions. If it is too complicated or hard to understand or implemented over too long a period of time, I think we will miss an opportunity.

Senator KLOBUCHAR. I was curious, Mr. Elbert, about the figures you threw out there, which were quite amazing, about the investment in energy efficiency of $450 million by 2010 and how it has already turned approximately $1.6 billion through the end of 2005, through reduced energy costs for BP. Could you elaborate on that a little bit?

Mr. ELBERT. I think this is just an example that, in our mind, from our own experience, that investments in energy efficiency pay big dividends. We invest in making a process more efficient and we are rewarded by lower energy costs. We are of course, besides providing energy, we are a very energy-intensive business. To the extent we can reduce the costs of the energy we use, it is good business.

Mr. SMITH. I think that point is well taken, but of course, you can achieve that result much more smoothly with far less administrative costs by essentially imposing a charge on carbon use. If we believe carbon use has to be reduced, which certainly many of the committee members do, then a tax is a much more direct and honest and transparent way of achieving it. It works this way throughout the whole economy without the micromanagement and the detailed intervention which does not have a good track record around the world anywhere.

Senator KLOBUCHAR. Would anyone like to respond to that?

Mr. DARBEE. I might add, having been trained as an economist, and understanding that there is value in internalizing the exter-

nality, the externality is emitting carbon into the environment, that from a theoretical standpoint, a carbon tax is the purest and most efficient way to get at that question. We have looked at the question of the practical and political realities of that and we understand that a lot of leaders right now are not inclined to implement a significant tax on the economy. Therefore, we felt that a cap and trade program would approximate the effect of a carbon tax and therefore be both effective and pragmatic in the real world and political world we live in.

Senator KLOBUCHAR. Very good, thank you.

Senator BOXER. Senator Klobuchar, thank you very much.

Senator Warner, we are very happy you are here, and you have 10 minutes, please.

Senator WARNER. Thank you very much, Madam Chairman. I first want to express my appreciation to you for the leadership that you have taken on this issue. Together with Senator Carper, who has for many years, since the first day you joined this committee, it has been a matter of great interest to you. My colleague here from Tennessee likewise.

I am one that I confess to be on a learning curve. But I have watched this debate sort of from the sidelines here in the Congress as the Government has tried to take some leadership and the scientific community. But I really believe by virtue of what you have done, that you are beginning to move this whole concept into the big leagues now and you have our attention. Because when I see such an extraordinary cross-section of America's free enterprise system together with the environmental groups come and form a group like this, you have my attention. Because I know that each of you, with the exception of the environmental groups, have to deal with stockholders. And the stockholders may be looking at this with a wary eye, thinking that maybe it is going to cut into the bottom line and so forth. That is understandable. That is our system.

But we had a panel here the other day, a magnificent group of individuals, going down to very fundamental things about how it is affecting the trout in America and our wildlife. It was an enjoyable hearing for those of us that found time to be present. So I think we are underway.

What I would like to ask you first is, I look at this, if I want to get back to you, is there a central group that you have set up to represent you? Are you going to have somebody in Washington? Because it has been my experience here, I have been here quite a few years, unless you have somebody that is really, really on tap and responsible to come and give us the best advice your effort might be anywhere near as effective. Because I can't get on the phone and call up all of you trying to find somebody. Can you help me a little bit on that?

Mr. LASH. Senator Warner, my colleagues have turned to me to respond to that. The group has operated completely by consensus. We continue to operate by consensus. We have no executive director. Each of us is represented by our staff. We all have staff here in Washington and any of them can respond for the group.

Senator WARNER. All right. So that is for the time being. It may be well be in due course you will have to bring this together.

Second, is this a closed end fund or an open end fund? Can other industries join?

Mr. HOLLIDAY. Senator, we would welcome other companies and industries to join. We think as we started this it was a small enough number that we could have the debates and we had extensive debates for almost a year. But we welcome other industries to join.

Senator WARNER. Anybody else want to comment on that ? This is freewheeling. Then I will allow our two colleagues at the end to comment after I am finished with a series of questions, and then you can address any aspect of my line of questions you might wish.

Mr. SMITH. Just one comment, Senator.

Senator WARNER. Yes.

Mr. SMITH. One thing that seems to be lacking in this hearing and many hearings is we see a lot of big businesses. We don't see many small businesses which are less prepared to address the regulatory costs of compliance and some of these incredibly complicated things we have heard about. So in some ways I would hope that somewhere at some point you might want to have a special hearing devoted to the impact on smaller business.

Senator WARNER. Madam Chairman, I think that is a point well taken. I accept that as a very valid, constructive critique of this whole subject we have today.

Let's go back to the cost to the American taxpayers of these various programs that we have under scrutiny here. How do you justify to your stockholders and then to the American taxpayer when the rest of the world seems to be moving at its own pace? It seems to me that is where we could be pulled down on this issue, unless we all get into the boat and pull on our oars.

So are you going to take part in this international issue that is coming along? Kyoto expires here in a couple of years. I don't know there is much likelihood that we will be a signatory in that brief remainder of its life. But at the same time, our Government can't just sit still. We have to plan for the future. Because I believe that most of these concepts are going to take a long time to get started.

But the old bottom line, which you have to address every day, is going to begin to talk about it. Mr. Darbee, I see you are eager to answer that question.

Mr. DARBEE. Thank you, Senator. We believe that the United States has a unique place in the world as a leader. If you look at our carbon emissions, a country of 300 million is emitting more carbon today than all of China and all of India, whose population is in the billions. So we contribute a disproportionate amount of carbon into the environment.

The second thought is that we are among the richest or the richest Nation in the world. But in addition to that, we also have demonstrated a unique track record in innovation. Given all those factors, our proposal would be that the United States step out and take a leadership position on this issue. But at the same time, what we have done so is turn to others in the world as different Senators here have suggested, and really encourage the involvement. Our company has already worked with China on the question of energy efficiency. They have visited our State and our company. We have sent representatives to China and they have ex-

pressed keen interest in energy efficiency, because they recognize that they are wasting vast amounts of electricity and power, and that not only is that bad for the climate, but it is not good for their economy, it is very inefficient.

So I think that the concern raised, are we going to step out and expect others to come with us is a valid one. But given the position that I mentioned, that we contribute a disproportionate amount of carbon, that we are a very wealthy Nation and that we are very good at innovation, if we don't step out, if we say we are not going to take any action until you all move, I think other countries will look at us and say, why should we, who are not as wealthy, who don't have the innovative capabilities and all, and who contribute less, why should we step out first?

So I think it is our role as a leader in the world.

Senator WARNER. All right. Are you going to recommend to the Congress maybe a specific piece of legislation?

Mr. DARBEE. We have not, we as a group as mentioned before, U.S. CAP, is not taking a position on any piece of legislation. We as a company have, and we supported Assembly Bill 32 in California, and we have supported the Feinstein-Carper bill here in the Senate. We have supported the Kappa proposal as well.

Senator WARNER. Anyone else wish to address any of those issues that I raised? Yes, Mr. Holliday.

Mr. HOLLIDAY. Senator, DuPont does business in 70 countries. So we operate under Kyoto today in many countries. So what we see is the opportunity to learn from those first attempts and do it much better. So I think this is the opportunity we see.

The second question is around India and China and they are important questions. What I hear from our employees in India and China is the U.S. takes leadership. I think then you have the right to insist that they follow, w will have the leadership to allow that to come forward. But it is an important step to be taken.

Senator WARNER. These emissions, while we are on China, seem to have manifested themselves ever so clearly in China, fortunately not to the degree in this country. In other words, you see pictures of just the environment being devastated as a consequence of their level of emissions. Am I not correct in that?

Mr. LASH. That is absolutely true, Senator. In fact, for their own reasons, to address the immediate problems of pollution and energy dependence, the Chinese have taken actions which in fact reduced their intensity of CO_2 emissions, although they would never say that was for climate change reasons.

Senator WARNER. What about India? Do they have comparable problems?

Mr. LASH. Yes.

Senator WARNER. Is the manifestation of the pollution as clear in India as it is in China?

Mr. LASH. Just speaking from personal experience, there are cities in China where you can't go without having lung problems. I do not think it is as bad in India.

Senator WARNER. Thank you very much. Thank you, Madam Chairman.

And good luck. Let's hope that you augment your ball team and get more in. Because the more to come, the more attention you are

going to get in this old outfit called the Congress. I will tell you that.

Senator BOXER. Senator, thank you so much for that point. I want to mention to you, Senator Warner, that in their report, they do lay out various options for us to look at. So it is a good document.

Senator Lautenberg, 10 minutes.

Senator LAUTENBERG. Thanks, Madam Chairman, for holding this hearing. I would like to ask that my full statement be included in the record as if read.

Senator LAUTENBERG. But I do just want to note a couple of things, and just to say, we know about the intra-governmental panel on climate change report that said, warming of the climate system is unequivocal and that human behavior is very likely the cause. Just last week, we heard something similar from Exxon Mobil, and by the way, Senator Inhofe, I want to just clarify one thing. I spent 30 years building a company, even though Senator Inhofe says that we don't have enough people around here who have——

Senator INHOFE. I still think so. I always acknowledge that you are there. There should be more like you and me. I agree.

Senator LAUTENBERG. Well, I am not sure about you, but——

[Laughter.]

Senator LAUTENBERG. In any event, we are dear friends, for the audience, who doesn't see us fighting in the other rooms. We are, and with great respect.

So when I see a group of CEOs come in and say, hey, we have a problem, we want to help clear up this problem, and when I see that Exxon just last week, I think, said the appropriate debate is not whether the climate is changing but what we should be doing about it. The same ExxonMobil, and they are a terrific company, but they did spend $16 million between 1998 and 2005 to dispute the science that supports global warming.

Both of these statements say the same thing, so when I listen to each of you and your testimonies of value, I do have some differences. Mr. Holliday, you just said something, that in the countries in which you operate that you follow the Kyoto principle. What kind of an impairment has it been? Would you not go to a country that has signed the Kyoto accord?

Mr. HOLLIDAY. Absolutely not. What we have found is by applying our technology and getting ahead of the curve and anticipating when it is coming in, we can be very successful. So I don't know if a single decision that we have made to not go to a country because of Kyoto.

Senator LAUTENBERG. By the way, the company I helped found is called ADP, Automatic Data Processing. We have 46,000 employees and the longest growth record of any company in America. It grew at 10 percent in its profit over the previous year. Longest record in history, 43 years in a row. So I have to make sure that my dear friend, Senator Inhofe, knows that I wasn't out there just wasting time before I came to the U.S. Senate.

[Laughter.]

Senator LAUTENBERG. I had an experience in 1992 in Brazil at something called the Earth Summit. Al Gore made a terrific speech

and we salute the Kyoto Accord, but we don't want to sign it. I think, Mr. Darbee, you said something that struck a chord with me, and that is, where is our leadership? We have seen that we have lost it in places around the world because of decisions that we have made, or didn't make. We have a responsibility. We practically own the place. So why shouldn't we go ahead and do it?

So that brings me to Mr. Smith. And I am curious about a couple of things, about your organization. Is yours a membership organization?

Mr. SMITH. No.

Senator LAUTENBERG. No?

Mr. SMITH. No.

Senator LAUTENBERG. Who is the Competitive Enterprise System?

Mr. SMITH. We are a pro-market, public——

Senator LAUTENBERG. Institute, sorry.

Mr. SMITH. We are a pro-market, public policy group. We get our support from anyone who is willing to tolerate our independence, and there are too few of them.

Senator LAUTENBERG. Well, you are here, and the Institute has put out some ads that are fairly significant. They have to be paid for, obviously. What kind of revenue does your organization have?

Mr. SMITH. Our budget is a little less than $4 million. It was about $3.8 million last year. It has grown, we started in 1984. Our staff is about 27 now. And the ads, our budget was considerably smaller than some of our opponents on the other side. I would say we have spent about $50,000 on our ad campaign. That was out of, incidentally, general overhead for our organization.

One little point that was made both by yourself——

Senator LAUTENBERG. Well, I don't want to lose my time.

Mr. SMITH. I am sorry. But we have signed Kyoto, remember this.

Senator LAUTENBERG. Yes. Well, you say we have signed it. Do we fully endorse the——

Mr. SMITH. We signed it. We didn't ratify it. And I think one of the things we might want to do is consider ratifying it.

Senator LAUTENBERG. I am sorry?

Senator BOXER. As I understand it, President Clinton signed Kyoto, right?

Mr. SMITH. Right.

Senator BOXER. But President Bush rescinded it, is that correct?

Mr. SMITH. No, that is not correct.

Senator LAUTENBERG. It was not ratified.

Mr. SMITH. It has not been ratified, that is the point.

Senator LAUTENBERG. So then we are obviously not committed to adhering to their principles.

When I was at this Earth Summit meeting, I approached one of the interior ministers of a Latin American country where they are regularly burning the Amazon forest. I asked him why they were assaulting the environment the way they were with that policy and that it was helping to create acid rain and various other problems. So he said, well, our farmers have no other way of sustaining themselves. So one of our farmers, if he cuts an acre of trees, it is enough to sustain his family for life. He said, but one of your chem-

ical workers in a day can help discharge far more in that day than the farmer in his lifetime. And therefore, America, if you want us to stop burning the forests, then maybe you ought to help us give that farmer a way of life, maybe contribute to his well-being.

And therein to me lies a little bit of a complicated situation. We want other people to behave better than we do. I sat in the office of the environmental minister in China and he complained about our profligate use of fossil fuels and what we were doing. I asked him, we were on the 23d floor, I asked him if he could see the ground from the office that we were in. Well, he said, it was a bad day environmentally and they couldn't do it.

So no matter what, we set a terrible example. And so, and Mr. Smith, I really, I don't get your commentary and I don't know whether you make these statements in your advertising that Greenland's glaciers are growing, not melting. But everybody I know that has been there says the melt is a very serious threat. I have been to the South Pole. Have you had a chance to get down there?

Mr. SMITH. I just came back from Louisiana, but it wasn't quite the South Pole.

Senator LAUTENBERG. I wish I could help you get to the South Pole and spend a few days there and meet with the scientists.

Mr. SMITH. The point you made about the difference between poorer countries and richer countries is a very important one. We use a lot of energy, we use a lot of materials. We use them much more efficiently in a sense because we are richer and wealthier, we are able to do that. The challenge is to bring the energy-poor material parts of the world back to our standards. Because a wealthy, technologically adroit country is more resilient, more able to address global warming problems than other ones.

Senator LAUTENBERG. You had a chance to make your statement and this is my turn.

The question that arises, is regulation necessarily a bad thing, I mean, you know, heaven forbid that we didn't have traffic lights and regulate the speed of cars. But just to sum up, it is terrific that those of you who head companies are involved in the business world but think we ought to do something about these greenhouse gases, I read one of you had 10 grandchildren. So do I.

The last thing I want them to do is be the canaries in the coal mine and find out 20 years from now that they are not well. I have one grandchild who has asthma. When the environment is not good, when it is a smoggy day, that poor kid has a very tough go. So we have to look beyond these things. I don't say cut down on profitability. I don't say penalize people by taking away their jobs. Not at all. But there is enough brilliance in our business community, in our scientific community, to solve these problems and to get on with it. But if we throw out these objections that have no basis in fact, then it doesn't do anybody any good and we are left standing pat, which is not good. May be good in Las Vegas, it is not good here.

