COMPETITIVENESS AND CLIMATE POLICY: AVOIDING LEAKAGE OF JOBS AND EMISSIONS

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

OF THE

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COMPETITIVENESS AND CLIMATE POLICY: AVOIDING LEAKAGE OF JOBS AND EMISSIONS

WEDNESDAY, MARCH 18, 2009

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 9:35 a.m., in room 2123 of the Rayburn House Office Building, Hon. Edward Markey (chairman) presiding.

Members present: Representatives Markey, Doyle, Inslee, Butterfield, Melancon, Matsui, McNerney, Dingell, Green, Baldwin, Matheson, Barrow, Upton, Stearns, Whitfield, Shimkus, Shadegg, Blunt, Pitts, Walden, Sullivan, Burgess, Scalise, and Barton (ex officio).

Also present: Representative Terry.

Staff present: Matt Weiner, Clerk; Michael Goo, Counsel; Melissa Bez, Professional Staff; Lindsay Vidal, Press Assistant; Andrea Spring, Minority Professional Staff; Peter Spencer, Minority Professional Staff; and Garrett Golding, Minority Legislative Analyst.

OPENING STATEMENT OF HON. EDWARD J. MARKEY, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF MASSACHUSETTS

Mr. MARKEY. Welcome to the Energy and Commerce Committee and the Subcommittee on Energy and Environment, and we welcome you to this very important hearing, and it is import just because of the symbolic nature of today because with March Madness about to begin, it is important that we keep in mind the need for a level playing field. As we work to get more players in the clean energy game, including wind and solar and new clean tech companies, we cannot afford to simultaneously tilt the playing field against American businesses and manufacturers.

This hearing will explore ways to keep all countries economically in bounds in the global challenge to reduce global warming pollution.

Global warming does not recognize national borders. CO_2 emitted in California has the same warming effect as CO_2 emitted in China, Europe, or India. Rising sea levels threaten millions of people across the globe, in places as far apart as Bangladesh, Boston and Shanghai. Global warming highlights that we are, in fact, one world.

And just as we are connected environmentally, so too are we connected economically. The actions we take in the United States to curb global warming pollution and create jobs cannot stand alone.

A cement factory that emits heat-trapping emissions in the United States and then decides to move to Mexico or China in response to our laws would have accomplished nothing to reduce global warming, except perhaps to export jobs and emissions overseas. Thus, in a global economy, we cannot ignore the reality of global emissions, nor the reality of global competition.

The subcommittee will hear today about some innovative proposals to address this problem, which is important but manageable. Once you drill down on the facts it is clear that a relatively small number of industry sectors are highly energy-intensive and directly vulnerable to international competition and the effects of that which are brought about by carbon limits.

Those industry sectors include iron, steel, aluminum, cement, glass, paper and pulp, and basic chemicals. These sectors face international competition and have energy or carbon intensive production processes. While it is true that these sectors together account for more than half of all CO_2 from the manufacturing sector, their overall percentage is modest: the big six energy intensive industries account for only about 6 percent of total U.S. emissions.

These important industrial sectors interestingly constituted a little more than 3 percent of America's gross domestic output in 2005 and accounted for less than 2 percent of our jobs.

To avoid shipping jobs or emissions overseas, some have suggested requiring that energy intensive products imported into the United States be accompanied by some kind of fee or surcharge, unless the product comes from a country with carbon pollution limits. This approach would put imported, carbon-intensive products on the same footing as American made goods and thus level the playing field.

Mr. Marty McBroom of the American Electric Power is here to discuss the tariff/allowance proposal his company co-authored with the International Brotherhood of Electrical Workers.

Another way of dealing with potential competitive effects would be to take some of the allowance values from the carbon market and give them to the trade exposed industry sectors to aid in their transition to a low-carbon economy. I commend the work of Mr. Doyle and Mr. Inslee, who have authored such an approach.

Mr. Jack McMackin, who represents a coalition of energy intensive manufacturers who favor such an approach, is here to provide his views regarding that strategy.

Finally, we should remember that in order to stop global warming, it will be necessary for virtually all countries, particularly industrialized countries, to limit their emissions of carbon pollution.

If we are ultimately successful in halting global warming, the playing field will not remain tilted forever, and the best approach for keeping all countries in bounds is to encourage them to permanently match the United States by limiting emissions immediately.

Only then will it truly be possible for teams and companies from places like China, India or Australia to compete without restrictions on the same court as teams from places like North Carolina or Boston College or the University of Illinois or Michigan or Michi-

gan State or Pittsburgh or Wisconsin or Texas A&M or Cal-Berkley or the University of Illinois down state.

Mr. UPTON. And don't forget Penn State won in overtime last night in NIT.

Mr. MARKEY. Penn State is in the NIT? The University of Pittsburgh is doing well, however. And again, dare I say it, the University of Michigan.

I look forward to all of our witnesses' testimony here today, and that completes time for the opening statement of the Chair.

We turn and recognize the Ranking Member, the gentleman from Michigan, Mr. Upton.

Mr. UPTON. Thank you, Mr. Chairman. I look forward to putting my bracket up against yours, so you better get yours done tonight.

Mr. MARKEY. You don't happen to pick all Jesuit schools to go all the way, do you? That has never been a winning strategy for me, but I can't break my habit of doing that.

Mr. UPTON. I am glad you pick with your heart and not your head.

Mr. MARKEY. Not a good strategy.

OPENING STATEMENT OF HON. FRED UPTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. UPTON. Thank you again for having this hearing. I appreciate testimony from our witnesses that I looked at last night, but before I begin I would like to submit a letter that was submitted to our committee last year from former U.S. Trade Representative Susan Schwab. She wrote that we have serious concerns particularly for the enthusiasm for using import provisions that might be perceived as unilateral trade restrictions directed against other countries to push them to move rapidly to reduce their emissions of greenhouse gases. This approach will take us down a dangerous path and adversely affect U.S. manufacturing, farmers, and consumers, and even cause an all-out trade war where no one wins and everyone loses.

History has shown that the U.S. is stronger with a robust manufacturing and industrial base. The jobs and industries that will bear the greatest costs of climate legislation are the same industries that we need to keep in America in order to remain a power on the world stage. These are the jobs that built the middle class, and since 2000, U.S. manufacturing has been struggling. From 2000 to 2008, we lost 3.8 million manufacturing jobs, a decline of about 22 percent. At the same time, imports were up 29 percent, a direct correlation, and my home State of Michigan has been ground zero for these losses. Manufacturing and energy intensive industrial sectors are highly competitive. More often than not, the cost of energy is the difference between operating in the U.S. and shutting the doors to move overseas.

What happens to our national security when we don't manufacture anything? Well, what happens when we need to order all of our steel and aluminum from China? If we take the wrong legislative path dealing with climate change, we run the real risk of permanently destroying our manufacturing and defense supply chains, and in times of crises we will be helpless, at the mercy of others. The days of Rosie the Riveter and an entire generation of coming

together to rebuild our military from the ground up will only be a distant memory. By design, a cap-and-trade scheme works by adding to the cost of energy, and through that, an increase in production costs for energy-intensive industries and manufacturing. There are cost containment mechanisms that will be discussed this morning that may help mitigate some of the increases, but at the end of the day, they won't be enough to save the jobs. And when factories move overseas, the environment is worse for it.

Let us take steel. In the United States, steel producers are the most efficient in the world. An average American steel maker emits 1.2 tons of greenhouse gases per ton of steel. Compare that to Chinese steel emissions estimated to be in the neighborhood of 4 or 5 tons of greenhouse gases emitted for each ton of steel they make.

We are not helping the environment by sending industries that operate cleanly and efficiently in the United States to a regulation-free China. China is the number one emitter in the world with greenhouse gas growth every year that equals the current output of German. We shouldn't be tying a hand behind our back. We can reduce emission and create jobs through other policies, and now is not the time for a costly cap-and-trade system.

In closing, I would like to put the scale of emissions reductions being called for in these bills a little bit in perspective. These proposals would mean that the United States cannot emit more in the year 2050 than we emitted in 1910. That is a pretty daunting task considering that in 1910 the United States only had 92 million people compared to an estimated 420 million that we will have in 2050 and a per-capita income in current dollars of about $6,000. To reach that lofty goal of 80 percent reduction, emissions from the entire transportation sector would have to drop to zero. Emissions from all electricity generation would have to drop to zero. Then we would need to reduce the remainder by about 50 percent. Think about the industries and jobs that we would lose to meet those goals. Can we really succeed as a power on the world stage if we shed these industries? Can our economy recover without those jobs? My guess is that most of us know the answers. I yield back.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Michigan, Mr. Dingell.

OPENING STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. DINGELL. I want to thank you for holding this hearing today. It is an important one. As I have said before, you are to be commended for building a strong record as we continue to move toward comprehensive climate change legislation.

I would like to be clear. The United States is the largest emitter of greenhouse gases, and we are also the lone superpower. We must also be a leader. That said, we need to make strong action corresponding to ours by developing countries and others if we are to go forward on this. We need this for three reasons. First, without compensating action from developing companies, we simply will not get the reductions that the vast majority of scientists agree we need to achieve to avoid devastating effects of climate change. And I would note that the Senate has already acted on this under the

Byrd-Hagel resolution which passed 95 to nothing, setting out the strong feelings of the Senate on this particular matter.

Two, without corresponding action by developing countries with whom we compete internationally, the relative cost of American goods and services could increase and could cause U.S. industry and jobs to migrate to nations that do not limit their emissions. And I can tell you from discussions with the Chinese and others that this is a very real danger, especially based upon the concerns that I expressed to the Chinese in the meeting at Kyoto.

Three, past debate on climate change suggests that the Congress would be unlikely to adopt legislation committing the United States to eliminating its greenhouse gas emissions in absence of assurances that developing countries will take similar action, and I would note again, the Byrd-Hagel resolution that passed the Senate 95 to nothing on this point.

There are two options to ensure mandated reductions in the United States will not cause jobs and the emissions associated with them to move to countries with less stringent controls. First, free emission allocation to entities that produce goods sold internationally in internationally competitive marketplaces and whose competitiveness would be sorely affected by a domestic cap-and-trade program. Second is a program of border adjustments which is commonly referred to the IBEW approach which you referred to in your comments. Under this proposal we would require through tariffs, border taxes or other mechanisms the prices of relevant imported goods to reflect the same price that is included in competing U.S. goods as a result of domestic climate change legislation. Again, you referred to this, and I believe it is an essential part of any legislation which this Committee or other committees can and should move forward. I would note that the draft that Representative Boucher and I released last year contains a combination of these two approaches, and it is to be noted that that draft carries the proposals which were made and endorsed and approved by an organization of industry and environmentalists. I would urge my colleagues to take a look at this draft as a reference point.

It is critical that whatever approach the Committee decides to take, it must be a matter that is reasonably certain to withstand a challenge before the World Trade Organization which realistically we must expect to be filed.

I look forward to hearing from our witnesses today about the two proposals and their WTO compliance. Thank you, Mr. Chairman.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Illinois, Mr. Shimkus.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIMKUS. Thank you, Mr. Chairman. A theory is a coherent group of general propositions used as principles of explanation for a class of phenomenon. We unequivocally state mostly on my colleagues' side that global warming is a fact. It is still a theory, and I would like to submit for the record a story yesterday from the University of Wisconsin Milwaukee, and the headline is University of Wisconsin Milwaukee study could realign climate change debate. And part of it that I have highlighted is scientists said that the air

and ocean systems of the earth are now showing signs of synchronization with each other. Eventually the systems begin to couple, and the synchronous states destroy, leading to a climate shift in climate. When this happens, the climate state changes. You go from a cooling regime to a warming regime, or a warming regime to a cooling regime. This way we are able to explain all the functions in the global temperature trend in the past century. The research team has found the warming trend of the past 30 years has stopped. OK, these are scientists now. The research team has found the warming trend of the past 30 years has stopped, and in fact, global temperatures have leveled off since 2001.

Now, I say that to start with the debate of is there a turning at all and should there be games played? I am not convinced that there is. The Chairman is correct in that cement factories will move. I have already been told that. Iron, steel, manufacturing, it is not the climate provisions, it is the energy costs that will cause them to move. A study of the Warner-Lieberman, 1 million jobs lost without carbon, 3 million with carbon. This hearing is avoiding leakage. That is cute for saying jobs will be lost. And I yield back my time.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Pennsylvania, Mr. Doyle.

OPENING STATEMENT OF HON. MICHAEL F. DOYLE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Mr. DOYLE. Thank you, Mr. Chairman, and thank you for having this very critical hearing. I believe the concerns with job and emissions leakage, as well as international competitiveness, will be one of the key issues we need to address if we are going to be able to successfully pass a climate bill this session. As many of you know, Jay Inslee and I have been working over the past 18 months to put together a comprehensive policy to address this critical question.

Our policy, which essentially will pay for the additional cost the bill imposes on these industries using funds generated through a cap-and-trade program, will go a long way toward addressing the concerns of a specific group of high-carbon intensive industries who have an internally set price for their product. It should be noted that the European Union has identified similar industries within their Phase III cap-and-trade program. The industries we believe should qualify would include steel, cement, aluminum, along with a few others.

Our policy, however, Mr. Chairman, will not address every single concern these industries face, and other policies will be needed to complement it.

For example, we do not directly seek to address the possibility of a rising cost of natural gas, and other policies within the overall cap-and-trade bill will be necessary to address this very real concern.

With that said, though, I believe that our policy is the most comprehensive one yet proposed and look forward to having it included as a baseline provision in the draft bill you are expected to release by the end of the month.

Some specific questions do remain as this policy evolves and is integrated into the overall bill. We are limited at this time by the lack of necessary data but hope that the greenhouse gas registry that EPA is developing will be able to guide this policy in the future.

I look forward to working closely with you, Mr. Chairman, as we seek to answer these remaining questions. Although this issue is extremely complicated, our proposal will go a long way toward answering many of the industries' legitimate concerns, and with that, I yield back my time.

Mr. MARKEY. I thank the gentleman. The gentleman's time has expired. The Chair recognizes the gentleman from Pennsylvania, Mr. Pitts.

OPENING STATEMENT OF HON. JOSEPH R. PITTS, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Mr. PITTS. Thank you, Mr. Chairman, for convening today's hearing. In a time of economic crisis, it is critical that American jobs are not lost due to an overly burdensome cap-and-trade bill. However, after looking at several studies on how cap-and-trade will affect employment, I have a hard time understanding how what amounts to a big tax increase won't lead to even more job losses. An EPA analysis illustrates that even less stringent emission-cutting measures than the President's budget will reduce manufacturing jobs by up to 12 percent. This means 3 to 4 million people will lose employment.

A CBO study says that, "Investors might see the value of their stocks decline, and workers could face higher risk of unemployment as jobs in those sectors were cut." Even if large and high-energy intensive industries are given emissions allowances, small business will still be hit very hard as they will have to shoulder the burden of high gasoline and energy prices and higher-priced goods.

MIT researchers predict that a family's energy bill will increase by $3,128 per year. So not only would Americans lose their jobs, they would be forced to pay much higher household energy bills because of legislation proposed. President Obama acknowledged this in a meeting with the editorial board of the San Francisco Chronicle in January of '08 when he said, "Under my plan of a cap-and-trade system, electricity rates would necessarily skyrocket. That will cost money. They will pass money onto consumers."

Mr. Chairman, we need to carefully consider the negative impact of an overly burdensome cap-and-trade bill that it will have on our economy, and in today's economy, I do not believe it is in the best interest of American families to pass a bill that will cost jobs, raise energy costs, and make their way of life harder and more challenging.

I look forward to hearing today's witnesses and yield back.

Mr. MARKEY. I thank the gentleman. The gentleman's time has expired. The Chair recognizes the gentleman from Texas, Mr. Green. I am sorry, the gentlelady from California, Ms. Matsui.

OPENING STATEMENT OF HON. DORIS O. MATSUI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Ms. MATSUI. Thank you, Mr. Chairman. Thank you very much for continuing to tackle this issue in examining the details of how we need to construct an effective and strong climate change plan.

As I have said before in this room, Sacramento is seeing the effects of climate change every day from less snow pack to increased wildfires to water shortages. My constituents who are at the mercy of the Sacramento and American Rivers are truly afraid of what will happen if we do not act. However, Sacramento's unemployment is over 10 percent. I do not need to tell anyone here what more job losses would do. So as we craft this bill, I want to ensure that we incorporate appropriate policy measures that enhance American industry and vitality.

The witnesses will be laying out a number of policy options today that I want to further explore as we craft this bill. However, we need to go more in depth on an exact formula for the upcoming legislation. We need to get this right. That is why we want to hear from you, our witnesses, on specifics of what this country needs to do. If we give allocations to carbon-intensive manufacturers, we need to ensure that we do not simply give our efforts to clean this planet. If we incorporate tax breaks, we need to ensure that they are targeted enough so that companies in need receive help but also defined in scope so we begin to move to a cleaner economy as a whole.

And if we pursue international agreements and border duties, I want to ensure that we fully understand WTO trade implications. Some say the devil is in the details, yet I think a better future is in the details. I just want to make sure we get this right.

Thank you, Mr. Chairman. I yield back the balance of my time.

Mr. MARKEY. The gentlelady's time has expired. The Chair recognizes the gentleman from Kentucky.

Mr. WHITFIELD. Thank you very much, Mr. Chairman. We look forward to this hearing, and we certainly welcome our witnesses today. Yesterday's AEP had a story, U.S.-China, Worlds Apart on Climate Change Curbs, and the Director of China's Climate Change Office said that China did not want to be held accountable for emissions that it produces to make goods for export. He went on to say that if the United States tried to impose tariffs on imports from China or other countries that didn't have mandatory emission controls, that that would be unfair and a violation of trade rules and would start a serious trade war.

So as we move forward, all of us are very much concerned about the impact on employment and our competitiveness with other countries. I look forward to these witnesses and yield back the balance of my time.

Mr. MARKEY. The Chair recognizes the gentleman from Texas, Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman, and I would like to waive my time but ask you to place my statement and also a letter from the American Chemistry Counsel into the record.

[The information appears at the conclusion of the hearing.]

Mr. MARKEY. The gentleman may do that. The Chair recognizes the gentleman from Washington State, Mr. Inslee.

OPENING STATEMENT OF HON. JAY INSLEE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mr. INSLEE. Thank you, Mr. Chairman. I appreciate your holding this hearing. I just consider myself a ditto-head for Mike Doyle, so I want to associate myself with his brilliant comments about this amendment we are working on. We have proposed one approach to this, and I just want to note a couple of advantages of Mike and my approach that I want to comment on.

First, it is clear that we do need to address this issue, and just ignoring it is not a solution. So, number one, we have got a proposal addressing it. Two, our proposal is an output-based allocation of these allowances, and I think that might seem a little technical but an extremely important part of our proposal because when you do an output-based allocation, it essentially is an incentive for efficiency and it gives an incentive for our industry to move to more efficient processes and infrastructure which will become a great competitive advantage in international competition over the long term. So the way we structured this, it gives a reason for American industry to become more competitive over time so that we can win those jobs over the long term in international competition.

Second, this approach is something we can do now without the necessity of risking trade wars right now. You know, that is something that we always have the option of doing with trade adjustment at the border. We can do this now in a way that I think the testimony today will demonstrate can be helpful to our industries, both in the import issue and in the export issue because our approach will help both the import and the export side of the competitive international markets.

Third, we think we are heading in the right direction in figuring out and defining the industries that will be assisted by this, and we are going to continue to work with some of the witnesses and some of the stakeholders to define that. But we think we have got a fairly rational way of doing that.

So we will look forward to the testimony today. We have some more work to do. I look forward to making the right decisions. Thanks.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Arizona, Mr. Shadegg.

OPENING STATEMENT OF HON. JOHN B. SHADEGG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. SHADEGG. Thank you, Mr. Chairman, and thank you for holding this hearing. I find that this kind of hearing is vitally important for the people of America to understand the implications of the policies we are currently considering. I think everyone understands that the goal of reducing greenhouse gases is well-intended, and it is believed that a cap-and-trade mechanism is one mechanism to get there and worthy of pursuit. The sad thing is that so many people don't understand exactly how that will be applied here in the Nation and what consequences it will have.

I recently was having dinner with a friend of mine who is deeply involved in the trucking business, and the President's budget had already come out in which he had made it clear that whatever cap-and-trade system he imposed, he wanted to have a 100 percent auction of the initial credits. My friend from the trucking industry did not understand that concept and believed that the initial distribution of the credits was going to be based on historical use as has been discussed here and that there would not be an actual auction.

I think these are very, very important questions to be discussed and answered here and to be communicated to the American people if, in fact, the President's proposal that we auction every single initial credit to those industries that need them in order to remain in business, then there will be a vast cost imposed by this program across the economy. Many of my colleagues on the Republican side are calling this a tax. Unfortunately, that may cause some confusion among the public because it isn't technically tax. It is not an additional charge where the money flows directly to the government. However, it is the sale of a new commodity that the government is going to create where the revenues come to the government, and the people need to understand that and need to understand that it will impact literally everything they do, from turning on the lights in their home to the price of a suit to the cost of a sandwich. And whenever this Congress proposes to enact new policies, we need to both make clear the goal those policies intend to address and also the consequences of those policies. I think the American people deserve to know precisely what the cost of this policy will achieve and also what danger it will alleviate or purportedly alleviate before we impose, particularly on a down economy, a new policy of this size which could have vast consequences across the entire economic structure.

So I thank the Chairman for holding the hearing.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from California, Mr. NcNerney.

Mr. MCNERNEY. Thank you, Mr. Chairman. I appreciate your holding this hearing because it is an important issue. I think global warming has tremendous potential for us to become more efficient, for us to create new industries and new jobs, but there are downsides or potential downsides. As my colleague right here next to me mentioned, I have unemployment as high as 18 percent in parts of my district. So losing jobs is the last thing that I want to see happen, and I think if we look at Mr. Doyle's and Mr. Inslee's proposal carefully, look at all these things carefully, we can come up with a good policy that will protect American jobs and accomplish the critical goal of reducing greenhouse gas emissions and at the same time create a whole new sector of jobs.

So let us look at this with an open mind. I certainly look forward to seeing what the Committee is going to say after having read their testimony, and with that I yield back to the Committee.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Missouri, Mr. Blunt.

Mr. BLUNT. Thank you, Mr. Markey. With unanimous consent, I will place a statement in the record.

[The prepared statement of Mr. Blunt was unavailable at the time of printing.]

Mr. MARKEY. Without objection, so ordered. The Chair recognizes the gentleman from Louisiana, Mr. Scalise.

Mr. MELANCON. Thank you, Mr. Chairman. I will waive an opening statement—oh, I am sorry.

Mr. MARKEY. Mr. Scalise.

Mr. MELANCON. I forgot we have two from Louisiana now.

OPENING STATEMENT OF HON. STEVE SCALISE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF LOUISIANA

Mr. SCALISE. I will speak for both of us if that will meet your time. Thank you, Mr. Chairman. I want to thank the witnesses for also appearing before our Subcommittee.

Serious issues surround global climate change policy, issues that spread throughout our country and touch every American family. Efforts to tax carbon emissions could cause serious, possibly irreparable harm to our national economy, not to mention that our country's efforts could be in vain if other countries like China and India do not follow a similar strategy.

A strong economy includes a strong energy sector, and this Subcommittee must be very careful not to pass an energy tax that will have a negative immediate and long-term effect on the health of our national economy while adding more than $1,300 to every American family's energy bill.

The dislocation of American businesses and American jobs is a strong possibility if Congress passes legislation that will make it unrealistic and economically unfeasible to remain in our country. Some estimates reach as high as 7 million jobs lost in America if we pass a cap-and-trade tax as was proposed in the 110th Congress. Add to that the fact that some geographical regions of our country will suffer disproportionate and devastating economic losses if such legislation were to become law. In addition, to take certain forms of clean, renewable sources of energy like nuclear off the table for consideration only adds insult to injury. As I have reiterated in past hearings, it is imperative that we consider these realities as we consider these policies. Instead of Washington bureaucrats mandating harmful policies that will kill key sectors of our national economy, we should instead explore policies that encourage investment in cleaner technology and innovation in the private sector. The ingenuity of the American entrepreneurial sprit is the one that has made our country the best in the world, and this Congress would be wise to encourage more of that entrepreneurial spirit rather than running off with harmful energy tax policies with that same spirit. The effect of a cap-and-trade tax are broader in scope than some in this Congress want to admit to the American people. Such legislation will ship American jobs overseas, will make heating and cooling our homes much more expensive, and will increase the cost of everyday household products. I would urge caution as we proceed with a cap-and-trade plan and make sure that we fully explore these adverse effects that such a policy would have on American jobs and American families.

I look forward to hearing from our witnesses, and I yield back.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentlelady from Wisconsin, Ms. Baldwin.

