

**GREEN AND MEAN: CAN THE NEW U.S. ECONOMY
BE BOTH CLIMATE-FRIENDLY AND COMPETITIVE?**

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BEFORE THE

**COMMISSION ON SECURITY AND
COOPERATION IN EUROPE**

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COMMISSIONERS

	Page
Hon. Benjamin Cardin, Chairman, Commission on Security and Cooperation in Europe	01
Hon. Alcee Hastings, Co-Chairman, Commission on Security and Cooperation in Europe	03
Hon. Tom Udall, Commissioner, Commission on Security and Cooperation in Europe	12
Hon. Sheldon Whitehouse, Commissioner, Commission on Security and Cooperation in Europe	15

WITNESSES

Richard Morgenstern, Senior Fellow, Resources for the Future	03
Trevor Houser, Visiting Fellow, Peterson Institute for International Economics	05
Robert Bradley, Director of International Climate Policy, World Resources Institute	08

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MARCH 10, 2009

COMMISSION ON SECURITY AND COOPERATION IN EUROPE,
Washington, DC.

The hearing was held at 10:00 a.m. EST in 428A Russell Senate Office Building, Washington, DC, Hon. Benjamin Cardin, Chairman, Commission on Security and Cooperation in Europe, presiding.

Commissioners present: Hon. Benjamin Cardin, Chairman, Commission on Security and Cooperation in Europe; Hon. Alcee Hastings, Co-Chairman, Commission on Security and Cooperation in Europe; Hon. Sheldon Whitehouse, Commissioner, Commission on Security and Cooperation in Europe; and Hon. Tom Udall, Commissioner, Commission on Security and Cooperation in Europe.

Witnesses present: Robert Bradley, Director of International Climate Policy, World Resources Institute; Trevor Houser, Visiting Fellow, Peterson Institute for International Economics; and Richard Morgenstern, Senior Fellow, Resources for the Future.

HON. BENJAMIN CARDIN, CHAIRMAN, COMMISSION ON SECURITY AND COOPERATION IN EUROPE

Mr. CARDIN. Good morning, everyone, and welcome to this hearing of the Commission on Security and Cooperation in Europe. I'm very pleased that we are focusing our attention today on climate change. Security, cooperation, these two words are central to the commission's title and its mission, and they are also two of the essential elements of dealing effectively with climate change. Today America's security is undermined by our dangerous reliance on foreign oil. Too much of our economy is captive to uncertain supplies. Too much of our fortune goes to parts of the world that harbor deep animosity towards our nation and our values.

As analysts increasingly point out, climate change is real and a present threat to world security. Dramatic shifts in climate will likely lead to massive displacement of people who are faced with flooding from rising oceans and extended droughts that dry up their food supplies. Social unrest is almost certain and international instability is likely to follow. Europe faces many of the same issues and challenges, and that brings us to cooperation.

The only effective way to address the global crisis of climate change will be through unprecedented international cooperation. The world has seen an unprecedented international scientific col-

laboration under the auspices of the United Nations Intergovernmental Panel on Climate Change, an effort that culminated in a Nobel Peace Prize in 2007. We have seen nation after nation take important steps to curb the greenhouse gas emissions and plot a new carbon-friendly future. This effort has been especially important in Europe. The European Union has taken strong actions to address climate change. The Union designed and implemented the first coordinated international cap-and-trade program.

Although the initial effort was flawed, the entire world looked to Europe because of its leadership role. The cap-and-trade program that we will design in America will owe much to the European experience. America has been on the sidelines. We have had an administration that denied the reality of global warming even as glaciers melted and sea levels rose and the international scientific consensus became much more unified. Today we have a new president and a new commitment to action. This year the Congress and President Obama will work together to enact climate change legislation. Based on sound science, this legislation will rely on tough mandatory cap-and-trade program.

The climate bill will harness market resources to bring down greenhouse gas emissions, while simultaneously stimulating investment in a clean, sustainable economy for the decades ahead. We live in an interconnected world, where the decisions we make here impact other countries and vice versa. Nowhere is that clearer than on the issue of climate change. Our economy and our environment depend on the commitment we make today to retool our nation's economy for the future. Increasingly that holds true for the rest of the world as well.

The time has come for America to do more than simply get off the sidelines. The time has come for America to assert its leadership in the world again. Taking action on climate change legislation must be a top priority for Congress this year. The time for action is long past. The time to catch up is now. Even in the shadow of the most severe recession in a generation, America's role in the world economy is unparalleled. Other nations may have more consumers or greater portions of certain market share, but it's clear that the world is looking to the United States to lead us out of the economic wilderness, and we will. It is also clear that the world needs America to exert its leadership on climate change. Along with China, we are the largest emitters of greenhouse gases in the world, but unlike China America has the history of combining intellectual resources, entrepreneurial spirit, market savvy and optimism that can translate into an effective worldwide leadership on this issue.

With the adoption of a tough cap-and-trade bill, America will set on a path that will improve our national security by reducing our reliance on foreign oil, stimulate our economy by generating millions of new, clean, green jobs in energy efficiency, solar wind, biomass, and more, and pull the world back from the brink of catastrophic climate change.

Today the commission will address climate change. When the commission goes to Vilnius later this year, we should be bringing with us a message of change, hope, and renewed commitment to common international actions, and by the time the community of

nations convenes in Copenhagen in December, all should recognize that America is taking meaningful, effective action in bringing a strong pragmatic and moral leadership back to the world stage.

Today we will hear from a panel of witnesses who will discuss some of the experiences in America and in Europe, some of the difficult issues relating to international trade and some of the promise that bold action on climate change can yield. Before our witnesses start their testimony, I would like to point out that in the spirit of today's hearing on climate change and the recognition of the need for each of us to take steps to combat global warming, the commission is reducing the volume of paper that it uses at our hearings by making all commissioner and witness statements available online instead of distributing hard copy. You can visit our Web site, www.csce.gov for all hearing material.

At this time let me recognize the co-chairman of the Helsinki Commission, my friend, Congressman Hastings.

**HON. ALCEE HASTINGS, CO-CHAIRMAN, COMMISSION ON
SECURITY AND COOPERATION IN EUROPE**

Mr. HASTINGS. Thank you very much, Chairman Cardin. I echo your sentiment, Senator. In light of the fact that I have to be back over on the House side in about an hour I'm going to forego any opening statement and ask unanimous consent that any statement that I may make be placed in the record. I'm really interested in being able to hear all of our witnesses before I leave. Thank you, sir.

Mr. CARDIN. Thank you, Mr. Chairman. We have a distinguished panel of witnesses. Their bios have been distributed so the bios are before all of us so we know them very well, so let me get on by introducing them: Mr. Richard Morgenstern, who's a senior fellow with Resources for the Future; Mr. Trevor Houser, who is a visiting fellow with the Peterson Institute for International Economics; Mr. Robert Bradley is the director of international climate policy at the World Resources Institute. We will begin with Mr. Morgenstern. Let me also point out, as everyone here knows, that he was the senior economic counsel to the undersecretary for global affairs in the U.S. Department of State before taking on his present assignment. Mr. Morgenstern, it's a pleasure to have you before the committee.

**RICHARD MORGENSTERN, SENIOR FELLOW, RESOURCES FOR
THE FUTURE**

Mr. MORGENSTERN. Mr. Chairman, thank you very much. I appreciate the opportunity to appear today to discuss competitiveness and trade impacts of domestic carbon action. Resources for the Future is an independent, nonpartisan research organization, and the views expressed today are those of myself, strictly.

Broad market-based strategies of the type that you've referred to, cap and trade, that attach a price to greenhouse gas emissions have the potential to offer significant cost and efficiency advantages to the United States as it seeks to reduce its carbon emissions. At the same time, there is the potential that this approach will impose significant costs on particularly energy-intensive, import-sensitive industries. It is these industries and this question of

competitiveness that is referred to as the subject of this hearing and which my comments relate to.