Senator BOXER. Thank you, Senator Lautenberg.

Senator Bond, we are going to go to you for 10 minutes. And just so everyone knows, we will go to Senator Sanders. Then at that

point, we will make our final questions and comments, and we will thank you all for being so patient and being such a good panel.

Senator Bond, you have 10 minutes.

Senator BOND. Madam Chair, thank you very much for giving me the opportunity. I apologize, we had already scheduled large groups of constituents this morning when we got notice of the hearing. I apologize for coming late and I apologize to the witnesses.

I would say first of all, we appreciate your convening this panel on the Climate Action Partnership. I would say in reference to the discussion about Kyoto, my memory is not great, but I believe after Kyoto was negotiated and signed by President Clinton, it came back to the United States and I believe I joined with Senator Byrd on a resolution saying, do not ratify this agreement because it leaves out India and China, the biggest polluters, it imposes unbearable costs. If I recall, the vote was 95 to nothing, or maybe 97—95 to nothing. Therefore, as we say in the country, that dog didn't hunt.

I appreciate very much all of you coming here to talk about what we can do to improve the environment. We have made tremendous gains in the environment in recent years. I commend the leadership of the business community. Your job is to make a profit so you can provide good jobs to workers, provide dividends to the retirees and others who hold the stock. You make the economy work.

And when you pursue constructive proposals to lessen emissions of all kinds, greenhouse gases among them, you are doing great work.

However, I have some questions when I see members of industry and business pursuing goals that are very harmful to other industries but profitable for them. This is not the first time that some in industry have shown their support toward carbon caps, for example. Indeed, I think, Madam Chair, if we look back to the Clinton administration meetings with Mr. Ken Lay of Enron over the Kyoto treaty, we will see some interesting things. This is a Washington Post article headlined "Enron Also Courted Democrats: Chairman Pushed Firm's Agenda With Clinton White House." An internal Enron memo said that the Kyoto agreement, if implemented, would do more to promote Enron's business than almost any other regulatory initiative outside of restructuring the energy and natural gas industries in Europe and the United States.

That is a pretty clear-cut statement. Everybody knows where they are. They went on to describe that an international agreement to combat global warming also dovetailed with Enron's business plan. Enron's officials envisioned a company at the center of a new trading system that would curtail the use of coal-fired plants that emitted carbon dioxide, while encouraging new investments in gas-fired plants and pipelines. Precisely Enron's line of business.

The bubble that we mentioned earlier shows why Enron officials were so elated. They think that it would promote Enron's business more than any other regulatory initiative. They would profit off the pain of other industries and consumers, regulated companies or individuals who are captive to coal and other sources of energy. But this example, Madam Chair, shows how companies of all stripes sometimes are willing to work for environmental goals, because it fits their business model, pads their bottom line and maybe or

maybe not furthers the environmental goals and the well-being of the economy.

That is why I am not worried as much about what certain companies think about carbon caps, but how vulnerable, poor and middle class communities, especially in my midwestern coal-dependent State, are firmly in the cross hairs of carbon cap plans. And we know that we are targeted. And we know big railroads still make money under any scenario. They pass their costs straight onto American families and workers. As we saw in last year's run-up of gasoline prices, even raw materials like oil increased in price to record levels. Big oil still made profits selling gasoline.

Now, some on the committee, and I am not one of them, would describe big oil's profits as ill-gotten windfall profits. They are huge, but they are less than the profits in many other sectors. So let's be fair about it: making a profit is what they are there for. Indeed, one member of the U.S. CAP partnership testifying here today made over $22 billion in profits last year. And who picked up the tab to fill those corporate coffers? We as consumers did. That is what happens when the cost rises of a basic necessity we can't do without, we might have to pay. We paid when gasoline prices went up, we will pay when natural gas prices go up further. And that is one of the biggest worries that I have that continue to ruin industries, farmers, poor individuals who have to heat with natural gas.

Although Enron did not survive to see the day, the future is clear with carbon caps. Less coal, more natural gas demand and higher profits from higher prices. That will mean higher prices for heating our homes in the winter, higher prices for air conditioning our homes in the summer and higher costs for blue collar manufacturing workers supporting their middle class families. Unless of course, they happen to be in plastics or other businesses that depend upon natural gas and are forced to move offshore, so they just plain lose their jobs, as they have in the past.

Am I here to blame the companies today? No. I expect you to do what you are supposed to do, provide a return to shareholders by investing in new technologies and businesses where you will have a competitive advantage. But let's not get that competitive advantage by sticking it to some people who are the least able to handle those costs. Make no mistake about what is going on. Some companies will do just fine in a world where energy costs more. But that success too often comes at the pain of the poor, the disadvantaged, the struggling middle class workers who can least afford higher carbon cap prices.

Please, go forward with nuclear and all the plans you can. But don't saddle the midwest, our workers, our farmers and our poor, with outrageously high prices of natural gas caused by carbon caps.

For a question, Mr. Smith, witnesses here of the regulated utilities claim that carbon caps would not help them. Could you help illustrate further how a carbon cap may hurt competitors?

Mr. SMITH. I think it is quite clear when you look at what is going on in Europe now, where we have, as has been pointed out, the model example of how our cap and trade system works in general, just pick up any internet writing about the utility industry in Europe, the parts of the airline industry in Europe, the British who

basically rushed in and put severe caps on their industry and then recognized that the French and the Germans didn't. Or parts of the industry which got covered and parts didn't. Parts of the industries, I think it is Spain now rushing around saying, we are OK, we bought lots of clean development credits out of somewhere in Asia.

What we are seeing in Europe is a willingness to sign symbolic agreements and then when the price tag of those comes into play, a lot of fancy footwork to basically pretend that if there was only the United States would screw itself to, then we would all be well off. Europe is finding it impossible, with higher energy taxes, with a much more favorable environment for lowered energy use in the United States, to meet their Kyoto pledges. So they are actually increasing CO_2 emissions faster than the United States is.

Senator BOND. They are increasing faster?

Mr. SMITH. Faster.

Senator BOND. Why is that happening? Tell me.

Mr. SMITH. They are lying, basically. Part of it is they didn't cover everything. Their cap did not cover the transportation and consumer sector.

Senator BOND. Well, that is good.

Mr. SMITH. Well, good, except——

Senator BOND. Yes, it is good for the transportation and consumer section.

Mr. SMITH. I think it is a better thing that carving it across the board. But basically Europe has pretended to do things and blamed all of their shortfalls on the United States. It is not a good model for any place. It is certainly not a good model for the United States.

Senator BOND. And they are not pushing it, and we are not going to get it in China and India, are we?

Mr. SMITH. I don't think so. China has now determined that they are energy poor and don't want to stay energy poor. I was at Kyoto and the Chinese delegate there said, many of you people in the west are telling us to cut down energy use. Remind me of the wealthy man in the top hat walking by seeing a little peasant warming their food over a little thing and saying, put that fire out, you are causing global warming.

Senator BOND. Thank you very much, Mr. Smith. I have used up my time. Thank you, Madam Chair.

Senator BOXER. Thank you, Senator. We will put into the record our research on Europe and whether or not they are meeting the goals that is in direct conflict with what you stated, Mr. Smith. Tony Blair, when he called a bipartisan group over at the embassy was very clear that they are meeting their goals and that they are doing really well economically.

Mr. SMITH. U.K.

Senator BOXER. We will put that in the record. He spoke for the EU.

[The referenced material can be fond on page 117.]

Senator BOXER. Senator Sanders, please go ahead. I am going to ask Senator Carper to take the gavel. I have a couple of meetings. I will be right back.

Senator SANDERS. Thank you, Madam Chair. I am new to the Senate, and what I am learning very quickly is that when you are

on 5 committees and you have 4 hearings simultaneously, it is a little bit difficult to do all the things that you want to do. So I apologize for being late.

As everybody here knows, the International Panel on Climate Change released a report very recently, which included work by over 1,000 scientists from over 100 countries. They made two points very clearly, and they made it very clearly before this committee last week: No. 1, global warming is of course real; No. 2, global warming is almost definitely man-made; and further, if we do not get a handle on global warming, the results for our country and for the world could be catastrophic in terms of increased flooding, increased droughts, rising sea levels, human illness and many other impacts which will lower the quality of life for hundreds of millions of people.

So as a result of what is going on in the scientific community, Senator Boxer and I introduced legislation that would reduce greenhouse gas emissions to 1990 levels by the year 2020, and they would lower them to 80 percent of 1990 standards by 2050. Now, some people say, well, that is pretty extreme, that is pretty radical. But I think the real issue is, what happens to our country and our world environmentally and economically if we do not address the crisis of global warming. I think one of the good pieces of news is that while the political will here in Washington has been significantly behind the American people, it has been lagging, we have all kinds of technology out there that are moving rapidly to help us address these concerns. We know, I know at least, I can't speak for anybody else, but it is beyond comprehension that the vehicles that we drive today, despite huge explosions of technology, give us worse mileage per gallon than 20 years ago. How could that possibly be? Huge potential in terms of energy efficient vehicles.

We know that compact fluorescent bulbs will save us huge amounts of greenhouse gas emissions. We know that we are sitting just at the cusp of a revolution in terms of solar energy, in terms of wind power, in terms of hydrogen. We are making some progress in biofuels. We have a long way to go. Geothermal. All of these technologies are sitting there waiting to move forward, I think with a partnership between the Government and the private sector.

So my question, and let me start off with Jonathan Lash, whom I have known for years and who worked on environmental issues in the State of Vermont. Jonathan, nice to see you here.

Mr. LASH. Thank you.

Senator SANDERS. My question is a simple one. People talk about economic dislocation if we move forward significantly to reduce our dependence on fossil fuels. What is the economic implication if we do not move forward, and if we do not address the planetary crisis of global warming?

Mr. LASH. Senator, that is of course the key question. I thought I would actually cite an unusual authority in responding to this. I found a speech that Paul Volcker, the former chairman of the Federal Reserve, gave a week ago, talking about exactly that question. He said he didn't think that the effect of controlling greenhouse gases would be that bad for the economy overall, and second, if you don't do it, you can be sure that the economy will go down the

drain in the next 30 years. He was referring to the impacts that the IPCC had described.

Senator SANDERS. Right. So the issue that we have to look at is not just the economic dislocation of what happens if we move forward, but the much more severe economic problems that will result if we do not move forward and if this planet faces the kinds of potential disasters that we might. Just looking at Hurricane Katrina and that particular disaster.

I would like to ask Mr. Darbee and perhaps Mr. Holliday, that when we talk about economics and attempting to address global warming, what kind of immediate job creation opportunities exist as well? I am sympathetic to a concept called the New Apollo Project, which suggests that we can create hundreds of thousands of new jobs as we make our country more energy efficient and as we move finally in a serious way toward sustainable energy. Mr. Darbee, do you want to take a shot at that?

Mr. DARBEE. Certainly, Senator. When we looked at the question of AB 32 in California, what we saw was that legislation was supported not only by ourselves but also the venture capital community. They are enthusiastic about the investment opportunities. In fact, during the last couple of years, because of all the concern on energy, investment in the venture capital community in energy has really developed very substantially. I have spoken with venture capitalists, some of the most renowned on the peninsula about solar thermal and what can be done there. The technologies are truly exciting.

One additional point I would make is that when decoupling was introduced 30 years ago in California, many people opposed it, particularly in our own company. And it was implemented because it represented change and uncertainty. But it has been a tremendous success in terms of energy efficiency in California, for the people of California. And it has been just fine for our company.

Second, with respect to acid rain legislation that involved a cap and trade program here in the United States, what people were concerned about was the impact on jobs and the like. And what happened in that instance was, we solved the problem of acid rain more quickly than we expected and much more cheaply than we expected, because we unleashed the power of the marketplace. So I am optimistic and very much in agreement with you. There may be some costs associated with dealing with cap and trade. But the cost of not could be catastrophic.

Senator SANDERS. Would you agree in general that we have tremendous economic opportunities as we break our dependence on foreign oil, as we break our dependence on fossil fuels, and we move A, to energy efficiency and B, to the new technologies of sustainable energy?

Mr. DARBEE. Absolutely. And one other that I haven't mentioned is plug-in hybrid vehicles.

Senator SANDERS. I want you talk about that one. Before you go there, I want to ask you a question. Who killed the electric car? I saw the movie and I want to know.

[Laughter.]

Mr. DARBEE. I can't answer that question, but what I will say is we are exceedingly excited about plug-in hybrid cars. Not only am

I concerned about the climate, but I am very concerned about energy security here in the United States. The fact remains, with the existing capacity, resulting from off-use peak periods and the like, that we can support 180 million plug-in hybrid vehicles with the capacity, the generating capacity that exists today and is not utilized at night.

Senator SANDERS. I share your thoughts. But here is my concern. Having seen that movie and other things, I don't want to Detroit to be telling us all these wonderful things are going to be happening. You ask these guys when these cars are going to get on the market, they are not very clear about that. Oh, the hydrogen car, well, we don't know when it is coming on the market.

Let me get back to the electric car, which was utilized in California, is that today something that can be useful in helping us address pollution and fossil fuels?

Mr. DARBEE. Absolutely, yes. What we have seen in California is there has been very significant demand for the hybrid vehicles to date. And the leap to the plug-in hybrid is not very far at all. We understand actually GM is also moving on that front. But clearly, Toyota has taken a real leadership role there. And we are looking to absolutely take full advantage of the opportunities there.

Senator SANDERS. Madam Chair, on that note, I have to say, what really is incomprehensible to me is that despite the substantial amounts of corporate welfare that Congress has given Detroit, we find Toyota and Honda doing a much better job in producing energy efficient cars. I think that is unfortunate.

Mr. Holliday, did you want to respond to the question of what kind of economic gains can we make as we move to energy efficiency and breaking our dependence on fossil fuels?

Mr. HOLLIDAY. Let me talk about one we are experiencing today. We go back 25 years, we have 200 gallons of ethanol per acre of corn here in the United States. As a result of technology, we are at 400 gallons today. When we use the entire corn plant in the efficiencies our scientists have developed, we anticipate 1,000 gallons, it is possible.

So we are creating economic jobs today, this season——

Senator SANDERS [continuing]. For farmers who very often need that help.

Mr. HOLLIDAY. Your work will allow us to take the legislation forward and get the technology working, we could double again where we are. That is the kind of solution we see as possible.

Senator SANDERS. Madam Chair, I am very happy to say that we have States like New Jersey, Illinois, California, who recognize what you and I do, that in fact we can move forward boldly, we can reverse global warming and we can create in this country a significant number of good quality, good paying jobs as we save the planet.

Thanks very much, Madam Chairman.

Senator BOXER. Senator, thank you for your line of questioning. I would like to associate myself with your remarks. And that Who Killed the Electric Car is worth seeing. Somebody has to explain to me why GM had every one of those cars flattened.

Senator SANDERS. Can we bring those guys in here? That would be an interesting hearing.

Senator BOXER. Actually, it would be interesting. Why don't you give it some thought. Put it together and we'll maybe let you chair it.

Senator SANDERS. Senator Inhofe, I want to give you 10 minutes, because you have asked if you could precede me and then I will close it up with my 10 minutes. Please proceed.

Senator INHOFE. Thank you, Madam Chairman.