OPENING STATEMENT OF HON. TAMMY BALDWIN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN

Ms. BALDWIN. Thank you, Mr. Chairman. Our Nation is a lone superpower in an increasingly interconnected and interdependent world. With this stature comes the unique responsibility to set an example, to model behaviors that we want other nations to emulate. It is true that emissions are rising fastest in developing countries. China's emissions are projected to continue rising rapidly, up 71 percent by 2020. India is in a similar situation with emissions projected to continue rising up to 68 percent in that very same timeframe. But we cannot use the behavior of developing nations as an excuse for our inaction. Rather, we must demonstrate by our own example that it is possible to rise to the challenge of creating efficient, effective, and environmentally friendly climate change programs which in turn will create jobs in a new green economy.

However, we have a responsibility to our Nation, our businesses, our workers, our consumers, our constituents to ensure that American industries remain competitive, that American jobs and the production of products remain right here in this country and that prices and costs remain reasonable and affordable.

In Wisconsin, our many energy-intensive manufacturers face tough international competition, particularly from businesses located in countries that have not committed to regulating emissions. To ensure that we do not unjustifiably disadvantage our domestic manufacturing base, we must examine ways to minimize the costs of cap-and-trade compliance and do everything that we can to prevent the loss of U.S. jobs to less or unregulated countries.

I recognize this issue is complex, but there are policy options for mitigating potential competitiveness impacts and encouraging developing countries to curb their greenhouse gas emissions, and I look forward to this challenge.

Thank you, Mr. Chairman. I welcome our witnesses.

Mr. MARKEY. The gentlelady's time has expired. The Chair recognizes the gentleman from Florida, Mr. Stearns.

OPENING STATEMENT OF HON. CLIFF STEARNS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. STEARNS. Good morning. Thank you, Mr. Chairman. I think we are hearing on this side that we are going to lose jobs, and we hear the gentlelady just talking about this is going to create jobs. So I think we got a disconnect here, Mr. Chairman. Maybe you can be the referee here, but when we look at, for example, the National Association of Manufacturers, they estimate that a cap-and-trade scheme will cost up to 4 million jobs, the Heritage Foundation, who estimates the loss of up to 5.3 million jobs, or the Charles River Associates estimate that the job loss could be as high as 7 million. So there seems to be a consensus on our side, we are going to lose jobs, and yet you indicate we are going to gain jobs.

Now, Mr. Whitfield, in his opening statement, pointed out what China said. China does not want to become a low-carbon society. In fact, they don't want to have any kind of this cap-and-trade part

of their export process, and their individual who is the Director of China's Climate Change Office said it would be a disaster and possibly the start of a trade war if the United States were to impose tariffs on imports from China and other countries that didn't have mandatory emissions control.

So I ask the gentlelady, in light of all the statistics and the groups that I see here and in light of what China said, it is hard to believe that this cap-and-trade is going to create more jobs. In fact, it appears to be the consensus is an industry where the jobs are created, it is going to lose jobs, and massive regulatory burdens imposed by a cap-and-trade will inevitably undercut the growth and innovation we desperately need. To build a lasting and effective solution, fostering technology and scientific research, not capping the economy and trading U.S. jobs will obviously guard our security, increase our energy independence, and so Mr. Chairman, I look forward to the witnesses and I just think there is another way to go. Thank you.

Mr. MARKEY. I thank the gentleman. The gentleman's time has expired. The Chair recognizes the gentleman from Louisiana, Mr. Melancon. The gentleman from Louisiana?

Mr. MELANCON. See, you tried to catch me twice. I am going to waive my opening statement.

Mr. MARKEY. I thank the gentleman. The gentleman's time has expired. The Chair recognizes the gentleman from Georgia, Mr. Barrow. The Chair sees the gentleman from Texas, the Ranking Member of the Full Committee, Mr. Barton, and recognizes him for an opening statement.

OPENING STATEMENT OF HON. JOE BARTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BARTON. Thank you, Mr. Chairman, and we appreciate the opportunity to have another dialogue today about climate change.

In a global economy where any producer is just an airplane ride away from any customer and boundaries don't seem to matter, the United States does need a competitive edge. Our edge is individual creativity, freedom, an educated and dedicated workforce, and an energy policy at least until now based on free markets and supply and demand, least cost.

Unfortunately, we have an unemployment rate that is going up, now down. It just hit 8.1 percent. And it appears that there is a Congressional majority determined to adopt a carbon cap-and-trade policy that is absolutely the worst thing we could be doing right now to protect the jobs that we still have in our economy.

We can debate the in's and out's all we want, but if we really want to stop job leakage, don't do cap-and-trade. It is that simple. We cannot escape the unassailable truth that if you are trying to cap carbon, which is one of the most ubiquitous elements in the world, it is going to put a price on it, it is going to go up, and if the price goes up, jobs are going to go down. It is that simple. Manufacturers compete globally. The cost of energy has a bearing whether we manufacture or create that energy, produce that energy in the United States or in China, Mexico, or Brazil. If consumers can just as easily import steel, concrete, and other energy-intensive goods from our competitors, then American producers

won't be able to add the cost of greenhouse gas permits to their bills without losing that competitive edge. Everyone knows what happens next. Declining revenues push companies to close facilities in the United States and cut American jobs.

I have a factory in my district in my small hometown of Ennis, Texas, of about 15,000 people that has been there for 60 years. They announced 2 weeks ago they are closing the factory and moving it to China. They make mattress box springs. They have been doing it for 60 years in Ennis, Texas, but some time next year they are going to start doing it somewhere in China.

We are naive if we think that China and India and other emerging industrialized countries will sacrifice their own growing economies and their own jobs in response to a theory that has yet to be proven. It just won't work.

So I look forward to this hearing. I know most of the witnesses on a personal basis. They are all good people, and I am sure we are going to have a good dialogue, Mr. Chairman. With that, I yield back.

Mr. MARKEY. The gentleman from Oregon, Mr. Walden, is recognized.

OPENING STATEMENT OF HON. GREG WALDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. WALDEN. Thank you, Mr. Chairman. I want to touch on two topics this morning. Before I get into my views on the cap-and-trade proposal, I would just like to draw to your attention and that of the Committee's that apparently in the stimulus bill there was a provision I think a lot of people supported to encourage people to install new energy-efficient windows and get a tax credit for it. The House passed a version that was logical, reasonable, the Senate did as well, but somewhere in conference, new standards got put in place that have been brought to my attention that would make the cost of these windows exceed any logical ability for anybody to make a decision to go get them, which negates the whole idea of energy efficiency and simulative effect. And I draw that to your attention, Mr. Chairman, because I hope we can look into this problem and correct it. Apparently this was something parachuted in in conference. It sets such a high standard. Instead of a $400 or $500 window, it would be a $1,500 window. And so people aren't going to take advantage of either the incentive or the energy reduction. And so I draw that to your attention, and I would hope we could find out how that happened and its impact.

Regarding cap-and-trade, I am deeply concerned about the $646 billion tax increases represents when a number of us on this side of the aisle met with industry leaders from U.S. CAP. I posed the question, if we create a cap-and-trade system that means higher energy costs, will you commit not to take your jobs to cheaper energy places that don't play by these rules, and not a single corporate executive would agree to that request.

I think that is all that needed to be said on that point. It is very disturbing what it will do to our economy at a time of great job loss to increase taxes and to drive more jobs overseas. Thank you, Mr. Chairman.

Mr. MARKEY. I thank the gentleman. The gentleman's time has expired. The Chair recognizes the gentleman from Texas, Mr. Burgess.

OPENING STATEMENT OF HON. MICHAEL C. BURGESS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BURGESS. Thank you, Mr. Chairman, and congratulations for getting the television cameras back on. This is great.

I want to thank you for holding this hearing, and I thank you for allowing us to have some time to talk about cap-and-trade and the effect that it may have on employment and also the potential effect that we could have in moving more energy-intensive industries and jobs from America to countries with less stringent emissions requirements.

Saving jobs and creating new economic growth is something that I hope that we could accomplish in this Committee. I don't think that we can overlook the fact that these new jobs are likely to be at the expense of good jobs in energy-intensive industries or in small businesses that do not qualify for allocations or protection from higher energy costs.

Taxing greenhouse gas intensive imports will not be an effective way to limit job loss. Consider the impact of the United States' attempts to induce foreign countries into unfavorable trade agreements. It could possibly incite other trade difficulties or at least exchanges of harsh words over trade balance. Either way, our Nation's global position reliance on trade is too important to risk without a serious cost benefit analysis, and to date I don't think I have seen one.

Shifting import taxes upon countries of origin will only make American products more expensive. Companies are in business to make money. If the rest of the world develops, export-rich companies will simply sell wherever the best opportunity is for profit. If you are looking to sell product, realistically would you look toward a company that is in recession and stacking on excessive trade barriers and forcing industries to buy carbon credits to cover emission? It is not likely, especially when there are major emerging alternatives.

In the end, globalization of trade markets are based upon getting around barriers such as taxes to lower production costs and ultimately the prices that consumers pay. If there is a way to get around taxes that continue to emit in order to achieve higher prices, I suspect people will find a way.

With that, Mr. Chairman, I will yield back the balance of my time.

Mr. MARKEY. The gentleman's time has expired. The Chair sees no other members of the Subcommittee, but it sees Mr. Terry, a member of the full committee who is visiting with us, and we welcome you, sir.

So we will turn to our witness panel, and I would ask the witnesses to please move up to their assigned spots at the witness table and I will introduce our first witness who is Mr. John McMackin. Mr. McMackin is here today on behalf of the Energy Intensive Manufacturers Working Group On Greenhouse Gas Regulation. Members of that group include many major corporations,

Alcoa, Corning, Dow, Holcim, U.S., Nucor, Owings-Corning, Rio Tinto, U.S. Steel, Owens, Illinois. We welcome you, Mr. McMackin, and if you could move that microphone in a little bit closer, whenever you are ready, please begin.

STATEMENTS OF JOHN MCMACKIN, JR., WILLIAMS AND JENSON, PLLC, ON BEHALF OF THE ENERGY INTENSIVE MANUFACTURERS WORKING GROUP ON GREENHOUSE GAS REGULATIONS; MARTIN MCBROOM, DIRECTOR, FEDERAL ENVIRONMENTAL AFFAIRS, AMERICAN ELECTRIC POWER; PAUL CICIO, INDUSTRIAL ENERGY CONSUMERS OF AMERICA; MARGO THORNING, PH.D., SENIOR VICE PRESIDENT AND CHIEF ECONOMIST, AMERICAN COUNCIL FOR CAPITAL FORMATION; RICHARD D. MORGENSTERN, SENIOR FELLOW, RESOURCES FOR THE FUTURE; AND EILEEN CLAUSSEN, PRESIDENT, PEW CENTER ON GLOBAL CLIMATE CHANGE

STATEMENT OF JOHN MCMACKIN, JR.

Mr. MCMACKIN. Mr. Chairman and members of the Subcommittee, it is an honor to be here. The Energy-Intensive Manufacturers' Working Group on Greenhouse Gas Regulation, on whose behalf I appear today, greatly appreciates this opportunity, and we thank you and all the members of the Subcommittee and staff who are devoting so much time and energy to this critical issue.

I am Jack McMackin, and I am a principal in the law firm of Williams & Jensen, and a director of Owens-Illinois, Inc. OI, headquartered in Perrysburg, Ohio, and with facilities in 11 states, is the world's largest manufacturer of glass containers. Our group was formed last year for a narrow but important purpose, to engage constructively with the other stakeholders and Congress to attempt to solve what is often referred to as the carbon leakage problem but which, as the title of today's hearing indicates, is a problem of the leakage of carbon and ob jobs. It is a problem that primarily affects energy-intensive industries that face foreign competition, the two factors that define our members.

Our working group is composed of companies from U.S. industries that are widely and correctly seen as most vulnerable to leakage, that is, ferrous metals, iron and steel; non-ferrous metals, aluminum and copper; cement; glass, including fiberglass; ceramics; chemicals; and paper. As the Chairman indicated, the companies include Alcoa, Corning, Dow, Holcim U.S., NewPage Corporation, Nucor, Owens Corning, Owens-Illinois, PPG, Rio Tinto, and U.S. Steel.

Let me very briefly highlight five points from my written testimony. First, of the two types of leakage solutions that have appeared in legislation to date, our group is focused exclusively on the allowance allocation type provisions that attempt to address the root cause of the problem by mitigating the cost differential that unilateral legislation would otherwise impose on U.S. production relative to unregulated foreign producers. Last year's Inslee-Doyle Anti-Carbon Leakage Act, which was largely adopted by the Dingell-Boucher discussion draft, is a prominent and in our view very promising instance of this type of measure.

Second, the other type, the border equalization provisions that Mr. McBroom will testify about, will take a different approach. Rather than mitigate cost differential through free allocations or allocation value rebated, border equalization provisions attempt to impose comparable cost on competing goods at the border. Our group's focus as I said is exclusively on the first form of relief, but let me say this. They are not necessarily incompatible. It is possible to do both, and indeed most of the measures to date, the bills that have been introduced have contained both.

Third, the Inslee-Doyle Output-Based Rebate represents a real breakthrough. Let me just talk about two of its key attributes, and here I am echoing the comments of Mr. Inslee. A, by basing its allowances on actual production rather than historic emissions, it removes a significant disincentive to additional production and eliminates the possibility of a windfall. B, by including in its calculations inefficiency standard measured by sectoral average efficiency. It in fact creates a powerful efficiency incentive and establishes a standard that gets tougher every year as the more efficient press their advantage and the less efficient strive to close the gap.

Fourth one, there are several important remaining issues, but the single biggest issue requiring further work in our view is eligibility. As introduced last year, the Inslee-Doyle bill left the determination of eligible sectors or subsectors up to EPA subject to a series of generalized standards aimed at assessing leakage potential. No given industry could know the outcome of an ultimate EPA determination, a determination that could be preceded by warring economists and conflicting pricing models, nor could any member of Congress know whether key industries in his or her district would get relief or not.

By contrast, most of the other legislative proposals, including Lieberman-Warner, the Boxer Substitute, and the Brown-Stabenow Amendment on the Senate side and the Dingell-Boucher discussion draft have straightforwardly listed the legislatively determined eligible industries; each proposal containing almost exactly the consensus list of industries represented by our working group members.

Fifth, and lastly, a very workable and reasonable solution, a middle ground to this eligibility issue is emerging and is under consideration by Congressmen Inslee and Doyle, and we commend it to the examination of others. Moreover, our group unveils today a study by FTI Consulting attached as Attachment A to my written testimony, that we hope will help all concerned to better understand and better evaluate this proposed solution and the general issue of which industry should be eligible for relief. Building on the EU approach and work done by the World Resources and Peterson Institutes and many others, the proposed solution would establish objective criteria for energy intensity and trade exposure. Industries that met both of these thresholds would be presumptively eligible to receive allowances. They could be refused relief only if the administrator found that they are not subject to significant leakage. Sectors that did not meet the thresholds could still establish their qualification by individuated showings that they are subject to leakage.

Mr. MARKEY. If you could summarize, please?

Mr. MCMACKIN. Let me say in summary then, Mr. Chairman, that the overall results show that about 45 out of the 473 6-digit code subsectors would qualify. They represent about 8 percent, Mr. Chairman, of direct emissions in comparison I think to the 6 percent figure for the six industries, and that does include process emissions.

So we very much look forward to discussing the study with all concerned and to working with the Subcommittee, Congressmen Inslee and Doyle, and all other interested members and stakeholders to build on the remarkable progress to date in fashioning a workable solution to the leakage problem.

[The prepared statement of Mr. McMackin follows:]

Testimony of John J. McMackin
on behalf of
The Energy-Intensive Manufacturers' Working Group
on Greenhouse Gas Regulation

Before the House Committee on Energy and Commerce
Subcommittee on Energy and Environment
Hearing on Competitiveness and Climate Policy:
Avoiding Leakage of Jobs and Emissions

March 18, 2009

Mr. Chairman and members of the Subcommittee, it is an honor to be here. The Energy-Intensive Manufacturers' Working Group on Greenhouse Gas Regulation, on whose behalf I appear today, greatly appreciates this opportunity, and we commend you and all the members and staff who are devoting so much time and energy to this critical issue.

I am Jack McMackin, and I am a principal in the law firm of Williams & Jensen, PLLC and a director of Owens-Illinois, Inc. O-I, headquartered in Perrysburg, Ohio and with U.S. facilities in eleven states, is the world's largest manufacturer of glass containers. O-I is a very active and committed member of the Working Group.

Solving the puzzle at the heart of today's hearing is the reason our group was formed. How can we reconcile three things that are seemingly at odds: (1) a unilateral U.S. legislative effort, that (2) addresses a global environmental problem, in light of (3) the reality of global competition?

I. The Energy-Intensive Manufacturers' Working Group on GHG Regulation—and "The Leakage Problem."

Put differently, our group is all about a solution to "the leakage problem." The Working Group was formed early last year for a narrow but important purpose: to engage constructively with other stakeholders and Congress to attempt to solve what is often referred to as "the carbon leakage problem" but that is in truth—just as this hearing's title suggests—a problem both of the leakage of carbon *and* of jobs.

It is a problem that primarily afflicts energy-intensive industries that face foreign competition—the two factors that define our members. In short, if the U.S. enacts tough global warming regulation but other key manufacturing nations do not, production of energy intensive goods may well shift to the unregulated countries, moving the associated carbon emissions beyond regulation and moving American jobs elsewhere as well.

Our group is composed of companies from the U.S. industries that are widely and correctly seen as most vulnerable to leakage: ferrous metals (iron and steel), non-ferrous

metals (aluminum and copper), cement, glass (including fiberglass), ceramics, chemicals and paper. The companies include Alcoa, Corning, Dow, Holcim(US), NewPage Corporation, Nucor, Owens Corning, Owens-Illinois, PPG, Rio Tinto, and U.S. Steel.[1]

I should mention that these are all companies that, of necessity, have already done much to increase their energy efficiency and decrease their emissions. Energy-intensive, trade-exposed industries already have a compelling economic incentive to become energy efficient, which, in turn, leads them to be carbon efficient. Energy costs are a substantial portion of these producers' manufacturing costs. Energy efficiency reduces their cost of energy, which enables them to compete more effectively.

The existence of this incentive is one of the primary reasons that, according to Energy Information Agency Data comparing 1990 emissions to those in 2005, the manufacturing sector as a whole has actually decreased its total emissions, direct and indirect, since 1990, while all other sectors are up, on average, over 30 percent. Similarly, the March 1, 2008 Public Review Draft of of EPA's Inventory of Greenhouse Gas Emissions and Sinks 1990-2007 (p. ES-16), shows the industrial sector's total direct and indirect emissions down by 4.2 percent over the period. Moreover, as I will discuss in more detail later in my testimony, our work indicates that based on available data the total emissions of the 40-plus specific industrial sectors or subsectors (by six digit NAICS code) that are most exposed to leakage represent only about 8 percent of total U.S. direct emissions.

There is a broad consensus that the leakage problem must be solved in any responsible global warming legislation. To fail to do so is irrational: it produces economic dislocation and job loss in exchange for no environmental benefit or, even, net environmental harm. The major question as this stage is not whether to address the problem but *how* to address it.

There are two categories of solutions that have appeared in proposed legislation to date, going back to the last Congress. Both address the root cause of leakage: the cost *differential* that would be imposed on U.S. production relative to that of unregulated or lesser regulated countries. One seeks to attack the differential by eliminating the cost through allowance grants or rebates, the other by instead imposing a comparable cost on competitive imports.

cost mitigation

The first category, the one upon which our efforts are focused, encompasses proposals to negate or mitigate the cost itself, at the production level, either by allocating free allowances to qualifying facilities or otherwise rebating to them the cost of allowances in some form. The leakage problem, it might be noted, is exactly the same

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[1] While this written testimony generally represents the position of the Working Group, not all statements are necessarily endorsed by every member. I do not represent members of the group other than Owens-Illinois, and while my responses to any questions during the hearing will attempt not to stray from the group's views, those responses will be my own and not necessarily the group's.

whether legislation is structured as cap and trade or a carbon tax, and the solutions are similar. This testimony will assume a cap-and-trade context.

cost equalization

The second general category encompasses refinements of what the literature sometimes referred to as "green tariffs," but which, since the Lieberman-Warner bill, have largely been in the nature of a more sophisticated "border equalization" involving a special international allowance requirement. In other words, this solution, rather than attempting to mitigate the cost at the production level, seeks to impose an equivalent cost on competing products at the border.

The approaches are not incompatible. It is possible to enact both types of provisions in the same legislation, and indeed most of the legislation introduced to date has had both. I will have some further comments later in my testimony on the relationship of the two provisions, but at this point I will simply reiterate that our group's work has been solely on the first category, the cost mitigating proposals, and we do not as a group take a position on border equalization proposals.

With respect to the object of our focus, the cost-mitigation proposals, good progress is being made and a convergence is emerging—much of this reflected in the legislation introduced late last year by Congressmen Inslee and Doyle, the "Carbon Leakage Prevention Act".

II. Good Progress Is Being Made—We Support the Inslee-Doyle Solution, Subject to Further Work on the Eligibility Mechanism and Other Issues.

On behalf of the Working Group I want to thank Congressmen Inslee and Doyle and their staffs for their tireless, creative and inclusive efforts to address the leakage problem. We believe the bill they introduced last year represents the core of a workable solution and we support its approach. It is not perfect from our point of view and we know it is not final. It should be noted that it certainly does not negate all of the cost that would be imposed by cap and trade legislation on trade-vulnerable, energy-intensive manufacturers. It is appropriately neither a categorical exemption nor a complete elimination of compliance costs. Likewise, it is structured to be transitional relief that keeps American businesses competitive until global agreement can be reached. We look forward to continuing to work with the congressmen, the Committee and Subcommittee, and other stakeholders to refine it further.

There remain important issues we believe must be addressed. Chief among them is the manner in which last year's bill dealt with selection by EPA of eligible industries. We believe that Congressmen Inslee and Doyle are reworking this section, and we are very hopeful that a new provision will make the process more certain, more objective and more data driven. In any event, I discuss our eligibility concern and a potential solution in more detail later in my testimony (Section IV). I would also note that among the other

important issues that merit further attention are the fact that the allowances would not be sufficient to cover the full amount of the costs at issue and the amount of discretion to reduce or eliminate the program.

I also want, similarly, to thank Congressmen Dingell and Boucher and their staffs for their very constructive efforts. After spending months wrestling with this, their discussion draft released last year adopted much of the Inslee-Doyle structure as it existed at the time, along with some changes that we think helped advance the thinking of all of us on the leakage problem. And, Mr. Chairman, the anti-leakage, special allocation provisions in your "Investing In Climate Action and Protection Act," we thought, had much to commend them.

Moreover, I want to stress the "convergence" that we are seeing. In the Senate, those members who have worked most intensely on the issue, such as Senators Brown and Stabenow (as reflected in their amendment in Senate consideration of the Lieberman-Warner bill), as well as many of those in the environmental and academic communities who have studied the issue, USCAP, and others, are not only supporting allowance-grant relief to energy-intensive, trade-exposed industries, they are supporting key structural elements that also undergird the Inslee-Doyle approach. The most important of these is basing allocations on actual output as opposed to historic or grandfathered levels and incorporating an efficiency standard into the allocation formula.

III. Key Features of the Inslee-Doyle Solution

In essence, the Inslee-Doyle solution, like the Brown-Stabenow solution in the Senate, is a cost-mitigating program that *(i)* grants free allowances to energy-intensive trade-exposed industries to compensate them for *(ii)* a significant portion of the direct allowance and increased electricity costs of a cap-and-trade regime, *(iii)* that varies the grant based upon a facility's actual, not historic, output, *(iv)* that rewards a facility for carbon efficiency and punishes it for inefficiency though use of a benchmark or efficiency standard, and *(v)* that phases out only as international agreements solve the underlying cost disparity.

I will not discuss each of these features in detail, but I do want to note a few of their most important aspects.

A. Output-Based Allotments

The Inslee-Doyle mechanism provides for output-based allotment of allowances. Most of the early anti-leakage, cost-mitigating provisions based their allocation of allowances on a facility's historic emissions. This raised a number or problems, including the following two.

First, historic or grandfathered emissions approaches provide a disincentive to increase production—and lost production opportunities in the U.S. may result in production of the same goods elsewhere. An historic-based allocation would not mitigate

the cost of additional production. Additional production would be fully exposed to the cost of allowances. Hence, the mechanism would do nothing to help energy-intensive industries to expand production and add jobs. At risk, for instance, would be added production to supply steel, aluminum, copper, glass, ceramics, fiberglass, etc. to what we all hope will be increased production of green products, from wind turbines to solar panels. Similarly, American suppliers would be less likely to be providing the cement, plate glass or fiberglass going into new construction of energy-efficient buildings or renovations of older inefficient ones.

Second, some believe historic-based allocations—but not output-based allocations—may in some instances produce an incentive to raise prices but not production. To some commentators this strange phenomenon is a function of "opportunity cost." In some (limited) circumstances, a producer may be able to obtain higher prices, or fail to pass through the cost savings occasioned by free allowances, by in essence saying that if it does not receive from its customers an incremental return on its allowance-grant asset it will reduce production and sell the freed-up allowance. In other words, the existence of this opportunity to sell the allowance changes the seller's supply curve. *In any event, basing the allowance grant on actual output solves this problem—to the extent it exists— by removing the "opportunity" to sell an unused allowance.* A facility only gets an allowance for a product it produces.