I have been involved in some research activities with several of my RFF colleagues and what I want to do today is quickly review some of the key results of those studies that we have conducted, and then talk about some of the options that the United States might have in trying to deal with these problems. The conclusions of our research can really be succinctly stated in a couple of points.

Number one, measured by the reduction in output, a readily identifiable set of industries is at the greatest risk of contraction over both the short and long term as a result of domestic action. Secondly, although the short run output reductions may seem relatively large in these industries, these reductions shrink over time as firms adjust inputs and adopt new technologies to the changing environment. Third, the largest cost increases are concentrated not in broad industry categories as we commonly refer to them, but oftentimes in industry sub-categories. For example, we may see impacts on aluminum, which is a broad category. We may see impact on lime, which is a somewhat smaller category. And it is this combination of large and small industry sectors that we need to understand.

In the non-manufacturing sector there are also some declines that are seen, but a rather diverse pattern applies. For example, you see that in the electric utility industry the impact is relatively consistent over time, whereas you see in something like mining there may be a continuing deterioration as there is a substitution away from metals, to a substitute for metals that may be attractive.

In terms of employment, the short-run impacts are roughly proportional to the losses in output, but over the longer term we tend to see other industries come in, pick up the slack, and we do not see a net loss in employment.

Most experts agree that the best solution for addressing this problem is to have an international agreement that in fact binds all of our key trading partners to some relatively comparable policy to the one the United States would undertake. But in the interim, unilateral action should and must be taken, in my view, to begin to address this problem. That leads to the possibility, and in fact the likelihood that there will be some emissions leakage, and that means that some of the domestic reductions will be partially offset by increases abroad as production increases outside the United States and energy-intensive activities are relocated globally.

Importantly, displacement of production through lost competitiveness is not the only source of carbon leakage. A large scale withdrawal of demand for carbon-intensive energy in the United States will drive down prices globally and expand consumption elsewhere.

Turning, to the question of how do we address this problem, there are really several different ways that we can go about it. An efficient policy, a cap-and-trade policy of the type that you've referred to and President Obama has endorsed is certainly a first step in that direction. Several other measures, for example the use of carbon offsets, either domestic or international, are other ways of addressing the competitiveness issue.

Thirdly, one can envision cost containment policies whereby there's an attempt to prevent dramatic fluctuations in prices which could in fact adversely affect competitiveness. Those are the approaches that are commonly discussed.

Beyond those, pending legislation here in both the House and the Senate is focused on two approaches. One is free allowance allocation, and the other is trade-related border adjustment type approaches. Speaking to the latter, import adjustment proposals would require importers to purchase allowances based on the embodied emissions in their products, which would attempt to level the playing field. One can imagine a broader border adjustment where you also dealt with exports. However, I would point out that there are particular WTO problems that may impede that action.

The other approach is to try to limit the increases in domestic costs by using free allowance allocation, and particularly a type of free allowance allocation that we have some experience with, but somewhat limited experience with in the United States, and that is in contrast to, say, the Clean Air Act approach, where we grandfathered the allowances based upon historic emissions, this would involve an updating of allowances. That is to say, that the better performance that is turned in by a firm, the more allowances it would receive. This has the effect of lessening the burden of the cap-and-trade system of the carbon price on that particular industry.

I would point out there are other approaches that have been discussed. For example, people have talked about the possibility of exempting certain industries from control, and I would note that doing so removes any incentive that you would normally want to place on these industries to reduce their emissions, and it also raises the cost to all other industries, every other individual in the United States, of reaching the carbon goal.

In summary, Mr. Chairman, I would say that until we have a truly global system in place where we would not need these special provisions to deal with the problems imposed on energy-intensive industries, I would personally advocate a free allowance allocation via updating as a transitional measure for the adversely affected industry. Thank you, Mr. Chairman.

Mr. CARDIN. Thank you very much for your testimony. I Appreciate it. Mr. Houser.

**TREVOR HOUSER, VISITING FELLOW, PETERSON INSTITUTE
FOR INTERNATIONAL ECONOMICS**

Mr. HOUSER. Thank you very much. My name is Trevor Houser. I'm a visiting fellow with the Peterson Institute for International Economics, and the director of the energy and climate practice at RHG, which is a New York-based research firm. The same disclaimers that Dick provided are all true for me. Any comments that I have are mine and not the Peterson Institute's.

The title of this panel is, "Can a New U.S. Economy Be Both Climate-Friendly and Competitive?" I would urge us to think about that question broadly. The transition to a low carbon economy is going to affect U.S. competitiveness in many ways, and the first is what Dick commented on, a need to create a level carbon playing field for energy intensive industries that might be put at a dis-

advantage. The second would be our ability to capture opportunities in new low-carbon energy technologies that will be required to make the transition. Third is our ability to trim some of the \$450 billion we spend each year on imported oil would make the U.S. more competitive. And then finally, as we make these new investments in energy efficiency, to take that as an opportunity to invest in increased U.S. productivity more broadly.

This panel is focused on the first of those, on creating a level playing field, and that's where I'll focus my comments. I wanted from the outset to put that in a broader context of how we think about competitiveness.

This issue of the impact on energy-intensive industries, it's critical that we get this piece right, and in doing so we need to think about three things: first, dealing with the impacts for domestic industry in a way that's equitable and effective. Addressing climate change is going to be a multi-decade process that's going to require continued political support. And to draw a lesson from trade liberalization, the need to up front make sure that folks who might be negatively impacted are compensated or retrained is going to be critical to maintaining a consensus surrounding climate policy going forward.

Two, we need to make sure that we do that in a way that's supportive of international climate negotiations. As the chairman pointed out, this is a problem that no individual country can solve and that we'll need a collective solution for. And so we have to address this through the lens of the multilateral approach. But finally, it's important that we do this in a way that is compatible with the principles of the world trading system because for us to capture that upside, the clean revolution on which our ambitions lie, we're going to need open markets to export low carbon goods to the rest of the world, so we need to think about that inclusively.

In the 110th Congress, most of the energy and climate bills that were introduced, cap-and-trade bills, took one primary approach to addressing this issue of competitiveness, of leakage, and that is to impose a comparability test, to look at what other countries are doing to reduce emissions, and those who are seen as not taking comparable action to the U.S. to have the price for carbon on energy-intensive imports—on steel, aluminum, and cement—adjusted at the border.

The goal here is to meet two objectives simultaneously. The first is to address the leakage concern that Dick mentioned, and the second is to try to provide a leverage on other countries to help encourage them to join international climate negotiations. And the authors of those provisions were pretty thoughtful about trying to design them in a way that would be consistent with the WTO.

I would argue, though, that by combining leakage and a desire to address leakage with a need to create leverage, those provisions fail at doing both. Let me point out why. On the leakage front, an international agreement of the type that we hope to get from Copenhagen is not going to yield the same carbon price between countries that are part of that agreement. We need to allow flexibility between developed and developing countries in how they reduce emissions, and then within a country we need to allow flexibility for what types of targets and timetables we adopt.

For example, Europe is committed to reduce emissions 20 percent by 2020 off a 1990 baseline, 30 percent if we get an international agreement. The Obama plan pledges to reduce emissions 14 percent by 2020 from a 2005 baseline, which is a slight increase over a 1990 baseline. That means there's going to be different carbon prices between the U.S. and Europe, let alone between the U.S. and China. And that's okay from an environmental standpoint as long as the end of the day we get to the numbers that we need for global emissions reductions. We can't rely on a global agreement in the interim until we get to a single global carbon price which is ultimately where we'll try to go to address our concerns of leakage. We need to do that in the way we design domestic policy.

The approach taken in the Boxer-Lieberman-Warner bill—would impose trade measures on countries that stay outside of an international agreement but doesn't look at how we can adjust the prices between countries within a national agreement. That's something we need to consider.