Let me first of all, I recognize, Senator Sanders, you believe what you said in your opening remarks in terms of science being settled and it is real and all that. And yet you were not here during my opening statement. I listed many, many leaders that were leaders 15 years ago—it has been that long, hasn't it?—who are now coming around and questioning the science and totally changing their position, totally. One was a leader in France, one was a leader in the U.K., one was a leader in Israel and in the United States, a former founder of Greenpeace International.

So we have a lot of people who are saying now that the science has changed. I recognize you don't agree with that. But I think you guys, I hope that in your private lives, maybe not your corporate lives, you look at these things and see that there is certainly a lot of doubt about it. As far as IPCC is concerned, I was surprised, even though what they came up with was a summary for a policymakers, and it is not the scientists, not the scientists, these guys are politicians, they are policymakers, they have already decided how, they were the ones who started this thing in the first place.

And yet they came out at the same time and said that man's contribution to CO_2 or anthropogenic gases is downgraded 25 percent. That is IPCC that said that. The United Nations came out with a report the same week, saying that the amount of emissions coming from livestock is greater than that of all the cars, all the SUVs, all the trucks, all the man-made gases. That is there.

So we look at these things, and the more I hear people say hysterically, science is settled, science is settled, science is settled, the more I wonder about it. And then you find out why when you see people who are coming our direction.

Let me just say two things, Mr. Darbee, real quickly. I think you are wrong in one area, and that is in terms of China. I think you said that China, that the United States emits more CO_2 than both China and India. I don't think that is correct. They are saying now that by 2009, China will pass up the United States as a major emitter, and I think in 2012, India will. Would you disagree with those two statements?

Mr. DARBEE. I think both statements are correct, that is in your statement, Senator. Currently we produce more CO_2, but they are projected to surpass us.

Senator INHOFE. That is correct. Certainly currently that is correct, and I think as you recall in my opening statement, when I talked about the problems we are going to have with all the gas-fired plants in China, it is going to be even worse. Then I just ask just one other question. In the Wall Street Journal, by the way, Madam Chairman, I want to ask that the Wall Street Journal article of January 26th of this year, If the Cap Fits, be made a part of the record immediately after my opening remarks.

Senator BOXER. Certainly.

Senator INHOFE. In that, they single out a number of utilities of which PG&E is one. It says, our utilities that have made big bets on wind, hydroelectric and nuclear power, so a Kyoto program would reward them for simply enacting their business plan and simultaneously sock it to their competitors. Do you disagree with that statement?

Mr. DARBEE. I absolutely do, sir.

Senator INHOFE. All right, that is fine. I just wanted to see if you did.

Mr. Holliday, I understand your company has historically produced an enormous amount of greenhouse gases, but not CO_2, and that through various process changes, you have reduced your emissions, well, the report, said, by 72 percent from 1991 levels. I think the other report says 60 percent from 1990. That was about the same. And I understand that at $10 per ton of CO_2 price, credits based on that baseline year would have a potential market value increase to you of $472 million. Do you disagree with that?

Mr. HOLLIDAY. I haven't done the calculations or seen them, sir.

Senator INHOFE. Well, I think maybe you have and maybe forgot, because this is in your report, the PCA, Partnership for Climate Action. By 2000, DuPont had reduced greenhouse gas across the country by 63 percent. Then it goes into the same analysis of the $10. Then it goes on to say if it is $20, it would be a billion dollars. You don't necessarily disagree with that?

Mr. HOLLIDAY. Sir, we made these steps because they were good decisions for our shareholders.

Senator INHOFE. I was asking the result of these steps, does your company stand to make that much in the event we use $10 or $20, the two examples that we gave?

Mr. HOLLIDAY. Sir, I have not seen those calculations. I am sorry, I can't answer, I will be glad to get back to you.

Senator INHOFE. Well, let me ask you another thing, too. Some of the environmentalists have said that the emitters should be responsible for historic emissions. Do you object to that? Now, be careful when you answer, because when we draft this bill, I want to be able to say that DuPont is on record by saying that they don't mind going back and having historic emissions as a part of an emissions program.

Mr. HOLLIDAY. I think any particular piece of legislation we have to take as entirety, so I couldn't comment on one phrase without knowing its context.

Senator INHOFE. But you are not saying right today that you would oppose historic emissions being included in a formula?

Mr. HOLLIDAY. I don't see a basis for looking back, I don't understand the details of how that would be done, sir. I would be glad to look at it with you.

Senator INHOFE. Well, I don't know the details, either. But if you reduced emissions that much, and you end up paying for having had that much before and not getting credit for reducing them, that is what we are talking about.

Mr. Elbert, I understand that BP is the third largest producer of solar panels in the world, and you plan to triple sales from 100 megawatts per year to 300, is that correct, Mr. Elbert?

Mr. ELBERT. I believe that is correct, yes.

Senator INHOFE. Would you share with us what your current gross revenue is from the sale of solar panels today?

Mr. ELBERT. I can't. I would be happy to. I don't have the number off the top of my head. What I will say about our solar business is that we have been in it for 30 years. That business first turned to profit 2 years ago. We have been committed to this for a long time. We are growing the business at roughly 30 percent per year. It is a small base.

Senator INHOFE. That is fine. I can't help but thinking, when you were testifying about BP, they are already operating in U.K. for a great amount of their business and it probably would have some benefits to having the rest of the world treated the same as U.K. does.

Mr. Book, first of all, I think that as Mr. Smith, I believe, said, that maybe it would be more transparent and maybe it would be more honest if we just had a CO_2 cap. Frankly, I think it would. I would rather do that so people would know just what it is. There is no tax increase that is worse than a hidden tax you can't explain to people. What do you think?

Mr. BOOK. To the extent that there are no ways to generate offsets, there is nothing you can bring to the market to sell, then what you are really doing is you are taxing. Now, that doesn't mean that there won't always not be offsets, and provisions can be made to look ahead at when technology catches up.

Senator INHOFE. You mentioned, I believe, Russia, was it you or one of the other witnesses?

Mr. BOOK. I did, yes.

Senator INHOFE. All right. I was in Milan, Italy, this is kind of interesting, when their economists were saying they do not believe in the science in terms of man-made anthropogenic gases causing climate change. But they were going to sign onto the Kyoto because, I was in aviation for a long time, flew an airplane around the world, went all the way across Siberia. All I could think of, hour after hour after hour, all those resources down there and they aren't doing anything with them. Those would all end up as credits, wouldn't they?

Mr. BOOK. Well, their emissions that don't have any more amount to about a thousand million metric tons.

Senator INHOFE. And if you put a dollar figure on that for Russia?

Mr. BOOK. At the peak of the European emissions trading scheme prices in April of 2006, you would have about 39. So that is about 39,000, that is $39 billion a year in revenue for Russia.

Senator INHOFE. Mr. Smith, it is pretty clear that—well, let me do it this way. In my opening statement I talked about, and I have never stated it this way before, but it occurred to me a couple of days ago, we looked back and checked and found that what we are talking about doing now represents the largest single tax increase in the history of America. According to—and I can cite the sources—the one prior to this was 1993, the Omnibus Budget Reconciliation Act of 1993, increased, created 36 percent and 39.6, rates for individuals, 35 for corporations. It goes on and on. That represented a $32 billion hit for our economy.

This represents at least a $300 billion hit for our economy. Would you characterize that as a tax increase?

Mr. SMITH. Not as a tax increase. If we go the cap and trade route, we are doing it in a very dishonest way. If we really believe that global warming and carbon emissions are the serious problem that people say they are, then we have a duty, I think, to be honest with the American people. When Churchill argued that Germany was a threat to the world, he didn't promise us we could change a few light bulbs and the world would be OK. He promised blood, sweat and tears. I think an honest debate on this would indicate there are real costs of global warming on the poor, on small businesses, on the world, and we should be willing to pay those costs if we honestly believe this is a serious problem.

Senator INHOFE. I'd like to extend it for 2 minutes, because I wanted to ask Mr. Hamm a question.

Senator BOXER. Of course.

Senator INHOFE. I knew you would, and I appreciate it very much.

I still call it a tax increase. We can use our own definitions.

Mr. Hamm, I can remember probably many, many years ago, I was a very small child at that time, but I actually was a tool dresser in a cable tool rig. They don't use cable tool rigs any more, but I know a little bit about the industry and about one individual. His name was A.W. Swift, who actually was taxed out of business. I went by to see him, this was many year ago, and his cable tool rigs were all stacked up. He said, you know, between regulation and taxation, I can no longer supply America with the cheap gas that I have been doing.

In your case, I think it was Mr. Book who said that this is a tax on production. Do you agree with that?

Mr. HAMM. Yes.

Senator INHOFE. How would that affect you?

Mr. HAMM. Well, it would hurt, especially our stripper wells, marginal wells that just barely get by right now. It is a very stable form of production. But frankly, additional tax would just plug them. Once they are plugged, they are gone forever.

Senator INHOFE. Yes, people don't understand that, that you plug a well and you can't just unplug it. I have had a hard time explaining even to members of this committee. It is gone in most cases.

Mr. HAMM. And in order to avoid pollution, when you plug one, you actually have to cement it off. You just can't afford to go back and redo that well.

Senator INHOFE. Particularly in marginal wells or stripper well production. Now, I have also had it stated that if we had all of the marginal wells producing today that we have closed down in the last 20 years, it would equal more than we are importing from Saudi Arabia. Now, I have the documentation for that, so I don't think anyone is going to challenge that. But it does show the contribution that the small stripper well operator is making to the overall what I consider to be an energy crisis.

You testified about how our country rejected Clinton's Btu tax. Yet the costs of his Btu tax were much smaller than the cost of carbon caps.

Senator BOXER. Senator, you have gone over your time.

Senator INHOFE. Anyway, we will do our best to keep you, Mr. Hamm, in business and making the contribution as you have in the past for good, cheap energy for America. Thank you very much for what you have done.

Mr. HAMM. Thank you.

Senator BOXER. Thank you, Senator.

So I am going to take the last 10 minutes here and say to Mr. Hamm, we will be concerned, whatever we do, that the impacts on this economy will not be devastating. And I would say to back that up, we ought to look at what Paul Volcker said. I know it was referred to, but I think it is important to read to you what Paul Volcker said, who is a very respected economist, I would say, on both sides of the aisle.

He said "Measures to reduce global warming would not be devastating economically and the United States has been particularly delinquent on the issue." He made these comments to the American Chamber of Commerce. He said, if we don't address global warming, he says "You can be sure the economy will go down the drain in the next 30 years." So, wakeup call to those in the business community that are not looking past their next profit and loss report. I am an "old" economics major, old in quotes, of course, and I could tell you that it doesn't do you much good in the long run if these impacts come true.

The science is clear. The very scientists from the IPCC were here briefing members of this committee. And there is no debate any more; 2,500 scientists were involved in that. I am sure when Mr. Darbee sat down for his economic roundtable, he would have been relieved if there were some people who said, don't worry, Mr. Darbee, just do business as usual, you are cool. But that is not what is going on.

So, reality check, and a check of the long term. And I know, Mr. Hamm, you referred in your statement that you are concerned about pollution. You have family, and of course, I so respect that. So we will figure out a way to get people through this. We have done it before. A river was on fire, we passed the Clean Water Act, people couldn't breathe, you saw the air, we passed the Clean Air Act, the Safe Drinking Water Act. Business sat there, oh, my goodness, this is going to be the end of the world.

Remember when we thought about seat belts and air bags and how Detroit said, oh, my God, it is the end, seat belts and air bags. Now they take credit for seat belts and air bags.

So I just think we need to be calm about this. I always find it amazing when my Ranking Member, who I wish was here, says which side are the hysterics coming from. They are not coming from my side. We see a problem, we want to solve it. And we want to solve it in a way where we are all together, Republicans, Democrats, business, environmentalists, consumers, everyone.

Volcker said, what may happen to the dollar and what may happen to growth in China or whatever, he said, raising his voice, pale into insignificance compared with the question of what happens to this planet over the next 30 or 40 years if no action is taken. The scientists seem pretty well agreed, he says, that global warming is still potentially manageable if we act decisively, beginning now into

the next decade or so, by taking measures that are technically and economically feasible.

Now, Paul Volcker is not by nature an hysterical person. He is an economist. They are far from hysterical. He is looking at the economics of doing nothing versus the economics of doing the right thing, and he comes down on the side of doing the right thing, things that my colleague, Tom Carper, Senator Alexander are trying to do, Bernie Sanders and I with our bills, we all are trying to do the right thing.

But let me tell you what I think the wrong thing is. The wrong thing is to say, yes, we voted 10 years ago against Kyoto. I mean, that is a correct fact. But if you don't follow up with the fact that in 2005, we changed position in the Senate and in a very Republican Senate, we had 53 votes to say, there ought to be mandatory, market-based limits on emissions of greenhouses gases. Let's stop and reverse the growth of such emissions.

So just to say we said that 10 years ago and then not say that we have responded, we have responded to the changes.

And just let me say, I very much support free speech. So anyone can say anything they want and I would throw myself in front of a truck for your right to say it. But don't use guilt by association and say that companies are sitting here today and other people and other organizations that are not here today and small businesses who may not be here today, don't compare them with Enron. What is that about?

Mr. Smith did it by innuendo, Senator Bond did it. It is outrageous. Enron, a company so close to President Bush that its CEO had a special loving name. They are gone. And a lot of their remnants are in jail, thank goodness for that.

So don't use Enron as a way to defame people who support action on global warming. I resent it and I will call you on it every time you do it. And let me tell you how I will call you on it. It is not only the corporations that are here today, some of whom I fight with on other matters, but who I praise to the sky today for what they are doing. But it is also a huge number of small businesses in my home State. The Small Business California, SBCal, all of those companies say, yes, we support AB 32 in California, which is a tough and stringent bill, like the one Bernie and I have.

And the people who support that, the American Academy of Pediatrics, American Lung Association, California Nurses Association, California Thoracic Society, compare them to Enron? Faith-based organizations, California Catholic Conference of Bishops, Interfaith Power & Light, Lutheran Office of Public Policy and others, Enron? Organized labor, California Nurses, California Federation of Teachers, the firefighters, the State, county and municipal employees, the League of Women Voters, and the Republicans for Environmental Protection? Enron?

Cut it out. If you can't make an argument, you can't make an argument. But don't use guilt by association in a matter of science. It is not right. We can disagree with each other without throwing around Enron and other demeaning comparisons. It is very disturbing to me.

Now, I wanted to say to Mr. Elbert of BP, you mentioned your big initiative in California and Illinois, which is a $500 million

biofuels program. It has hit the wires today. It is huge news in my State. Thank you for it.

And I want to ask you something. How can we make sure our cars can use those biofuels that you and I think Mr. Holliday are also working on?

Mr. ELBERT. The particular biofuel that DuPont and BP are working together on, biobutanol, works quite well in the current internal combustion engine. It is different from ethanol.

Senator BOXER. How close are we from getting that to market?

Mr. ELBERT. I will check with my colleague, but I believe our plans are to introduce it in 2 years.

Mr. HOLLIDAY. Yes, we will have some demonstration product by the end of this year and we think we will be commercial and competitive by 2010.

Senator BOXER. So what you need to do then at that point is to get those pumps into the stations, is that what we need to do to get those pumps available? Will you open up new stations, or will you lease?

Mr. HOLLIDAY. That is the advantage of working with BP, because they have the route to do that.

Senator BOXER. They can do that in their stations.

Mr. ELBERT. The benefit of biobutanol is that it doesn't require special pumps. It can be blended directly into the gasoline.