Output-basing has another big advantage. It facilitates the use of a benchmark or efficiency standard. A facility's actual production can be included in a formula with an efficiency standard to determine the number of allowances granted.

B. Efficiency Standards

As I described earlier, energy-intensive, trade-exposed industries already have a compelling economic incentive to become energy efficient, which, in turn, leads them to be carbon efficient. That incentive has resulted in remarkable production innovations and efficiency gains. Nonetheless, some policy makers have sought additional assurances that anti-leakage provisions will further incentivize emissions reductions. For instance, from our earliest discussions with him, Congressman Boucher has said he would like to see additional incentives in the form of benchmarking.

Last year's Inslee-Doyle legislation provided this through the use of an effective and practical benchmark: the average energy efficiency of a sector or subsector. This standard has the advantage of being both relatively easy to determine, by definition achievable, and constantly increasing over time. Companies above the average would do relatively better and those below relatively worse, creating an added incentive for each group to improve its efficiency—and thus raising the average. This mechanism inherently rewards operational efficiency and therefore creates a lasting incentive for continuous innovation and technological development.

So, we support the efficiency standard in Inslee-Doyle as introduced last year. We are very concerned, however, about some changes proposed to it. Some would seek to

replace the sector-average standard with a "best practices" standard. It would be impossible for companies facing the threat of leakage, or legislators assessing policy options, to know at this juncture whether that which would be deemed by EPA to be the "best practice" in a sector or subsector is economically feasible, or, for that matter, reasonably available.

If it were not, the leakage relief afforded by the allocation grant provision could be illusory. For example, while paper mills use biomass as fuel, many are also coal-fired. A coal-fired paper plant in Maine, for example, might be forced to close if EPA determined that gas combustion or biomass was the "best practice." And, the jobs lost in all likelihood would not move to a gas-fired plant in the U.S., but, rather, to foreign producers. A best practices regulatory regime is a very different animal than a cap and trade scheme, and attempting to combine the two is very likely a bridge too far. We would strongly oppose it.

C. Direct and "Indirect" Costs

The Inslee-Doyle provision compensates for some, but not all, of the costs that would be imposed by cap and trade legislation. I believe it is important to understand the compromise it represents in this respect.

The costs imposed on U.S. manufacturers by greenhouse-gas legislation will be both those that result directly from their obligation to buy and submit allowances (or under a carbon tax to pay the tax) and "indirectly" from higher prices for electricity, feedstocks, and other production inputs. Moreover, the cost of natural gas, as one example, is likely to increase far more than the cost of allowances associated with its combustion because of the effect of fuel substitution that will drive up the demand for natural gas and because of a shift in the demand curve for natural gas that results precisely from its carbon advantage.

A true cost-*negating* anti-leakage provision would address all indirect as well as direct costs. The Brown-Stabenow amendment in the Senate attempted to take this approach. The Inslee-Doyle cost-*mitigation* approach does not. It would compensate for the increased cost of purchased electricity, but would not compensate for cost increases of feedstocks/inputs, nor would it compensate for the demand and demand-curve caused increases in natural gas. Additionally, Inslee-Doyle imposes an across–the-board 15 percent reduction on its reimbursed costs, direct and indirect—compensating, that is, for only 85 percent of those costs. This was done in part to reduce the grants awarded to a highly efficient producer as a result of the efficiency benchmark.

D. Termination Tied to International Solutions

If the allowance-grant program were to expire on a date certain, or decline on a fixed basis, leakage could re-emerge even after it appeared under control. In fact, because manufacturers need certainty and because they plan their capital allocation far in advance, an expiring anti-leakage provision may well tilt plant location decisions toward

foreign locations without regulation. Moreover, a set expiration date would give other countries an incentive to drag their feet in negotiations—to wait us out.

Instead, targeted assistance to energy-intensive industries should be terminated only when the carbon leakage problem is solved through an international agreement. And, it should be phased down only in proportion to progress made in reducing the cost differentials between trading partners in a fashion that demonstrably reduces the disadvantage to domestic producers—not according to an arbitrarily defined timeline. While further refinements are needed, the Inslee-Doyle proposal generally takes this approach.

IV. The Issue of "Qualifying" Industries or Sectors

The Working Group's major issue with the Inslee-Doyle Carbon Leakage Prevention Act as introduced last year concerned its procedures and standards for determining which sectors or subsectors would be eligible to receive allowances. The bill assigned this determination to the EPA subject to a set of criteria that left much room for interpretation and disagreement. In effect, EPA and manufacturers would have been subjected to a series of contested, forecast-rich procedures covering scores of manufacturing sectors and subsectors. These proceedings would be filled with questions of market and product definition as well as competitive impacts. The bill established a very uncertain process—and affected industries need some reasonable level of certainty in making capital expenditure decisions, decisions they must make even now. Similarly, members of Congress from manufacturing states need to know whether their industries will get relief or not.

By contrast, most of the other legislative proposals from last Congress, including the Lieberman-Warner bill, the Boxer substitute, the Brown-Stabenow amendment, and the Dingell-Boucher discussion draft, listed specific industries that would be eligible.

A middle way offering several advantages has emerged. It was suggested by an analysis of the European approach and the work of any number of organizations and scholars—for example, the work of the Peterson Institute and the World Resources Institute in their publication, *Leveling the Carbon Playing Field: International Competition and U.S. Climate Policy Design (*Houser, *et al., 2008).*

Our Working Group has been actively engaged in providing analysis and ideas for this proposal, and it is likewise under consideration by Congressmen Inslee and Doyle. In brief, the provision establishes "presumptive" eligibility through a two-factor test, energy intensity measured by a ratio that sets energy costs over value of shipments and trade exposure measured by the value of imports and exports over the value of shipments plus imports. If a sector or subsector met the presumptive-eligibility standards, it would be eligible for allowances unless the Administrator found that it was not subject to substantial leakage. Any sector or subsector that did not meet the presumptive eligibility tests would be able to establish eligibility through a demonstration of the likelihood of leakage. The actual amount of allowances granted would be decided by the Inslee-Doyle

formulas which focus on carbon emissions. The proposed eligibility methodology would make the process of designation of eligible sectors more certain, manageable, principled and data-driven.

V. Some Key Metrics: The FTI Study

Attached to this testimony is a summary of the results of a study by FTI Consulting. We believe and hope it will make an important contribution to analysis of the eligibility issues by all concerned. One of its principal contributions, we think, is to "disaggregate" the very broad categories of industries that had been studied by others and to examine the data at a six-digit North American Industrial Code System level. In addition, it applies objective energy-intensity and trade-intensity criteria to the broad range of American industry, identifying sectors or subsectors that should at least presumptively qualify for relief but that were not on the list most frequently identified. We invite and welcome comment on the study, and we will ask Rob Fisher of FTI to be available for those who wish to work with him.

The study examines the public data using an energy-intensity threshold of 5 percent and a trade-exposure threshold of 15 percent. Both of these standards are consistent with, but somewhat more conservative than, other work to date in the area. For instance, the 5 percent appears to be very near the standard applied by the *Leveling the Carbon Playing Field* analysis cited above and slightly higher than the 4 percent level cited by the recent Pew Congressional Policy Brief, "Addressing Competitiveness in U.S. Climate Change Policy." The study uses the same formula to determine a trade-exposure ratio as does the EU's regulatory scheme, but the study applies a stricter 15 percent trade-exposure compared to the EU's 10 percent.

The FTI study finds 40-plus sectors or subsectors that would qualify for presumptive eligibility, including the list commonly identified as most at risk and represented by our Working Group members. However, the study also identified smaller industries, largely overlooked to date, that meet the criteria and thus would be presumptively qualified. For example, nitrogenous fertilizer with an energy intensity of 14 percent and a trade intensity of 86 percent would qualify, as would wet corn milling, which includes corn sweeteners, at11 percent energy intensity and 20 percent trade intensity. Beet sugar production (7 percent energy intensity; 22 percent trade intensity) would qualify as well.

While the energy-intensity and trade-intensity data is relatively straightforward, figuring out the amount of emissions implicated takes considerable extrapolation, so the numbers that follow are approximate. In all, 45 industries are identified as presumptively qualifying (out of the 473 industries included among the NAICS industrial manufacturing codes). These represent about 8 percent of total direct U.S. emissions. When all of the emissions associated with their electricity consumption are included, these industries represent about 10.5 percent of total U.S. emissions. An allowance program that compensated them for the cost of their direct emissions and increased cost of electricity would require about 13 percent of allowances available under an aggressive cap in the

first year, assuming, that is, a first year cap of 5,775 million. It should be noted that the 13 percent figure is a rough approximation and that it does not reflect industries that do not qualify for presumptive eligibility but successfully make individuated showings. Moreover, the figure does not include allowances needed to cover production growth.

I should also note that while using data from six-digit NAICS codes to determine whether a sector or subsector would presumptively qualify provides an excellent balance of determinacy, accuracy and administrative ease, it does not work in every instance. Some energy-energy intensive and trade-intensive manufacturing facilities are not classified in six digit codes that meet the presumptive thresholds. For example manufacturers of ceramic substrates for catalytic converters and diesel particulate filters are classified in a NAICS code for auto parts that would not meet the standards. Yet, these manufacturers are energy- and trade-intensive and meet the thresholds on properly individuated data. These circumstances must be accommodated in designing a presumptive-qualification mechanism.

VI. The Relationship of Allowance Grants and Border Cost-Equalization Proposals

As indicated above, while our Working Group's focus has been solely on the Inslee-Doyle type allowance grants that seek to address the leakage problem by mitigating the cost impact of greenhouse gas regulation on energy-intensive and trade-exposed industries, most legislative proposals to date have included border equalization provisions as well. The details of the interface of the two provisions are critical. I wish to make just a few brief and general points about the relationship of the two.

Exports. First, most border equalization provisions suggested so far do not help U.S. manufacturers stay competitive in export markets, and because of the WTO prohibition on export rebates it is difficult to design a border equalization mechanism that will ensure U.S. manufacturers maintain their competitiveness in export markets. Energy-intensive manufacturers are significant exporters. In fact, energy-intensive manufacturing accounts for approximately 14 percent of all U.S. exports. It is unwise to put these exports in jeopardy. This export problem can effectively be addressed through a system of free allowances or rebates without giving rise to a WTO challenge.

Downstream and "Green" Products. Second, border-equalization mechanisms are designed to allow energy-intensive manufactures to pass along the legislation-driven costs to their customers by raising the cost of materials imported into the U.S. by a comparable amount. This creates the troubling possibility that the downstream products could become less competitive as against products produced elsewhere. For instance, because the cost of a bottle is significant part of the cost of a beer or a bottle of wine, Mexican beer and Chilean wine would have a cost advantage over American beer and wines. By way of further example, and assuming the relevant downstream industry is not covered by a border adjustment mechanism, U.S. car assembly plants could be at a cost disadvantage relative to foreign car manufacturing locations that can buy their steel, glass, aluminum and ceramics outside the protective zone of the border equalization

provision. This downstream-product phenomenon could be especially harmful to our country's hopes of participating in the manufacture of "green products" such as wind turbines and solar panels.

Certainty. Lastly, allowance allocations to energy intensive industries are within our control, are not subject to serious legal challenge, are a feature of cap and trade regimes enacted to date including those in the EU and Australia, and are very unlikely to lead to retaliation or trade wars.

There is a role for WTO-compliant border equalization mechanisms where allowance grants are inadequate or unavailable, and, moreover, such mechanisms should be part of our negotiators' tools and as an assurance against failure. They cannot, however, be the primary mode of relief for the pressing problem of the leakage of carbon and jobs presented by U.S. greenhouse gas regulation.

Mr. Chairman and members of the Subcommittee, thank you very much for this opportunity to appear before you.

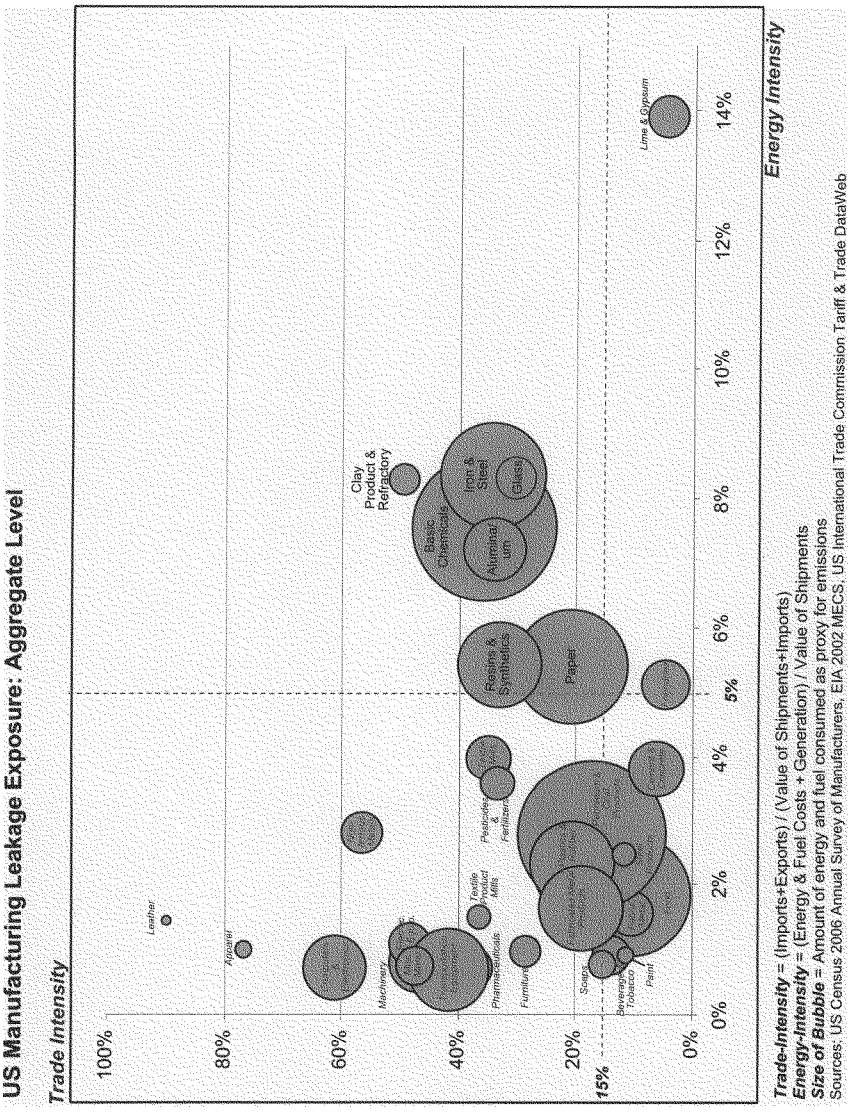
EXHIBIT A

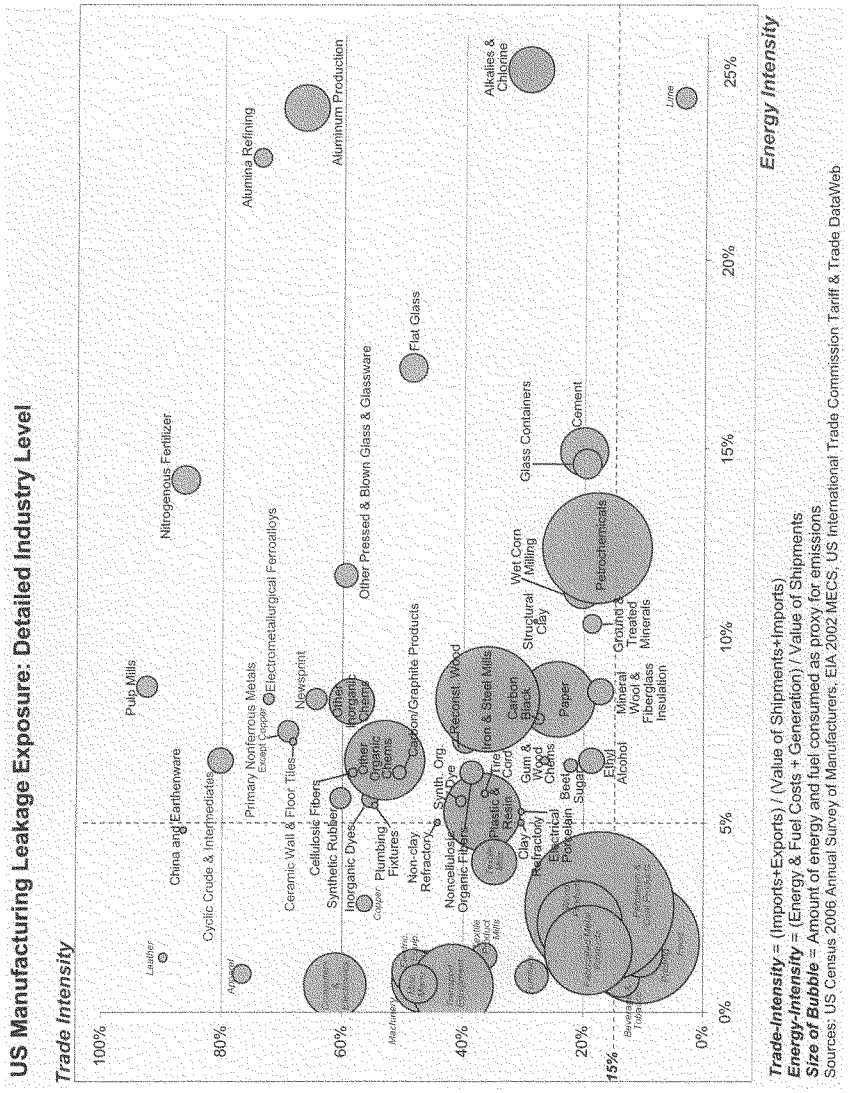
Greenhouse Gas Emissions Legislation
Leakage-Exposed Manufacturers

Briefing Book

March 18, 2009

FTI
Rob Fisher
(202) 589-3408


US Manufacturing Leakage Exposure: Aggregate Level
Trade Intensity
100%
80%
60%
40%
20%
15%
0%
0%
2%
4%
5%
6%
8%
10%
12%
14%
Energy Intensity
Leather
Apparel
Machinery
Textile Product Mills
Pesticides & Fertilizers
Furniture
Scrap
Beverage & Tobacco
Paint
Clay Product & Refractory
Basic Chemicals
Ammonia
Iron & Steel
Glass
Resins & Synthetics
Paper
Lime & Gypsum
Trade-Intensity = (Imports+Exports) / (Value of Shipments+Imports)
Energy-Intensity = (Energy & Fuel Costs + Generation) / Value of Shipments
Size of Bubble = Amount of energy and fuel consumed as proxy for emissions
Sources: US Census 2006 Annual Survey of Manufacturers, EIA 2002 MECS, US International Trade Commission Tariff & Trade DataWeb


US Manufacturing Leakage Exposure: Detailed Industry Level
Trade Intensity
100%
80%
60%
40%
20%
15%
0%
0%
5%
10%
15%
20%
25%
Energy Intensity
Pulp Mills
Nitrogenous Fertilizer
Leather
China and Earthenware
Cyclic Crude & Intermediates
Alumina Refining
Primary Nonferrous Metals
Except Copper
Electrometallurgical Ferroalloys
Ceramic Wall & Floor Tiles
Newsprint
Aluminum Production
Cellulosic Fibers
Synthetic Rubber
Other Pressed & Blown Glass & Glassware
Inorganic Dyes
Copper
Plumbing Fixtures
Other Organic Chems
Flat Glass
Non-clay Refractory
Carbon/Graphite Products
Noncellulosic Organic Fibers
Synth. Org. Dye
Reconst. Wood
Iron & Steel Mills
Alkalies & Chlorine
Plastic & Resin
Tire Cord
Carbon Black
Wet Corn Milling
Glass Containers
Clay Refractory
Structural Clay
Gum & Wood Chems
Paper
Cement
Electrical Porcelain
Beet Sugar
Petrochemicals
Ground & Treated Minerals
Ethyl Alcohol
Mineral Wool & Fiberglass Insulation
Lime
Trade-Intensity = (Imports+Exports) / (Value of Shipments+Imports)
Energy-Intensity = (Energy & Fuel Costs + Generation) / Value of Shipments
Size of Bubble = Amount of energy and fuel consumed as proxy for emissions
Sources: US Census 2006 Annual Survey of Manufacturers; EIA 2002 MECS; US International Trade Commission Tariff & Trade DataWeb

Leakage Exposure

To identify the manufacturing industries that are the most highly exposed to this leakage issue, we calculated the energy intensity and trade intensity of each manufacturing sub-industry (at the 6-digit NAICS code).

Methodology for Calculating Energy-Intensity and Trade-Intensity

- We first calculated the energy intensity of each industry. The primary data source we used was the most recent Annual Survey of Manufacturers (ASM) from the US Census, which includes data for 2004-2006. From the ASM we calculated the costs of purchased electricity and of purchased fuel as a percentage of the value of shipments.

- For export and import data, we relied on the US International Trade Commission's Trade Dataweb statistics for 2004-2006, which provides trade data at the 6-level NAICS level.

    - For Imports, we used the US Imports for Consumption category and within that category, we used the CIF Import Value.
    - For Exports, we used the Domestic Exports category. Within that category, we used FAS Value.

- Based on the work in other studies and on the EU's scheme, we have used two thresholds to determine those industries most exposed to leakage[2]:

    1) Energy intensity of **5%**
    2) Trade intensity of **15%**

- The maximum for the last three years of available data (2004-2006) was used to determine eligibility. So, for example, if an industry's energy intensity for the last three years respectively was 4%/5%/4%, it met the eligibility requirement.

[2] Ratios were rounded to nearest whole percentage point. For example, a calculated energy intensity of 4.51% or higher was rounded up to 5.0% and thus met the 5% threshold.

Methodology for Calculating Energy-Intensity and Trade-Intensity (continued)

- 41 industries met these two criteria.
- In addition, we included NAICS code 311210 (Iron and steel tube and pipe from purchased steel) in order to treat it the same for eligibility purposes as tube and pipe manufactured on an integrated basis.
- We added NAICS code 212210 (Iron ore mining and processing) to capture the beneficiation and other processing for similar reasons – to treat products the same for eligibility purposes whether they are produced at an integrated or non-integrated facility.
- To determine eligibility for the copper industry, we combined the energy and trade data for NAICS codes 331411 (Primary smelting and refining) and 212234 (Copper and nickel mining) to properly capture all copper processing whether the beneficiation of ore occurs at an integrated or non-integrated facility.
- A product that meets the energy intensity and trade intensity criteria should be considered eligible even if the facility that produces it is classified in a non-qualifying NAICS code by virtue of the facility's other products or the facility's ultimate product.