On the leverage front, if we look at imposing a tariff on the carbon content of goods that come into the U.S. we don't have sufficient leverage to force any country to the negotiating table. While exports from China of textiles, T-shirts and electronics are very important for economic development, exports of carbon-intensive goods like steel, aluminum, cement aren't, because most of the steel, aluminum and cement that countries like China and India manufacture is for domestic consumption to feed this massive urbanization drive that's going on in those countries today. Exports of energy-intensive goods of the type that RFF's work has identified as being potentially vulnerable account for about 0.1 percent of Chinese GDP. That's fairly small in comparison to the cost of climate policy.

The good news is that developing countries are in fact willing to come to the negotiating table on their own and we probably don't need that type of leverage. And that's something that I think Rob's going to mention.

In a multilateral environment we could think about the role of trade sanctions imposed on all goods as a way to enforce an international agreement. But to be effective we'd have to do that multilaterally. No individual country is going to have enough leverage by denying market access to get any major emitter into an international agreement. It'll have to be a collaborative approach.

For addressing leakage, until we get to a harmonized global carbon price—either a global cap and trade system or global carbon tax—which is more than a decade off at least—we could have a multilateral agreement on how to adjust border prices—adjust carbon prices at the border between countries, in the way that Europe does a value-added tax. Alternatively, we could have an international sectoral agreement where within the broader global agreement countries agree to a common price or a common set of standards for internationally traded goods like steel and cement. Both of those things would need to be negotiated multilaterally.

In the interim, as Dick mentioned, we have a number of options available to us in the way we design our allowance system to offset costs to domestic industry, in particular of the types of output-

based rebating proposals that folks in the House are working on today hold quite a bit of promise.

Thanks very much.

Mr. CARDIN. Thank you very much for your testimony. Mr. Bradley.

**ROBERT BRADLEY, DIRECTOR OF INTERNATIONAL CLIMATE
POLICY, WORLD RESOURCES INSTITUTE**

Mr. BRADLEY. Good morning, Mr. Chairman, Mr. Hastings, Mr. Udall. Thank you very much for the opportunity to join you today. My name's Robert Bradley and I direct the international climate policy work for the World Resources Institute.

Both my companions here, Trevor and Dick, in their testimonies have referred to the desirability of placing U.S. climate policy in the context of a broader international agreement. And so I wanted to step back and explore that possibility a little bit.

I'd like to make three points, each of which I treat in more detail in my written testimony which I hope can be included in the record. First, success against climate change will mean strong federal policy in the United States and action from major developed and developing economies. Second, the world has changed dramatically since the days of the Kyoto Protocol. Major developing countries are ready to take significant action on limiting emissions. And third, all countries will seek to harness the benefits of growth and new jobs from a switch to cleaner energy. Constructive international policy on both trade and technology cooperation can help build support for an effective climate regime.

The United States is an indispensable leader in the fight against climate change. Without the world's largest economy and biggest historical emitter other countries cannot fix the problem. But nor can the U.S. do it alone. Almost 80 percent of global emissions are produced by 15 countries, nine of which are in the developing world. The Kyoto Protocol, the main climate agreement to date, has been rejected by the United States in particular because of the concern that without meaningful participation from major developing countries it would be ineffective and costly to the U.S. economy.

Developing countries have historically argued that with their poverty and small historical contribution to the climate problem they should not be responsible for curbing emissions. But in recent years there's been a flood of developing country climate plans. For example, Brazil announced that it would reduce its deforestation rate over 50 percent from recent levels by 2017, avoiding an estimated 4.8 billion tons of carbon dioxide emissions. China committed to reducing national energy intensity—that's energy per unit of gross domestic product—by 20 percent by 2010 and looks on course to meet that goal with programs expected to cut emissions by 550 million tons of CO₂. Investment in wind, hydro, nuclear and biomass are expected to save an additional 640 million tons by 2010.

India has a number of states that are taking forward aggressive renewable energy targets with renewable portfolio standards. Mexico pledged to half its greenhouse gas emissions by 2050 and is considering a cap and trade policy not dissimilar to the one recently considered by U.S. Congress. South Africa has presented a highly

detailed and ambitious plan to peak its national emissions by 2020 and to bring them down to low levels in 2050.

These policies will often not be of the same form as the cap and trade approach favored in the United States and Europe, but that need not make them any less ambitious. They are the more impressive when we consider the poverty of many of these countries. In India 550 million people still lack any access to electricity and they, like Europeans and Americans in the last century, legitimately aspire to get it, but they are seeking to do so on a lower carbon pathway.

An international climate agreement can help reinforce these actions. Many of these countries have a poor record of implementing national plans. It will certainly not be enough for countries to take each other's plans at face value. The Bali Action Plan, which frames negotiations for a post-2012 climate agreement, provides for both developed and developing countries to take mitigating actions that are, quote, "measurable, reportable and verifiable." This language also applies to finance technology and capacity building support for developing countries.

One factor common to all countries taking action on climate is the promise of new jobs and economic opportunity from the switch to clean energy. Over 10 percent of the United States' recent stimulus package was aimed at climate-friendly and environmental objectives. In South Korea the corresponding figure is 80 percent. China has also pledged to put hundreds of billions of dollars from its stimulus package into projects that cut greenhouse gas emissions. And rightly so. Research we have undertaken recently with the Peterson Institute calculates that green recovery programs generate 30,000 jobs on average per \$1 billion invested. They also reduce the cost of meeting climate goals in the longer term.

All countries focus on generating jobs at home. But the truth is that clean energy, like any high-tech industry, will depend on inputs from around the world. A multilateral approach to developing and deploying clean technologies can be enhanced through cooperation on climate change and supported by freeing up trade and environmental goods and services.

This body can shape the success of the international process. An ambitious federal climate policy will unleash action not only in the United States but also from countries that have been waiting on the world's biggest economy. International cooperation on technology programs can help build on the push to cleaner energy through the stimulus. Finally, U.S. policy should include provisions for financing international action on adaptation, forest protection and clean technologies to help ensure an inclusive climate deal.

I don't want to imply that this will be easy. Many countries remain wary of commitments and their rhetoric will stress these fears. But the world has moved on a lot in 10 years. There's a real willingness to tackle emissions and a potential agreement that can turn this willingness into verifiable action.

Thank you and I look forward to your questions.

Mr. CARDIN. And, Mr. Bradley, thank you for your testimony. We'll start with Congressman Hastings.

Mr. HASTINGS. Thank you very much, Mr. Chairman. And gentlemen, thank you all for your testimonies. And I can assure you your words resonate very strongly.

Mr. Chairman, I was thinking as our three presenters were going forward that probably in other places around the world—either today, yesterday or tomorrow—similar type discussion are being had. One of the continuing problems it seems that we have in trying to reach international agreement is the lack of communication. I would emphasize at the outset you spoke about our Web site and I would hope that the testimony of these gentlemen will be appropriately diaried and disseminated to other individuals in other countries that might very well find their remarks useful. Mr. Morgenstern, how long were you actually involved and to what degree were you involved in Kyoto?

Mr. MORGENSTERN. I was working at the Environmental Protection Agency throughout most of the '80s and in the '90s, and then in the early 2000s. I worked on Kyoto pretty much from the inception. I was at Rio in 1992. I attended a conference in Toronto that was in the late '80s. I've been involved in this issue for a long time. I guess you might say the short answer is from the outset.

Mr. HASTINGS. All right. Now, taking from all of your testimonies, and specifically from Mr. Bradley's, it appears that for a variety of reasons the United States never became a signatory to Kyoto. Is that correct?

Mr. MORGENSTERN. Technically we signed it but we didn't ratify it.

Mr. HASTINGS. We've kind of like been missing in action on the subject. Would you agree with me that those who would use an argument that—to trust your partners for international agreements would then turn around and argue, well, the United States didn't go along with Kyoto. What makes us think that they or Russia or China or India or any of the larger countries are going to go along with some kind of carbon emission international agreement?

Mr. MORGENSTERN. You raise a very important question, Mr. Chairman. I guess I would say that looking back on the situation with Kyoto that the fact that United States did not take any domestic initiative at that time, perhaps the negotiators got a little bit ahead of the political reality back home.