Senator BOXER. How much greenhouse gas emissions from there? What is the cut in it, compared to what you have now? Is it 30 percent less greenhouse? Do you know what it is?

Mr. ELBERT. No, it is quite less.

Senator BOXER. I need to know that, if anyone knows that. If we could get that in writing to the committee.

Mr. HOLLIDAY. We will confirm. It is bout 25 percent less. We will confirm the exact number.

Senator BOXER. The last point I want to make is again, getting back to the economics hat. I talked about Volcker. Mr. Book, I respected your testimony, I thought it was actually fairly balanced, I appreciate it.

Mr. BOOK. Thank you.

Senator BOXER. But the Stern review has made some important points. And Nicholas Stern, the former chief economist of the World Bank, conducted a recent study, October 2006. The principal conclusion is that the overall cause of climate change are equivalent to losing at least 5 percent of global GDP each year. In a worst case scenario, the loss of 20 percent of global GDP.

Based on the report's findings, he says $1 invested now can save $5 later. The cost of taking action to prevent atmospheric concentrations can be limited to 1 percent of GDP. So it is limited to 1 percent to save potentially 20 percent. So I am asking you, as an economist, do you have reason to doubt Nicholas Stern? Does he not bring the proper credentials to the table here?

Mr. BOOK. Sir Stern's credentials are absolutely impeccable, and of course, he is testifying before another committee today.

Senator BOXER. Yes.

Mr. BOOK. My concluding point is to suggest, Madam Chair, is that the Stern review is one point of view on the forecasted costs of inaction. What probably this august body and other Washington

organizations can do is look at their own assessments, make their own forward looking projects as to what the costs of limited, complete and no action might be, and then make an informed judgment. Because the Stern review is just one perspective.

Senator BOXER. But you would agree it is best to keep politics out of it? In other words, that is why I am so impressed. You want to keep politics out of these reviews, don't you? That is an important point.

Mr. BOOK. The essence of economic analysis is to make clarifying assumptions about what you think something will be worth or what you are going to impute the value of some action or interaction to be. That is necessarily subject.

I would suggest that by having many data points instead of just one, you actually reduce some of the subjective risk and you get a better spectrum of analysis that gives you a better answer.

Senator BOXER. Well, I just want to make the point that I am not going to shop around until I get an answer I like. I am going to go with the most renowned people, and that to me is the most important, keep the politics out of it. Because that, we don't want to do that. What I have criticized this Administration for is taking the science out of clean air. We had a whole hearing on that. Used to be they were right in the front end of the process. Now they have been relegated to making a comment at the end. We just have to work to keep the science clean. That is very important.

So let me just say, as I close down this hearing, how impressed I am with this panel, all of you. I really appreciated the way you approach this. And one of the things I take away from this, as I sat back and I turned to Bettina Poitier, our chief here, is that the low hanging fruit is right there for us, and it is called energy efficiency. Whether or not you believe like I do and most of us here, that there is no question that the science is there or not, energy efficiency is the low hanging fruit that is going to help us all in our businesses, in our pocketbooks and the rest.

So we have certain things that we can do pretty quickly here to begin to fight back against global warming. At the same time, take measures that are going to be beneficial for the American people. I just want to thank you all. We will be working closely with you, and again, I want to say to the businesses who are here who have stepped out on this, when history is written you will be noted in a very positive way.

Thank you very much. Our meeting stands adjourned.

[Whereupon, at 12:45 p.m., the committee was adjourned.]

[Additional statements submitted for the record follow.]

STATEMENT OF SENATOR CHRISTOPHER S. BOND, U.S. SENATOR FROM THE STATE OF MISSOURI

Thank you, Madame Chairman, for convening this hearing on the United States Climate Action Partnership. This is not the first time that industry has worked alongside environmentalists. Indeed, this is not even the first time that some in industry have thrown their support toward carbon caps.

Indeed, we need only think back to Clinton administration meetings with Enron's Ken Lay over Kyoto treaty negotiations. This Washington Post article "Enron Also Courted Democrats: Chairman Pushed Firm's Agenda With Clinton White House" chronicled how, "[i]n a White House meeting in 1997. . . Lay urged President Clinton and Vice President Gore to back a market—based approach to the problem of

global warming—a strategy that a later Enron memo makes clear would be 'good for Enron stock.'"

In describing how an "international agreement to combat global warming also dovetailed with Enron's business plan, Enron officials envisioned the company at the center of a new trading system. . . [that would] curtail the use of. . . coal-fired power plants that emitted. . . carbon dioxide, while encouraging new investments in gas-fired plants and pipelines—precisely Enron's line of business."

This text bubble details why Enron officials later expressed elation at the binding carbon caps in the Kyoto protocol. According to the Washington Post:

an internal [Enron] memo said the Kyoto agreement, if implemented, would "do more to promote Enron's business than almost any other regulatory initiative outside of restructuring the energy and natural gas industries in Europe and the United States."

This example shows how companies of all stripes are willing to work for environmental goals if it fits their business model and pads their bottom line. That is why I am not worried as much about what certain companies think about carbon caps, but how vulnerable poor and middle-class communities, especially in my Midwestern coal-dependent State, are firmly in the cross-hairs of carbon cap plans.

Big Oil will still make their money under any scenario. They pass their costs straight on to American families and workers. Just look at last year's run-up in gas prices. Even though their raw material, oil, increased in price to record levels, Big Oil still made profits selling gasoline. Some on this committee would describe these Big Oil profits as ill-gotten windfall profits. Indeed, one member of the U.S. CAP partnership testifying here today made over $22 billion in profits last year.

And who picked up the tab to fill these corporate coffers? You, me and all of us as consumers. That is what happens when the cost rises of a basic necessity we cannot do without. We must pay. We paid when gasoline prices went up. We will pay when natural gas prices go up further. Although Enron did not survive to see the day, the future is clear with carbon caps: less coal, more natural gas demand, and higher profits from higher prices.

That will mean higher prices for heating our homes in the Winter, higher prices for air conditioning our homes in the Summer, and higher costs for blue collar manufacturing workers supporting their middle-class families.

Are the companies here today to be blamed? No, they are doing what they are supposed do: provide a return to shareholders by investing in new technologies and businesses where they will have a competitive advantage.

But we cannot mistake what is going on here. Some companies will do just fine in a world where energy costs more. But that success will come at the pain of the poor, the disadvantaged, the struggling middle-class workers who can least afford higher carbon cap prices.

Thank you.

ENRON ALSO COURTED DEMOCRATS; CHAIRMAN PUSHED FIRM'S AGENDA WITH CLINTON WHITE HOUSE

THE WASHINGTON POST, JANUARY 13, 2002 SUNDAY

Democrats are savoring the chance to use embattled Enron Corp.'s Republican ties to embarrass the Bush administration at upcoming congressional hearings. But Republicans might turn the tables, to some extent at least, because Enron has courted and supported prominent Democrats as well.

According to internal Enron documents and the recollections of former employees, Chairman Kenneth L. Lay had the ear of top Democrats in the 1980s and '90s. He and his colleagues used that access to promote the company's interests with the Clinton administration and key congressional Democrats.

In a White House meeting in August 1997, for example, Lay urged President Clinton and Vice President Gore to back a "market-based" approach to the problem of global warming—a strategy that a later Enron memo makes clear would be "good for Enron stock."

The following February, Lay met with Energy Secretary Federico Pena to urge White House action on electricity legislation favored by Enron. Pena "suggested that President Clinton might be motivated [to act] by some key contacts from important constituents," according to another Enron memo.

Taking the cue, Lay, one of 25 business executives on Clinton's Council on Sustainable Development, wrote to the president the same day.

Lay and other Enron executives showed a clear preference for Republicans in their political giving. Lay personally gave GOP organizations $325,000 during the 2000 campaign. But the company itself was often more evenhanded.

The corporation contributed $532,000 in unregulated "soft money" to Democratic coffers during the 2000 election, only slightly less than the $623,000 that went to GOP groups, according to PoliticalMoneyLine, a Washington research group. Enron's political action committee also gave $10,000 to the New Democrat Network, which was co-founded by Senator Joseph I. Lieberman (D-Conn.). Lieberman, the Democratic vice presidential nominee that year, now chairs the Senate Government Affairs Committee, which is leading an inquiry into Enron's collapse.

Several senior Enron officials spent election night at Vice President Gore's headquarters in Nashville.

The Center for Responsive Politics estimates that Republicans received 73 percent of total donations from Enron, its executives and its employees over the past 12 years. Still, many of the congressional members soon to investigate Enron—Democrats as well as Republicans—have enjoyed the company's largess. Enron or its executives have given money to nearly half of all current House members, and to almost three-quarters of the Senators, according to groups monitoring political donations.

The company backed Charles E. Schumer (D-N.Y.) in his successful 1998 campaign to oust Republican Senator Alfonse D'Amato. Schumer's views on electricity deregulation dovetailed closely with Enron's. Two years later Schumer, who has advocated deregulation as a way of reducing New York State's high power costs, coauthored a bill to restructure electricity markets along lines favored by Enron.

Enron also has supported Senate Energy Committee Chairman Jeff Bingaman (D-N.M.), whose State is traversed by a major east-west Enron gas pipeline.

Former employees say Lay's friendships with other Democrats were based as much on rapport as pragmatism. This group includes former senator Bob Kerrey (D-Neb.), whose brief 1992 presidential bid had Lay's backing, and Senator Evan Bayh (D-Ind.), with whom Lay served on the Eli Lilly Co. board of directors in the 1990s.

He donated to the 1994 campaign of Texas Governor Ann Richards, a Democrat, and served on her business council. And it was a Democrat, former Treasury Secretary Robert E. Rubin, who called a Treasury official last November 8 to inquire about Enron's situation shortly before it collapsed.

As Enron transformed itself from an old-line gas pipeline company into an innovative, risk-taking trader of gas, electricity and more exotic derivatives in the early 1990s, it needed both Democrats and Republicans to help remove regulatory obstacles.

"Ken Lay would write letters and pick up the phone to call whoever was needed, and the party didn't matter that much," said one former employee.

In 1992, a Democratic-controlled Congress approved a major Energy bill that set the stage for a new wholesale electricity marketplace. Trading companies such as Enron could use the transmission lines of regulated utility companies to sell blocs of electricity to private customers.

In 1994, the Washington-based Export-Import Bank approved a $302 million loan to promote Enron's investment in a power plant in Dabhol, IN. According to a 1997 article in Time Magazine, Clinton took a personal interest in the project, deputizing his chief of staff, Thomas "Mack" McLarty III, to monitor it. McLarty later became a paid adviser to Enron.

A McLarty aide explained yesterday that the White House involvement was part of a broader administration effort to help U.S. companies take advantage of new opportunities abroad.

In 1996, the Federal Energy Regulatory Commission, stocked with Clinton appointees, helped Enron with a series of orders that weakened the monopoly of nuclear and coal-burning utilities. In July of that year, Enron gave $100,000 to the Democratic Party.

The Clinton administration's interest in an international agreement to combat global warming also dovetailed with Enron's business plans. Enron officials envisioned the company at the center of a new trading system, in which industries worldwide could buy and sell credits to emit carbon dioxide as part of a strategy to reduce greenhouse gases. Such a system would curtail the use of inefficient coal-fired power plants that emitted large amounts of carbon dioxide, while encouraging new investments in gas-fired plants and pipelines—precisely Enron's line of business.

But the effort faced powerful opposition from auto makers, oil companies and utilities. In early 1997 the Senate unanimously instructed the administration not to agree to any carbon-reducing strategy that would harm the U.S. economy.

On August 4, 1997, Lay and seven other energy executives met with Clinton, Gore, Rubin and other top officials at the White House to discuss the U.S. position at the upcoming conference on global warming in Kyoto, Japan. Lay, in a memo to Enron employees, said there was broad consensus in favor of an emissions-trading system.

Enron officials later expressed elation at the results of the Kyoto conference. An internal memo said the Kyoto agreement, if implemented, would "do more to promote Enron's business than almost any other regulatory initiative outside of restructuring the energy and natural gas industries in Europe and the United States."

At Lay's meeting with Pena on February 20, 1998, he spoke of restructuring the U.S. electricity market in ways that would benefit Enron. Lay pressed the administration to propose legislation that would assert Federal authority over a national electricity market.

According to a company version of the meeting, Lay and Pena agreed that a go-slow approach to deregulation, advocated by Senate Energy Committee Chairman Frank H. Murkowski (R-Alaska), was unacceptable. Pena asked Enron officials to keep Energy Department staffers posted on developments in Congress, and solicited comments on the administration's draft of its Comprehensive National Energy Strategy, an Enron document said. Lay felt the draft was "headed in the right direction" except for a few points, the document said.

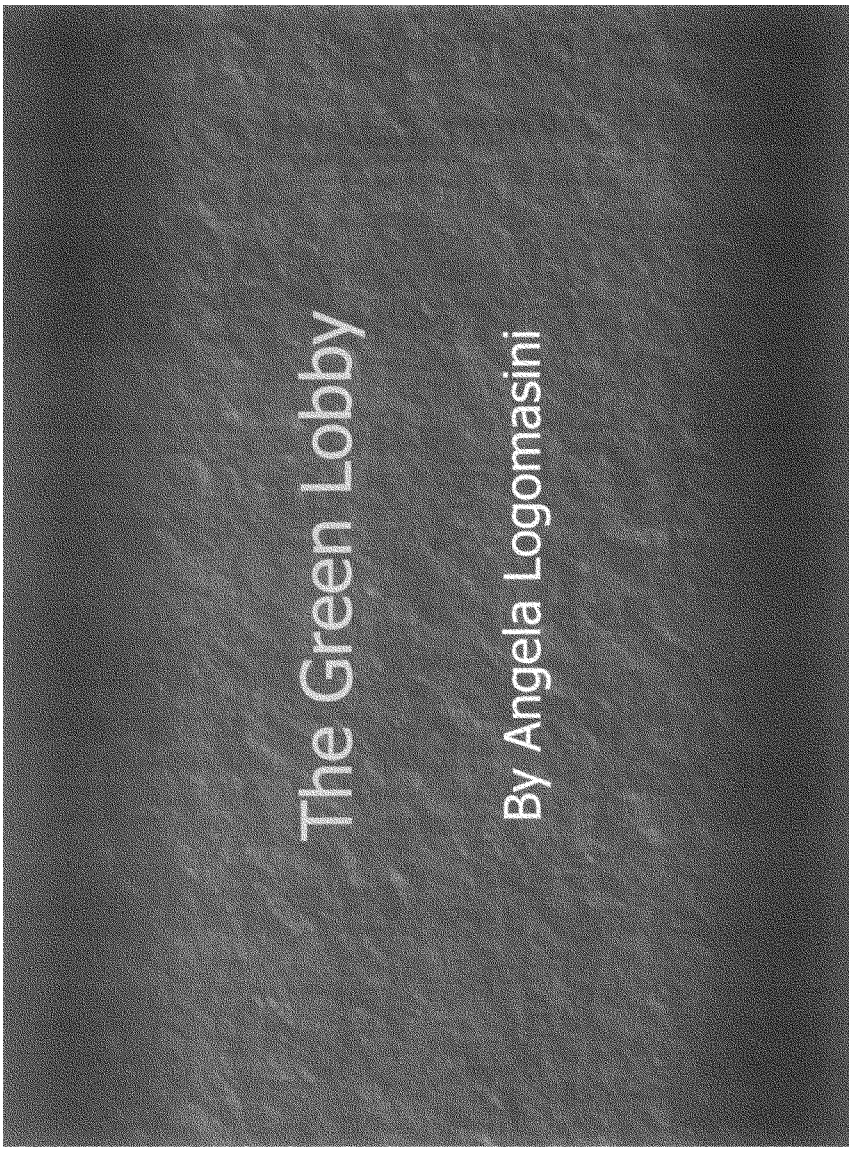
The 2000 presidential election posed a dilemma for the company, sources say. While Lay supported George W. Bush, some officials in Enron's Houston and Washington offices backed Gore and Lieberman. Lay personally contributed $325,000 in soft money to GOP campaign organizations that year, and gave no soft money to Democratic groups. After the election, Lay chipped in $100,000 to the Bush inaugural festivities.