Qualifying Manufacturing Industries

Sectors	NAICS	Sub-industry	Leakage-Intensity: Energy Intensity	Leakage-Intensity: Trade Intensity	Value of Shipments
Pulp, Paper & Newsprint Mills	322110	Pulp mills	**9%**	**92%**	4
	322121	Paper (except newsprint) mills	**8**	**24**	47
	322122	Newsprint mill products	**8**	**64**	4
Basic Chemicals	325110	Petrochemicals	**12**	**18**	66
	325131	Inorganic dyes and pigments	**6**	**55**	4
	325132	Synthetic organic dyes and pigments	**6**	**40**	3
	325181	Alkalies and chlorine	**25**	**29**	6
	325182	Carbon black	**8**	**27**	2
	325188	All other basic inorganic chemicals	**8**	**58**	19
	325191	Gum and wood chemicals	**7**	**26**	1
	325192	Cyclic crude and intermediates	**7**	**80**	9
	325193	Ethyl alcohol	**7**	**18**	8
	325199	All other basic organic chemicals	**7**	**53**	69
	325211	Plastics material and resins	**5**	**37**	79
	325212	Synthetic rubber	**6**	**60**	7
	325221	Cellulosic organic fibers	**6**	**58**	1
	325222	Non-cellulosic organic fibers	**6**	**38**	7
Nitrogenous fertilizer	325311	Nitrogenous fertilizer	**14**	**86**	4
Ceramics/Porcelain	327111	Vitreous china plumbing fixtures	**6**	**55**	1
	327112	Vitreous china and earthenware articles	**5**	**86**	1
	327113	Porcelain electrical supplies	**5**	**30**	1
	327122	Ceramic wall and floor tiles	**7**	**69**	1
	327123	Other structural clay products	**10**	**28**	0.2
	327124	Clay refractory	**5**	**30**	1
	327125	Non-clay refractory	**5**	**44**	1
Glass Production	327211	Flat glass	**17**	**48**	3
	327212	Other pressed and blown glass and glassware; incl. optical fiber	**12**	**59**	4
	327213	Glass containers	**15**	**20**	4
Cement	327310	Cement	**15**	**20**	11
Fiberglass	327993	Mineral wool	**9**	**17**	6
Iron & Steel	331111	Iron and steel	**8**	**36**	92
	331112	Electrometallurgical ferroalloy products	**8**	**72**	1
	331210	Iron and steel pipe and tube from purchased steel			10
	212210	Iron ore mining and beneficiation	**18**	**54**	2
Alumina/um	331311	Alumina refining	**23**	**74**	1
	331312	Primary aluminum production	**24**	**66**	6
Copper	331411	Primary smelting and refining of copper	**6**	**71**	10
	212234	Copper and nickel mining and beneficiation			
Other industries	311221	Wet corn milling	**11**	**20**	10
	311313	Beet sugar	**7**	**22**	3
	314992	Tire cord and tire fabric mills	**6**	**34**	1
	321219	Reconstituted wood products	**7**	**39**	8
	327992	Ground or treated minerals and earth	**10**	**19**	3
	331419	Primary nonferrous metal (except copper and aluminum)	**8**	**69**	5
	335991	Carbon and graphite products	**6**	**50**	2

Trade-Intensity = (Imports+Exports) / (Value of Shipments+Imports)
Energy-Intensity = (Energy & Fuel Costs + Generation) / Value of Shipments
Sources: US Census 2006 Annual Survey of Manufacturers, EIA 2002 MECS, US International Trade Commission Tariff & Trade DataWeb
EPA -- Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006
Note: Percentages are rounded to nearest percentage point

Qualifying Industry Descriptions

NAICS	NAICS Name	Description
311221	Wet corn milling	Wet milling corn and other vegetables (except to make ethyl alcohol) to make such products as corn sweeteners (eg, glucose, dextrose, and fructose); corn oil; and starches (except laundry)
311313	Beet sugar	Refined sugar from sugarbeets
314992	Tire cord and tire fabric mills	Cord and fabric of polyester, rayon, cotton, glass, steel, or other materials for use in reinforcing rubber tires, industrial belting, and similar uses
321219	Reconstituted wood products	Reconstituted wood sheets and boards, such as waferboard, oriented strandboard and particleboard
322110	Pulp mills	Pulp manufacturers that do not make paper or paperboard; pulp is made by separating the cellulose fibers from the other impurities in wood or other materials
322121	Paper mills	Paper (except newsprint and uncoated groundwood paper) made from pulp; may also manufacture or purchase pulp
322122	Newsprint mill products	Newsprint and uncoated groundwood paper from pulp
325110	Petrochemicals	Acyclic (aliphatic) hydrocarbons (eg. ethylene, propylene, and butylene) and/or cyclic aromatic hydrocarbons (eg. benzene, toluene, styrene, xylene, ethyl benzene, and cumene) made from refined petroleum or liquid hydrocarbon
325131	Inorganic dye and pigments	Black pigments, except carbon black, white pigments, and color pigments.
325132	Synthetic organic dye and pigments	Includes lakes and toners (except electrostatic and photographic)
325181	Alkalies and chlorine	Chlorine, sodium hydroxide (i.e., caustic soda), and other alkalies often using an electrolysis process
325182	Carbon black	Carbon black, bone black, and lamp black
325188	All other basic inorganic chemicals	Basic inorganic chemicals (except industrial gases, inorganic dyes and pigments, alkalies and chlorine, and carbon black)
325191	Gum and wood chemicals	Wood or gum chemicals (eg, naval stores, natural tanning materials, charcoal briquettes, and charcoal, except activated) or Distillation of wood or gum into products (eg, tall oil and wood distillates)
325192	Cyclic crude and intermediates	Cyclic crudes or, cyclic intermediates (i.e., hydrocarbons, except aromatic petrochemicals) from refined petroleum or natural gas or the distillation of coal tars
325193	Ethyl alcohol	Nonpotable ethyl alcohol
325199	All other basic organic chemicals	Basic organic chemical products (except aromatic petrochemicals, industrial gases, synthetic organic dyes and pigments, gum and wood chemicals, cyclic crudes and intermediates, and ethyl alcohol)
325211	Plastics material and resins	Resins, plastics materials, and nonvulcanizable thermoplastic elastomers and mixing and blending resins on a custom basis and/or noncustomized synthetic resins
325212	Synthetic rubber	Synethetic rubber such as Styrene-Butadiene-Rubber (SBR), butyl, polychloroprene, and stereo polyisoprene elastomers
325221	Cellulosic organic fibers	Cellulosic (i.e., rayon and acetate) fibers and filaments in the form of monofilament, filament yarn, staple, or tow
325222	Non-cellulosic organic fibers	Noncellulosic (i.e., nylon, polyolefin, and polyester) fibers and filaments in the form of monofilament, filament yarn, staple, or tow
325311	Nitrogenous fertilizer	Production of fertilizer through inorganic (Synthetic ammonia, nitric acid, urea, and ammonium compounds) or organic sources
327111	Vitreous china plumbing fixtures	Vitreous china plumbing fixtures and china and earthenware bathroom accessories, such as faucet handles, towel bars, and soap dishes
327112	Vitreous china and earthenware articles	Table and kitchen articles, art and ornamental items, and similar vitreous china, fine earthenware, stoneware, coarse earthenware, and pottery products
327113	Porcelain electrical supplies	Porcelain electrical insulators, molded porcelain parts for electrical devices, ferrite or ceramic magnets, and electronic and electrical supplies from nonmetallic minerals, such as clay and ceramic materials
327122	Ceramic wall and floor tiles	Includes mosaic and quarry tiles
327123	Other structural clay products	Clay sewer pipe, drain tile, flue lining tile, architectural terra-cotta, and other structural clay products
327124	Clay refractory	Clay refractory, mortar, brick, block, tile, and fabricated clay refractories, such as melting pots. A refractory is a material that will retain its shape and chemical identity when subjected to high temperatures and is used in applications that require extreme resistance to heat, such as furnace linings.

Qualifying Industry Descriptions

NAICS	NAICS Name	Description
327125	Non-clay refractory	Nonclay refractory, mortar, brick, block, tile, and fabricated nonclay refractories such as graphite, magnesite, silica, or alumina crucibles.
327211	Flat glass	Flat glass made by melting silica sand or cullet (includes integrated facilities that also produce laminated glass)
327212	Other pressed and blown glass and glassware	Glass made by melting silica sand or cullet and products made by pressing, blowing, or shaping glass or glassware (except glass packaging containers); Also includes fiber optics
327213	Glass containers	Glass containers for commercial packing and bottling, and for home canning, including bottles and jars
327310	Cement	Portland, natural, masonry, pozzalanic, and other hydraulic cements; manufacturers may calcine earths or mine, quarry, manufacture, or purchase lime
327992	Ground or treated minerals and earth	Calcining, dead burning, or otherwise processing beyond beneficiation, clays, ceramic and refractory minerals, barite, and miscellaneous nonmetallic minerals
327993	Mineral wool and fiberglass insulation	Mineral wool and mineral wool (i.e., fiberglass) insulation products made of such siliceous materials as rock, slag, and glass or combinations thereof
331111	Iron and steel mills	Steel production, direct reduction of iron ore, manufacture of pig iron, conversion of pig iron into steel; includes both BOF and EAF; includes integrated facilities that also manufacture shapes (e.g., bar, plate, rod, sheet, strip, wire) or form tube and pipe
331112	Electrometallurgical ferroalloys	Ferroalloys add critical elements, such as silicon and manganese for carbon steel and chromium, vanadium, tungsten, titanium, and molybdenum for low- and high-alloy metals
331210	Iron and steel pipe and tube from purchased steel	Welded, riveted, or seamless pipe and tube from purchased iron or steel
212210	Iron ore mining and processing	Mine site development, mining, and/or beneficiation (i.e., preparation) of iron ores and manganiferous ores valued chiefly for their iron content and/or (2) sinter iron ore production (except iron ore produced in iron and steel mills) and other iron ore agglomerates
331311	Alumina refining	Alumina (i.e., aluminum oxide) refining generally from bauxite
331312	Primary aluminum production	Aluminum production from alumina; includes integrated facilities that also roll, draw, extrude, or cast the aluminum into primary forms (e.g., bar, billet, ingot, plate, rod, sheet, and strip)
331411	Primary smelting and refining of copper	Smelting of copper ore and/or the primary refining of copper by electrolytic methods or other processes to makeprimary copper and copper-based alloys, such as brass and bronze, from ore or concentrates
212234	Copper and nickel ore mining and beneficiation	Mine site development, mining, and/or beneficiation (i.e., preparation) of copper and/or nickel ores, and recovery of copper concentrates by the precipitation, leaching, or electrowinning of copper ore
331419	Primary nonferrous metals (except copper and aluminum)	Primary production of nonferrous metals by smelting ore and/or by electrolytic methods or other processes; includes lead, gold, silver, titanium, zinc and magnesium
335991	Carbon and graphite products	Carbon, graphite, and metal-graphite products including fibers, brushes and brush stock, and electrodes for thermal and electrolytic uses

Methodology for Estimating Emissions

After identifying the manufacturing industries exposed to carbon leakage, we then estimated the emissions for these qualifying industries to determine the scope of required allowances to address the issue. We estimated the 2007 emissions based on available EPA and EIA data. Since sufficient emissions data are not available at a sub-sector level, we needed to make certain assumptions based primarily on electricity and fuel use to estimate emissions for qualifying industries.

Emissions (EPA's Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007)[3]
(Million metric tons CO_2 Equ.)

	Fuel Combustion	Electricity	Industrial Processes	Other Emissions	Total
Total	3,350	2,397	328	992	**7,068**
Industrial	857	708			1,565
Manufacturing	802	614			1,416
Representative Industries	**391**	**222**	**158**		**771**
% of Total Emissions	5.5%	3.1%	2.2%		10.9%
% of 2012 Allowances *(Est. 5,775)*	6.8%	3.8%	2.7%		13.4%

- We started with the EPA 2007 emissions for the Industrial sector, broken out between combustion and electricity.
- Using the EIA's Annual Energy Outlook 2008, we calculated the percentage of Industrial emissions that Manufacturing represented for electricity (87%) and for consumption (94%).[4]

[3] The Total and Industrial rows are from the EPA, remaining data is derived
[4] The Industrial sector is Manufacturing plus Agriculture, Forestry, Fishing, Hunting, Mining and Construction

Methodology for Estimating Emissions (continued)

- The next step was to allocate the overall Manufacturing emissions to each sub-industry of the Manufacturing sector to determine how many emissions our qualifying industries represent. To allocate electricity emissions, we applied the percentage of purchased and generated kWhs of electricity (from the ASM) for each sub-industry to the overall electricity emissions figure (612 million) for Manufacturing.

- To estimate the consumption emissions, we started with the manufacturing consumption figure derived from the EPA (806 million). We used the EIA's 2006 paper[5] to determine the initial allocation percentages. We first added up the emissions for all the fuel sources and calculated the percentage of the total for each industry. Over 90% of the consumption emissions are allocated to an industry. We allocated to sub-industries where necessary based on the emissions data given and then based on the fuel spend. For the remaining 8.6%, we allocated to the other industries based on fuel spend.

- We assigned/allocated the process emissions from the EPA to the individual industries.

- Definitions of emissions categories:

    - Fuel Combustion: Fossil fuel combustion to generate heat, steam or electricity to power industrial processes

    - Electricity: Indirect emissions from purchased electricity

    - Industrial Processes: Byproduct or fugitive emissions of greenhouse gases from industrial processes not directly related to energy activities such as fossil fuel combustion

[5] Energy-Related Carbon Dioxide Emissions in US Manufacturing (November 2006; Mark Schipper)

Emissions for Qualifying Manufacturing Industries
(million metric tons CO_2 Equ.)

Manufacturing Industry	NAICS	Sub-Industry	Fuel Combustion	Electricity	Industrial Processes	TOTAL
Food	311221	Wet corn milling	14	6		19
	311313	Beet sugar	3	1		4
Textiles	314992	Tire cord and tire fabric mills	0	1		1
Wood Products	321219	Reconstituted wood products	2	4		6
Paper	322110	Pulp mills	2	1		3
	322121	Paper (except newsprint) mills	28	20		48
	322122	Newsprint mill products	2	2		3
Chemicals	325110	Petrochemicals	27	10	4	41
	325131	Inorganic dyes and pigments	1	1		3
	325132	Synthetic organic dyes and pigments	1	1		2
	325181	Alkalies and chlorine	11	14	2	26
	325182	Carbon black	5	1		5
	325188	All other basic inorganic chemicals	7	15		22
	325191	Gum and wood chemicals	1	0		1
	325192	Cyclic crude and intermediates	3	3		6
	325193	Ethyl alcohol	6	3		9
	325199	All other basic organic chemicals	52	24	6	82
	325211	Plastics material and resins	46	21		67
	325212	Synthetic rubber	2	1		3
	325221	Cellulosic organic fibers	1	1		1
	325222	Non-cellulosic organic fibers	3	4		7
	325311	Nitrogenous fertilizer	9	3	36	48
Non-Metallic Mineral Products	327111	Vitreous china plumbing fixtures	0.4	0.1		0
	327112	Vitreous china and earthenware articles	0.3	0.1		0.4
	327113	Porcelain electrical supplies	0.2	0.3		0.5
	327122	Ceramic wall and floor tiles	1	0		1
	327123	Other structural clay products	0.2	0.0		0.2
	327124	Clay refractory	0.3	0.2		0.5
	327125	Non-clay refractory	0.4	0.2		1
	327211	Flat glass	3	1	1	4
	327212	Other pressed and blown glass and glassware	2	2	0.4	4
	327213	Glass containers	3	2	1	6
	327310	Cement	29	8	45	82
	327992	Ground or treated minerals and earth	2	1		3
	327993	Mineral wool	2	3		5
Primary Metals	331111	Iron and steel	111	36	54	201
	331112	Electrometallurgical ferroalloy products	1	1		2
	331210	Iron and steel pipe and tube from purchased steel	1	1		2
	212210	Iron ore mining and beneficiation	3	4		8
	331311	Alumina refining	2	0.3	1	4
	331312	Primary aluminum production	4	17	7	28
	331411	Primary smelting and refining of copper	1	0.4		1
	212234	Copper and nickel mining and beneficiation	1	3		4
	331419	Primary nonferrous metal (except copper and aluminum)	1	3	4	7
Electrical Equipment	335991	Carbon and graphite products	0.5	1		1
			391	222	158	771

Fuel Combustion: Fossil fuel combustion to generate heat, steam or electricity to power industrial processes
Electricity: Indirect emissions from purchased electricity
Industrial Processes: Byproduct or fugitive emissions of greenhouse gases from industrial processes not directly related to energy activities such as fossil fuel combustion

Frequently Asked Questions

- Why use energy intensity rather than emissions?
  For purposes of identifying qualifying industries, as opposed to calculating the number of allowances to be awarded, energy spending arguably is a better metric than emissions to determine the financial impact to manufacturing industries of greenhouse gas legislation. For instance, firms may be impacted by the increases in the cost of natural gas that will be inversely related to natural gas's relative carbon intensity advantage. Any emissions metric also will depend on an assumed allowance price, which is difficult to estimate. In addition, emissions data is not readily available at a detailed industry level. There are 473 Manufacturing sub-industries (6-digit NAICS). No known resource provides emissions data, or even detailed fuel usage data from which emissions could be derived, at a level of detail anywhere close to that. In any event, energy spending serves as a reasonable proxy for emissions since combustion emissions are a function of the energy used, varying only by the mix of fuels.

- Why use the Census's ASM rather than EIA's MECS?
  The most recent data for the MECS Survey is from 2002 rather than from 2006 for the ASM. Additionally, the ASM provides data on a much more granular NAICS level than the MECS Survey does. For the 473 NAICS sub-industries (6-digit), MECS provides energy data for only 39 at the 5- or 6-digit level. ASM provides 2005 or 2006 energy data for 472 of the 473 industries (Petrochemicals is the only one with no data) at 5- or 6-digit level. We have validated our results against MECS and in the case of Petrochemicals, we used the MECS data.

- Why is Imports in both the numerator and the denominator of the trade intensity formula?
  The size of any US market in which a manufacturer competes equals Domestic Production + Imports, where Exports are a subset of Domestic Production. Using Imports in the denominator of the trade intensity formula keeps the ratio from exceeding 100%. Note: We have used the same ration that is used by the EU.

- How is the variability from year to year in energy intensity and trade intensity addressed?
  We used the maximum of the three years (2004-2006) for energy intensity and trade intensity, which minimizes situations where an industry may qualify one year and not another. However it should be noted that these metrics have very little variability from year to year. The average annual change in energy intensity is only 0.2%. The average annual change in trade intensity is only 3%.

Mr. MARKEY. Thank you, Mr. McMackin, very much. Our next witness is Mr. Martin McBroom. He is the Director of Federal Environmental Affairs at American Electric Power which owns the Nation's largest electricity generation system. We welcome you, Mr. McBroom. Whenever you are ready, please begin.

STATEMENT OF MARTIN MCBROOM

Mr. MCBROOM. Good morning, Mr. Chairman and distinguished members of the Subcommittee. I am Director of Federal Environmental Affairs of American Electric Power. Headquartered in Columbus, Ohio, AEP is one of the Nation's largest electricity generators and service more than 5 million retail consumers in 11 states in the Midwest and south central regions of our Nation.

AEP was one of the earliest companies to publicly endorse actual cap-and-trade legislation. We are committed to working with you to pass federal legislation that is well-thought out, achievable, and reasonable which includes requirements that are timed to coincide with the development of advanced technology and which would allow AEP to recover costs for deployment of advanced technology.

Any domestic greenhouse gas reduction program must be coupled with effective international measures to ensure that rapidly developing nations such as China and India also promptly address this problem. If such a provision is not included, we will not succeed at curbing global loadings of greenhouse gases.

If fast-developing countries do not curtail their emissions, then U.S. legislation will succeed only in pushing U.S. production and jobs abroad, undercutting and possibly worsening the environmental objective. That production shift is of concern to AEP because 38 percent of our generation serves industrial customers who could be impacted. When factories move overseas, AEP loses industrial customers and our residential customers who work in those facilities lose jobs and their families are in peril.

Recognizing that trade is a key component in effective climate change legislation, Mr. Edwin D. Hill, International President of the International Brotherhood of Electrical Workers, and Michael G. Morris, Chairman, CEO, and President of AEP, jointly proposed in February 2007 a means to effectively leverage U.S. climate negotiators to help to make sure that developing countries also limit their greenhouse gas emissions.

We applaud your decision, Mr. Chairman, to include the IBEW–AEP proposal in a climate bill you introduced in the last Congress. We urge you and your colleagues to do so again this year. Simply put the proposal serves as a backstop for U.S. climate negotiators and compliments other provisions that Congress is contemplating to ensure that U.S. climate legislation does not inadvertently undercut U.S. competitiveness.

The IBEW–AEP proposal works in concert and is complementary with granting free domestic allowances to industries impacted by competitiveness, and we believe both approaches should be supported by the Committee, but only the IBEW–AEP proposal provides direct leverage to shape the behavior of the largest emitting developing counties, and the IBEW–AEP proposal is the one backstop that will remain. No matter what the outcome of international negotiations might be with regard to fast-developing countries and

regardless of whether free allowances are phased out or auction revenues are used for other big-ticket budget priorities, the IBEW–AEP proposal will remain. For those reasons, industry needs both, America needs both. The IBEW–AEP proposal creates the possibility that the United States Government could require importers of carbon-intensive goods to submit international reserve allowances just as producers of U.S. goods must, unless the exporting country acts to address emissions in a fashion that is comparable to that of the United States.

If the IBEW–AEP proposal is successful, then the allowance requirement would likely never need to be applied to imported goods. Instead, fast-developing countries would agree to take effective action to also reduce their emissions.

This proposal recognizes that some governments might not act or might act ineffectively. The IBEW–AEP proposal affords Congress the assurance that at least the exports of carbon-intensive goods from such countries would not escape the regulatory impact of the overall federal program. That is only fair. The United States has taken similar action on imports in the context of other conservation and environmental programs. Those measures were reviewed by GATT and WTO panels. The IBEW–AEP proposal respects the jurisprudence that has emerged to ensure that Congress could deploy these measures in conformity with our international obligations.

Mr. Chairman, AEP believes that our proposal will be helpful to you and your colleagues to ensure developing countries actually join with America in meeting the climate challenge. Thank you again for this important opportunity to testify. I look forward to your questions.

[The prepared statement of Mr. McBroom follows:]

Summary of Testimony of Martin McBroom, Director Federal Environmental Affairs, American Electric Power before the House Subcommittee on Energy and Environment

American Electric Power (AEP) is one of our nation's largest electricity producers. AEP utilizes a diverse generating fleet – coal, nuclear, hydroelectric, gas, oil and wind – to serve over five million retail consumers in 11 states. But of particular note, AEP is one of the largest coal-fired electricity generators in the U.S. We are committed to working with you to pass federal legislation that is well thought-out, achievable, and reasonable. A well-designed federal regulatory program will allow AEP and others to obtain recovery of costs for the commercialization and deployment of advanced technology to reduce greenhouse gas emissions. We believe legislation can be crafted that does not impede AEP's ability to provide reliable, reasonably priced electricity to support the economic well-being of our customers, and includes mechanisms that foster international participation and avoid creating inequities and competitive distortions that could otherwise harm the U.S. economy. AEP is one of the first companies to publicly endorse actual cap-and-trade legislation, as introduced in Congress, to reduce greenhouse gas emissions across the U.S. economy.

AEP and the International Brotherhood of Electrical Workers (IBEW) urge Congress to include in federal climate change legislation a provision to encourage rapidly developing countries to also curb their greenhouse gas emissions, and to thereby ameliorate very real trade distortions arising from a failure to develop a climate initiative comparable to that of the United States. During the last session of Congress, the IBEW-AEP proposal was included in several climate bills in the Senate and the House, including Chairman Markey's bill (H.R. 6186, Title VII Subtitle G), for which we and our partners are grateful. This proposal is also supported by the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers; and the United Mineworkers of America. We believe any international strategy must prevent the undue shifting of U.S. jobs to countries – such as China and India – which have yet to take comprehensive steps to limit their greenhouse gas emissions. This is of concern to AEP because 38% of our electricity generation serves industrial customers who could be directly impacted if this provision is not included. In addition, any greenhouse gas reductions that our nation makes in isolation will be overwhelmed and rendered moot by huge and rapidly increasing emissions coming from fast-growing, developing countries. Unless emissions from rapidly developing nations are addressed, we would face the worst of both worlds, namely unchecked rampant growth in greenhouse gas emissions from those nations and the loss of American jobs and industries.

The IBEW-AEP proposal seeks to address the impacts discussed above by requiring that importers submit international reserve allowances sufficient to cover the emissions attributable to greenhouse gas intensive goods they are importing into the United States. Notably, this allowance requirement would only apply to imports from countries opting to not take "comparable action" to limit their emissions, as compared to the effect of actions taken in the U.S. Failure to submit such allowances would bar entry of covered goods into the U.S. This allowance requirement has been designed for compatibility with World Trade Organization (WTO) rulings. International reserve allowances would be derived from a pool that is entirely separate from the allowances provided under the domestic cap-and-trade program. This would assure that the demand for, and use of, international reserve allowances cannot disrupt the availability, price or use of domestic allowances. The allowance requirement has also been designed to maximize effectiveness in limiting greenhouse gas emissions by focusing on imports with the greatest carbon footprint -- goods whose greenhouse gas emissions can be quantified and tracked with reasonable accuracy and administrative ease.

The international allowance requirement would only apply as a measure of last resort. The U.S. would first make good-faith efforts to persuade other countries to limit their greenhouse gas emissions. WTO jurisprudence under the GATT exception for conservation measures suggests that if America negotiates with one affected party, as our nation almost certainly will, then the U.S. must negotiate with all parties directly affected by the provision. These negotiations would begin during the time required to promulgate domestic regulations, and conclude before the domestic cap takes hold. International negotiations would not delay application of the international provision. Consistent with WTO jurisprudence, America would inform any affected nations of a clear and knowable standard for application in the near future. Notably, the U.S. is not required under WTO jurisprudence to delay application of the allowance requirement on imports for a specific length of time after the start of the domestic cap-and-trade program. The IBEW, AEP and those who share our view believe that nations could be notified of the standard, and the international provision applied, at about the same time as the domestic cap takes effect. Finally, the proposal provides U.S. climate negotiators with essential leverage they will need to convince major emitting nations to participate, and to assure the American people of the fundamental fairness and symmetry of the Herculean task we face. Global political pressure for action on climate change is growing. That momentum, and the need for all major emitting nations to reduce their own domestic emissions -- when coupled with the leverage provided by the IBEW-AEP proposal – strongly suggests that this proposal may never actually have to be implemented. However, it provides the assurance of an essential backstop that America and its hardworking businesses and families must have.

TESTIMONY OF
MARTIN McBROOM,
DIRECTOR, FEDERAL ENVIRONMENTAL AFFAIRS,
AMERICAN ELECTRIC POWER
BEFORE THE
U.S. HOUSE ENERGY AND COMMERCE
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
March 18, 2009

Good morning Mr. Chairman and distinguished members of the Subcommittee on Energy and Environment of the House Committee on Energy and Commerce.