That the current thinking now—certainly it's embodied by President Obama's statements and by the actions in both houses of Congress in the past several years in developing legislation—is that the United States really needs to be a leader and needs to take domestic action and that that's a way of demonstrating to the world that we are serious and that we're simply not showing up at the negotiating table, participating in all the rhetoric and then failing to deliver.

That's probably the approach that makes most sense given the way our system operates.

Mr. HASTINGS. But now we're in a climate of slumping economic activity and the overall financial crisis globally. And my read is that Europe's ambitious plans are now suspect among themselves. Reading one statement from a European negotiator whose name doesn't appear in the article, he says the Germans are giving up and the Italians are getting ready to follow. And then we know

about President Chirac—Sarkozy’s forward-leaning discussions. Mr. Bradley talked about it, about trying to come to some terms by the year 2020.

My overall concern is this: In any major change that requires world agreement, it takes too much time. And how then can we shorten that time and get to the business of collective undertaking worldwide or the collaboration that’s going to be needed in order to do anything really substantial?

I hear you argue and I agree with you that unilateral action is going to have to take place. But it seems in order for us to be unilateral we need then to have widespread understanding inside the United States and the various sections that are likely to be affected from steel, petrochemicals, all the way down the line, and try to get as many people on board with the policy rather than coming up here and yakking it up. That’s, to my way of thinking, what needs to be done. You can’t have a one-day summit. You have to have an ongoing, concentrated, hot effort to try and come to agreement from within before we act unilaterally. Or am I making any sense?

Mr. MORGENSTERN. Definitely so, Mr. Chairman. I guess two key elements of a domestic initiative that could pave the way to a greater international cooperation. Number one is that the domestic action be cost-effective; that is to say that it be designed in a way that it is affordable and it is efficient and it is getting the most possible reductions for the dollars that we commit to it. Secondly is that we need to demonstrate to ourselves and to the world that there are new technologies that can come into play quickly and efficiently and that they can lessen the burden for others as well as ourselves in trying to meet these goals.

The United States’ initial action is really a small down payment to a global future here. Nobody is kidding themselves to think that we can solve the problem. As we all know, we’re a fraction of the emissions and so on. But the fact is that we need to demonstrate that this can be done efficiently and that in fact new technologies can come into play and that they can be effective and efficient.

Mr. HASTINGS. Right. Right here in our bicameral legislature, Mr. Chairman, in my view it would be helpful if we communicated better among ourselves. A lot of times the left hand doesn’t know what the right hand is doing. A hearing is held over here in Commerce, another one’s held over here in Foreign Affairs and another one’s held over here in financial. All of this stuff needs to be coordinated, at least in my opinion.

Thank you, Mr. Chairman.

Mr. CARDIN. I think Mr. Bradley wanted to respond.

Mr. BRADLEY. Thank you with your indulgence. As the more astute amongst you will have noticed, I am European and I was actually closely involved in the design of the European emissions trading system. And I wanted to pick up on a point that Mr. Hastings made, that there is a very similar dialogue going on in capitals around the world.

I would include in that Beijing, to a certain extent Delhi. The countries are in fact saying to themselves, we get it; climate change is a really big deal. China’s national climate change program goes a great length into just how badly China is going to get hit by cli-

mate change. They say, we get it. We have to do something. We're a really big emitter. It can't be done without us. We have to still combine that with other concerns we have: economic development, energy security and things like that. But how can we move without the United States?

So this comes to your second point, Mr. Hastings, about how we can move forward urgently—because you're right; international agreements themselves don't move particularly fast. But I would argue that while an international agreement is important in an ongoing confidence building, it's not the thing that will trigger action. The thing that will trigger action, the thing that can be done here that will be far more important than any other single activity undertaken on climate change in the world will be to implement and give a clear signal about the implementation of U.S. climate policy.

The European Union has spent the last decade—you refer to the divisions. Those divisions are rooted in a reluctance to move too far ahead without the United States. The Europeans have actually put a lot on the line by saying we'll do—we'll go for 20 percent below 1990 levels by the year 2020 in terms in greenhouse gas emissions, regardless of what everybody else does. But they've actually gone out and said if other major emitters play then we can maybe get that down to 30 percent.

The Europeans are not the only ones but they're perhaps the ones that have gone out most transparently in making that case. The U.S. has it in its power not only to take action on American emissions but to trigger action amongst others.

Mr. CARDIN. Thank you. Senator Udall.

**HON. TOM UDALL, COMMISSIONER, COMMISSION ON
SECURITY AND COOPERATION IN EUROPE**

Mr. UDALL. Thank you very much too both chairmen for doing this hearing, and thank you for the witnesses for being here today.

I'm of the belief that there will be a long-term competitive advantage for those who embrace green technology and infrastructure in a world moving towards a low carbon economy. Mr. Bradley, it really goes to the heart of what you were talking about there. I mean, we're in this situation where we say, let's not move forward unless we have the rest of the world—or many seem to be saying that. And if we don't move forward, the rest of the world won't engage and won't continue to push down the road of a low carbon future.

I would ask the panelists, how do you suggest we promote green technology and infrastructure without saddling companies with additional burdens and distorting global competitiveness? Go ahead.

Mr. BRADLEY. Thank you. I very much agree with the premise of the question you're articulating there. The World Resources Institute, incidentally, together with several partner NGOs and 27 major U.S. corporations, in the form of the U.S. Climate Action Partnership, has come out very strongly in a unified voice over the last two years in making the case for the United States moving forward with clear policy.

The economic advantage that American corporations are seeing in that is that if you're playing in the power sector or in heavy industry, the one thing you don't want is uncertainty. They get it

that climate change is going to be a problem. They get it that sooner or later, public policy is going to have to respond to that problem. Better that you know that sooner before you start building your power plants and that you know what that's going to be and that you have some clear forward signal that allows you to adapt not only your investment choices today but your research and development and the business choices that you make looking into the future. So while we can get lost in the weeds, That's a very strong early signal.

Mr. UDALL. What you're talking about there is really a price signal in the market, isn't it? Having some kind of consistent strong price signal to move us in a new direction in terms of green technology and infrastructure and that kind of thing?

Mr. BRADLEY. Absolutely. If you're managing a business unit and you want to go to your executive board and ask for capital this year, they're going to ask how you hedged against all of the risks that they see against both the reality of climate change and the reality of the potential policy coming down the pipe. The sooner you can have a price that you can start incorporating into the forward planning on that, the sooner you're able to make smart decisions that help your growth and your employment in the long run.

Mr. UDALL. That's one of the first things we need to be doing, isn't it? It's to put that price signal out there, to get it in place, and then that will start driving where we want to go.

Mr. BRADLEY. That's absolutely correct. There are a lot of other very exciting things going on at the moment—certainly spending through some of the stimulus and recovery measures in new technologies. But without a long-term signal that allows them to say, okay, not only do I develop this technology but there is a market for it, the impact of those things is going to be limited.

Mr. UDALL. Current price signals right now aren't doing the job, are they? I mean, when we have the drop in oil and gas prices to where they are today, that's not sending a price signal to move us in a low-carbon direction, is it?

Mr. BRADLEY. It's not providing the consistent enough signal. We've certainly seen as oil prices went up over the last year how the market can respond to those things. People were buying different vehicles. People were making different investment choices. But of course, then demand goes down. The oil price drops. Instead of maintaining a longer-term signal that can then help consistent investment, we're subject to the vagaries of what happens in the oil market. Certainly a more active price signal would allow us to take control of our destiny a little bit more.

I would note that, again, this isn't the only country where this discussion is taking place. In China, India, not to mention Europe, other countries are also saying, hey, wow, if we start moving early on this, we'll be the ones who are leading this green technology revolution. The Chinese are already making a third of the world's solar panels. And the Indians have some of the world's leading wind energy companies. This is not a static target. This is something that I would say is very much an opportunity that others are starting to seize.