On the eve of the 2000 election, Enron hired a Democratic official from the Treasury Department to run the company's Washington office. Sources say the move infuriated GOP House leaders, who retaliated by shutting Enron representatives out of several key strategy meetings on electricity legislation.

Hoping to return to the GOP's good graces, the company in April 2001 hired the Washington lobbying firm of Quinn & Gillespie. Its senior partner, Ed Gillespie, had been a top campaign adviser to the new president, Bush.

For the first half of the year, the firm collected $525,000 in fees from Enron, a hefty sum but well worth it, according to a former Enron employee.

"It was Eddie [Gillespie], not Ken Lay, who got us to people in the White House and Congress," the employee said.


The Green Lobby
By Angela Logomasini

Subject matter

A study of the lobbying power of the "progressive environmental" movement, as recently defined by the movement leaders in the "end of environmentalism" debate on Grist.com.

2

My View

The progressive environmental movement is much more influential than most political science scholars acknowledge; The details of environmental policy are better understood as driven by these groups than as driving mostly by public opinion.

3

Supporting Evidence

Data to be supplied in the paper and some follows in these slides

- The data suggest that the environmental movement is quite influential, with substantial resources.
- Environmental groups have expanded the green regulatory state in the 1980s and 1990s—the so called "gridlock years."
- The environmental regulatory state is large. Environmental groups' have successfully prevented significant shift in the scope and size of the regulatory state.
- Industry does not present a united an opposition.
- Opposition from "wise use"/free-market groups is tiny compared to that of the environmental movement.

4

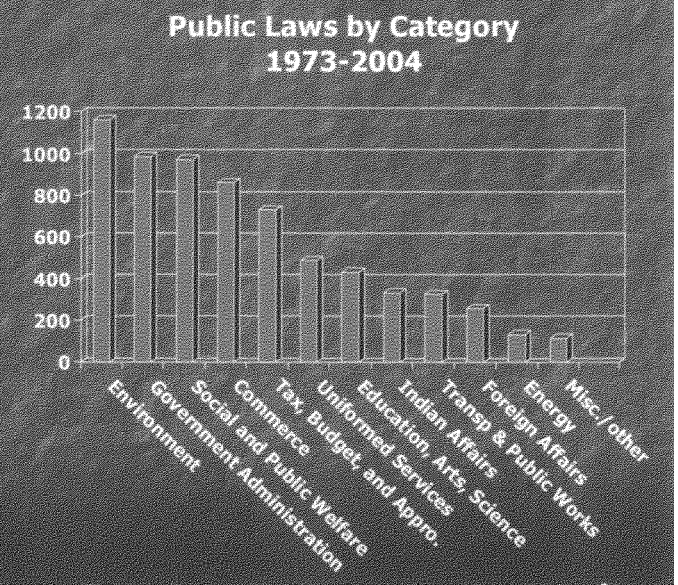
The Environmental State: Continues to Grow

- History shows, that environmentalists have been quite successful with the passage of legislation.
- These laws have produced a sizable environmental regulatory state.
- Defending reforms to the regulatory state ensures long-term power for the environmental movement.
- Power associated with the green regulatory state and the extent of this state has been largely ignored and undocumented in the political science literature—until now.

5

Size of the Environmental Regulatory State:
Environmental Law as a Percent of Public Laws

Excluding symbolic legislation, environment ranks #1 in legislative activity during the past 32 years. This chart was complied from a list of all public laws (total of 8,838) that passed between 1973-2004. Each law was coded manually for issue areas. Symbolic legislation was excluded.

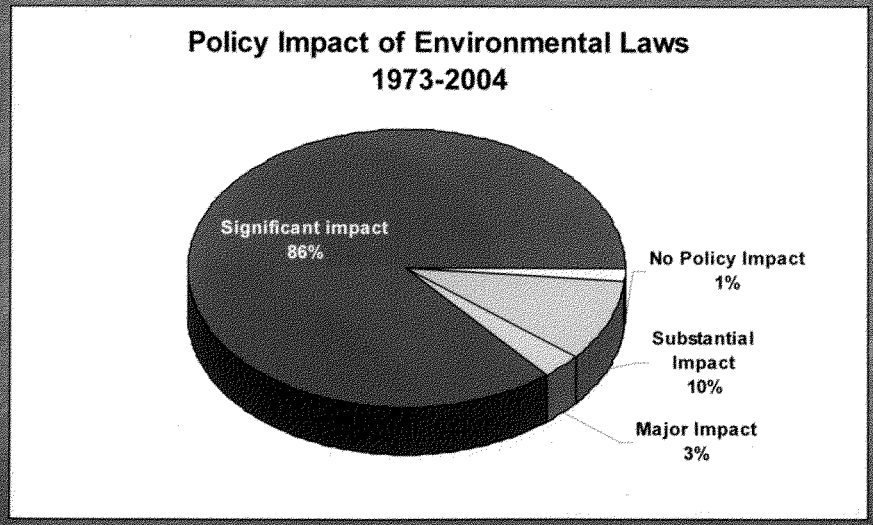


6

Growing the Regulatory State
"Gridlock" that Isn't
25
20
15
10
5
0
93rd (72-73)
94th (75-76)
95th (77-78)
96th (79-80)
97th (81-82)
98th (83-84)
99th (85-86)
100th (87-88)
101st (89-90)
102nd (91-92)
103rd (93-94)
104th (95-96)
105th (97-98)
106th (99-00)
107th (01-02)
109th (05-06)
Despite claims to the contrary, environmental laws continued to pass in Congress at high rates--peaking during the so-called "gridlock" years.
7

Policy Impacts

Most Environmental Laws Passed in past 30 years have policy significance



8

Major Environmental Laws by Congress
Environmental Laws with Major Policy Impacts
1973-2004
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
73-74
75-76
77-78
79-80
81-82
83-84
85-86
87-88
89-90
91-92
93-94
95-96
97-98
99-00
01-02
03-04
9

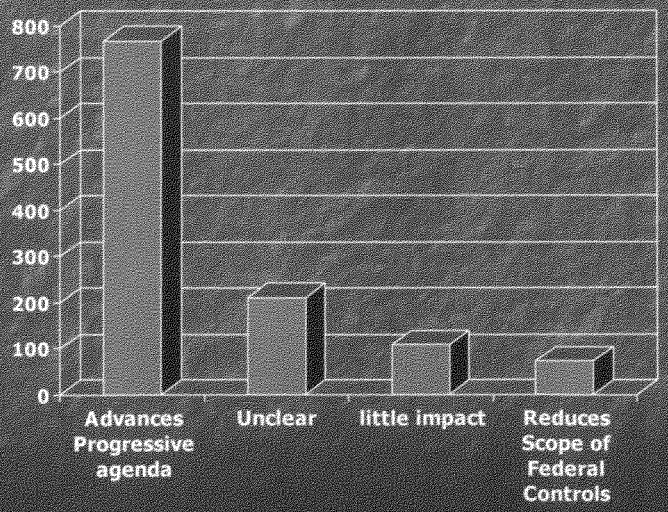
Were the laws that passed during "gridlock" significant? Were they progressive?

- Some might question the prior chart, suggesting that the laws that passed in latter years were not "progressive" or that they were largely symbolic and therefore did not advance the movement.
- However, further categorization of these laws shows that the trends for passage remained constant, irrespective of year and even which party controlled Congress.

10

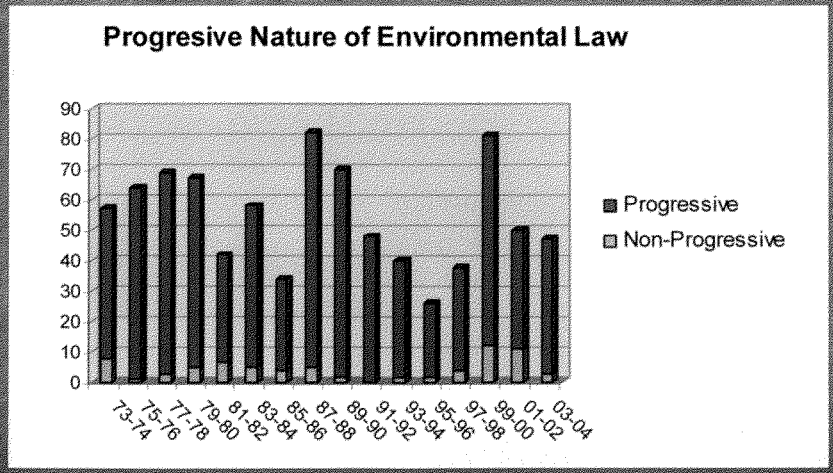
Does the passage of so many environmental laws reflects the agenda of the progressive environmental movement? The subset of environmental laws passed 1973-2004 (excluding appropriations bills) were categorized as progressive (those that maintain or expand a federal role in environmental protection), not progressive, unclear, or as those laws with little impact in either direction. The findings indicate that most environmental laws passed during the past 32 years advance a progressive environmental agenda.

The Progressive Nature The Environmental Regulatory State



11

Progressive laws verses laws that shrink government by Congress

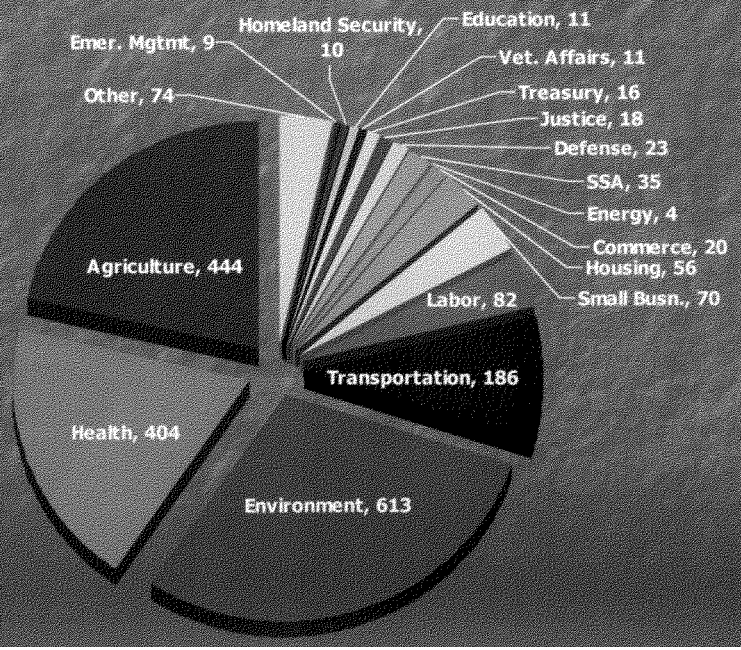


From Laws to Regulation

- Given the passage of many environmental laws, environmental regulation represents a share portion of the regulatory state.
- The environmental movement's impact is seen throughout the executive branch's regulatory efforts.
- The impact is evident in the economy.

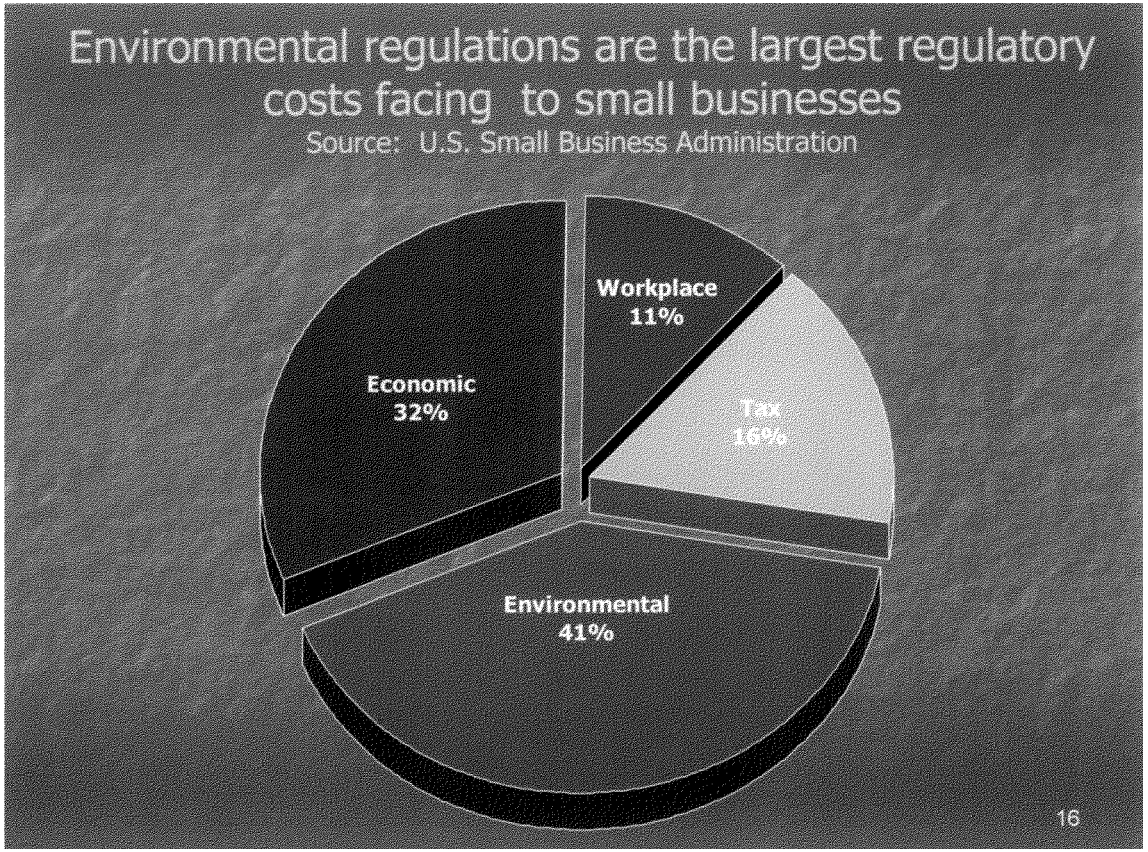
Environmental Regulations: A Leading Item on the Federal Regulatory Agenda

Source for data: Office of Management and Budget



14

Cost of Enviromental Regulation:
A Substantial Chuck of Federal Regulatory Costs
Source: U.S. Small Business Administration
Economic
52%
Workplace
10%
Tax
18%
Environment
20%
15


Environmental regulations are the largest regulatory costs facing to small businesses
Source: U.S. Small Business Administration
Workplace 11%
Tax 16%
Environmental 41%
Economic 32%
16