Thank you, Chairman Markey, for this opportunity to offer the views of American Electric Power (AEP) on how the United States can effectively engage developing countries to help ensure that they too limit their greenhouse gas emissions. Ensuring that these nations take actions that are comparable to our own is essential to achieving a global solution to the most important environmental and energy challenge facing the United States and indeed, the world.

My name is Martin McBroom. I am the Director for Federal Environmental Affairs of American Electric Power (AEP). Headquartered in Columbus, Ohio, AEP is one of the nation's largest electricity generators -- with over 36,000 megawatts of generating capacity -- and serves more than five million retail consumers in 11 states in the Midwest and South Central regions of our nation. AEP's generating fleet draws upon a wide array of fuel sources – including coal, nuclear, hydroelectric, natural gas, oil – and wind energy to meet our customers' needs. Furthermore, coal plays a prominent role in our fuel portfolio. AEP uses more coal than any other electricity generator in the western hemisphere. AEP recognizes coal must continue to play an important role for providing reliable and affordable electricity to our customers, and indeed, virtually all Americans and an increasing share of the world's population. In recognition of these realities, we are working to perfect new advanced coal technologies that capture or otherwise reduce CO_2 emissions from our generating fleet.

Over the past decade, AEP has voluntarily implemented a broad portfolio of actions to reduce, avoid or offset greenhouse gas emissions. In addition, we continue to invest in new clean coal technology plants and R&D initiatives that will enable AEP, our industry and the world to meet the challenge of significantly reducing greenhouse gas emissions over the long term. For example, AEP is designing and is committed to building a highly-efficient new generating plant using the most advanced technology in Arkansas (e.g., ultra-supercritical coal combustion) and has also launched several projects to demonstrate our ability to capture and store CO_2 from coal-fired power plants.

AEP Support for Federal Climate Legislation

We are committed to working with you to pass federal legislation that is well thought-out, achievable, and reasonable. A well-designed federal regulatory program will allow AEP to obtain recovery of costs for the commercialization and deployment of advanced technology to reduce greenhouse gas emissions. We believe legislation can be crafted that does not impede AEP's and others' obligation to provide reliable and reasonably priced electricity to further the economic well-being of our customers. Furthermore, we believe that such legislation also must include mechanisms that foster international participation and avoid creating inequities and competitive distortions that would otherwise harm the U.S. economy.

AEP is proud to have been one of the earliest companies to publicly endorse actual cap-and-trade legislation, as introduced in Congress, to reduce greenhouse gas emissions across the U.S. economy. AEP supports reasonable legislation, and is not calling for an indefinite delay until advanced technologies, such as carbon capture and storage (CCS) technologies, are developed. However, as the requirements become more stringent and we move beyond the ability of current technology to deliver those reductions, it is essential that requirements for those very substantial reductions coincide with the commercialization of advanced technology.

Need for Global Solution

AEP, just like many others, is heartened by your strong interest in including in federal climate change legislation a credible provision to encourage rapidly developing countries to also curb their greenhouse gas emissions. This is an issue that has profound ramifications for our global environment, and equally huge consequences for our national economy. These dynamics inspired

Mr. Edwin D. Hill, International President of the International Brotherhood of Electrical Workers (IBEW), and Michael G. Morris, Chairman, CEO and President of AEP, to collaboratively develop what we believe to be an essential ingredient and an effective policy response to the international ramifications arising from unilateral federal climate change legislation. Our joint legislative proposal focuses on the regulation of imported goods to induce foreign governments to take effective action to limit their countries' greenhouse gas emissions. Notably, our proposal – the key details of which I will discuss later – was included in all of the economy-wide cap-and-trade bills that were introduced during the last session of Congress. It was included in the Lieberman-Warner, Boxer Substitute, and Bingaman-Specter in the Senate. It also, Mr. Chairman, was not only included in your bill (H.R. 6186, section 101, which would create Title VII Subtitle G of the Clean Air Act), but also the Doggett bill and Dingell-Boucher discussion draft in the House. Thank you for doing this.

There is strong support for the proposal among labor unions. In addition to the IBEW, the proposal is supported by the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers; and the United Mineworkers of America.

The need for a global solution to climate change should be apparent to all. While the United States must clearly do its share, any greenhouse gas reductions that we make in isolation will be overtaken – literally swallowed up – by the huge and rapidly increasing emissions coming from the fast-growing, developing countries. Let me offer a few facts that demonstrate this point:

- The International Energy Agency (IEA) projects world-wide energy-related CO_2 emissions will increase by 57 percent between 2005 and 2030, with developing countries driving more than three-quarters of this CO_2 growth.

- China and India alone are expected to account for 56 percent of the worldwide increase in CO_2 emissions during the 2005-2030 timeframe.

- China's CO_2 emissions are growing faster than any other country. Recent reports suggest that China is now the world's number one emitter of CO_2 annually.[1]

[1] CRS Report for Congress, *China-U.S. Relations: Current Issues and Implications for U.S. Policy*, at page 25 (December 21, 2007).

- China's coal use as a percentage of world consumption increased from about 20 percent in 1985 to over 29 percent in 2003. By 2025 it will likely be consuming almost 40% of the world's coal.

- Coal accounts for at least two-thirds of China's current energy consumption, with demand exceeding 2 billion tons of coal per a year. By way of comparison, this is nearly twice the present demand for coal in the United States. [2]

- China's appetite for fossil fuels has resulted from the rapid growth of its energy-intensive industries. China Steel, for example, has increased its share of the global steel production from 13 percent in 1996, to 35 percent in 2005. As a result, China is now by far the world's largest steel producer, making more steel than the next six producers (Japan, the United States, Russia, Korea, Germany, and Ukraine) combined.

- Other energy-intensive industries in China also have experienced rapid growth in recent years. As a result, China now makes about one-half of the global production of cement and flat glass, and about one-third of worldwide aluminum production. In the case of aluminum, an industry report indicates that China has built the equivalent total aluminum capacity of the U.S. and Great Britain combined in only three years.

- Much of China's rapid industrial growth is fueled by electricity generated by new coal-fired power plants. In 2006 alone, for example, China brought into service 90,000 megawatts of new coal-fired generating capacity – which amounts to two large coal-fired generating units per week. Notably, this also is equivalent to about one-third of the total U.S. coal-fired capacity in operation today.

- China's greenhouse gas emissions are rapidly increasing with this strong growth in coal use, combined with very robust economic growth. Emissions have increased by 80 percent since

[2] These figures are likely to be overly conservative estimates in light of a recent New York Times article that reports: "Last year, China burned the energy equivalent of 2.7 billion tons of coal, three-quarters of what experts had said would be the maximum required in 2020. To put it another way, China now seems likely to need as much energy in 2010 as it thought it would need in 2020 under the most pessimistic assumptions." New York Times, *As China Roars, Pollution Reaches Deadly Extremes* (December 26, 2007).

1990 and are projected to rise by another 65 percent by 2020.

The magnitude of these emissions trends only underscores the need for action by the United States, in concert with China, India and the other fast-growing developing countries. A failure to effectively ensure that these developing countries also do their part would mean that even if the United States imposes a stringent emissions cap on our entire economy, this cap will accomplish very little to reduce global greenhouse gases. We have come to recognize that regardless of the strength and achievement of any domestic reduction program Congress may craft – unless coupled with effective international measures to ensure rapidly developing nations also promptly address this problem – no one will succeed at curbing global loadings of greenhouse gases. If Congress does not also effectively address emissions from fast-growing developing nations, it would be inadvertently encouraging the shift of economic activity from the United States to other countries precisely because they would not be doing their part in reducing greenhouse emissions. Furthermore, unless a viable mechanism is established to ensure that our friends in fast-growing developing nations join us, there can be no assurance of a net global reduction in greenhouse gas emissions. Such reductions are widely recognized to be necessary to adequately address the risks of climate change. Thus, we have come to see that such a provision is essential to America's and the world's success in tackling global warming.

Linkage of Trade and Climate

Viewed in this context, it is apparent that trade is an important key to developing effective federal climate change policy. The United States cannot develop an effective domestic greenhouse gas reduction program unless we also create a parallel federal policy to address the potential impact that uncapped greenhouse gas emissions in fast-growing developing countries would have on U.S. trade and competitiveness in a world economy. This clear linkage between climate and trade requires that we combine our domestic reduction program with an effective, defensible, international strategy. That international strategy must ensure that fast-growing developing countries take concrete steps to limit their overall greenhouse gas emissions, and thus, prevent the undue shifting of U.S. jobs to those same countries. If the production of currently-produced, carbon-intensive products shifts from the U.S. to countries utilizing less-efficient power production technology, this greatly exacerbates the effect upon the environment.

That production shift is of concern to AEP because 38% of our electricity generation serves industrial customers who would be potentially impacted if this provision is not included in final enacted legislation. When factories close and move overseas, AEP loses industrial customers, and our residential customers, who work in those facilities, lose their jobs and their families are hard hit as a result.

Put in its simplest terms, U.S. climate legislation must be linked with a world-wide effort to reduce greenhouse gas emissions, and thus keep America's jobs and economy on an equal footing with other major-emitting nations. To do less would result in the worst of both worlds, namely the failure to avert major adverse impacts from global climate change and the loss of American jobs and manufacturing industries to uncapped nations.

The IBEW and AEP have proposed a credible approach for addressing these concerns arising from a stringent domestic reduction program. In developing this, we have strived to establish regulatory mechanisms that would not jeopardize U.S. competitiveness and American jobs, relative to developing nations. In addition, we have worked hard to craft those mechanisms in a manner that complies with the Agreement Establishing the World Trade Organization (WTO). Specifically, we respectfully recommend that you require that allowances accompany energy-intensive imported goods from rapidly developing countries if they do not promptly take comparable action to limit their own greenhouse gas emissions.

Core Elements of IBEW-AEP Proposal

The IBEW-AEP proposal seeks to equalize the adverse impacts discussed above by requiring that importers submit international reserve allowances to cover emissions attributable to certain greenhouse gas intensive goods they are importing. Failure to tender such allowances would bar entry of such covered goods into the United States. We have designed this allowance requirement for WTO consistency. We also have designed the allowance requirement to maximize its effectiveness in limiting greenhouse gas emissions and not affecting U.S. competitiveness by focusing on imports with the greatest carbon footprint.

First, the allowance requirement is narrowly focused on greenhouse gas-intensive goods, such as iron, steel, aluminum, cement, glass, paper and other such products whose greenhouse gas

emission can be quantified and tracked with reasonable accuracy and administrative ease. In the event that this range of goods is not sufficient to impact the behavior of a particular nation, our proposal provides authority to expand the range of goods as may be necessary and administratively feasible.

Second, the allowance requirement only applies to imports from those countries that have not taken "comparable action" to limit their greenhouse gas emissions, as compared to the emissions reductions achieved in the United States. Comparable action may include cap-and-trade programs or other measures that foreign countries may implement to achieve greenhouse gas reductions and which are recognized to be comparable in effect to the levels achieved here. As discussed below, our proposal establishes specific criteria for evaluating actions undertaken in each country and in determining, on a case-by-case basis, whether the country has taken comparable action. In addition, our proposal focuses only on those countries that contribute significantly to global emissions and would not burden the poorest developing countries with low emissions or low standards of living. This corresponds to a long standing principle that has guided U.S. international climate negotiations through a bipartisan succession of administrations. Namely, we suggest that least developed countries that suffer from widespread poverty and low levels of emissions should not be required to take such actions. This also comports with WTO rules explicitly recognizing the least developed countries as a unique category. The allowance requirement therefore does not apply to imports from least developed nations and those countries whose greenhouse gas emissions are below a *de minimis* percentage of total global emissions.

We believe that determinations, such as which nations are not taking comparable action and, if not, how the allowance requirement is calculated for each sector in those nations, are best left to an independent U.S. government agency. For these reasons, our proposal recommends establishment of an independent commission that is charged specifically to carry out these and other essential functions under the program.

And third, the allowance requirement would only apply as a measure of last resort. This ensures consistency with WTO rulings. Notably, our proposal contemplates that the United States would first make good faith efforts to persuade other countries to limit their greenhouse gas emissions. Only if these efforts fail with a particular foreign country would the commission be authorized to apply the allowance requirement to covered goods imported from that non-participating

country. WTO jurisprudence under the GATT exception for conservation measures suggests that if we negotiate with one affected party, as we almost certainly would, then we must negotiate with all parties directly affected by the provision. These negotiations can begin once the legislation is enacted, and continue during the intervening time period that is necessary to write domestic regulations, and conclude before the emissions cap is placed on U.S. industry. The negotiations therefore would not cause any delay regarding the application of the international provision, which is recommended to occur two years after the beginning of the domestic cap.

The IBEW, AEP and our allies hope that the allowance requirement – if adopted – would never actually be applied to U.S.-bound exports from fast-growing developing countries. Our proposal provides U.S. climate negotiators with considerable leverage that they can draw upon to encourage comparable action by developing countries. In fact, the use of the IBEW-AEP proposal as an effective means to prompt international action has already been demonstrated by the previous administration while in Bali, Indonesia. This suggests that as a measure of last resort – requiring allowances for imports – may never actually have to be applied to any country.

Another key aspect of our proposal is the timeframe for implementation. In addition to providing sufficient time for international negotiations, as just described, our proposal requires the United States to take several other steps before imposing allowance requirement on imports. Most importantly, the U.S. must determine that a country is not taking "comparable action" to limit its greenhouse gas emissions.[3] This determination would require an independent commission to quantify the annual emissions reductions that the U.S. has actually achieved under its domestic program, and assess whether that country has achieved a percentage change in its greenhouse gas emissions that is the same as or better than the percentage change achieved domestically. Countries that meet the test are automatically recognized to have taken comparable action and would therefore be excluded from the international allowance program. For nations not yet excluded, the commission is authorized to exclude those countries that are taking comparable action based on the extent to which a nation has deployed state of the art technology in major sectors of its economy and implemented regulatory programs or measures for limiting greenhouse gas emissions. In assessing whether, and to the extent that, other countries are taking comparable action, the commission cannot

[3] As already noted, a comparability determination need not be performed for certain countries that are otherwise excluded from the allowance requirement. These excluded countries include least developed nations and those countries whose greenhouse gas emissions are below a specified *de minimis* percentage of total global emissions.

focus on the precise form of the country's measures to limit its greenhouse gas emissions, but rather, upon the reductions actually achieved by those measures.

The allowance requirement for imports from those countries that fail to take comparable action would be applied two years after the start of the U.S. program. Immediately upon enactment, the President would notify all foreign countries of the caps and the negotiating objective to secure commitments from major emitters to take comparable action. These countries would then be on notice that should they fail to take comparable action, their exports to the U.S. would eventually have to be accompanied by offsetting international reserve allowances. At the end of the first year of the U.S. domestic program, the United States would measure the results of our cap-and-trade program and other measures implemented in the U.S., and show that we have done what we claimed we would do. During the second year, once the results are known, the independent commission would determine which countries had taken comparable actions based on comparability criteria described above. At the start of the third year, the U.S. would begin to impose the allowance requirement on imports from those countries that fail to take comparable action to limit their greenhouse gas emissions.

Following this sequence, even under a tight timetable, would ensure WTO compliance. The key point, based on WTO jurisprudence, is that the commission must inform the affected nations of a clear and knowable standard that would then be applied in the near future.

This proposal cannot be dismissed as "protectionist." In this example, the allowance requirement on imports would not actually be applied to any country outside of the United States until about five or six years after the enactment of domestic cap-and-trade legislation. The Congress appears unlikely to pass such legislation until late 2009 or sometime in 2010 at the earliest, suggesting that the international provision would not be applied until 2015 or 2016. The date of implementation of the IBEW-AEP provision upon the exports to the United States from a foreign nation depends on the date of enactment of U.S. climate legislation, and how long it takes to promulgate regulations for the entire domestic program. Such an extended timeframe rebuts erroneous suggestions that the intent of a U.S. international allowance requirement would be to protect U.S. industry, particularly given that protectionist trade measures generally take effect almost immediately.

There have been suggestions that this implementation timetable should be moved further out, and that more years should be allowed, in light of the likely grant of allowances to competitive industry. This proposal should be considered with great care, in light of the evolution of the proposal, and concern for American workers.

The IBEW-AEP provision, as originally introduced in a number of bills (including Chairman Markey's bill, H.R. 6186), contemplated that the international allowance requirement would be applied in 2020 against nations that fail to take comparable action. If you assume that a climate bill is enacted in 2009 or 2010, and it takes at least three years to write regulations, this meant that there would be a six- or seven-year gap between the actual application of a cap in the U.S. as compared with the application of the allowance requirement against the good imported from a non-participating foreign nation. There has been a strong concern across industry and unions alike that this would compel jobs and factories to leave the U.S. during the interval from when a cap starts, until the international allowance requirement and comparability standard would become active. This concern was expressed before the idea of giving substantial amounts of free allowances to industries impacted by competition was under active consideration.

To address this concern, the start date of the border allowance requirement was moved up in the Doggett bill and Dingell discussion draft, and the Boxer Manager's Amendment in the Senate, so that it applies two or three years after the application of the domestic cap. As explained above, this shorter time frame is both WTO compliant as well as administratively feasible. This change was made in those bills that included a very generous grant of allowances to U.S. industries. The rationale was that those industries should not be adversely impacted by a brief delay when they are receiving allowances, and that a two- or three-year delay is more practical in terms of administrative application.

Whether even more time should be allowed -- more than two years -- is in the capable hands of this Committee to determine. Some of the industries who sharply argued that a six- or seven-year gap is unacceptable are represented here today, so you may wish to pose the question to them. Do those industries believe that their concerns regarding competitiveness during that period will be addressed by allowances, so that more time can be allowed before the IBEW-AEP provision were to be implemented? Those same industries sharply criticized the delay of six or seven years, so our counsel to the Committee is to determine, in advance and before free allowances would be disbursed

to those industries or before changing the date of the application of the IBEW-AEP allowance requirement, whether the industries believe that their competitiveness is secured by free allowances. If they believe they are not, it both suggests that free allowances alone are not sufficient, and that the IBEW-AEP provision is absolutely vital to ensure that developing countries act effectively to reduce their own greenhouse gas emissions, and thereby address the underlying competitiveness concerns.

Even if industry responds in the affirmative, since industry receives the financial benefit of the allowances, the Committee should consult with trade unions and carefully evaluate the consequences of doing so. As noted in the discussion below on free allowances, we recommend that the Committee not set the implementation date at 2020 in the next legislative vehicle unless sufficient safeguards have been included to absolutely guarantee that the allowances are used to keep jobs in the United States. Nor should it be accepted at face value that the date needs to be set as late as 2020. Rather, the focus should be on the development of a well-coordinated package that includes the IBEW-AEP proposal to generate leverage in international negotiations and that uses free allowances to safeguard American workers and guarantees that jobs stay here at home. That is a key question before you set the start date of the import allowance requirement, and recreate the date gap that was the policy rationale for moving up the start date in other legislation.

Relationship to the Domestic Program

Another important aspect of our proposal is that it would work in conjunction with, and would not detract from, the domestic cap-and-trade program it mirrors. Importers would comply with the allowance requirement by purchasing "international reserve allowances" from the U.S. government. The international reserve allowances would be drawn from a pool that is entirely separate from the allowances provided under the domestic cap-and-trade program. This would assure that the demand for, and use of, international reserve allowances for imports under the international program cannot distort the availability, price or use of allowances within the domestic program. Similarly, this separate allowance allocation cannot breach the U.S. emissions cap or otherwise undermine the environmental goals of the domestic program. Importantly, international reserve allowances would never be used to comply with the domestic cap-and-trade program. Rather, importers could only use them for meeting their allowance-holding requirements that apply to imported covered goods, in the

event that an exporting country's government elects to not do its part to reduce greenhouse gas emissions.

To ensure WTO compliance, we recommend a parallel emission trading mechanism for importers which emulates the one established for the domestic program. International reserve allowances, for example, may be traded or banked for future use. Importers would also have alternative compliance options that would be identical to those provided to regulated entities under the domestic program. This flexibility would allow importers to achieve compliance by obtaining – in lieu of international reserve allowances – either foreign allowances that are issued pursuant to another country's cap-and-trade program or emissions offsets from domestic or international projects that meet certain minimum criteria. Finally, the price of the international reserve allowances would be pegged at the U.S. price for domestic allowances. This approach is recommended to further assure close correlation between the cost of compliance under the international and domestic programs.

Finally, the IBEW-AEP provision is expressly designed to complement and work in conjunction with an allocation of allowances or auction revenues to industries that are impacted by competitive pressures, should Congress decide to grant such an allocation. The complementary nature of the two is confirmed by the direct leverage that our proposal can have on large developing countries to take comparable action, and would be an indispensable tool that would assist our negotiators. By contrast, the primary benefit of granting free allowances goes to U.S. manufacturers. Specifically, the free allowances help to minimize the adverse international competitive impacts and thereby prevent U.S. production (and the associated greenhouse gas emissions) from moving offshore to uncapped countries. However, when combined, the two provisions safeguard U.S. manufacturers in a WTO-consistent fashion and provide leverage for prompting comparable action by all of the rapidly developing nations.

The IBEW-AEP provision is also complementary because it would accomplish critically important policy objectives that we believe cannot be addressed by granting free allowances to U.S. manufacturers alone. First and foremost, the IBEW-AEP provision is an indispensable tool for use by our negotiators to convince fast-growing developing countries to take comparable action, and would assist U.S. negotiators to achieve a truly global solution, while making sure it is not accomplished at the expense of American workers. By contrast, the granting of free allowances to U.S. companies would simply have no impact on the behavior of any large emitting nation – none at

all. We believe that America needs a credible, WTO-compliant backstop, and that is why we respectfully recommend that you include the IBEW-AEP provision, as Chairman Markey did last year in H.R. 6186.

Second, allowances are a valuable resource and, as a result, Congress may decide to phase out any free allocation over time. Further, as reflected in the Obama Administration Budget proposal, there will be strong political pressure to auction the allowances. The resulting auction revenues may well be used to fund "big ticket" federal initiatives such as tax cuts or health care so that there would be little left to assist industries impacted by competition. Manufacturers will need the help of both free allowances and the impact abroad of the IBEW-AEP provision – and for that reason Congress should use both given the ephemeral nature of free allowances or auction revenues. The IBEW-AEP provision, and its impact on regulation of greenhouse gas emissions abroad, would provide an essential backstop, should free allowances be phased out under an auction, or if auction revenues are consumed by other budgetary priorities.

Third, the IBEW-AEP provision helps equalize the playing field by requiring comparable action from large emitting developing countries. Persuading that country to regulate its greenhouse gas emissions is primarily aimed at the achievement of the overall goal of U.S. climate change legislation. In addition, American workers will benefit. By contrast, it will be difficult to design an iron-clad system that can guarantee that the cash benefits of allowances will in fact be used to place American jobs on an even footing. The Committee should ensure that the companies are not receiving even more allowances than they actually need for this purpose, and that it is carefully targeted by sector and even individual factory, since not all sectors or factories are equally impacted. (An output-based approach solves part of this problem, since cash rebates or free allowances are based on current output of manufacturing plants. However, an output-based approach may still not solve all problems, since such rebates might still not have a strong, absolute and documented relationship to trade competition, and this problem is only magnified at the sector level.)

This is a complex undertaking, and if not carefully designed, could fail to stop manufacturers from moving their operations overseas. The IBEW-AEP provision, by contrast, indisputably helps achieve U.S. objectives under all future implementation scenarios. It does so by treating greenhouse-gas intensive goods from rapidly-developing nations in a fashion comparable to our own goods. This is a fundamentally fair premise, and no more or less than you are asking of the American people

themselves. As noted above, we support both approaches, because when combined, the two provisions safeguard U.S. manufacturers in a WTO-consistent fashion and provide leverage for prompting comparable action by all of the rapidly developing nations.

Fourth, the international negotiations for the next post-Kyoto treaty are a huge and complex undertaking that operates by consensus. These negotiations will ultimately only be successful if all of the world's nations sign and ratify the resulting treaty. If the U.S. is unable to negotiate an international agreement that requires all countries – including the developing world's large emitters – to achieve comparable greenhouse gas reductions, then the IBEW-AEP provision would become a critically important backstop to protect the environment and to ensure American workers are not disadvantaged.

On the other hand, if the next treaty does include such commitments, then large emitting nations will meet the standard of comparability within the IBEW-AEP provision. Some argue that developing countries would prefer that this form of leverage not be available to U.S. negotiators, and they worry that allusions to protests by developing country officials about the IBEW-AEP provision are a problem. We disagree. The Committee should consider complaints by large developing country emitters about the IBEW-AEP proposal to be strong evidence that the proposal will serve the Congress precisely as it is intended – as an effective tool with which to induce those countries to take action to control their greenhouse gas emissions.

In summary, the IBEW-AEP approach is designed to also work with a grant of free allowances to U.S. industry impacted by trade competition, should the Congress decide to grant such an allocation. A well designed allocation of allowances, with tough safeguards, should ensure that the monetary benefits of those allowances are used to keep jobs at home and directly help American workers. The IBEW-AEP provision and a grant of allowances, working together, would have a strongly positive effect upon American workers. But this symbiotic approach is critical, and this dual approach is essential. Granting allowances or auction revenues alone would not be sufficient to safeguard U.S. workers and manufacturers impacted by trade competition from the largest emitting nations in the developing world.