Mr. MORGENSTERN. If I could add perhaps one point of emphasis, beyond the price signal, which will clearly stimulate new tech-

nologies, most of the legislation that's been introduced has a significant auctioning component for the allowances. And that generates a significant revenue stream for the federal government, which in most of the proposed bills is channeled to some extent to new technologies. This provides an additional mechanism whereby one can aid and facilitate development and deployment of new technologies.

Mr. UDALL. Richard, would you comment on the idea of having a mandate in terms of renewable energy for electric power companies? I mean the president has put out a proposal for 25 percent by 2025. Without picking technologies, you give a goal and you give a mandate and you say that's the direction we want to move in. Do you have any thoughts on whether that is a helpful way to go?

Mr. MORGENSTERN. The question you're asking is whether the focus on on renewables, in general—is the preferred way to go. I guess my own sense is that we should probably have a little more of a market focus by setting up a carbon pricing mechanism, which allows all technologies to compete. Renewables will do very well. But a renewable standard tends to distinguish, focus on only those. If we're seeking to get the most bang for the buck, the carbon price mechanism may be the most effective way.

Mr. UDALL. So you'd rather see a cap-and-trade than a renewable standard? That first?

Mr. Morgenstern. If it was a choice, I would certainly rather see that. I guess the question is whether one could augment the other. And that gets into some complexities. But I would probably favor the strong cap-and-trade.

Mr. UDALL. Thank you, Chairman.

Mr. CARDIN. Mr. Houser, did you have a point?

Mr. HOUSER. I just wanted to add one comment. I mean, we're having this conversation in the midst of the worst economic crisis in a generation. That's certainly coloring the politics of this. And as Senator Udall pointed out, people are looking to investment in green technology as a way to help us emerge from this crisis, which is promising. It's important to think about the timelines.

We're having the debate about a cap-and-trade program today in the midst of a crisis. The costs wouldn't hit the economy until 2012. That's when it would take effect at the earliest, by which time we all hope that we're on a more stable economic footing than we are today. But as Rob said, setting that price signal now, even if the costs aren't going to take effect in 2012, is critical in giving companies certainty. I mean, part of the reason that investment has dried up is about uncertainty about the health of the financial system. For energy-sector companies, that's coupled with uncertainty about the outcome of environmental regulation, which they know is coming but don't know what it looks like. Clarifying that uncertainty now will help unlock investment in the energy system, which will have a broader economic effect.

Now, until that price for carbon takes effect, there's things we can do to help prime the pump and ensure that the cost of carbon, once it's imposed, has as little impact on the economy as possible. We did a decent amount of that with the stimulus bill in investing in emerging technologies and alleviating infrastructure bottlenecks. The benefits of those programs, if properly implemented, is that

not only will they reduce the costs of a cap-and-trade program but the energy savings that will come off of them will help offset the budgetary impact of the stimulus efforts we're having now.

In the report that we did a couple months ago, we estimated that of about the dozen green stimulus programs that were being considered, on average for every billion dollars of government investment, \$450 million per year in energy cost savings were returned to either the federal government or the economy as a whole, which helps smooth the transition into both a cap-and-trade system and eases the budgetary impacts.

Mr. CARDIN. Senator Whitehouse.

**HON. SHELDON WHITEHOUSE, COMMISSIONER, COMMISSION
ON SECURITY AND COOPERATION IN EUROPE**

Mr. WHITEHOUSE. Thank you, Mr. Chairman. Thank you to the witnesses for being here. We describe the problem here as a climate change problem. We describe it as a global warming problem. We very rarely describe it as an ocean chemistry problem. The fundamental problem is carbon loading of the atmosphere that creates global warming; it creates climate change. It also creates chemical changes in the ocean that can lead to acidification of the ocean that could dramatically change the ecosystem of the ocean. The little krill and algae and things, the coral creatures that build nurseries in the tropical waters, all of those things are very much at risk.

There is evidence yesterday out of, I believe, New Zealand about a 30-percent reduction in the shells of these microscopic creatures. We haven't seen these kinds of changes in the oceans in certainly living memory. It could well be that ocean acidification, the wipe-out of the bottom of the food chain as a result of the inability of these small creatures to make the shells that are their structural frameworks and the consequent collapse of the food chain that depends on that base could be the worst outcome for humankind of our carbon loading. It could be more significant, ultimately, than climate change or global warming.

There seems to be very little discussion about that and I'm interested in to what extent, as you look at this as an international issue, this issue is cropping up in other countries in their discussions? It seems to be the forgotten issue in this case. In fact, the very name that we give to the problem overlooks this dimension of it. Mr. Bradley.

Mr. BRADLEY. It's a very important point. The short answer to the question that you ended with is that largely those two areas are conflated. The countries are focused on the question of bringing carbon emissions down, thus reducing the carbon loading in the atmosphere.

It certainly lends color to the discussion that still periodically takes place in climate circles: To what extent are we trying to adapt to change as opposed to cutting the emissions off at source? Certainly this lends color to the view that our ability to adapt to those kinds of changes is likely to be pretty small, not least of course because the oceans that are getting hit by increased acidification and by warming at the surface layers are simultaneously being hit by all kinds of other human activity, whether it's nutrient

runoff from our farms, whether it's over-fishing, which has devastated most of the world's fish stocks.

Certainly, we're seeing a combination of warmer waters and higher acidity levels dealing death blows to a lot of coral reefs. I'm a diver myself. I see a lot of the impact there in ways that is extremely sad to see, but as you say has much broader repercussions. That lends very much color to the idea that, yes, we need to help poor and vulnerable people adapt where we can. But we should not kid ourselves that we can adapt our way out of this problem. Essentially, dealing with it at source through urgently moving forward on mitigation is going to be needed.

Mr. WHITEHOUSE. Mr. Morgenstern.

Mr. MORGENSTERN. Yes, Senator. I guess I would just maybe reinforce your point. I should say I'm an economist, not a natural scientist, so take what I say with a grain of salt perhaps. The impact on oceans is a very important issue. I would note that the IPCC, the Intergovernmental Panel on Climate Change, which has been examining and kind of summarizing the literature in a number of different areas, has studied the potential and the already-observed impacts—of climate change. And they have identified ocean impacts as quite significant.

They have also looked at other areas of great concern. I would emphasize, for example, terrestrial ecosystems. And there is a concern that in various parts of the United States, we have vulnerabilities, for example, in mountain regions, that are quite significant. We could see a rather significant alteration of our ecosystems, which could impact, not necessarily the food chain but could impact life as we know it in the United States and around the world.

They've also looked at sea-level rise, infrastructure impacts, agriculture impacts, health impacts and others. So I would just emphasize that there's a whole range of concerns out there that are, as you highlight, extremely important.

Mr. WHITEHOUSE. The other question that I wanted to get into with all of you, again from an international perspective—we have not had very robust experience yet with the management of a cap-and-trade system. There are issues about regulation. There are issues about market manipulation. There are issues about licensing. Who should be allowed to participate? There are issues about the verifiability of offsets and whether they're actually marginal offsets at all or just paying people to do what they'd do anyway.

Around the world, are there good and more developed or robust models for solving those market management problems? I'm sold on the notion that a cap-and-trade system is necessary. The market aspect of it is efficient. But we've seen even developed and regulated aspects of our economy go completely into the trash in the last couple of months, largely because of failures of regulation, blind eyes—whether deliberate or not—to exotic and bizarre products that nobody wanted to take a look at. Are there models out there that can give assurance that we can keep a cap-and-trade model running cleanly from around the rest of the world?

Mr. Morgenstern.

Mr. MORGENSTERN. Thank you. I was trying to think of examples in the environmental field which even come close to paralleling the

financial disasters and I can't think of any, and I've been involved in this field for some time. And I look, for example, at the Clean Air Act, where we've used a cap-and-trade system in this country very successfully to control SO₂ emissions and partially NO_x emissions. And the EPA reports a compliance rate of near 100 percent on their SO₂ program.