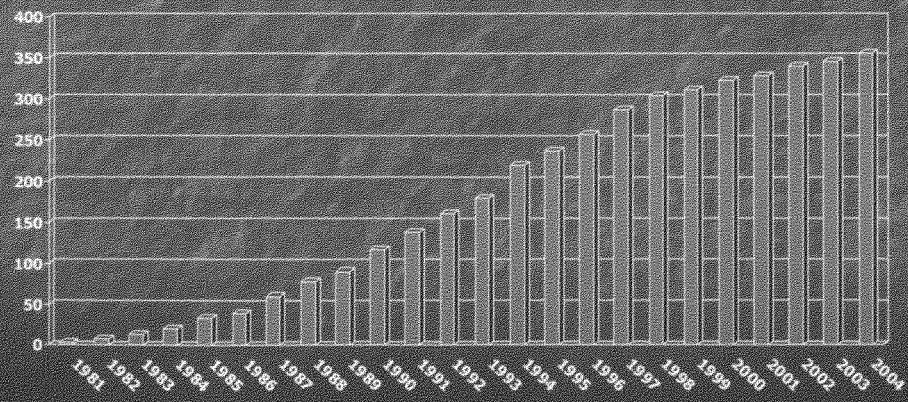
Enviromental Spending experienced fastest growth
Source: Dudley and Warren, Upward Trend in Regulation Continues
Mercatus Center-Wiedenbaum Center Report (2005)
Growth in Federal Spending since 1960
Percent Growth in spending
8000
7000
6000
5000
4000
3000
2000
1000
0
Industry specific
Transportation
Workplace
Consumer Health and Safety
Banking and finance
General business
Energy
Homeland Security
Environment
17

Growth of Environmental Regulation

Data complied from Office of Management and Budget Online Database

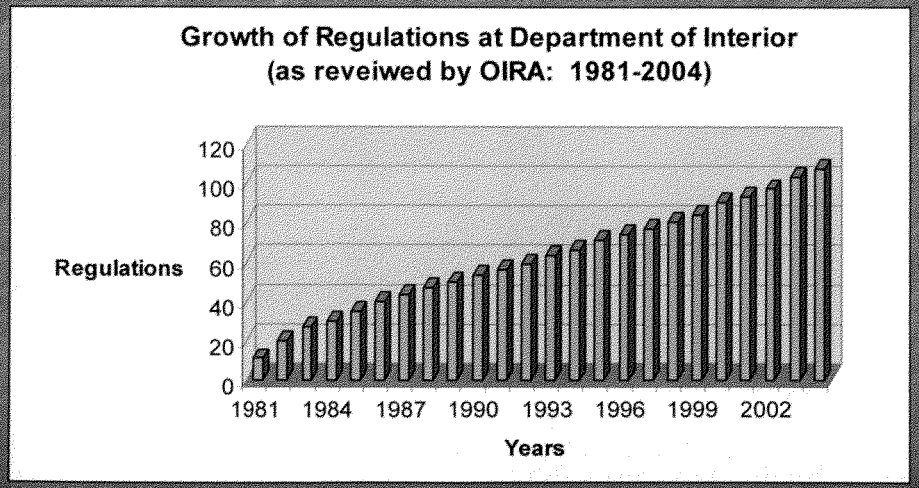
Even in years of alleged gridlock, the environmental state continued to grow.

Regulations Issued by the USEPA



18

And Grow ...
Department of Interior

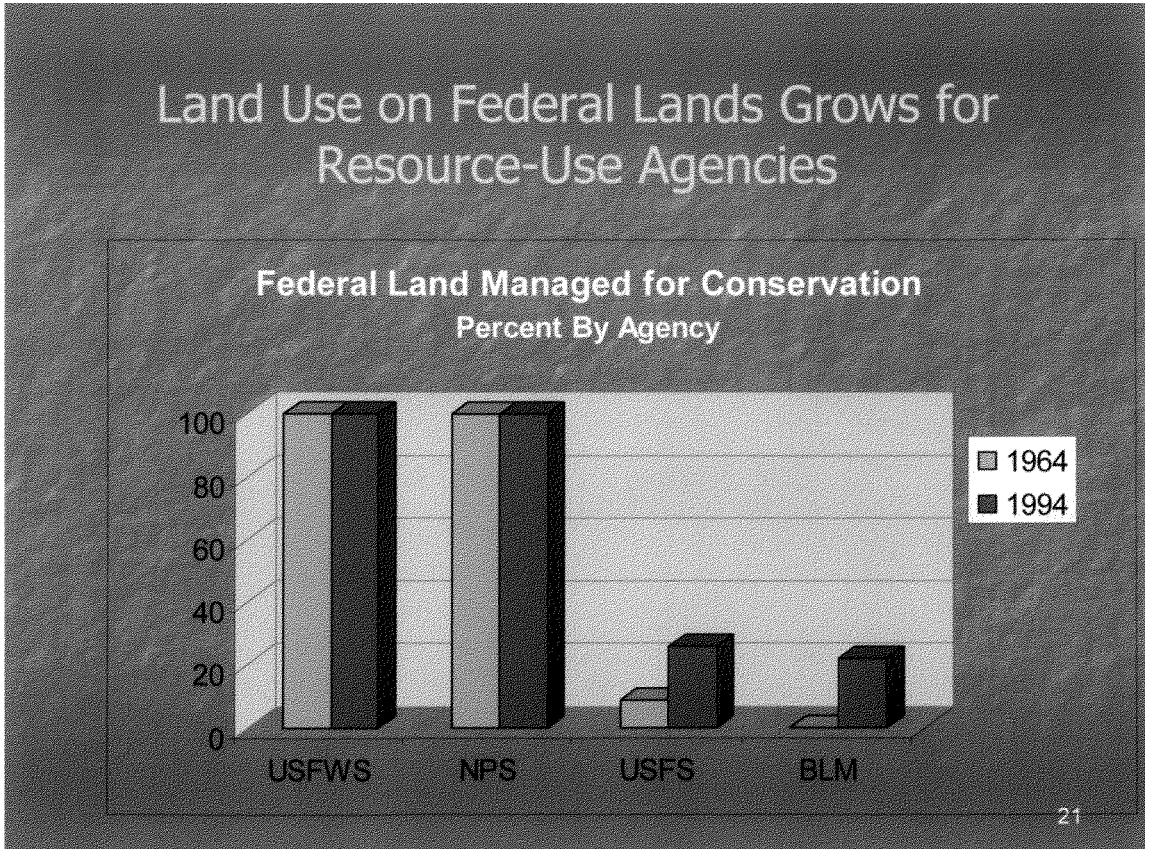


Public Lands

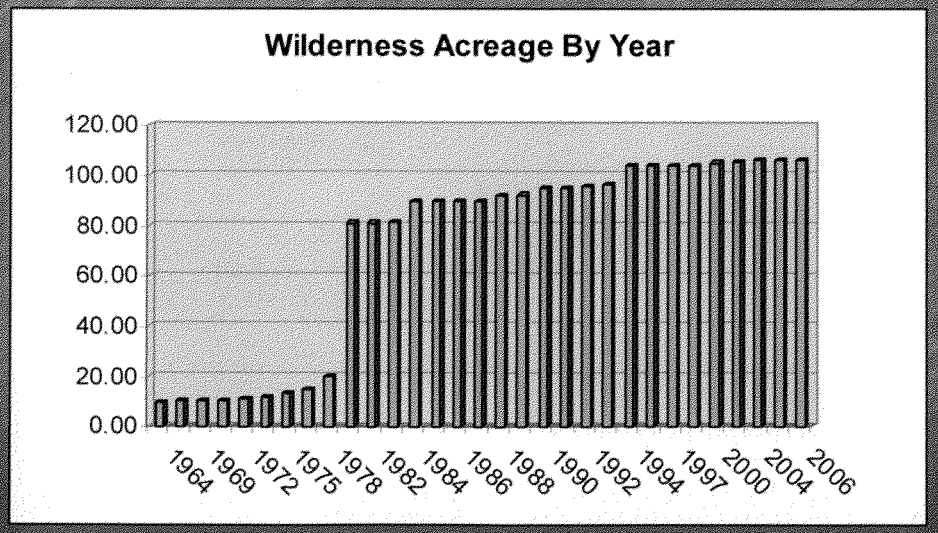
- The federal government owns 30 percent of the United States land mass or about 650 million acres.
- Federal land use controls over these lands and private lands is growing.
- Access to energy resources on these lands is shrinking.

20

Land Use on Federal Lands Grows for Resource-Use Agencies

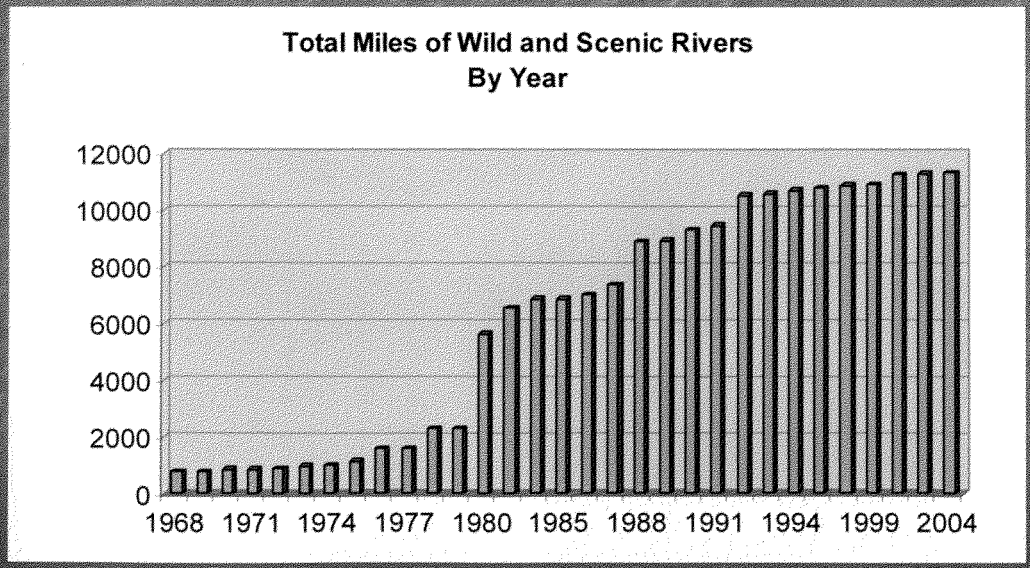


Expansion of Federal "Wilderness"
And Accompanying Regulation



22

Land and Water Restrictions Along Rivers Increasing



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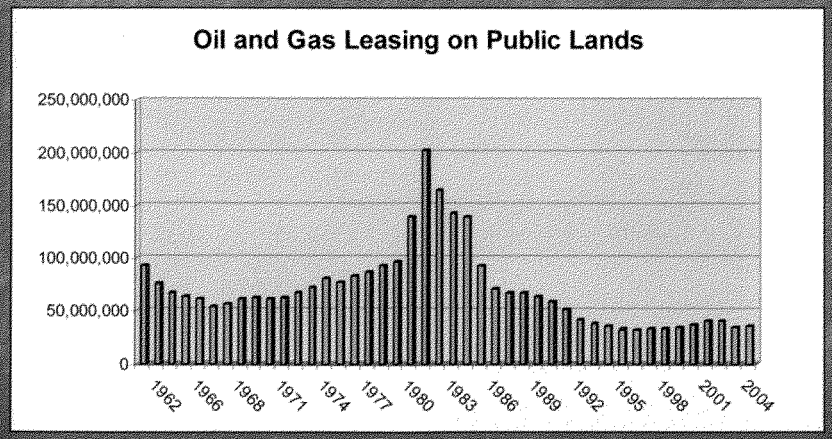
Oil and Gas Leasing on Federal Land at Historic Lows



24

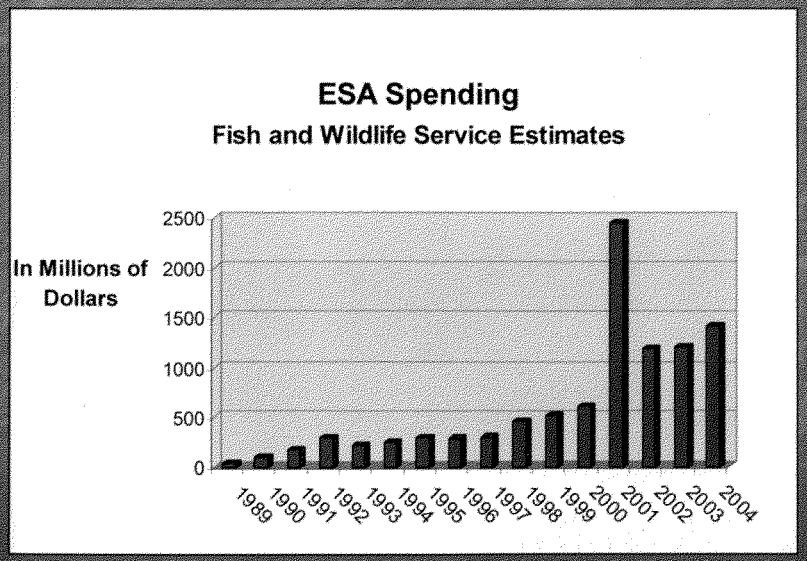
Moratoria on Drilling in the Outer Continental Shelf
Source: Energy Information Administration

Year	Acreage removed from drilling
1983	35 million
1984	54 million
1985	45 million
1986 & 1988	8 million
1989	33 million
1990	84 million
1990	Bush Blanket Moratorium (effective through 2000)
2000	Clinton extension of Bush blanket Moratorium (effective through 2012)