WTO Compliance

As noted throughout this testimony, we have sought to design a program that complies with WTO law. We have carefully crafted a parallel allowance system for imports that is intended to:

- Avoid discrimination between countries where the same conditions prevail; and
- Maintain rough comparability in the burden on imported and domestic allowances.

Although the particulars of WTO law are beyond the scope of this testimony, we believe that the United States would be in a strong position to defend our program if it were subject to a WTO challenge by another country. Furthermore, the proposal provides the independent commission and the EPA Administrator with authority to adjust the international program to ensure consistency with WTO obligations.

Detailed supporting material for AEP's view on WTO compliance is attached as an appendix to this testimony. Generally speaking, the attached legal analysis explains the grounds for WTO compliance based on the fact that the allowance requirement for imports is consistent with each of the following WTO criteria:

- The allowance requirement is directly linked to the environmental objective of addressing global climate change by reducing otherwise unfettered greenhouse gas emissions attributable to imports from other countries, in a fashion closely similar to what the U.S. will itself implement.

- If you accept our recommendation, it would establish a flexible measure for imports that is adaptable to and respectful of the circumstances of each exporting country, and therefore devoid of arbitrary or unjustifiable discrimination. Each exporting country would have our much-preferred choice of implementing credible greenhouse gas emission reduction program as an alternative to compelling importers into acquiring and presenting allowance certificates, and our trading partners would be given a predictable standard in advance with which to achieve compliance.

The design, architecture, and structure of such an international allowances requirement would demonstrate that the system has no purpose other than to cause the reduction of greenhouse gas emissions and does not operate as a trade barrier or as a protectionist measure.

Concluding Remarks

AEP strongly supports your efforts to enact into law federal climate change legislation. This legislation should establish reasonably achievable targets and timetables for reducing greenhouse gas emissions on an economy-wide basis. An essential element of the legislation is an international provision that also requires fast-growing, developing countries to take comparable actions to those of the United States. This would provide an essential backstop to ensure that our domestic initiatives to address the environmental risks of climate change are not negated by rampant growth of greenhouse gas emissions elsewhere in the world.

Inclusion of such an international provision is essential to ensure the passage of mandatory federal climate change legislation. The Senate famously signaled its objections to unilateral U.S. action to cap domestic emissions with its unanimous passage of the Byrd-Hagel resolution. That resolution stated that no treaty mandating greenhouse gas reduction commitments for developed countries should be ratified unless it also "mandates new commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period." Given that the Congress is now considering concrete actions to limit U.S. greenhouse gas emissions prior to the ratification of such a treaty, it is paramount that the federal legislation contain an effective provision for encouraging fast-growing developing countries to also comparably curb their greenhouse gas emissions. We believe that the most effective way to achieve this objective and to address the underlying policy concerns raised in the Byrd-Hagel resolution is by imposing an allowance requirement on imports from non-participating nations, which incorporates the essential thrust of the IBEW-AEP proposal, and respects WTO jurisprudence.

Mr. Chairman, AEP hopes that these suggestions will be helpful to you and your Committee colleagues in developing a solution for engaging developing countries to actually join with America in meeting the climate challenge. Thank you again for this important opportunity to testify.

Summary of WTO Analysis

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Summary of WTO Consistency of the IBEW — AEP Proposal

The IBEW-AEP proposal ("proposal") is **legal under WTO** because it applies to imports of carbon-intensive products the same types of environmental measures as the United States would apply within the United States under a cap-and-trade program. Indeed, the proposal **explicitly requires** that the requirements on imports be adjusted to ensure **consistency with international agreements** (e.g., section 101 of Chairman Markey's bill (110th Congress, H.R. 6186), which would create section 766(b)(2) of the Clean Air Act).

The proposal **hits the mark set by WTO case law** under either the GATT national treatment obligation or the GATT exception for measures relating to the conservation of exhaustible natural resources.

The ultimate goal of the proposal is that the proposed import measures never take effect – that the leverage offered to U.S. negotiators equipped with the credible threat of WTO-compliant measures will induce large emitters to take effective action promptly on their own and through international negotiations to limit GHG emissions.

To serve that goal, the proposal meets **all applicable WTO requirements** of the exception for environmental measures, including:

(1) securing a **close "ends-means" relationship** with the overall environmental objectives of the cap-and-trade program;
(2) implementing measures **in conjunction with limitations on US production,** in an **"even-handed"** fashion so that foreign goods are not treated worse than domestic goods;
(3) adjusting import requirements to **take into account different conditions among countries**;
(4) allowing time for **good faith negotiating efforts** with **all** affected countries; and
(5) allowing time to **measure U.S. emissions reductions** before imposing trade measures.

Each of these elements is discussed below:

(1) The proposal provides a real solution to the conservation objective of reducing greenhouse gas ("GHG") emissions.

- GATT Article XX(g) provides a general exception to the GATT's substantive obligations only for those government measures that are "primarily aimed at" the conservation of exhaustible natural resources.
- In *US – Shrimp*, the WTO Appellate Body recognized that a government measure was primarily aimed at the conservation of an exhaustible natural resource

because "a close and genuine relationship of ends and means" existed between the measure and the conservation objective.

- Under the current proposal, importers could meet the requirements by providing allowances from recognized cap-and-trade programs outside the United States, or by securing international reserve allowances from the U.S. Government.

- **In contrast, a carbon tax on imports would have no direct relationship to the reduction of emissions abroad.**

(2) The proposal, which would place restrictions on the importation of certain foreign products, is implemented in parallel with restrictions on domestic production.

- GATT Article XX(g) applies "if such measures are made effective in conjunction with restrictions on domestic production or consumption" -- language that the WTO Appellate Body has interpreted as requiring "even-handedness."

- In other words, as explained by the Appellate Body in *US – Gasoline*, restrictions on imported products must be "promulgated or brought into effect together with restrictions on domestic production or consumption of natural resources."

- However, the Appellate Body also made clear in *US – Gasoline* that GATT Article XX(g) does not require "identical treatment of domestic and imported products."

(3) The proposal is structured so as to take into consideration the different conditions that may exist in affected exporting countries.

- According to the Appellate Body in *US – Shrimp*, the *chapeau* of GATT Article XX requires that a government measure "be designed in such a manner that there is sufficient flexibility to take into account the specific conditions prevailing in any exporting Member."

- **In contrast, a single carbon-intensity standard for all products in a particular sector could not meet this requirement.**

- In *US – Shrimp*, the Appellate Body found unacceptable government measures that "require other [WTO] Members to adopt essentially the same comprehensive regulatory program, to achieve a certain policy goal, as that in force within that Member's territory, without taking into consideration different conditions which may occur in the territories of those other Members."

- Moreover, the Appellate Body has found a government measure that "condition[s] market access on the adoption of a programme comparable in effectiveness" (versus the same program) satisfies the *chapeau*'s requirements because the measure permits sufficient flexibility in its application.

(4) The proposal provides sufficient time for the U.S. Government to engage in serious negotiations with all affected countries to curb GHG emissions before the international allowance requirement would enter into effect.

- The Appellate Body rejected the government measure at issue in *US – Shrimp* in part because of "[t]he failure of the United States to engage the appellees, as well as other Members exporting shrimp to the United States, in serious, across-the-board negotiations with the objective of concluding bilateral or multilateral agreements for the protection and conservation of sea turtles, before enforcing the import prohibition against the shrimp exports of those other Members."

- Moreover, in *US – Shrimp*, the Appellate Body found a violation of the anti-abuse provisions in the *chapeau* because "the United States negotiated seriously with some, but not with other Members" that were similarly situated.

- To be clear, the Appellate Body has not interpreted GATT Article XX to require that WTO Member government negotiate with other governments before it imposes an environmental measure is imposed. Rather, the *chapeau* of GATT Article XX requires non-discrimination, so that if a WTO Member government chooses to negotiate with some countries, it must negotiate with all countries that would be affected by a measure.

  - The United States is already negotiating climate issues with other nations, and the United States will discuss the application of the international allowance provision with some of the nations that are affected by it. To meet the GATT Article XX criteria, therefore, the United States will be obligated to negotiate with all of the countries to which the provision will be applied (but not those exempted from the measure), because the United States will be negotiating with some of them.

- The United States is not required to conclude negotiations – only to make serious, good-faith efforts with all (approximately thirty) affected countries. The negotiations could commence immediately upon passage of the legislation and enactment into law. Thus, the requirement to negotiate does not affect the date on which the allowance requirement would be imposed on imports from affected countries.

(5) The proposal imposes the international allowance requirement on imports at about the same time as the application of the cap-and-trade requirements to domestic production, and importers will be provided in advance the standard of comparability of action.

- In US – *Tuna I*, the GATT 1947 Panel noted (in an unadopted report) that because the United States had "linked the maximum incidental dolphin-taking rate which Mexico had to meet during a particular period in order to be able to export tuna to the United States to the taking rate actually recorded for United States fisherman during the same period," the "Mexican authorities could not know whether, at a given point of time, their conservation policies conformed to the United States conservation standards." The Panel concluded that "a limitation on trade based on such unpredictable conditions could not be regarded as being primarily aimed at the conservation of dolphins."

- As proposed, the allowance requirement would be applied on imports after the U.S. Government measured emissions reduction in the United States and provided that standard of "comparability" to producers in and importers from affected countries. Under WTO jurisprudence, the United States must apply the measure to affected countries in an "even-handed" manner as compared to the manner in which it is applied to U.S. production or consumption. If the United States requires concrete verification and measurable results in exporting countries, it will be difficult for the United States to justify not doing so with respect to the results achieved domestically under the cap.

- On the other hand, if the United States were to apply the allowance requirement on imports without any measurement or verified results of GHG emissions reductions inside the United States, then "even-handedness" would appear to require the United States to treat affected foreign countries in a similar fashion – without any measurement or verification of GHG emissions abroad.

WTO Background Analysis

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WTO Background Analysis of International Provisions of U.S. Climate Change Legislation

The United States Congress is contemplating legislation that would impose a mandatory cap-and-trade program for U.S. greenhouse gas (GHG) emissions. This legislation must also provide leverage to ensure that emissions in other countries, particularly rapidly developing countries such as China or India, do not undermine these efforts to protect the environment. To provide effective leverage, the U.S. legislation must be compliant with the Agreement Establishing the World Trade Organization (WTO). To that end, the International Brotherhood of Electrical Workers (IBEW) and American Electric Power (AEP) have proposed that the United States impose an allowance requirement on imports of carbon-intensive goods from countries that fail to take action on GHG emissions comparable to that of the United States.[1] The proposal was reflected in section 101 of Chairman Markey's bill (110th Congress, H.R. 6186), which would amend the Clean Air Act and create Title VII Subtitle G ("Global Effort to Reduce Greenhouse Gas Emissions"). The proposal was also reflected in Title XIII Subtitle A of S. 3036, the Manager's Substitute Amendment to the Lieberman-Warner bill, which was considered but not voted upon by the United States Senate in June 2008.[2] Counsel for AEP has prepared the following legal analysis on the WTO-consistency of such a requirement.

I. Summary

Where governments take action to address environmental protection, WTO law favors doing so through consensual and multilateral procedures, rather than unilateral trade measures. However:

- if the United States made **good faith efforts** to negotiate with **all affected** nations on a non-discriminatory basis but was unable to reach agreement on procedures to reduce greenhouse gas emissions, then
- the United States could **require imports** of goods to be accompanied (electronically) by emissions **allowances**,

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[1] A summary of the IBEW-AEP proposal is attached.
[2] Senate Amendment 4825, 110th Congress, *reprinted at* Cong. Rec. S5049, S5091-S5095 (June 4, 2008) (hereinafter "Manager's Amendment").

- in the context of a broader requirement that **domestic producers** have emission allowances.

Analyzing the WTO-consistency of an allowance requirement on imports is a two-step process: (1) is the requirement, as a measure, **consistent** with the relevant obligations of the WTO, and if not; (2) is it covered by a WTO **exception**?

One could argue that an allowance requirement on imports should be considered as part of the overall U.S. cap-and-trade program. As such, it would be consistent with the WTO national treatment obligation set forth in GATT Article III:4, because it would be administered to accord imported goods treatment no less favorable than the treatment accorded "like" domestic goods. If the allowance requirement on imports were not considered as part of domestic regulation, then it would be governed by the obligations set forth in GATT Article XI or II regarding border measures. Exempting goods from least developed countries, and countries with less than a *de minimis* amount of GHG emissions, from the allowance requirement would likely violate GATT Article I:1, requiring non-discriminatory ("most-favored-nation") treatment among foreign trading partners. Even if the measure were not consistent with applicable WTO obligations, however, the allowance requirement would be covered by the WTO exception set forth in GATT Article XX(g) for measures relating to the conservation of exhaustible natural resources or the exception set forth in GATT Article XX(b) for measures relating to the protection of human, animal or plant life or health. The allowance requirement, under which allowances submitted with imports would be retired from further use, just as allowances assigned to domestic production would be, is closely related to the conservation objective of the overall climate change program. It is also an important part of a comprehensive regulatory scheme that is apt to cause substantial benefits to health and life.

The relevant WTO provisions are included in an Appendix attached to this memorandum, and the following chart illustrates the results of the WTO analysis:

WTO ANALYSIS	**ALLOWANCE REQUIREMENT ON IMPORTS**
1. Is measure consistent with WTO obligations?	
(a) Issue	**Either** it is considered as part of internal regulation . . .
- Applicable provisions	GATT Article III
- Outcome	WTO consistent if judged in the context of overall domestic regulation, affords national treatment, *i.e.*, treatment to imported goods no less favorable than that accorded to "like" domestic goods.
(b) Issue	**. . . or** it is judged as a border measure.
- Applicable provision	GATT Articles II and XI
- Outcome	Not WTO-consistent if the measure imposes charges in excess of scheduled duties or border restrictions.
(c) Issue	Does it discriminate among goods from different countries?
- Applicable provision	GATT Article I

- Outcome	Not WTO consistent if the measure exempts least developing countries or countries with *de minimis* emissions
2. If the measures is not WTO consistent, then is it covered by a WTO exception . . .	
(a) Issue	**Either** measure relates to the conservation of exhaustible natural resources . . .
- Applicable provision	GATT Article XX(g)
- Outcome	Yes, it is closely related to the objective of conservation
(b) Issue	**. . . or** measure is necessary to the protection of human, animal or plant life or health . . .
- Applicable provision	GATT Article XX(b)
- Outcome	Yes, even though in the short term it may be difficult to isolate the contribution of a single measure to reducing climate change, it is part of a comprehensive regulatory scheme that is apt to induce sustainable change.
3. . . . and the "chapeau" to Article XX?	Is the measure applied in a manner that does not arbitrarily or unjustifiably discriminate between countries where the same conditions prevail, or is not a disguised restriction on trade?
- Applicable provision	Article XX chapeau
- Outcome	Yes, focusing on top emitting countries, and only those that had not addressed GHG emissions, would be justified because of clear link to GHG emission reduction goals; the measure is flexible and not "capricious" or "random" and the rationale for discrimination relates to the policy objective.
4. Result?	**YES, MEASURE IS PERMISSIBLE UNDER WTO RULES**

II. Description of Measure

The domestic context for GHG-related trade measures would be a **cap-and-trade program** under which the U.S. Government would determine a **quantitative cap** for GHG emissions, and establish quantitative **emission allowances,** the sum of which would equal the U.S. GHG emissions cap. This system would be modeled on the EPA's existing U.S. cap-and-trade program in its Acid Rain Program,[3] with some differences. The government would issue electronic allowance certificates (each with a unique serial number for tracking and safeguards against counterfeiting) to show the amount of GHG emissions allowed. The certificates could then be transferred or sold in an **allowances market**. A firm emitting more GHGs than its existing allowances would permit would need to procure additional allowances or would be penalized for exceeding its allowances. All firms generating GHGs would have to continually monitor and report their emissions.

[3] Described at http://pubweb.epa.gov/air/clearskies/captrade.html, last visited January 25, 2008.

A domestic cap-and-trade program, implemented without measures to address GHG emissions from outside the United States, would be ineffectual in addressing the full range of GHG emissions affecting the environment. An allowance requirement imposed on imports would help to secure the environmental benefits of the overall program.

Under the IBEW-AEP proposal, the U.S. Government would **negotiate** with GHG emitting countries to secure internationally agreed disciplines on GHG emissions. Before and after U.S. implementing regulations were promulgated, the U.S. Government would begin to measure on an annual basis the reduction of GHG emissions in sectors under the U.S. cap and use those data to determine whether and to what extent key sectors in other countries had taken comparable action. The determination would be based, therefore, on the impact on GHG emissions rather than the precise form of the regulatory program used to achieve those effects. The U.S. Government would focus its determination on those countries that contribute most to global GHG emissions – least developed countries and countries with less than a *de minimis* volume of GHG emissions would be excluded.

If the U.S. Government determined that a country did not take comparable action, then an importer of certain goods from that country would be required to provide allowances to the U.S. Government corresponding to the GHGs emitted when the imported goods were produced in the country of origin. The U.S. Government would use an **adjustment factor** in setting the number of allowances required for imported goods. This adjustment factor would reflect the portion of allowances that domestic producers receive at no cost in relation to the allowances that domestic producers procure by auction. The adjustment factor would also reflect the conditions prevailing in different countries.

Which imported goods would be subject to the requirement? The scope of imported goods subject to the allowances requirement could be set to match as nearly as possible the scope of the domestic requirement. Thus, if the requirement were to apply only to the production of **carbon-intensive goods**, or only to "upstream" rather than "downstream" products, then the scope of imports covered by the requirement could be set accordingly. This contributes to ensuring non-discriminatory treatment of imports. It should be noted, however, that the purpose of a domestic cap-and-trade program is to introduce a price of carbon into the entire economy, regardless of which entities were subject to domestic allowance requirements. Accordingly, the scope of the imported goods subject to the allowances might be set more broadly.

What would be the source of these certificates? Under one approach, importers would secure allowances from the normal supply of allowances made available for U.S. entities to satisfy their obligations under the U.S. cap-and-trade system. Thus, importers could obtain U.S. emissions allowances from the producer/exporter or brokers operating generally in the marketplace. Alternatively, the U.S. Government could establish a separate (unlimited) supply of allowances that would only be used by importers. Finally, the U.S. Government could **permit importers to satisfy their obligations using allowances (and credits) generated under the cap-and-trade systems of other countries**. The Bingaman-Specter and Lieberman-Warner bills introduced in the 110th Congress combined the last two approaches.

III. Is the Measure Compliant with U.S. International Obligations?

In order to effectively persuade major newly industrializing economies to participate in GHG reduction, U.S. legislation must be permissible under WTO rules.[4] Two key principles of WTO law are germane to assessing the WTO legality of measures that could be used as part of a cap-and-trade program:

- each WTO Member government must obey its market access commitments on import tariffs, and cannot otherwise block imports (GATT Articles II, XI);
- it also may not use its domestic taxes, or **any** domestic regulations, so as to discriminate in favor of domestic goods compared to like imported products, or in favor of imported goods from one foreign country rather than another (GATT Articles I, III).

In accordance with these principles, the legal status of a measure under the GATT may be different depending on whether it is a border measure or whether it is an internal measure enforced at the border. GATT Article II:1(b) prohibits new import charges, and Article XI:1 prohibits bans or quantitative restrictions on imports. A measure that comes under either GATT article would likely be WTO-inconsistent. However, under GATT Article III, a WTO Member is entitled to regulate all products that are sold in its market provided that internal regulation does not afford protection to domestic over imported goods.

Thus, notwithstanding the prohibitions embedded in Articles XI:1 and II:1(b), a restrictive internal regulation (such as a residue limitation or product ban) or a prohibitive internal excise tax can be enforced on imports at the border, and be judged under GATT Article III, rather than Articles XI or II. In other words, the border-enforced internal measure would be completely GATT-consistent as long as it is non-discriminatory. The Note to Article III shows how the GATT draws the line between border measures and border-enforced internal measures. The Note identifies two issues that must be considered: does the tax, charge or regulatory requirement apply **both** to an imported product and to the like domestic product, and is it collected or enforced "at the time or point of importation"? The stated policy purpose of a measure is not relevant, nor is its categorization by domestic law.[5]

The following analysis examines whether the allowance requirement on imports is consistent with the WTO market access commitments and non-discrimination obligations for trade in goods. GATT law considers the regulation of imported goods either as a border measure, or as part of an overall program of internal regulation, but not both. There are good arguments that the allowance requirement is best understood as part of internal regulation, but it is a very close question. We review both sets of arguments below.

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[4] We focus here only on WTO rules, as the WTO Agreement is the only agreement that binds both the United States and major countries of concern to Congress. Other U.S. treaties would also apply to climate change legislation, but the basic principles would not differ.

[5] *EC – Regulation on Imports of Parts and Components*, GATT BISD 35S/37 (1990), paras. 5.6-5.7.

A. Consistency with WTO Market Access Commitments

To simplify this analysis, we consider an allowance requirement as it applies to a hypothetical ton of steel produced and exported from Country X and a "like" ton of steel (*i.e.*, same physical characteristics and uses) produced in the United States. Of course, actual trading patterns may be more complex, involving multi-stage processing across borders, and some imported products are not produced in the United States.

As stated above, Articles II:1(b) and XI:1 are the GATT provisions that are relevant in assessing whether an allowance requirement on imports is a border measure, and as such, whether it is consistent with the WTO **market access** commitments of the United States. First, GATT Article II:1(b) prohibits the imposition of any new extra charges or surcharges on products that are subject to tariff concessions—and close to 100 percent of U.S. imports are now under such concessions. If the allowance requirement program mandated that only importers—as opposed to importers and domestic producers—buy allowance certificates or pay an extra charge, it would constitute a new border charge, and as such, it would violate GATT Article II:1(b). Second, GATT Article XI:1 prohibits any border measure restricting imports other than duties, taxes or other charges. By requiring that importers present allowance certificates as a condition for importation, the allowance requirement program could cause a decrease in the volume of imports. As a result, the program would constitute a border measure that imposes a quantitative limitation on imports in violation of GATT Article XI:1.

If the allowance requirement on imports is a border measure under either GATT Article II or Article XI, it will not be consistent with the WTO market access commitments of the United States. To have a chance of surviving WTO scrutiny at this first level of analysis, the allowance requirement must be justifiable as an internal measure that falls in line with the WTO non-discrimination obligations of the United States.

B. Consistency with WTO Non-Discrimination Obligations

GATT Article III is the most important provision, for the purposes of this analysis, embodying the non-discrimination principle of the WTO.

In contrast to the interpretation described above, the United States could argue that the allowances requirement should be considered an internal regulation subject to the national treatment obligation set forth in GATT Article III:4. To ensure compliance with Article III:4, the United States could adjust the scope of imported goods covered by the allowances requirement, and the number of allowances required to be submitted for particular imported goods. A WTO dispute settlement panel might point out, however, that the allowances program is a regulation on U.S. **producers**, whereas, the allowances requirement on imports is a regulation on imported **products**. On that basis, the Note to Article III might rule out classifying the allowances requirement on imports as an internal regulation subject to Article III.[6] But the United States could respond that the scope of

[6] The distinction between a regulation of U.S. *producers* and a regulation of imported *products* is based on the product-process doctrine. Under the doctrine, the line is not drawn between regulations of products on the one hand and regulations of producers and production processes on the other. Rather, it is drawn between regulations of products and regulations of producers and production processes that affect characteristics of the product on the one hand, and regulations of producers and production processes that do **not** affect characteristics of a product on the other. See Robert

Article III has been interpreted more flexibly than a hard-and-fast, line-drawing exercise would permit. For example, a measure, such as this one, regulating whether and how products, including domestic products, can be sold constitutes an internal regulation for purposes of Article III.

As an internal regulation, the allowance requirement on imports would be subject to GATT Article III:4, under which the United States must accord to imported products "treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use." A note to Article III provides that "[a]ny internal tax or other internal charge, or any law, regulation or requirement . . . which applies to an imported product and to the like domestic product and is collected or enforced in the case of the imported product at the time or point of importation, is nevertheless to be regarded as an internal tax or other internal charge, or a law, regulation or requirement . . . and is accordingly subject to the provisions of Article III."[7] When an internal tax (such as VAT or an excise tax) is collected on imports at the border, that is called a *border tax adjustment*.

These provisions mean that if the U.S. imposes a regulation (such as the EPA's rules on gasoline composition under the Clean Air Act), the regulation must treat imported products no less favorably than like U.S. products. The internal U.S. measure can be enforced on imports at the border, but it must not discriminate against imports. In determining whether a measure discriminates against imports, WTO panels look to its effect on the conditions of competition between the domestic product and imported like products.[8]

Finally, there are two more non-discrimination requirements in the GATT that would be relevant. The most-favored nation (MFN) clause in GATT Article I:1 prohibits discrimination between foreign sources of supply. The MFN clause applies to border charges of any kind, to internal taxes or regulations, and to border enforcement of internal taxes or regulations. Under Article I:1, whenever a WTO Member grants an advantage, favor, privilege or immunity to a product from any country, it must accord that advantage, favor, privilege or immunity to the like product of any WTO Member. In addition, GATT Article XIII requires non-discriminatory application of any quantitative restrictions on imports.