Mr. WHITEHOUSE. Although to jump in on you there, my understanding is that that program deals specifically with a narrow group of emitters and doesn't allow offsets. It gives you credit for reducing and you buy back and forth. But you don't go to the forest in Brazil and claim that you've saved on sulfur dioxide emissions by going someplace else.

Mr. MORGENSTERN. Now, that is absolutely correct, Senator. And that I was just trying to start off by saying that our experience with environmental regulation, using cap and trade, the notion of it, the principle of it, I think, has been well established. And as you suggest, we probably all agree on that.

If you move to looking at non-traditional sources of emissions and you move outside of highly regulated areas, there is the potential for greater problems. I would put these in a couple of categories. First of all, let's distinguish domestic from international. The consideration is that the United States might start off with its own system where we would have a lot more control over all the issues that are kind of implied by your question. That's the first point to make.

The second point to make is that we're looking largely at an upstream system. You can think about how you would regulate greenhouse gases. And one extreme would be all the way upstream when the carbon essentially emerges into commerce. The other would be a kind of downstream system. The Europeans, in fact, have chosen somewhat more of a downstream system than the United States has, if you look, at least as embodied in the proposals that have been advanced.

As you think about an upstream system, you're more likely to be able to have better information, better controls, better—kind of two sets of books really, which kind of enable you to have a better set of accounting of what's going on. So I would say that the upstream system has a lot to recommend it in terms of the credibility and the avoidance of problems.

Now, when you move into offsets, you do get into a softer area. There's no question about that. That the notion would be that here at home we would set up a system. It might well be more stringent than the global system, than the international system that is set up under Kyoto, to try to track and regulate and monitor the use of these offsets. That there are issues there.

But I guess perhaps the premise of your question was that this is somehow like the financial system. While obviously, the future is uncertain, I would say that we have enough experience to give us reasonable confidence that we're not going down that road. But let me turn to my colleagues.

Mr. BRADLEY. Clearly this is a bad time to be sort of discussing a policy that puts its faith on the financial markets. And the irony is lost on nobody. But, first of all, Dick is right. The kind of markets that are being proposed here are linked back to, particularly

energy, commodity markets that allow some sort of cross-checking. We're not quite disappearing into the world of ultra-abstract, high-falutin derivatives markets, although of course derivatives markets can spring up around anything. Broader questions of financial regulation are ones that are going to apply to any market. And maybe the flipside of the financial crisis that we're in at the moment is that this is a great time to be thinking about financial regulation and how we structure it better in general. And perhaps then an incipient carbon market can start off on the right foot.

In addition to the Clean Air Act that Dick already talked us through, I would say that the experience in the EU emissions trading system to date is relatively robust on that score. Certainly the system has had problems, but those have actually been largely around the politics of allocating allowances in the first place in ways that simply don't have an analogue in the United States; essentially, Brussels doesn't have anything like the power relative to London and Paris that Washington has within the United States as a solid nation-state.

Countries essentially got a license to allocate to their own industries and sort of competed to be overgenerous. That's an approach, incidentally, that the Europeans have since corrected. But certainly I don't think that any of the problems that have arisen so far have been of a nature that questions the sort of financial regulation around those areas, which probably makes it one of the few markets that hasn't run into those problems.

Financial regulation is going to be clearly very important, but I don't think that we should necessarily think of a cap-and-trade system as particularly vulnerable in that area. But it is something that, as we reexamine the whole question of how the financial sector is regulated, is a new ingredient that needs to be there in our minds.

Mr. HOUSER. I guess I would think about that question in three ways: We're concerned with possible systemic risk of financial market regulation; we're worried about price volatility; and then we're worried about the verifiability of offsets. So, from a systemic-risk standpoint, the size of the carbon markets that we're thinking about here is unlikely to be at a point where the type of very real systemic risk we're facing from things like collateralized debt obligations or credit default swaps is creating.

If we're thinking about a 100-billion to \$200-billion carbon market, even if you had derivative products arise around that that were leveraged five times you're not going to get to the systemic risk point. You compare that to a corporate bond market of \$5 trillion that has derivatives on it of \$60 trillion or a Forex market that has derivatives of hundreds of trillions of dollars riding on it. And those are the systemic risk challenges we're facing.

But a carbon market will be a commodity market. The good news of that is that someone has to take delivery of the product at the end of the day. There's a tangible asset that guards against extraordinary bubbles. But it also means that prices will be volatile like in commodity markets, like in oil and gas markets.

I would say the difference of a carbon market, relative to our experience with the SO₂ program is that with SO₂ we had fairly clear backstop technology and a flue gas desulphurization system. We

don't as clearly have a backstop technology on carbon. That's where the price uncertainty comes from, is that we're not entirely clear on what the technology solution will be. The way we address that is through flexibility for firms, banking and borrowing allowances, giving people flexibility in the timeframe that they meet compliance costs.

People have talked about the possibilities of price collars. There could potentially be value for that if the ceiling was set high enough to only address those extraordinary price spikes that might occur. On offsets, there are challenges facing domestic offsets and challenges facing international offsets. On the domestic side, offsets are likely to come from places that aren't regulated, from non-regulated entities, which means that that additionality test that you talked about, which is so troublesome for international offsets, won't really play a role as much because those non-regulated sectors will have no compliance obligation.

On the international side, we have a lot of lessons to learn from the clean development mechanism under Kyoto and how exactly to measure what's additional. That's going to be a major challenge in how we design policy here and how we design policy internationally. The important thing to keep in mind is that the use of offsets is going to play a valuable role in keeping overall costs down. We're going to have to balance the risk that those offsets are valid with the benefit it provides as a cost-containment mechanism.

Mr. CARDIN. One of the most difficult public-relations problems we have in the United States in passing a strong bill—and I am for unilateral action, I'm for us moving forward and becoming a leader, it's going to be good for our economy. Our economy will grow as a result of capping carbon emissions. But the public is saying, why would the United States move forward unless simultaneously there was action from China and India and other emitters of major greenhouse gases—and that the United States will put our industries at a disadvantage.

We've talked about that and your testimonies have dealt with it. And you have pointed out the difficulties of enforcing this through border adjustments, if we were trying to adjust for the carbon content. And you raise a very valid point that the specific product coming in from a country might be low-carbon content compared to the total emissions of a particular country.

If we're successful in Copenhagen and there is a regime that is developed as to what is expected from nations like the United States and developed nations, what is expected from developing countries, and then if we can adjust our international trade commitments under WTO to reflect that type of commitment then it seems to me that we have a regime that could enforce the reasonable expectations of the international community, which could be enforced through the WTO for those countries that are concerned that they might be disadvantaging their own industries by allowing products from other countries to come in that are not subject to the international regimes on carbon reductions.

That seems to me to be a reasonable path. And when I ask my European friends about it, they seemed like, gee, that's a novel approach; why hasn't someone suggested that the WTO be amended as we move forward with a Copenhagen-type of an agreement. I'm

wondering whether in your circles these discussions have any traction, whether there could be an expectation of a change in the WTO as it relates to environmental issues if there's an international consensus reached in Copenhagen.

Mr. HOUSER. Chairman, I would absolutely agree and my colleague at the Peterson Institute, Gary Hufbauer, released a book last week about how to make modifications to the WTO to address the climate-change reality that we're going to be facing. I think that those changes would come in two forms. The first is the potential role of trade sanctions as a way to enforce an international agreement. So the countries that are party to a Copenhagen protocol, or whatever the emerging climate agreement that we have, agree that if countries fail to comply that trade sanctions can be used as an enforcement mechanism. I think that there's promise there.

The other amendment that would need to be made is a multilateral agreement on allowing within a global framework individual countries to adjust carbon prices at the border to allow them to take aggressive cuts. For Europe and the U.S. to be able to take the type of aggressive emission-reductions target that we're talking about, ultimately, we're going to need to be able to ensure that our carbon price is consistent at the border.

The key is that you have to negotiate that multilaterally otherwise countries will have different opinions about what the criteria used should be. And if we have a unilateral approach that gets settled at a WTO dispute panel without a code beforehand where we have multilateral agreement then we risk undermining the credibility of both the WTO and creating extraordinary tensions for climate negotiations.