25

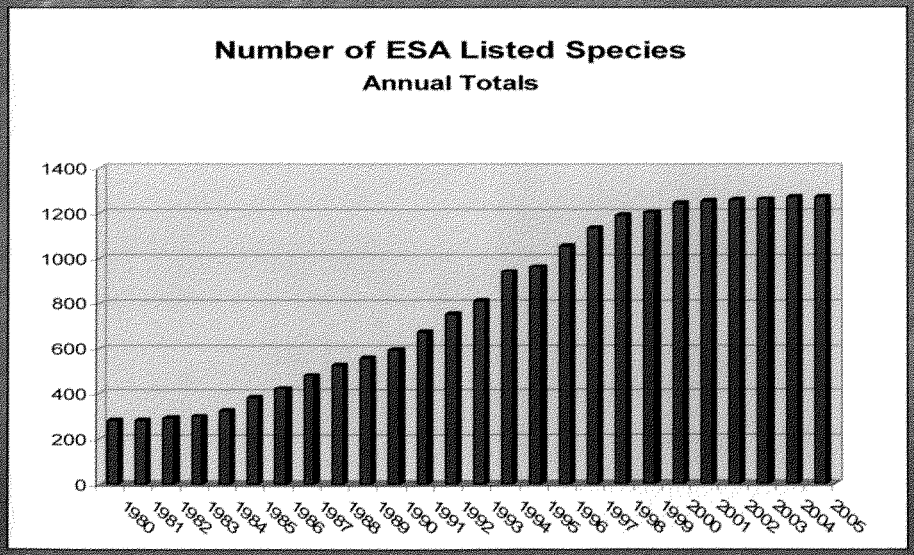
Endangered Species Act

Growing Land Use Regulation on Private Lands



26

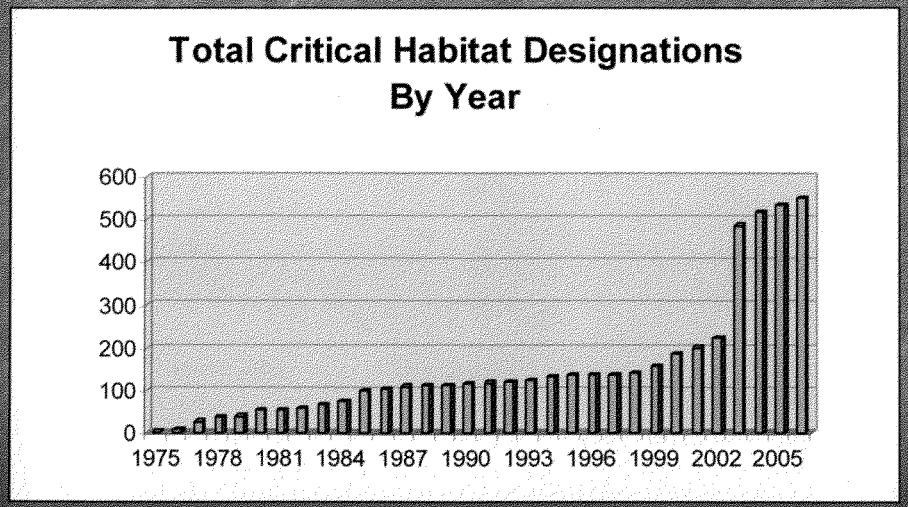
More listings ... More Regulation



27

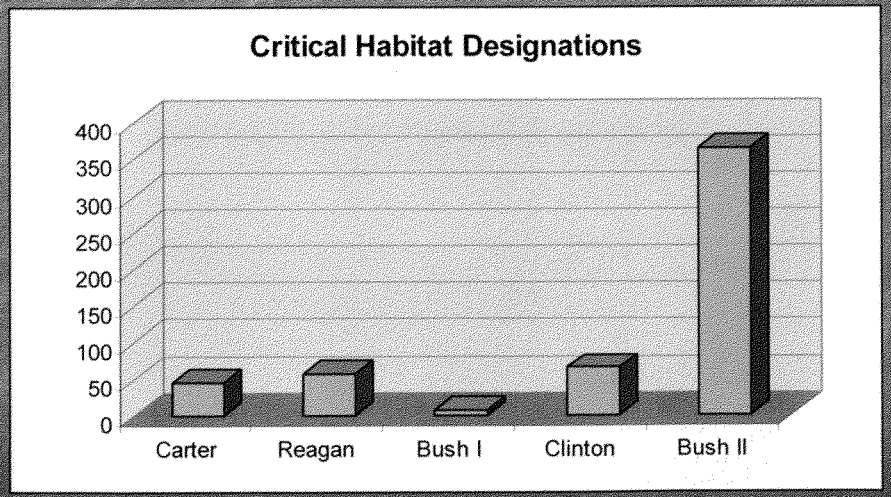
Increasing Species Habitat Designations

Expanding Land Use



28

ESA Habitat Designations by Administration



29

Source: Angela Logomasini, Competitive Enterprise Institute; Pre-publication Excerpt of Research project

Resource Rich

Influence in Washington is often depended to a great extent on a group's ability to access substantial financial resources. Because environmental causes have broad appeal, Washington groups have done well in fundraising and hence have been able to develop sophisticated operations for influencing the Washington establishment. A review of some if these groups' resources helps explain their why they have influence in Washington.

In 2005, the *Chronicle of Philanthropy* reported on charitable foundation contributions to the 400 groups receiving the largest amount of support in 2004.[1] The list of 400 includes mostly groups involved in direct charities, such as Catholic Relief Services and the Red Cross as well as museums and universities. Environmental groups are among the smaller number of groups with a focus on influencing public policy. In addition, to environmental organizations, the list includes five groups identified as focused on "public affairs."

The *Chronicle*'s database includes 11 environmental groups, which received more than a billion dollars in total contributions from charitable foundations. These groups receive funding from other sources as well, which means the Chronicle's report covers only a fraction of their budgets. According to the *Chronicle* data, these eleven groups had budgets totaling $1.7 billion dollars. Also in the top 400 grant recipient list was the Tides Foundation, which received more than $100 million in foundation grants. The Tides Foundation gives a considerable amount of funding to environmental advocacy causes. The only policy group on the right that showed up in the top four hundred was the Conservative Heritage Foundation, which does some work on environmental issues,

but it the issue is not a key focus of that group. Heritage received $35 million in foundation grants.

Given that this list of eleven groups represents a fraction of the groups involved in environmental policy advocacy, it indicates that the movement as a whole raises considerable funds. Bonner Cohen notes that there are currently about 4,000 environmentally related NGOs registered with the United Nations.[2] Mark Dowie estimates in an article in the *Chronicle* that there are a 50,000 grassroots environmental groups across America, ranging from medium-sized regional sized groups to small, ad-hoc and temporary groups.[3] The National Center for Charitable Statistics found that in 1999, environmental groups raised a total of $3.5 billion—$9.6 million a day. Almost 30 percent of that amount went to the top 20 groups.[4]

More recently, the *Chronicle Philanthropy* reported that environmental and animal welfare groups raised a total of $8.9 billion in 2005, an increase of more than 12 percent from the prior year.[5] Of that about $30 million went to animals rescued from Hurricane Katrina. The Audubon Society received a 16 percent increase in its funding and is expected to receive another 10 percent increase in 2006.

Environmental groups have done well raising necessary funds because they are marketing a popular cause. Environmental causes are certainly well-suited for direct mail type campaigns, which tend to make emotional appeals that prompt many people to send in contributions. Robert Duffy explains how this works:

> As anyone who receives mail from environmental groups well knows, most of their direct mail features one impending disaster after another. The reason for this, notes Daniel Beard, chief operating office of the Audubon Society, is that it works. "So" says Beard, "What you get in your mailbox is a never-ending stream of crisis-related shrill material designed to evoke emotions so you will sit down and wire a check."[6]

Source: Angela Logomasini, Competitive Enterprise Institute; Pre-publication Excerpt of Research project

The broad appeal for the environmental cause has also led wealthy entrepreneurs and others to bequeath their fortunes to environmental organizations. For example, Robert W. Wilson, a retired New York hedge-fund manager, pledged his fortune of $146.7 million to four environmental groups—World Monuments Fund, Environmental Defense, the Wildlife Conservation Society, and the Nature Conservancy.[7] He, however, has one condition—these groups must raise the same amount to "match" his contribution first. The Nature Conservancy used Mr. Wilson's offer as a plea to new donors and the *Chronicle* reported in August 2006 that the group had already raised $131.8 million.[8]

Funding makes it possible for groups to hire highly-skilled and educated staffs for lobbying, grassroots outreach, research, and office management. Groups also need funds to organize coalitions, develop and host educational programs, fund PACs, and engage in numerous other activities.

Substantial funding enables environmentalists to employ new approaches related to changing American politics. In particular, the rise of issue-based policy over candidate-centered politics has placed issue-focused interest groups in the middle of political campaigns. Environmental groups have been able to leverage their position in this process by waging expensive issue-focused campaigns. During 2000, environmental groups spent $20 million for issue advertisements designed to influence political races that year. That's nearly 20 percent of the $98 million that all interest groups combined spent that year.[9]

Such paid media campaigns are not uncommon tools of environmental organizations. For example, Robert J. Duffy notes that the National Environmental Trust and the Union for Concerned Scientists paid $8 million in 1999-2000 for televisions ads

Source: Angela Logomasini, Competitive Enterprise Institute; Pre-publication Excerpt of Research project

on global warming issues.[10] The Sierra Club spent $2 million on a radio and ad campaign in a 1995 campaign to attack the environmental activities of the 104th Congress and also used paid media to discredit the Bush Administration.[11] Duffy notes similar activities employed by other groups including the Natural Resources the Defense Council and a regional a group called Montanans for Common Sense Mining Laws.

Another critical resource at the disposal of environmental groups is inexpensive, enthusiastic labor. Indeed, environmental causes are popular among young Americans, particularly college-age individuals who have time to show up at rallies and town hall meetings and who are willing to volunteer or work for a low wage. Indeed, studies have shown that younger individuals are among the strongest supporters for the environmental movement.[12] Ronald Inglehart notes: "Age does have a significant impact on activism. It is the third strongest predictor of membership and potential membership in the ecology movement."[13] Similarly, a study of demographic variables and related to environmental support concludes:

> The only two demographic variables that are consistently correlated with environmental concern across all different measures are age and education. Younger and better educated members of the public do indeed appear to be more concerned about issues of environmental quality and more committed to environmental protection, regardless of the way the independent variable is measured. Otherwise the determinations of environmental concern vary greatly depending on the wording and framing of the questionnaire items.[14]

Recognizing the value of such young activists, the League of Conservation Voters set up its Summer Training Academy for college students to teach them how to perform environmental advocacy and mobilization efforts in their own communities. The program is so popular that the LCV has to turn two-thirds of the students down for admission annually. Students in the program

Source: Angela Logomasini, Competitive Enterprise Institute; Pre-publication Excerpt of Research project

pledge to work on a community, issue or electoral campaign after their attendance in the program. According to Duffy, 80 percent of the students in the program fulfill this pledge.[15]

Given their enthusiasm for the issue, students serve as a resource when groups need to shore up support during important policy events, such as United Nations meetings. For example, in 2000 Ozone Action mobilized several hundred students from 140 schools in 40 states to travel to The Hague in the Netherlands during a United Nations meeting on Global Warming that year. Bill McKibben of *Grist* magazine noted that the students staged protests outside the meeting, sent hundreds of emails to CNN urging more coverage of the event, were interviewed by "half" the radio hosts at the meeting, and basically changed "the entire tone of the proceedings."[16] Moreover, they helped raise the legitimacy morale of the environmentalists attending the meeting.

Activists have even formed the student Environmental Action Coalition, which coordinates student activism around the nation. It boasts having mobilized students to affect a wide range of policies. Some examples include: setting up recycling programs at more than 200 high schools and college campuses; waging a campaign that forced Pitt and Michigan State to withdraw from a telescope project because the project would affect endangered red squirrel habitat; and mobilizing 120 schools in New York to stop construction a dam in Canada; organizing a two-year campaign to pressure the office supply store, Staples, to phase out paper from wood harvested in endangered forests and to increase marketing of recycled paper products.[17]

The ability to mobilize youth in this way can overpower those on the other side of the issues because, as former Reagan Administration staffer and property right activist

Source: Angela Logomasini, Competitive Enterprise Institute; Pre-publication Excerpt of Research project

Robert J. Smith notes, environmentalists can turn out large groups of activists to attend public hearings and other meetings affecting property rights.[18] Meanwhile, property rights owners in resource industries are spread out around the nation and most work long hours with little time to focus on political events. The result is policymakers will favor resource regulations because the most visible groups are represented, while the more affected individuals are underrepresented, according to Smith.

The combination of solid bank accounts and readily available activist labor are clearly an asset for environmental policy advocates. But the following offers yet more reasons that environmental policy plays such an important role today.

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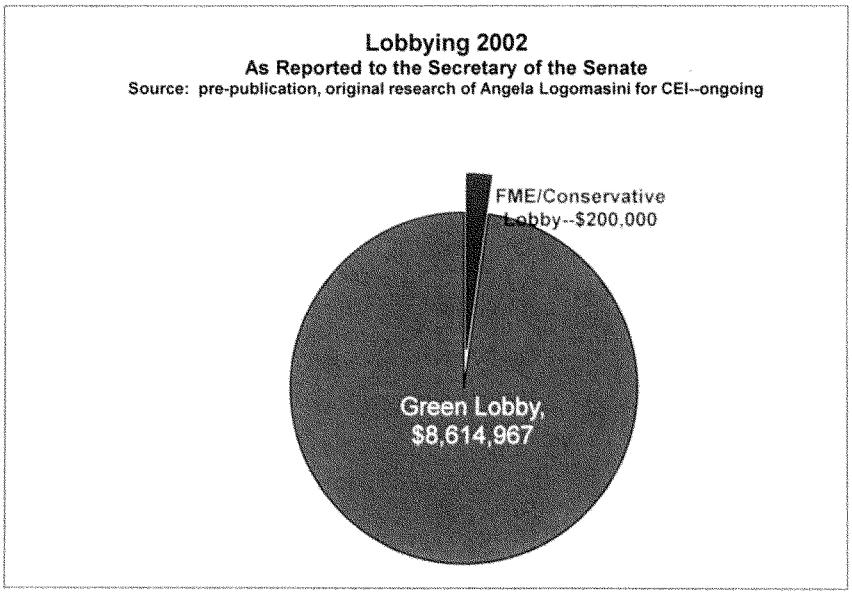
[1] "Philanthropy 400," *Chronicle of Philanthropy*, October 27, 2005.
[2] Bonner Cohen, *The Green Wave: Environmentalism and its Consequences* (Washington, D.C.: Capital Research Center 2006).
[3] Mark Dowie, "Support Grass-Roots Environmentalists," *Chronicle of Philanthropy*, April 20, 2006.
[4] Duffy, *the Green Agenda in American Politics*, 8.
[5] Debra E. Blum and Holly Hall, "Donations to Social-Service and Environmental Groups Rose in 2005," *Chronicle of Philanthropy*, June 29, 2006.
[6] Duffy, *the Green Agenda in American Politics*.
[7] Maria Di Mento, "Retired Money Manager Pledges $147-Million to Four Organizations," *Chronicle of Philanthropy*, August 3, 2006.
[8] Maria Di Mento, "Retired Money Manager Pledges $147-Million to Four Organizations," *Chronicle of Philanthropy*, August 3, 2006.
[9] Duffy, *The Green Agenda in American Politics*, 26; see also http://www.brennancenter.org/programs/buyingtime2000.html
[10] Ibid., 107.
[11] Ibid., 78, 107.
[12] Mathew E. Kahn, "Demographic Change and the Demand for Environmental Regulation," *Journal of Policy and Management* 21, no. 1 (Winter 2002): 45.
[13] Inglehart, *Culture Shift*, 390.
[14] Stephen L. Klineberg, Mathew McKeever, and Bert Rothenbach, *Social Sciences Quarterly* 79, no. 4 (December 1988): 734-753.
[15] Duffy, *The Green Agenda in American Politics*, 85.
[16] Bill McKibben , "Greenpeace student activists stir things up at The Hague." *Grist*, November 21, 2000, http://www.grist.org/news/maindish/2000/11/21/mckibben-hague3/index.html
[17] "About SEAC," http://www.seac.org/about.
[18] Personal interview with Robert. J. Smith on October 18, 2006.

$200,000
$8,614,967



EUROPEAN UNION

DELEGATION OF THE EUROPEAN COMMISSION

Head of Delegation

FEB 22 2007
D/272

The Honorable Barbara Boxer
Chairman, Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Madame Chairman,

In recent publications in the media and in statements by U.S. Administration officials as well as at the Hearing on the U.S. Climate Action Partnership report, which you organized in the Senate Committee on Environment and Public Works on February 13, 2007, incorrect or incomplete information has been presented about the European Union (EU) climate policy. In particular, this concerns the EU's achievements to date by comparison to achievements in the U.S., and whether the EU will meet its obligation under the Kyoto Protocol, which is to reduce its emissions by 8% by 2012.

This letter is intended to put the facts before you[1].