If all imported steel from any foreign country were equally subject to the allowances program and received equal treatment, then the measure would be consistent with Article I:1. If an imported ton of steel from Country X were subject to the allowances measure but a "like" ton of steel from Country Y were not (for example because Country Y has a different set of arrangements with the U.S. to meet the objectives of GHG emission reduction), then it would raise questions under GATT Article I:1. However, the United States could argue that, under GATT Article I:1, it is entitled to impose conditions on the importation of products, provided that those conditions apply in the same way to imported products from all

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Hudec, *The Product-Process Doctrine in GATT/WTO Jurisprudence* in M. Bronckers and R. Quick, *eds.*, NEW DIRECTIONS IN INTERNATIONAL ECONOMIC LAW,187, 191-92.

[7] GATT, Note *Ad* Article III. The "*Ad* Notes" to the GATT have coequal status with the main GATT text.

[8] The focus on "conditions of competition" is a consistent theme in cases applying GATT Article III since 1957; as one example, *see Korea – Measures Affecting Imports of Fresh, Chilled and Frozen Beef* ("*Korea – Beef*"), WT/DS161/AB/R, WT/DS169/AB/R, 11 December 2000, at para. 135, finding that treatment no less favorable under Article III "means…according *conditions of competition* no less favourable to the imported product than to the like domestic product."

sources.[9] The United States could exclude from the allowance requirement of imports from WTO Members whose GHG emissions are below a *de minimis* threshold, which would capture most of the WTO Members that are considered by the United Nations to be least-developed countries.[10] With respect to the largest GHG emitting countries, the United States might point out that the climate change-related objective is the same, but the treatment of Country X and Country Y steel differs because the objective is being met in different ways. The Appellate Body might consider this argument under GATT Article I:1, just as it has in cases applying GATT Article III:4.[11] However, this would be a novel argument in relation to Article I:1, and textual differences between Articles I and III would need to be taken into account in applying this argument to Article I.

IV. Applicability of WTO Exceptions

This portion of the analysis focuses on whether any of the general WTO exceptions for trade in goods would permit the United States to maintain the allowance requirement on imports.

Even if a government measure would ordinarily conflict with the market access and non-discrimination provisions of the GATT, the violation may be excused by one of the ten special policy-based exceptions provided in GATT Article XX. These exceptions apply when a measure is taken for particular purposes or under particular circumstances listed in Article XX. To prevent abuse, these exceptions are all subject to two safeguards provided in a general opening clause ("*chapeau*") to Article XX. The WTO Appellate Body has developed a standard "two-tiered" method for applying Article XX: first, examine whether a measure falls within one of these policy-based exceptions; second, determine whether it complies with the anti-abuse safeguards in the *chapeau*.[12] The following analysis concentrates on paragraph (g) of Article XX, which has been used in similar situations. Paragraph (b) of Article XX, covering measures "necessary to protect human, animal or plant life or health," could also apply to the measures described above. The "necessary" condition under paragraph (b) has been interpreted strictly in WTO jurisprudence although the Appellate Body has recently suggested that it should provide additional flexibilities when the measure is part of a comprehensive regulatory scheme or where there is a long-lead time between implementation and the expected result.[13]

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[9] Panel Report, *Canada – Certain Measures Affecting the Automotive Industry*, WT/DS139/R, WT/DS142/R, adopted 19 June 2000, modified by Appellate Body Report, WT/DS139/AB/R, WT/DS142/AB/R, DSR 2000:VII, 3043, paras. 10.23-10.24.

[10] Described at http://www.unctad.org/Templates/Page.asp?intItemID=3618&lang=1, last visited January 25, 2008.

[11] For instance, in one case, the WTO Appellate Body found that the detrimental effect of a measure on imports may be "explained" – and thereby justified under Article III – "by factors or circumstances unrelated to the foreign origin of the product." Appellate Body Report, *Dominican Republic – Measures Affecting the Importation and Internal Sale of Cigarettes*, WT/DS302/AB/R, adopted 19 May 2005, at para. 96. To recall, the Appellate Body here was expanding on a line of reasoning it started in *Chile - Alcohol* and *Korea – Beef* in which it found that "[a] formal difference in treatment between imported and like domestic products is…neither necessary, nor sufficient, to show a violation of Article III:4. [Rather, the question is] whether a measure modifies the conditions of competition…to the detriment of imported products," at para. 137.

[12] Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products ("U.S. – Shrimp (AB)")*, WT/DS58/AB/R, 12 October 1998, paras. 118-119 (citing *US—Gasoline* case).

[13] In Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres* ("*Brazil – Tyres*"), WT/DS332/AB/R, December 3, 2007 (not yet adopted), at paras. 150-1, 172.

A. Does an Exception in GATT Article XX Apply?

1. Article XX(g)

Article XX(g) provides an exception for "measures . . . relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption." The United States has already successfully argued in WTO dispute settlement that U.S. import restrictions on shrimp, which are tied to domestic restrictions on shrimp harvesting designed to protect sea turtles, are justified under Article XX(g). Article XX(g) would be the logical focus for justifying any trade measures on climate change that are otherwise inconsistent with GATT's market access or non-discrimination rules. Under the analysis used in the *US-Shrimp* case, the United States would need to demonstrate that:

- the resources to be protected, *e.g.*, clean air or dry land, are "**exhaustible**,"
- the measures at issue are measures "**relating to**" the conservation of the resource, and
- these measures are "made effective in conjunction with restrictions on domestic production or consumption."

First, in current circumstances, we believe that a WTO dispute settlement panel would agree that clean air and dry land are "exhaustible natural resources" in the sense of Article XX(g). The panel in *U.S. – Gasoline* explicitly found that clean air is a resource that is natural and capable of depletion, even if it is renewable.[14] Later, in *U.S. – Shrimp*, the Appellate Body stated "[w]e do not believe that 'exhaustible' natural resources and 'renewable' natural resources are mutually exclusive."[15] It also found that paragraph (g) must be "read ... in the light of contemporary concerns of the community of nations about the protection ...of the environment."[16] At present, no concern about the protection of the environment is more important and uniting than the need to reduce GHG emissions, and the fact that the Convention on Climate Change was ratified by all but four UN Members States bears witness to that.[17]

Next, to be a measure "relating to" conservation, the allowance requirement must be crafted to bear a relationship with its stated goals, and must be designed to achieve those goals. Indeed, the Appellate Body has interpreted the phrase "relating to" to mean "primarily aimed at",[18] or evidencing a means and ends relationship.[19] In *U.S. – Gasoline*, the Appellate Body found that the measure at issue permitted "scrutiny and monitoring" of compliance with its environmental objectives. It therefore concluded that the measure, although inconsistent with national treatment, was truly designed to achieve clean air conservation and thus fell within the exception.[20] Likewise, in *U.S. – Shrimp*, the Appellate

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[14] Panel Report, *US – Gasoline*, at para. 6.37.
[15] *US – Shrimp (AB)*, at para. 128.
[16] *Id.*, para. 129.
[17] See Status of Ratification, available at http://unfccc.int/files/essential_background/convention/status_of_ratification/application/pdf/unfccc_ratification_22.11.06.pdf, last visited April 23, 2007.
[18] Appellate Body Report, *US- Gasoline*, WT/DS2/AB/R, 29 April 1996, p. 16, 18-19.
[19] *US – Shrimp (AB)*, at para. 141.
[20] *US – Gasoline (AB)*, p. 19.

Body focused on the "design and structure" of the measure at issue and was satisfied to find that the measure was narrow enough in scope that it did not constitute a "simple, blanket prohibition" against importation. Consequently, the measure bore a "close and real relationship" with its stated objectives.[21]

In contrast, in *US – Tuna I*,[22] the GATT 1947 Panel noted (in an unadopted report) that because the United States had "linked the maximum incidental dolphin-taking rate which Mexico had to meet during a particular period in order to be able to export tuna to the United States to the taking rate actually recorded for United States fisherman during the same period," the "Mexican authorities could not know whether, at a given point of time, their conservation policies conformed to the United States conservation standards."[23] The Panel concluded that "a limitation on trade based on such unpredictable conditions could not be regarded as being primarily aimed at the conservation of dolphins."[24]

Finally, to show that the allowance requirement program is "made effective in conjunction with restrictions on domestic production or consumption," the U.S. would have to show that if and where a requirement for allowances burdens imports, these allowances also burden domestic goods.[25] This test requires only "even-handedness,"[26] not "equality of treatment."[27] If a measure did not accord less favorable treatment to imports than it did domestic goods, it would not offend Article III, and therefore, would not need to be justified under an exception. On the other hand, a measure that solely burdens imports is not likely to be considered as even-handed, and would not find shelter under paragraph (g).[28] The import component of the allowances program is not intended to impose on foreign producers all or a disproportionate amount of the program's costs—it is intended to achieve appropriate burden-sharing in the shared fight against global warming, ideally through measures negotiated and adopted by governments. And even-handedness, because of the balance it strikes, sets a standard that the United States can meet in crafting climate change legislation.

An emissions allowances requirement falls within the policy-based exception for conservation in Article XX(g). As discussed above, the United States should encounter no difficulty arguing that clean air or dry land or other environmental resources put at risk by climate change are exhaustible natural resources threatened with depletion by GHG emissions. As for the second element under Article XX(g), "relating to," the Appellate Body has interpreted it in the *U.S. – Gasoline* and *U.S. – Shrimp* cases in a way that leads us to conclude that the United States could satisfy the standard it sets—since the allowances requirement is designed to effectively limit emissions by requiring presentation of allowance certificates.

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[21] *US – Shrimp (AB)*, at para.141.

[22] Panel Report, *United States – Restrictions on Imports of Tuna (Tuna I)*, DS21/R, GATT BISD 39S/155 (circulated 3 September 1991; not adopted).

[23] *Tuna I*, at para.5.28.

[24] *I.d*

[25] For example, in *U.S. – Shrimp*, the United States required shrimp trawlers to use turtle excluder devices (TED) to exclude turtles from their nets when fishing in waters that are likely to be turtle habitat. Exporting countries had to demonstrate their use of TEDs in order to be certified to export to the United States. Domestically, the United States required that shrimp trawlers use TEDs and imposed civil and criminal penalties (later changed to civil penalties and monetary sanctions) on offenders. See *U.S. – Shrimp (AB)*, at para. 144.

[26] *U.S. – Gasoline (AB)*, p. 20-21; *US-Shrimp (AB)*, at paras. 144-45.

[27] *U.S. – Gasoline (AB)*, p. 21.

[28] *U.S. – Gasoline (AB)*, p. 21.

Lastly, the United States could meet the requirement of even-handedness by applying the allowances requirement to domestic industry and enforcing the domestic program to compel producer reporting and compliance with the emissions caps. No WTO panel will accept a U.S. GHG reduction program that shifts all or a disproportionate part of the burden of GHG reduction to foreign producers, by restricting imports while giving a break to domestic producers. Even-handedness also rules out free rides—the United States must exempt from the allowances requirement all those countries that have adopted meaningful and satisfactory (i.e., comparable) emission reductions. On the other hand, the United States could exempt from coverage countries whose GHG emissions are below some *de minimis* level, as imposition of the allowance requirement to goods of such countries would not contribute to the non-trade policy objective of the program.

2. Article XX(b)

Article XX(b) offers an additional defense. It provides an exception for measures that are "necessary to protect human, animal or plant life or health." The United States would need to demonstrate:

- that the *policy* in respect of the measures for which the provision was invoked fell within the range of policies designed to protect human, animal or plant life or health; and

- that the inconsistent measures for which the exception was being invoked were *necessary* to fulfill the policy objective.[29]

First, we believe that a WTO dispute settlement panel would agree that a measure designed to curb climate vulnerability and its resulting effect on the spread and increased susceptibility of populations to disease and death would be a measure to protect human, animal and plant life or health within the meaning of Article XX(b). The World Health Organization has made a number of explicit findings linking climate change to significant public health problems that support this conclusion.[30] The Panel in *U.S. – Gasoline* found that Clean Air Act gasoline standards were designed to protect health and life.[31] Similarly, in *Brazil – Tyres* the Appellate Body found that Article XX(b) is satisfied by a measure to ban the importation of used tires because the accumulation of used tires contributed to the spread of disease and toxic tire fires.[32]

Second, in order to demonstrate that a trade-restrictive measure is "necessary" a country must show ""that the measure is apt to make a material contribution to the achievement of its objective."[33] To this end, the Appellate Body has recognized that "certain complex public health or environmental problems may be tackled only with a comprehensive policy comprising a multiplicity of interacting measures."[34] As an example of the type of objective that may require a longer time frame to demonstrate a contribution, the Appellate Body noted that "for instance, measures adopted in order to attenuate global warming and

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[29] Panel Report, *US – Gasoline*, at para. 6.20.
[30] *See, e.g.*, Bulletin of the World Health Organization, *Global Climate Change: Implications for International Public Health Policy* (March 2007), available at: http://www.who.int/bulletin/volumes/85/3/06-039503/en/index.html, last visited January 25, 2008.
[31] Panel Report, *US – Gasoline*, at para. 6.21.
[32] Appellate Body Report, *Brazil – Tyres*, at para. 136.
[33] Appellate Body Report, *Brazil – Tyres*, at para. 150.
[34] Appellate Body Report, *Brazil – Tyres*, at para. 151.

climate change, or certain preventive actions to reduce the incidence of diseases that may manifest themselves only after a certain period of time—can only be evaluated with the benefit of time."

Additionally, where the measure at issue is part of a comprehensive policy , the Appellate Body has noted that "[s]ubstituting one element of this comprehensive policy for another would weaken the policy by reducing the synergies between its components, as well as its total effect."[35]

An emissions allowance requirement for imports meets these criteria because it is part of a comprehensive policy that has synergies between its components and because it is apt to materially contribute to the reduction of carbon emissions, even if proof of that fact requires the benefit of time to demonstrate.

B. Does the Measure Satisfy the GATT's Safeguards Against Abuse?

As discussed above, all of the GATT's policy-based exceptions are subject to two safeguards provided in a general opening clause ("*chapeau*") to Article XX. This clause provides that measures that fall within the policy-based exceptions in Article XX may not be **applied in a manner** which would constitute **arbitrary or unjustifiable discrimination** between countries where the same conditions prevail, or a **disguised restriction on international trade**. The issue here is not the substance of a measure, but how it is applied. A WTO panel or the Appellate Body may agree entirely that a measure is a legitimate use of Article XX, but at the same time find that the way this legitimate measure is applied constitutes arbitrary or unjustified discrimination or disguised protectionism.

"Arbitrary or unjustifiable discrimination" in this context is discrimination not between products, but between countries where the same conditions prevail. The discrimination in question can be discrimination between the United States and one or more foreign countries, or it can be discrimination between different foreign countries. Different treatment of countries is permissible and even appropriate where these countries have objectively different conditions.[36] In practice, this proviso has been interpreted to bar an importing country from using an economic embargo to require its trading partners to adopt "essentially the same comprehensive regulatory program, to achieve a certain policy goal, as that in force within the Member's own territory, *without* taking into account different conditions which may occur in the territories of those other Members."[37] By requiring that the decision on "comparable action" take into account the extent to which a country has deployed state-of-the-art technologies, and implemented other conservation techniques or actions, the IBEW-AEP proposal would meet this requirement under the *chapeau*.

The ban on arbitrary discrimination has also been interpreted to require that advantages offered to one trading partner must be equally available to other similarly

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[35] Appellate Body Report, *Brazil – Tyres*, at para. 172.

[36] For example, in *Brazil – Tyres*, Brazil initially applied an import ban on tires from all origins, but then provided an exemption for tires from MERCOSUR countries. The panel found that the exemption constituted discrimination, but that the discrimination "[did] not seem to be motivated by capricious or unpredictable reasons." It found rather that the discrimination was due "to a ruling within the MERCOSUR framework [with] binding legal effects for Brazil." Panel Report, *Brazil – Tyres*, at para. 7.272. More importantly, the panel found that notwithstanding the ban, retreaded tires from non-MERCOSUR countries were still entering Brazil along with tires from MERCOSUR countries. The panel thus concluded that the discrimination resulting from the ban was arbitrary or unjustifiable under Article XX. Panel Report, *Brazil – Tyres*, at para. 7.306.

[37] *U.S. – Shrimp (AB)*, at para. 163-164; see also para. 177.

situated trading partners. For instance, in the *US—Shrimp* case, the United States adopted a cooperative approach and negotiated an agreement on sea turtle protection with Caribbean nations, but did not pursue any negotiations with other WTO Members, including nations of the Western Pacific. The Appellate Body found that to avoid arbitrary or unjustifiable discrimination, the United States had to provide all exporting countries similar opportunities to negotiate an international agreement, by engaging in "serious, across-the board negotiations with the objective of concluding bilateral or multilateral agreements" on sea-turtle protection.[38] Nevertheless, although the United States had to make good faith efforts to reach agreements that are comparable from one forum of negotiation to another, its failure to reach comparable agreements did not constitute arbitrary or unjustifiable discrimination.[39]

Additionally, the discrimination must be evaluated based on its rationale rather than its effect.[40] That is, discrimination must have a rational connection to the objective of the measure, as described in one of the separate paragraphs of Article XX.[41]

The transparency and predictability of a measure are also relevant. In the *U.S. – Shrimp* case, the Appellate Body found the "informal" and "casual" nature of the certification process deprived it of basic fairness and due process, tarnished its transparency and predictability, and therefore, rendered it discriminatory in an arbitrary and unjustifiable manner.[42]

The requirement that the measure not constitute a "disguised restriction on international trade" has been defined as including restrictions that are actually discriminatory but are taken under guise of a legitimate Article XX exception: in effect, a form of stealth protectionism.[43]

As proposed by IBEW-AEP, U.S. climate change legislation would treat imports of products of countries that have *not* taken comparable action on GHG emissions less favorably than imports from a country that have done so. This difference in treatment would be justified under Article XX(g) of the GATT, for the reasons (and under the circumstances) described above. But in that case, the ban on arbitrary discrimination in the opening clause (*chapeau)* of Article XX would require that, if the United States were to negotiate with some countries before imposing the measure, it undertake "serious, across-the board negotiations with the objective of concluding bilateral or multilateral agreements" on GHG reduction, with *all* concerned parties. The United States would not have to reach agreements with these other countries, but it would have to make a non-discriminatory, good faith effort with each one. Second, the United States would have to take its trading partners' differences in circumstances into account in devising and implementing its measures. Finally, the U.S. measures would have to be implemented with due process and fairness. The IBEW-AEP proposal for U.S. climate change legislation meets these standards.

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[38] *U.S. – Shrimp (AB)*, para. 166.
[39] *U.S. – Shrimp (AB)*, para. 166; Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products: Recourse to Article 21.5 of the DSU by Malaysia ("US – Shrimp (21.5 AB)*, WT/DS58/AB/RW, 22 October 2001, at paras. 122-134.
[40] Appellate Body Report, *Brazil – Tyres*, at para. 229.
[41] Appellate Body Report, *Brazil – Tyres*, at para. 227.
[42] *U.S. – Shrimp (AB)*, at paras. 180-81.
[43] *U.S. – Gasoline (AB)*, p. 25.

As we have discussed, the United States would appear to be in a strong position to defend a requirement that importers of goods from a country must present emission allowance certificates to cover the GHG emissions represented by the goods. First, such a measure is clearly linked to the purpose of GHG emissions reduction. Second, this would be a flexible measure adaptable to the circumstances of each exporting country, and therefore devoid of arbitrary or unjustifiable discrimination. Each exporting country would have a choice to implement any GHG emission reduction program as an alternative to forcing importers into presenting allowance certificates, and trading partners would be given a predictable standard in advance with which to achieve compliance. Third, the design, architecture, and structure of such an allowances requirement would demonstrate that the system has no purpose other than to cause the reduction of GHG emissions. Consequently, the *chapeau* of Article XX would pose no obstacle to deployment of a U.S. allowances program to combat climate change.

Attachment

APPENDIX OF RELEVANT WTO PROVISIONS

1. GATT Article I: General Most-Favored-Nation Treatment

1. With respect to customs duties and charges of any kind imposed on or in connection with importation or exportation...any advantage, favour, privilege or immunity granted by any [Member] to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other [Members].

2. GATT Article II: Schedules of Concessions

1. (a) Each [Member] shall accord to the commerce of the other [Member] treatment no less favorable than that provided for in the appropriate Part of the appropriate Schedule.

(b) The products described in Part I of the Schedule...shall, on their importation into the territory to which the Schedule relates...be exempt from ordinary customs duties in excess of those set forth and provided therein. Such products shall also be exempt from all other duties or charges of any kind imposed on or in connection with the importation in excess of those imposed thereafter by legislation in force in the importing territory on that date.

3. GATT Article III: National Treatment on Internal Taxation and Regulation

1. The [Members] recognize that internal taxes and other internal charges, and laws, regulations and requirements affecting the internal sale, offering for sale, purchase, transportation, distribution or use of products, . . . should not be applied to imported or domestic products so as to afford protection to domestic production.

2. The products of the territory of any [Member] imported into the territory of any other [Member] shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. . . .

4. The products of the territory of any [Member] imported into the territory of any other [Member] shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. . . .

4. GATT Note Ad Article III

Any internal tax or other internal charge, or any law, regulation or requirement of the kind referred to in paragraph 1 which applies to an imported product and to the like domestic product and is collected or enforced in the case of the imported product at the time or point of importation, is nevertheless to be regarded as an internal tax of other internal charge, or a law, regulation or requirement of the kind referred to in paragraph 1, and is accordingly subject to the provisions of Article III.

5. GATT Article XI: General Elimination of Quantitative Restrictions

1. No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any [Member] on the importation of any product of the territory of any other [Member] or on the exportation or sale for export of any product destined for the territory of any other [Member].

6. GATT Article XIII: Non-Discriminatory Administration of Quantitative Restrictions

1. No prohibition or restriction shall be applied by any [Member] on the importation of any product of the territory of any other [Member] or on the exportation of any product destined for the territory of any other [Member], unless the importation of the like product of all third countries or the exportation of the like product to all third countries is similarly prohibited or restricted.

7. GATT Article XX: General Exceptions

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any [Member] of measures:

* * *

(b) necessary to protect human, animal or plant life or health;

* * *

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.

The IBEW – AEP International Proposal –
How it Operates within Climate Change Legislation

1. What are the objectives?

   - The goal is to establish an environmental framework in the context of U.S. mandatory greenhouse gas (GHG) emissions reductions, using the leverage of the U.S. marketplace.

   - The framework seeks to –

     - strengthen the hand of negotiators seeking to reach a global solution to the global climate change problem,

     - induce large emitting countries to take action and achieve meaningful results, and by doing so also:

     - prevent the shifting of U.S. jobs to countries that would have lower manufacturing costs merely because they refuse do their part to limit greenhouse gas (GHG) emissions.

2. Which countries are covered?

   - The allowance requirement only applies to foreign countries that are –

     - large-emitters of GHG emissions, and

     - not taking "comparable action" to address their emissions.

   - Foreign countries are excluded if they –

     - have taken "comparable action" to limit their GHG emission;

     - are among the poorest developing countries, or

     - have de minimis levels of GHG emissions.

3. How is "comparability" determined?"

   - First, action is deemed "comparable" if

     - percentage change in GHG emissions in the foreign country is equal to or higher than

     - percentage change in the U.S. in the relevant period.

   - If the foreign country fails the first test, then new US Commission still may deem action "comparable" taking into account the extent of –

     - Deployment and use of state-of-the-art technologies, and

- Implementation of regulatory programs.

4. When does the allowance requirement apply?

   - To fully comply with WTO, the U.S. first must make good faith efforts to negotiate with foreign countries affected by the program to limit their GHG emissions.
     - WTO requires that, if U.S. negotiates with some countries, must negotiate with all countries affected by program.
   - The allowance requirement is a measure of last resort that applies after the promulgation of regulations and the state of the U.S. cap-and-trade program.

5. How does the allowance requirement work?

   - U.S. importers must hold allowances (see below) to cover emissions from imported goods.
   - Failure to submit allowances bars entry of imported goods into the U.S.
   - The allowance requirement –
     - applies after the start of the U.S. cap-and-trade program, and
     - strives to mirror allowance requirement that the U.S. program imposes on producers of domestic goods, and
     - the comparability and allowance determination, as with other key decisions, is made by an independent and bipartisan commission.

6. How do importers comply?

   - Importers may comply with the allowance requirement by –
     - obtaining emission allowances issued pursuant to other foreign GHG regulatory programs
     - obtaining certified emissions credits issued pursuant to the U.S. program or other foreign GHG regulatory programs
     - purchasing "international reserve allowances" from a separate pool that is reserved only for this purpose (see below)

7. What are the key features of international reserve allowances?

   - The allocation of international reserve allowances will not reduce the number of allowances allocated for domestic compliance.
   - The international reserve allowances –
     - cannot be used for domestic compliance, and

- can only be used for meeting the allowance requirement applicable to imported covered goods.