Mr. CARDIN. I agree with your point there. That's going to be the challenge. But I just hope we put some energy into that in addition to just trying to deal with Copenhagen.

Mr. Morgenstern, I appreciated your comments on that and I also didn't quite understand your point about import-export differential that you said in your original testimony. Maybe you can help clarify that for me. It seems to me adjusting for imports could have the same WTO problem as making a border adjustment for exports.

Mr. MORGENSTERN. My understanding, Mr. Chairman, is the prospect of dealing with an import adjustment, for example, as embodied in the various legislative proposals that have been advanced, has a pretty good chance, probably, to that being accepted by the WTO whereas an export rebate, which is what it would have to be in order to allow your domestic producers to compete overseas, would face more difficulties internationally. That there is a difference within the WTO lingo there.

But the reason why I actually asked to comment on this was that your question, if I understood it, was really about the public relations aspect. I presume that where you were going with this, in part, was to suggest that if we act unilaterally and we harm our domestic industry somehow, if we cause further job losses, if we do things that are perceived as negative, there's going to be a public outcry.

Mr. CARDIN. I'm not sure we could pass the bill with the public perception that we're putting U.S. industries at a disadvantage. I personally believe the U.S. industries will compete more effectively if we become a leader on greenhouse gas emissions. But the political reality of trying to get a bill passed in Congress is that this will disadvantage U.S. industries if we act and China does not.

Mr. MORGENSTERN. I appreciate that point. And I guess what I was going to say was that Trevor has spoken about the ways to modify the WTO, which sound very promising and I want to support those. But I want to come back to a point that I tried to make earlier, which is that the use of an updating free allocation system for these impacted industries, the use of a mechanism which, essentially, provides a cushion to domestic industries which are facing this increased competition is a way of addressing the problem in the near term, at least as a transitional measure. It's a way of providing protection, if you will, of some sort without labeling it protectionism in WTO terminology for our domestic industries.

That this approach, my own observation, has not gotten adequately debated and I don't think that the public fully understands that this is a way of helping domestic industry and, in fact, offsetting—even offsetting by 100 percent—the burdens that would be imposed by this system.

Mr. CARDIN. Of course the cap-and-trade bill that was considered last year in the Senate had significant transitional assistance for carbon-intense industries. There was, in reality, a rebate, whether it was labeled that or not, they did get credits and those credits were worth money and they got help, I think Mr. Bradley wanted to comment first and I have a follow-up question on whether that should be done or not.

Mr. BRADLEY. Sure, thank you. I won't add to Trevor and Dick's comments on the viability of the WTO approach. I would endorse their comments.

I wanted to make a couple of notes to that. One is that the tone in which this question is often posed certainly in some of the debates in Washington—is, how do we coerce countries like China to the negotiating table? Can we use trade measures to do that?

I've tried to make the case in my testimony that the need for coercion is not obvious. In fact, Trevor's made the point that a trade measure may not be a very good—an effective measure—to leverage that participation, and I would also make the case that it's probably not necessary. The way that you have framed this, in a way, of taking trade measures forward in as multilateral a way as possible, is very promising and is a welcome variant on the type of discussion that we've been having.

Another area is also to focus on what might be done in the WTO in a more positive sense around trying to move some of these technologies forward. Periodically, we revisit this question of liberalizing the trade in the environmental goods and services. A lot of countries still maintain fairly high tariff and non-tariff barriers to technologies that we actually want to see widely deployed in the world. Disentangling that from a broader trade agenda is not easy; a lot of developing countries see that discussion largely as a self-serving one from the rich economies. And frankly, it's been handled fairly clumsily in the past. It's not that long since the EU and the

U.S. both brought forward a proposal, which didn't manage to get a whole lot of buy-in from developing countries.

But if we're serious about trying to move technologies on a global scale that are going to help us deal with this problem, that is something positive and forward-looking that can be done within the trade regime that goes beyond and is complementary to the, perhaps, more defensive measures that help us with these transitional arrangements around energy-intensive industries.

Mr. CARDIN. Thank you. Let me just bring up an issue, that we're trying to get a greater consensus in Congress to pass a strong bill and the suggestion has been made that gives me heartache, but let me just bring it out. That is that the concerns expressed by many of the colleagues on the other side of the aisle is that there's too much money in a cap-and-trade bill and that it establishes—it's really a tax and it establishes all these new programs.

Why don't we consider putting in the cap—and to the extent that there's revenues generated, that they be rebated to the consumers of America or to the businesses of America that are impacted, but without the revenue flow to government to deal with investment issues, whether they are in developing a reasonable flow of affordable alternative fuels or renewable fuels, whether it's in public transportation, whether it's in our international funds that are created to help Third World countries or developing countries, that that be left to the normal budget process rather than going through this extraordinary revenue flow created through the cap-and-trade system. I welcome your thoughts on that approach as a way of trying to get a broader consensus in Congress to move forward on a cap on our carbon emissions.

Mr. HOUSER. The first comment I would make is that a cap-and-trade bill will have—the impacts will not be equitable, either by region or by income group, and there are redistribution impacts that will have to be addressed. Now, that can be addressed by directly rebating the emission allowances for free to affected industries and consumers or by moving that revenue through the budgetary process.

But there's two issues, that will critical to maintain—not just to generate, but maintain—public support for a cap-and-trade bill that will deal with allowance revenue. The first is what Dick talked about—providing some cost offsets to energy-intensive industry to help them invest in new technologies to reduce emissions so that they're competing on a level playing field. That's a critical component. And that to be effective, we'll have to be addressing it that way—that unilateral trade measures won't be effective in protecting those industries.

The second is consumers in coal-rich parts of the country that will see a higher increase in electricity prices than consumers in less coal-rich parts of the country. To help those utilities make the transition and offset the impacts of those consumers that's going to be important. Taking the histories of trade liberalization, coming from a trade and finance think tank, to sustain political support for these types of policies that have distributive impacts, like climate change and trade do, it's important to be serious about those efforts. Otherwise, you risk undermining support for a bill a couple years down the road.

Mr. MORGENSTERN. I would just add one or two points. I agree with Trevor's comments here. There are some, clearly, particularly adversely affected segments of society. You probably have to deal with those as we've been discussing and as Trevor's indicated. But it's also true, as you indicated, that there's a lot of money that's generated by either a cap-and-trade or a carbon tax. Any of these is going to generate a lot of money.

That it's really up to Congress to decide how they want to allocate those dollars. Certainly, one can think of a long list of activities that one can choose to support, either in the normal federal budget process or, in some way, outside of it. My answer is—it sounds like a bit of a cop-out—but maybe that's why they pay the big bucks, okay? Essentially, it's a political decision and it really there are some clear questions of equity, okay. One can make a case that helping technologies, advancing new technologies that are essential for the future are critical.

Mr. CARDIN. I agree with that, and I guess one of my concerns is with how we do this; to me is critically important that it's not just capping the carbon emissions, but if the people of my state don't have better public transportation, it's going to be an extraordinarily difficult change in lifestyle that they shouldn't have to suffer. We should be investing in public transportation. When else are we going to get the revenues to really build the types of transit systems that we need in this nation if we don't use the revenue flow from a cap-and-trade system? I'm sure Senator Whitehouse in Rhode Island has a different priority that he thinks is important for his constituents, and I agree that we have to make those decisions—but I think, though, it would be a mistake if we just ignore the need for public investment.

Then our international commitments—there's going to be serious issues that the international community needs to address with developing countries, as a matter of fairness and to get to the goals that we need to get to. We're going to have to be prepared to make those investments. The United States is going to have to put up the money to do that. To try to rely on the normal budget process for that, it's going to be difficult to see us meet those goals.

Mr. MORGENSTERN. The good news, Senator, is that you do have a revenue stream here. You do have a fairly reliable revenue stream that can support the types of initiatives that you're talking about.