To start, I would like to address one major misunderstanding in the discussions in the U.S.: we hear statements such as those from Senator Inhofe that only a few EU countries are on target to meet their Kyoto obligations and that other EU members will fail to do so, thus implying that the EU will not meet its Kyoto obligations. That is not correct. The EU is on track to meet its Kyoto commitment.

Of course, the performances of individual EU member states vary, but under the Kyoto Protocol, it is the 15 countries that were EU Member States when the Kyoto Protocol was signed in 1997 (EU-15) that have a joint commitment to reduce emissions by 8% by 2012[2]. Individual EU-15 Member States do also have individual targets but these are EU internal targets in the framework of our joint commitment. This joint commitment allows some EU countries to increase their emissions, while others reduce theirs significantly. The contributions of each Member State to achieving the 8% reduction are set down in EU law and are legally binding. It is thus inappropriate to assess the EU's overall performance on the basis of the performance of a few individual Member States. If the U.S. ratified the Kyoto Protocol with its foreseen 7% reduction target, I doubt if the U.S. would agree that its overall performance should be assessed by focusing on a few individual states rather than the overall U.S. performance.

[1] See also the 2006 Progress Report COM(2006)658 at http://ec.europa.eu/environment/climat/pdf/kyotoreport_en.pdf

[2] Since 2004, 12 new countries have become members of the EU, most recently Bulgaria and Romania in January 2007. Ten of these twelve have Kyoto targets ranging between -6 and -8% reductions on 1990 levels. Cyprus and Malta do no have targets.

In the year 2000, the 15 EU Member States had stabilized greenhouse gas emissions at 1990 level and by 2004 they had reduced their emissions by 0.8% compared to 1990.

In the U.S., emissions grew by 15.8% between 1990 and 2004. The U.S. still lags far behind the EU which has seen its economy grow with a far lesser effect in terms of emissions.

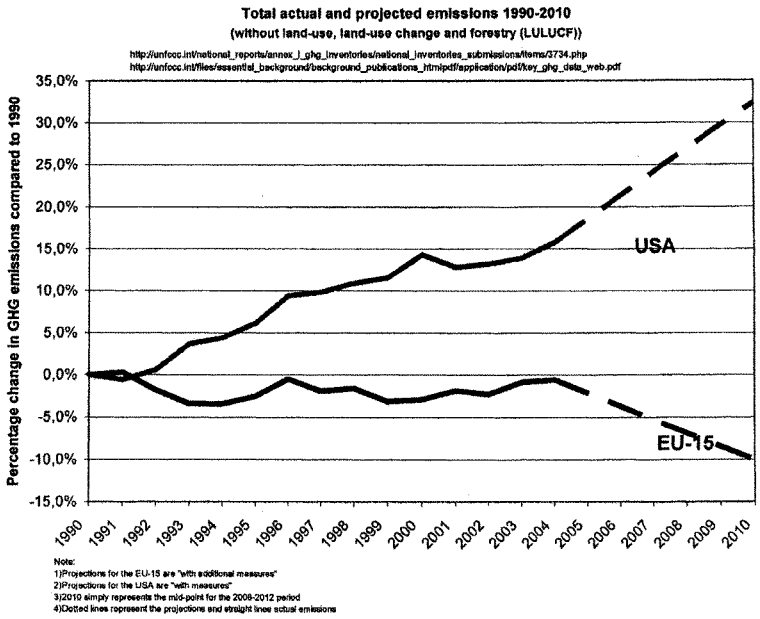
Between 1990 and 2002, greenhouse gas (GHG) emissions per unit of GDP decreased proportionately more in the EU than they did in the U.S., although they were at similar levels back in 1990. It seems that despite its improvement in recent years, the U.S. is not fully exploiting its potential for emission reductions.

When examining other important indicators such as energy use per capita or GHG emissions per capita which take into account the significant population increase in the U.S. in recent years the energy use and GHG emission figures for the U.S. have remained almost double of what they are for the EU. Increasing energy efficiency would decrease GHG emissions whilst reducing fuel imports.

The 2000-2004 time period

During the period 2000-2004, recently chosen as a reference period by the U.S. Administration, emissions in the U.S. grew more slowly than in the EU. However, in absolute terms the U.S. increase in GHG over that period was still more than in any other country in the world or than the EU as a whole (US: 29 million tonnes of CO_2, EU-27: just under 21 million tonnes of CO_2).

The selection of the limited 2000-2004 period for comparison of progress in reducing GHG emissions is far from representative. It is the longer term that is relevant in terms of successfully addressing climate change. The chart below, based on official UNFCCC data, shows how US and EU emissions have evolved and are projected to evolve between 1990 and 2010.



Furthermore, despite the developments in relative GHG emissions trends in the U.S. over the last couple of years, the future is not promising. By 2010, emissions in the U.S. are projected to be 32.4% above 1990 levels.

In contrast, the action taken at the EU level and currently under implementation at the national Member State level, is projected to result in an absolute reduction in emissions of 10.8 % from the base year 1990 by 2010 across the 25 Member States and by 8% for the EU-15 when existing (0.6%) and additional measures (4%) as well as the use of Kyoto mechanisms (2.6%) and carbon sinks (0.8%) are taken into account.

Amongst other measures such as a wide range of energy efficiency, renewable energy targets, vehicle emission and fuel standards to reduce greenhouse gas emissions, the EU has introduced a EU-wide cap and trade system which provides industry with the necessary (financial) incentives to take action and innovate in the most cost effective way.

The EU Emission Trading System (ETS) started January 1, 2005 for a three year pilot phase. Currently, it involves more than 10,000 companies, covering around 2 billion tonnes of CO_2 emissions (half of EU's total CO_2 emissions) with transactions valued at $ 19 billion in 2006. Emissions trading has two main advantages: it introduces climate change considerations in industry's financial bottom line and through the linking directive it opens up markets to Clean Development Mechanism projects in developing countries. Currently, credits from emission-

reducing projects in 169 countries representing more than 90% of the global population can be used by companies to meet part of their reduction objectives.

In addition to industry, the EU member states are also making use of the Kyoto mechanisms. The projected use of Kyoto mechanisms by 10 Member States is expected to amount to 110.6 million tonnes of CO_2eq. per year of the commitment period. This amount corresponds to over 30% of the total required emission reduction for the EU-15 of about 342 million tonnes CO_2 equivalents per year during the first commitment period. The total budget already allocated by member states amounts to about 3 billion EURO.

The EU ETS pilot phase has shown that there is room for improvement in the initial allocation, which is being addressed. An over-allocation of emissions permits in some Member States and in small and medium sized sectors for this initial period, resulting from the use of projected emissions and from a lack of data on actual emissions when the system was launched, has led to a relative drop in permit prices for the 2005-7 period. On the other hand, these price movements alongside high trading volumes are an indication that the market mechanism itself is functioning as it should. Thanks to reporting required under the EU ETS, we have the data to improve allocations for the second trading period which runs from 2008 and 2012. This is already reflected in the forward price for second phase permits. EU ETS is a very important tool for the future. We are currently working on streamlining its design for trading from 2013 onwards and expanding it to more sectors and other GHGs.

For your information, I attach some annexes with an overview of EU policies and measures, and a recent table on the EU performance under Kyoto.

The way forward

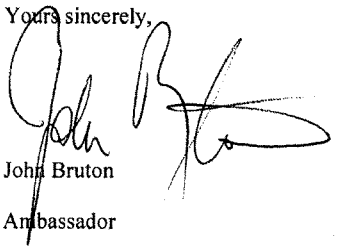
The EU is pleased to see that the climate debate is gaining momentum in Congress, in many states and with other stakeholders, and that the U.S. as a whole has started to make progress in reducing the growth of its emissions. The EU is certainly keen to exchange experiences with all interested parties in the U.S. regarding new and existing policies and measures, research programs and other initiatives and assess what is the best way forward in tackling the pressing and long term challenge of climate change. The EU has gained a lot of experience of using market-based measures such as emissions trading, and is keen to share this experience and avoid any need for the US to "reinvent the wheel" when it comes to the building blocks of emissions trading such as monitoring requirements and electronic registries.

On the basis of the scientific assessment of man-made climate change impacts, the EU's objective is to limit the average increase in global temperature to a maximum of 2 degrees Celsius (3.6 Fahrenheit) above pre-industrial levels. If the world stays within this threshold, we will still see some serious impacts, but we would have a reasonable chance of avoiding catastrophic consequences. A 3.6 degree Fahrenheit target would translate into making sure that global GHG emissions peak by 2020 and then fall drastically – by around 50% over 1990 levels to ensure that atmospheric concentrations stabilize at around 450 ppm. The EU's own calculations show that these concentrations could be achieved if developed countries as a group were to reduce their emissions by 30% by 2020 and by 60% - 80% by 2050, and if developing countries with some support limit their growth in emissions before 2020 and to reduce them in absolute terms thereafter.

The EU is looking for a shared vision amongst major GHG emitters of what needs to be done to tackle climate change. We propose these objectives and reduction paths as a framework to guide action. To underline its commitment to action, the EU has agreed an independent reduction target of at least 20% by 2020, if there is no outcome of the negotiations on a global binding post-2012 agreement.

The EU is open to discussing the details of this framework and of the actions needed with other countries and with the US in particular. One thing is nonetheless certain: time is running short and decisions need to be made as soon as possible.

Yours sincerely,



John Bruton

Ambassador

Annex I:

European Climate Change Programme (ECCP)

Status of implementation of important ECCP I identified policies and measures

Measure	Reduction potential EU-15, 2010 (Mt. CO_2)	Entry into force	Starting to deliver
EU emission trading scheme	~ NAP2	2003	2005
Link Joint Implementation (JI)/ Clean Development Mechanism (CDM) projects to emission trading	~ NAP2	2004	2005/2008
F-Gases Regulation and Directive on Mobile Air Conditioning	23	2006	2008
Dir. on the promotion of electricity from renewable energy sources	100-125	2001	2003
Directive on the promotion of Cogeneration of Heat and Power (CHP)	65	2004	2006
Directive on energy performance of buildings	35-45	2003	2006
Directive on the promotion of transport bio-fuels	35-40	2003	2005
Directive on the promotion of energy efficiency and energy services	40-55	2003	2006
ACEA voluntary agreement	75-80	1998	1999
Energy labeling directives	20	1992	1993
Total	**393-453**		

Note: The emission reduction potential for the various ECCP measures are (ex-ante) estimates. The 'ex ante' ECCP evaluation of the potential of a certain measure does not necessarily coincide with the actual realisation in the field, as not all of the detailed provisions of the proposals or adopted measures have been taken into account in the pre-evaluation. Another reason is that the estimated potential is sometimes based on reaching certain (indicative) targets, which will need to be proven in practice (eg., CHP and biofuels proposals).

Annex II: the EU's Kyoto performance

Greenhouse gas emissions trends and Kyoto Protocol targets for 2008-2012

(source: European Environment Agency, 2006)

MEMBER STATE	Base year[1] (million tonnes)	2004 (million tonnes)	Change base year–2004 (%)	Change 2003–2004 (million tonnes)	Change 2003–2004 (%)	Targets 2008-12 under Kyoto Protocol and "EU burden sharing" (%)	Distance to target indicator (index points) In brackets excluding Kyoto mechanisms and sinks (%)
Austria	78.9	91.3	+15.7 %	-1.2	-1.3 %	-13.0 %	+17.9 (+24.8)
Belgium	146.9	147.9	+0.7 %	0.3	+0.2 %	-7.5 %	+1.8 (+5.9)
Cyprus [2]	6.0	8.9	+48.2 %	-0.3	-3.0 %	no target	no target
Czech Republic	196.3	147.1	-25.1 %	-0.5	-0.3 %	-8.0 %	-19.9 (-19.5)
Denmark	69.3	68.1	-1.8 %	-6.0	-8.1 %	-21.0 %	+7.9 (+12.9)
Estonia	42.6	21.3	-50.0 %	0.1	+0.7 %	-8.0 %	-44.4
Finland	71.1	81.4	+14.5 %	-4.2	-4.9 %	0.0 %	+13.1 (+14.5)
France	567.1	562.6	-0.8 %	1.5	+0.3 %	0.0 %	-1.2 (-0.8)
Germany	1230.0	1015.3	-17.5 %	-9.1	-0.9 %	-21.0 %	-2.8
Greece	111.1	137.6	+23.9 %	0.3	+0.3 %	+25.0 %	+6.4
Hungary	122.2	83.1	-32.0 %	-0.2	-0.2 %	-6.0 %	-27.8
Ireland	55.8	68.5	+22.7 %	0.1	+0.1 %	+13.0 %	+6.5 (+13.6)
Italy	519.6	582.5	+12.1 %	5.1	+0.9 %	-6.5 %	+9.9 (+16.7)
Latvia	25.9	10.7	-58.5 %	0.0	+0.4 %	-8.0 %	-52.9
Lithuania	50.9	20.3	-60.1 %	3.1	+17.9 %	-8.0 %	-54.5
Luxembourg	12.7	12.7	+0.3 %	1.3	+11.3 %	-28.0 %	+3.3 (+19.9)
Malta [2]	2.2	3.2	+45.9 %	0.1	+4.2 %	no target	no target
The Netherlands	214.3	217.8	+1.6 %	2.5	+1.1 %	-6.0 %	-0.7 (+5.8)
Poland	565.3	386.4	-31.6 %	3.7	+1.0 %	-6.0 %	-27.4
Portugal	60.0	84.5	+41.0 %	0.9	+1.0 %	+27.0 %	+14.6 (+22.1)
Slovakia	73.2	51.0	-30.3 %	-0.1	-0.1 %	-8.0 %	-24.7
Slovenia	20.2	20.1	-0.8 %	0.4	+2.0 %	-8.0 %	-1.0 (+4.8)
Spain	289.4	427.9	+47.9 %	19.7	+4.8 %	+15.0 %	+31.2 (+37.4)
Sweden	72.5	69.9	-3.6 %	-1.1	-1.5 %	+4.0 %	-8.4 (-6.4)
The United Kingdom	767.9	659.3	-14.1 %	1.3	+0.2 %	-12.5 %	-5.8 (-5.4)
EU-15	**4266.4**	**4227.4**	**-0.9 %**	**11.5**	**+0.3 %**	**-8.0 %**	**+2.3 (+4.7)**
EU-10	**1104.9**	**752.2**	**-31.9%**	**6.5**	**+0.9%**	**no common target**	**no common target**
EU-25	**5371.3**	**4979.6**	**-7.3 %**	**18.1**	**+0.4 %**	**no common target**	**no common target**

([1]) For EU-15 the base year for CO_2, CH_4 and N_2O is 1990; for the fluorinated gases 13 Member States have indicated to select 1995 as the base year, whereas Austria and France have chosen 1990. As the EC inventory is the sum of Member States' inventories, the EC base year estimates for fluorinated gas emissions are the sum of 1995 emissions for 13 Member States and 1990 emissions for Austria and France.

([2]) Cyprus and Malta did not provide GHG emission estimates for 2004, therefore the data provided in this table is based on gap filling.

The base-year emissions reported in this table are the latest data available from national greenhouse gas inventories (6 June 2006). Final data will be available in the report on the EU's assigned amount (pursuant to Article 3, Paragraphs 7 and 8 of the Kyoto Protocol) under the UNFCCC, due end of 2006.

Note: Malta and Cyprus do not have Kyoto targets.

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