Mr. CARDIN. That's the point. The point is, do we give up that revenue stream? I think that was the compromise that was suggested, that we give up that revenue stream.

Mr. BRADLEY. Picking up on that, I would agree with what Trevor and Dick have said and I'm not even an American voter, so I'm not going to take a stab at what is the appropriate political, sort of, distribution between the various, important priorities—dealing with consumers that are impacted by energy prices, dealing with businesses that have competitiveness concerns. I do want to speak briefly to this question of some of the international priorities, though, that will be funded.

I tried to make the case in my testimony that there is a significant national interest for the United States in seeing a successful international climate deal. It helps bind international partners into

delivering on the things that they said they were going to deliver. In the long run, it helps us deal with a critically important problem that affects all of us. It's not an exaggeration to say that if there is no finance available for some issues within the international regime, there will be no climate agreement.

It's important that we shouldn't have any illusions about that. It's true that developing countries, as part of the inevitable negotiating process, vastly overstate some of the, sort of, bottom lines that they say they have in terms of what they would need to see on the table. But it's important to recognize—and it has been recognized, as bills have been formulated in both houses during the last couple of years—that there is a strong case for financing, in particular, I would pick out adaptation, where, in part because of the lifestyles that we've led and the prosperity that we enjoy, people around the world are going to be suffering significant impacts, in some cases—and I regularly meet with representatives of some of the small island states—these are existential threats—their countries will disappear.

But even on less dramatic scales, there are impacts around the world. I think there's a strong sense amongst many U.S. constituencies—and in particular, I point to the religious community and the way that this unfolded over the last couple of years—that, really want to take up that ethical challenge that we all face to try and deal with some of those questions. We all have an interest in seeing markets for clean technology expand, and if we can be collaborating internationally around technology and helping co-finance some of those things, that's going to be really important to helping that process move forward. It is important that that should be raised.

Now, does allowance revenue provide a sort of politics-free or politics-light way of securing that revenue? That seems to be what we were, in many cases, hoping in the last round of bills—I wonder whether that dream is kind of evaporating but whether we get around the politics or not, that argument needs to be won. And I would argue that just as we have, from a U.S. perspective, legitimate grounds to try and put an international deal together that tries to hold our international partners to some standard of, verifying and reporting that they're really making progress, it may not be a bad idea to have a similar structure in which commitments that the U.S. takes up to fund things, whether adaptation or forest protection or technology, also be subject to that verification.

When you're in an appropriations discussion, being able to say this isn't something that we're arbitrarily throwing on the table this year, this is part of an overall international engagement that we've got, we know what we're getting in exchange for it; we're getting the viability of this deal going onwards. That seems to me something that can help us construct what ultimately an international agreement is all about, which is a greater level of trust that enables countries to move forward more effectively together.

Mr. CARDIN. Senator Whitehouse.

Mr. WHITEHOUSE. I wanted to follow up on the chairman's discussion about the local impacts and how you address them. We touched on, for instance, the states where much of the electricity

is generated by coal. It's obvious that a great deal of the revenue generated by a cap-and-trade program needs to be returned to the people who will be paying for it—to families. If you do it across the board, as many have suggested, through reductions in the withholding tax, through reductions in tax rates, through increases in EITC and things like that, you spread it evenly across the country and you fail at the goal of making region-specific adjustments.

If you go specifically to the cost centers in the region, like the utilities, and you rebate back to them, you risk either mitigating or even completely canceling the price signal that it was the purpose of the legislation to achieve. If you do it state-by-state and say, well, we're going to give Ohio, West Virginia a slug of money to compensate for this and they can figure out how they make that distribution, you get into the problem of the state government becoming an agency for itself and you see what we saw, for instance, with the tobacco settlement, in which every dollar just disappeared into various prerogatives and it did not get back to solving the smoking problem that it was designed to address.

I don't see a ready way to transfer revenues back to regular families on a regionally defined basis that doesn't suffer from one infirmity or another. Am I missing a silver bullet that solves this problem?

Mr. MORGENSTERN. I'm not sure I'd call it a silver bullet, but I guess I would say that assuring that the program that's put in place is gradual in nature and doesn't bring about very abrupt changes—and Trevor mentioned the idea of a price collar or some other cost-containment mechanism. This is a way of preventing price shocks on the upside and, by the way, on the downside, it would limit declines that could be a problem for new technology developers who are concerned that they—if they push forward a new product, the market collapses and somehow, they can't sell their product. It actually is helpful on both sides.

But something of that nature could prevent some of the extreme price shocks, but the fact that there may be some—not may be—that there will be some redistributive effect in ways that cannot be readily compensated, that's, to some extent, unavoidable, but if you can keep it small, that's probably the best hope.

Mr. WHITEHOUSE. How about in the area of conservation? It would seem to go back to the coal-fired electricity example, that if we wished to focus resources in areas that were suffering particularly because of their dependence on this as a result of the increased cost, that we could increase conservation in those areas and, although the ultimate consumer's per-kilowatt-hour rate might be higher, if their ultimate electric bill is lower because they burn less of it because we've funded conservation very aggressively in those areas, we may have a situation in which the price signal has not been reduced or mitigated or canceled and yet, they're not harmed in the family pocketbook when they have that long, grim night every month at the kitchen table trying to make sure that the bills and the checkbook meet.

Mr. HOUSER. I work at the Institute for International Economics so that I don't have to answer sticky questions like this but I guess one thing that I could add is, you're right in that the goal is not just to offset the cost of electricity increases to coal-dependent parts

of the country, it's to help them transition to less coal-dependent sources of energy or less energy consumption. And there's a couple of ways to do that: If allocations are provided for free to utilities that does provide the potential for revenue. The key is in ensuring that if those allowance are provided for me, that that money transitions into new investment and is not passed through into price increases for consumers.

If utilities are going to finance their transition to a low-carbon economy on the backs of consumer price increases, then that's where the assistance needs to be transitioned to offset that price increase as they make that technology investment. Ultimately, you're right: However the assistance is targeted, the price signal needs to be there and the incentives need to be right for moving towards lower-carbon forms of energy.

Mr. CARDIN. Senator Whitehouse has really summarized the dilemma we have rather effectively. It's interesting, if you look at the Lieberman-Warner bill from last year, it was developed in a very political environment. Senator Boxer was very clear: She wanted to get the support to get the bill out of committee and, hopefully, moving on the floor and she ended up with 54 senators prepared to move forward on a pretty controversial cap-and-trade bill. I would suggest she got it right last year.

We were pretty close to the balance that Senator Whitehouse was talking about of making sure that we deal with the adverse impacts that we didn't want to see happen in our community, but still allowing the market forces to operate in order to make our economy function the best way with low-carbon emission. I'm not saying we can't improve last year's bill; we can improve last year's bill and it will be different as it moves through this Congress, but I do think a lot of these are political judgments that we have to make in order to try to balance the competing interests.

Let me thank our witnesses for their testimony. What I intend to do is to take this testimony and use it in developing a position for the Helsinki Commission that we will move forward in Vilnius when we have our parliamentary assembly meetings this summer, hopefully working with our administration as to the position that we will be taking moving towards Copenhagen so that the United States plays a very constructive role in the Copenhagen meetings. I know that the committees of Congress intend to be very actively involved in work leading up to Copenhagen, and I would like to see the Helsinki Commission be part of that effort, recognizing that we're all going to have to give a little bit to get us to an effective international agreement.

I have very strong views about some of the international enforcement issues under WTO and I'm always concerned that our European partners are too timid in trying to use WTO to advance legitimate international objectives. Hopefully, we'll be able to work out those issues as we move forward. The bottom line is that the United States cannot sit on the sidelines—that we have to be the leader—and we have relinquished that role. I do thank our European friends because that they have done some really remarkable initiatives on dealing with carbon emissions.

That will help us a great deal in reaching, I hope, a consensus in Copenhagen. Once again, let me thank our witnesses for their

participation. It was extremely helpful and we particularly appreciate your frankness in the exchanges that took place with the members of the commission. We'll stand adjourned.



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