➢ The price of the international reserve allowances would be pegged at the U.S. market price for domestic allowances.

➢ International reserve allowances may be traded and banked for future use.

8. Which goods are covered?

➢ The allowance requirement applies initially to "greenhouse gas intensive" goods from countries that are found not to have taken action comparable to the U.S.

➢ Covered goods include –

- primary goods (such as iron and steel, aluminum, cement, bulk glass, and paper) and
- manufactured goods for consumption that generate a substantial quantity of direct and indirect GHG emissions.

➢ Limiting the primary scope of the program addresses concerns that the international allowance provision will interfere with international trade with respect to the vast amount of imported goods that do not generate significant GHG emissions during their manufacture.

9. How is the allowance requirement set?

➢ The allowance requirement is –

- set for each category of covered goods from each covered foreign country,
- applied on a per unit basis to each good,
- adjusted each year to reflect production changes in the foreign country,
- adjusted to ensure consistency with WTO requirements.

10. What adjustments do WTO rules require?

➢ To ensure WTO compliance, adjustments are made to each category of covered goods.

➢ The WTO adjustments are intended to –

- avoid discrimination between countries where the same conditions prevail.
- Example: Take into account the extent to which state-of-the-art technologies and regulatory programs are deployed.
- maintain rough comparability in burden on imported and domestic goods.

11. Can the allowance requirement be adjusted further?

- The Commission can increase the stringency of the international allowance requirement or take other appropriate action to address GHG impacts of imports.
- Either action is authorized if –
  - the Commission determines the current requirement is insufficient to address GHG impacts, and
  - the adjusted requirement complies with WTO laws.
- The Administrator also may make adjustments to ensure other aspects of implementation of the program are WTO compliant.

Mr. MARKEY. Thank you very much, Mr. McBroom. Our next witness is Mr. Paul Cicio. He is the President of Industrial Energy Consumers of America. He has represented the interests of a variety of industries and consumers, the National Coal Council, the National Association of Manufacturers and others. We welcome you, Mr. Cicio. Whenever you are ready, will you please begin.

STATEMENT OF PAUL CICIO

Mr. CICIO. Thank you, Chairman Markey and Ranking Member Upton and members of the committee. Attached to our written testimony are six policy recommendations that would have a significant impact on reducing greenhouse gas emissions, and we urge you to work with us to do these things today. There is no reason to wait on those policies, and they will help manufacturing competitiveness.

For the industrial sector, climate policy is also a trade policy, it is energy policy, economic, and it is also employment policy. They are all linked, and they are all inseparable. It is for this reason that regulating greenhouse gas emissions for the industrial sector should be negotiated between developed and developing countries in the context of fair trade and productivity and not act unilaterally. International agreements should be negotiated first, and U.S. industrial emissions regulated second. Regulating the industrial sector in advance of negotiations removes our leverage.

President Obama rightfully points to the disappearing middle class as troubling. We agree. The United States began to lose the middle class when we began to lose competitiveness of the manufacturing sector. The timing is absolutely consistent. Let us just look at the facts. OK. Chart number one.

[Chart.]

Chart number one. Since 2000, U.S. manufacturing has been losing competitiveness and jobs. From 2000 to 2008, imports are up 29 percent, and manufacturing employment fell by 22 percent, a loss of 3.8 million jobs. What is not included is the hundreds of thousands of jobs that have been lost this year. Chart number two.

[Chart.]

Chart number two simply extends the trend of job losses forward to 2012, and unless Congress and we, the industrial sector, work together to stem these losses, a simple extension of those job losses says that we are on track to lose another 2 million jobs by 2012. Chart number three.

[Chart.]

Chart number three plots investment in industrial equipment in the United States as a share of GDP from 1990 to 2008. This slide illustrates companies have consistently invested less and less in this country. The only conclusion one can draw from this chart is that the United States has not been an attractive place to invest, and to the point of this hearing, placing new carbon costs unilaterally on us will only make things worse. Chart number four.

[Chart.]

Chart number four shows emissions of each sector of the economy. The industrial emissions are only 2.6 percent above 1990 levels, while the other four sectors of the economy are up an average of 31 percent. Industrial emissions are low because of plant shut-

downs, job losses, and because of the continuous improvement to improve energy efficiency.

As you can see, industrial emissions are not a problem. Most importantly, Congress has a choice to make as it considers imposing an economy-wide cap-and-trade regulation. It must decide whether to maintain and possibly increase U.S. manufacturing jobs by not unilaterally imposing greenhouse gas costs, or you can do so but it will create jobs in foreign countries and increased imports. The decision actually in our view should not be too hard because there is very sound economic and environmental justification for Congress to act in the short term to not do so. But we do urge you to act to forge an important and different policy path that will provide sustained and significant greenhouse gas reductions globally by harnessing real market forces and competition. We need U.S. leadership to forge a global effort to address industrial-sector greenhouse gas emissions that is focused on fair trade and productivity. This is the only way to potentially bring developing countries to the table. Productivity is a language that all manufacturers around the world understand and is fundamental to competition. We believe that all governments want productivity by their industrial sectors, so this is a win-win.

In summary, the industrial sector needs a level playing field. Adding costs unilaterally helps all of our competitors around the world and takes our business and our jobs. However, if the United States proceeds to cap industrial greenhouse gas emissions anyway, despite our plea, we urge you to provide free allowances equal to the resulting direct and indirect cost due to greenhouse gas regulations until major competing countries have similar cost increases. The decision is yours to make. Unfortunately or fortunately, company CEOs have responsibilities to their shareholders to protect company interests, and they will. Thank you.

[The prepared statement of Mr. Cicio follows:]

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BEFORE THE

UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON ENERGY AND COMMERCE

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

TESTIMONY OF

PAUL CICIO

INDUSTRIAL ENERGY CONSUMERS OF AMERICA

REGARDING

COMPETITIVENESS AND CLIMATE POLICY: AVOIDING LEAKAGE OF JOBS AND EMISSIONS

WASHINGTON, DC
MARCH 18, 2009

Congressional Justification for Not Capping GHG Emissions of the Industrial Sector*

Outline

* Not all members agree with this testimony.

Key Points:

Capping the greenhouse gas (GHG) emissions of the industrial sector will drive investment and jobs offshore and increase imports. It will not bring major developing countries to the table but they will benefit through increased exports to the US. Even the third phase of the EU Emissions Trading Scheme (ETS) contains a provision to ensure their trade exposed industries receive compensation in order to prevent job loss and emissions leakage. Regulating the US industrial sector "before" negotiating an international agreement undermines our ability to achieve a fair and effective GHG reduction agreement for US industry.

For the industrial sector, climate policy is also trade, energy, economic and employment policy. They are all intrinsically linked and inseparable. It is for this reason that regulating GHG emissions for the industrial sector be negotiated with both developed and developing countries in the context of a fair trade and productivity.

The US industrial sector is not the problem. In the US, the industrial sector's GHG emissions have risen only 2.6% above 1990 levels while emissions from the residential sector are up 29%, commercial up 39%, transportation up 27% and electricity generation up 29%.

The industrial sector competes globally and requires a global GHG policy solution that is based on productivity, something that the developing countries industrial sector can potentially agree to. A GHG cap is an unacceptable policy alternative for them and for us.

The US cannot grow the economy without using more volume of our products. The only question is whether the product will be supplied from domestic sources or imports. In fact a cap limits economic efficiency because it even limits the ability to maximize production from existing facilities that are not running at installed capacity. Since 2000, US manufacturing has been losing ground. From 2000 to 2008, imports are up 29% and manufacturing unemployment fell 22%, losing 3.8 million jobs, a direct statistical correlation.

The use of energy by the industrial sector is value-added. Our products enable GHG emission reductions. Lifecycle studies show that they save much more energy and GHG emissions than what is used/emitted in their production. Raising energy costs raises the cost of these valuable products.

The industrial sector already has a price signal for GHG emissions, it is called global competition and because we are energy intensive, we either drive down our energy costs or go out of business.

Under cap and trade, the industrial sector pays twice. Through the additional cost of carbon embedded in energy purchases and through the higher cost of natural gas and electricity. Higher demand for natural gas will result in higher prices for all consumers. Since natural gas power generation sets the marginal price of electricity, higher natural gas prices will mean higher electricity prices for all consumers.

A cap will damage the ability of the US industrial sector to take back market share from imports and increase exports.

Cap and trade does not address our country's fundamental need to significantly increase the availability, affordability and reliability of low carbon sources of supply.

Carbon trading and market manipulation is of great concern. The US government has proven unable to prevent market manipulation for mature energy and food commodities and credit default swaps - carbon markets will be much harder to regulate.

If the US proceeds to cap GHGs, it must provide to industry free allowances equal to the resulting increased direct and indirect costs due to GHG regulation until major competing developing countries have similar cost increases.

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Congressional Justification for Not Capping GHG Emissions of the Industrial Sector

Congress has a choice to make and it is a decision it cannot afford to make incorrectly. It must decide whether to maintain and possibly increase US manufacturing jobs by not capping GHG emissions on the industrial sector – or create jobs in foreign countries by importing manufacturing products to supply the needs of our economy.

The Industrial Energy Consumers of America is an association of leading manufacturing companies with $510 billion in annual sales and with more than 850,000 employees nationwide. It is an organization created to promote the interests of manufacturing companies IECA membership represents a diverse set of industries including: plastics, cement, paper, food processing, brick, chemicals, fertilizer, insulation, steel, glass, industrial gases, pharmaceuticals, aluminum and brewing.

The decision should not be hard because there is very sound economic and environmental justification for Congress to not act in the short term to cap GHG reductions on the industrial sector but to forge a different policy path that will provide sustained GHG reductions globally by harnessing real market forces called competition.

The industrial sector needs a globally level playing field that lets the best companies win. Adding costs by unilateral action helps "all" of our competitors in other countries take our business and our jobs. **We need US leadership to forge a global effort to address industrial sector GHG emission reductions that is focused on "fair trade" and "productivity". This is the only way to potentially bring developing nations to the table.**

Productivity is a language that all manufacturers understand and fundamental to competition. We believe that all governments want increased productivity by their industrial sector. We urge you to take action in this more realistic direction.

The world in which the industrial manufacturing company operates is diverse and business is often won or lost on the difference between pennies per unit of product. Competitiveness is everything. Some segments of industry, such as the power producers, may support cap and trade, but that's because they don't compete globally and they simply pass through their increased costs, we don't have that luxury.

Unlike that vision that many Americans have of China building coal-fired power plants using antiquated technology, it is vitally important that the Congress understand that a great number of companies that we compete with from developing countries are top-in-class competitors. They are utilizing the latest, world class technology. Some of these facilities are state owned or supported. Many also have subsidized energy costs. Energy costs most often determine our competitiveness and it can be our largest non-controllable cost.

The congress can act in the public interest to consider both the cost and benefits of not imposing the cap on the industrial sector. The benefits of not imposing a GHG cap include good paying

jobs, exports that reduce our balance of payments and the domestic production of products that are solutions to our climate challenges.

So far, only the environmental costs have been debated. We caution you to consider that your policy decision can lead to a further acceleration of the loss of the industrial sector. Just look at the facts. Due to the loss of competitiveness since 2000, the manufacturing sector has lost 3.8 million jobs thru 2008. During this same time period, imports rose 29%, a direct statistical correlation. (See Charts 3 and 4.)

President Obama rightfully points to the disappearing middle class as troubling. We agree. The US began to lose the middle class when the industrial sector began to lose competitiveness along with our high paying jobs that most often pay benefits. The timing is consistent. We encourage the president and Congress to work with us to put new industrial policies in place that will increase competitiveness and grow the industrial sector and greatly restore the middle class.

To their credit, Representative Inslee and Doyle have rightfully recognized the need to protect manufacturing competitiveness. They are well intentioned but their solution is not really a solution for an industry that competes globally. We will still be burdened with costs and uncertainty. Most importantly, it does not do anything to bring the industrial sectors of developing countries into a climate agreement. Instead, a global solution is warranted that puts us on equal footing with our competitors. The international agreement should be negotiated first, not second. Regulating the US industrial sector in advance of negotiations completely removes our negotiation leverage.

The global reality is that developing nations place a significant priority on their manufacturing sector for both domestic economic growth and exports. They have a long history of providing all types of subsidies that include energy and trade credits. If they subsidize energy costs for their manufacturers, why wouldn't they also subsidize the cost of GHG reductions to enable exports to the US? US industry needs a level playing field - and then let us compete.

The justification is obvious and in the best interests of the country. The industrial sector's absolute GHG emissions are only 2.6% above 1990 levels and the rate of change has been flat due to energy efficiency improvements and a declining manufacturing presence. In contrast, according to the EPA, the transportation sector emissions are up 27%, residential up 29%, commercial up 39% and power generation up 29%. The point is that the industrial sector is <u>not</u> a contributor to growing GHG emissions and should not be a high priority for GHG reduction mandates.

Secondly, the products we produce are essential for economic growth of the country and a vibrant opportunity to create new high paying jobs. As the economy rebounds, our country will require significant volumes of the products that we produce such as cement, steel, aluminum, chemicals, plastics, paper, glass, and fertilizer which are all energy intensive. You can't produce renewable energy without our products. The question Congress must answer is whether it wants these products to be supplied by production facilities in the US or imported from foreign countries.

If Congress places a declining GHG cap on the industrial sector, you can be pretty confident that US companies will "not" invest their capital nor create jobs in the US. The reason is obvious. There is a lack of confidence that other countries will place a GHG cap on their manufacturers any time soon which would place US industry at a significant competitive disadvantage. Setting a starting date of 2012 for a GHG cap will result in industrial companies making pre-emptive capital decisions on where to locate and increase the production of their products that anticipates these assumptions.

Third, products from the manufacturing sector provide the "enabling solutions" to the challenges of climate change and it is important that GHG regulation does not increase the cost of these products to deter consumer purchases.

It takes energy to save energy. Insulation can be made from glass, plastic or paper, all of which are energy intensive. Double pane windows use twice the amount of glass but save an enormous amount of energy over the life of a building. Reducing the weight of autos, trucks and aircraft is an essential solution but requires greater use of aluminum, composite plastics and different grades of steel. More steel and plastics are needed for wind turbines. The production of solar silicon used to make solar panels is energy intensive. There are literally a thousand examples of how manufacturing products contribute to the climate solution and it is important to keep the cost of these products low.

The industrial sector is the "green sector". Manufacturing has a remarkable track record of reducing energy while continuing to increase the output of product. They predominantly use natural gas as a fuel versus coal. They are the largest consumer of biomass that is used for making paper and as a fuel for producing energy efficient steam and power. They utilize combined heat and power extensively and substantial quantities of recycled steel, aluminum, glass and paper which is extraordinarily energy efficient.

Fourth, placing a GHG cap on manufacturing makes it much more difficult for our sector to reclaim domestic market share and increase exports. The US has a significant trade deficit in part due to declining manufacturing product exports that accelerated in 2000 as US natural gas prices rose and imports increased.

A lot of these imports are from China, a country that values its manufacturing sector. And now, the US is dependent upon China to finance its burgeoning debt. Improving the competitive health of our manufacturing sector can help reduce this dependency. Increasing competitiveness of the industrial sector and increasing exports is an important matter of public policy that needs addressed.

The decision is yours to make. Company CEOs have a responsibility to their shareholders to protect the company's interest and they will. The manufacturing sector is agile and mobile to survive and thrive - it is just a question of where.

Climate policy and manufacturing competitiveness
IECA has not attempted to gain consensus by the industrial sector on what is the best way to regulate GHG emissions for the US economy or for the manufacturing sector. However, there is little question how the majority view policy options.

Every discussion begins and ends with "competitiveness". Manufacturers compete globally and for many, the cost of energy and carbon will determine whether they will successfully compete in domestic and global markets.

The "absolute" cost of energy and carbon does not matter so long as all of our competitors around the world have the same increased costs. What matters to manufacturers is the "relative" cost of energy and carbon compared to our major global competitors regardless of whether they are in Europe or a developing country.

For that reason, US climate policy must not increase our relative costs. This means that manufacturing competitiveness must also be dealt with at the international level. While this presents a challenge for policy makers, it also provides a wonderful opportunity.

Those of us from the industry believe that more GHG emission reductions can be achieved globally when industrial climate policy instruments are focused on productivity that is, increasing production while reducing energy consumption. It's a win-win and recognizes that all players can only manage the energy use inside their plant and often have little control on the type of energy available.

There is general agreement by US manufacturers that other countries will not knowingly sacrifice their manufacturing jobs in response to climate policy. Since China tends to be a policy lynchpin, it is importantly to note that they especially will not sacrifice their manufacturing competitiveness to address climate change.

It is China's manufacturing sector that has raised its status to a world power by creating jobs and exports that have provided a significant and unequaled trade surplus. Now, the US is dependent upon them to buy our treasury bills and finance our debt. This is not an enviable position for the US nor is it necessary.

To its credit, the Chinese government has a history of emphasizing the importance of the manufacturing sector which is in contrast to the US government. China has also provided export tax credits, subsidies for energy costs and manages its currency. Some US government officials claim that currency control gives China a 40% competitive advantage over US manufacturers. Whether it's the currency or not, China's manufacturing sector is winning and US manufacturing is losing.

Any US climate policy option must hold manufacturing harmless until major competitors in both developed and countries in transition have comparable energy and carbon cost increases. Comparable reduction requirements do not meet the test. Without this protection, US manufacturers will protect their shareholders and move production facilities to countries that offer a competitive environment.

Well intentioned members of Congress have proposed a cap and trade system that would provide manufacturers with "some" free allowances that would decline over time and would cover "some" of the resulting higher energy costs. While appreciated, these provisions are not adequate to allow the industrial sector to compete, grow domestic production and exports. Many US industries have been working on energy efficiency for decades and simply don't have technology available to make step changes needed to meet these ratcheting targets.

Under these provisions we will still have a declining GHG cap that reduces our production; unpredictable costs for energy, carbon and transaction costs; and un-necessary cost increases. It also does not do anything to help our domestic customers who will be asked to absorb higher costs for our products.

Economy-wide cap and trade is simply the wrong policy platform for the manufacturing sector. IECA wants a climate policy that will allow US manufacturing to: invest in the US; does not create winners and losers; does not penalize those who have already invested in energy efficiency; and transparency so that the system cannot be manipulated or gamed.

Relatively few manufacturers in the industry support cap and trade. The ones that do have either inherent special circumstances that allow them to gain a relative competitive advantage; have already moved their energy intensive manufacturing offshore; will significantly benefit from increased product sales or are simply not energy intensive and are not measurably impacted.

We do not know any manufacturing companies who support carbon cap and trade with auction. This is completely understandable because the manufacturing sector needs predictability over long time horizons for capital investment. The auction of carbon allowances does not give price certainty plus manufacturers are disadvantaged in competing for the auctioned carbon with regulated utilities who can afford to pay any price and then pass the cost on to consumers to pay.

If the government lets Wall Street participate, the auction option gets even worse. In general, manufacturers believe that only companies who are required to reduce GHG emissions should be allowed to purchase carbon allowances or offsets. This leaves Wall Street out.

Auctioning is the quickest way to lose manufacturing jobs and they will go silently, one at a time and without an announcement. Each manufacturing production unit has a cost break-even that varies significantly from plant to plant and from company to company. As the cost of carbon rises, the manufacturer will not have any choice but to shut it down.

Very few companies support cap and trade even if allowances are initially provided free of charge because they recognize that these temporary allowances are not a safety net and their economic viability is in jeopardy long term. The engineering limitations of their manufacturing facilities leave little room for imagination – just realism.

A carbon tax is better than a cap and trade program because it does not constrict our ability to increase the volume of product produced, it is superior in transparency, and more easily adjusted at the border. Nonetheless, it is a cost that is not welcomed and un-necessary for the industrial sector to reduce carbon intensity. Clearly, a high carbon tax will be just as effective of putting us out of business.

There are about 350,000 manufacturing facilities in the U.S. It is estimated that about 7,800 facilities would emit 10,000 tons of CO2 per year. By itself, regulating the industrial sector presents a significant regulatory challenge for the federal government. While only 7,800 would be regulated, the other 342,200 facilities and the American consuming public would be asked to absorb higher resulting product costs.

Representative Inslee-Doyle Provision
We appreciate the fact that Representative Inslee and Doyle have and continue to make an effort to protect the competitiveness of energy intensive industry within the confines of an economy wide cap and trade regime. The system they are developing is a complex method for providing industry with a rebate. Furthermore, we are concerned that we will rely on an untried system that may not protect industry in the short term. Without full cost relief in the short term, the manufacturing industry in the US will continue to fall to the realities losing competitiveness.

Recognizing that this provision probably continues to evolve, we see the following short-comings.

1. Determination of eligible sectors and facilities uncertain (new bill may clarify somewhat).
2. Only 85 percent of average needs covered (this would be less under the proposed BAT criteria in the new draft).
3. It does not compensate for the resulting higher natural gas or electricity costs. Implementing cap and trade will result in much higher demand for natural gas. Higher demand will drive up the cost of natural gas for all consumers. And, because natural gas fired power generation sets the marginal price of electricity in a growing portion of the country, it will also drive up the cost of electricity.
4. It uses "best practices" versus "average" efficiency standards.
5. Unclear that pool of allowances will be sufficient (i.e., which industries will become eligible, production levels, overall cap level, etc., are unknowable) -- feedstock and technologically unavoidable emissions treated same as "routine.
6. Far too much discretion to eliminate or weaken program through Presidential determinations that other countries have taken comparable actions.
7. Determination of carbon "leakage" (which affects Presidential determinations of whether to continue program, etc.) may create very difficult standard to meet -- i.e., demonstrating that increased foreign production and emissions are "caused" by increased U.S. costs.
8. "Other eligible entities" that can receive allowances (i.e., those that don't have direct compliance obligations) would be limited to compensation for electricity cost increases, but not other inputs.
9. The base year calculation of allowances will be very problematic given the recession and the dramatic change in manufacturing output.
10. Concern that conclusion of a sector agreement in itself will not be sufficient justification to terminate the allowance program, since there may be several, perhaps many years of differentiated treatment, where leakage will remain a serious risk.

11. Does not include allowances for feedstock and process gas.

Carbon trading – Take action to prevent market manipulation and fraud
We offer a simple question. If the U.S. government cannot prevent market manipulation, market power, fraud and excessive speculation in mature commodities like oil, natural gas and food commodities, - not to mention loan derivatives, why would the government believe it can do so with carbon?

The reality is that preventing market manipulation and fraud in the carbon market will be much harder because all reductions are "project by project." Mature commodities like energy or food commodities have physically deliverable products. Carbon reductions are a response to doing capital projects that reduce carbon and the level or rate of reduction can change at any time. Some reductions will be for compliance reasons and some to generate carbon offsets, both are the underlying value or asset.

The national and international economic failures we are experiencing are the result of the financial industry's creation of highly leveraged instruments called credit default swaps and excessive commodity speculation during the first half of 2008.

Financial companies issued a significant number of credit default swaps that are insurance like contacts that other companies bought as protection against the default of mortgage backed securities. They reaped huge profits until the underlying asset values fell. When the mortgage market values began to fall, banks that had purchased the swaps demanded collateral from insurance companies which they could not pay. The house of cards crumbled.

From January to July of 2008, that same financial industry (Wall Street trading houses, hedge funds, sovereign funds and managers of passive index funds) drove the price of energy and food commodities to record levels. Experts now admit that with only a small exception, supply and demand fundamentals had little to do with the run up.

The natural gas market provides an excellent example. The price of natural gas about doubled from January to August of 2008. In that same time period, domestic supply of natural gas rose by 8 percent, national inventories were comfortably within their five year averages and demand was almost identical to the previous year. There was no supply versus demand reason for the doubling of the price. IECA estimates excessive speculation during that time period cost consumers around $40 billion.

Some people respond that we can learn from those lessons and that we will not make the same mistakes as it applies to carbon markets. This does not give us comfort. On all counts, the Congress has failed to act to fix the regulatory oversight shortfalls that have cost consumers billions several times over.

Even after Enron manipulated the market that cost consumers billions, Congress did not act to close the Enron Loophole. After the collapse of the Amaranth, the giant hedge fund, it was discovered that it had successfully controlled almost 60 percent of the US natural gas market contracts and the Commodity Futures Trading Commission did not even know it. Congress did not act to fix it.

Then came last year's excessive speculation of the energy and food commodity market. A year has passed and Congress has not passed any laws to close multiple loopholes that allow speculators unlimited speculation nor have they addressed the long-only index funds. Lastly, Congress has not acted to change the laws to prevent new credit default swaps.

Trading carbon can and will suffer from both problems and more easily. The underlying value of carbon projects can change dramatically without warning leaving the purchaser with little recourse. Traders from around the world view carbon as their next great windfall profit. Just look

at the EU market to see how carbon is traded, not for its underlying cost of abatement, but traded as an energy commodity.

Carbon offsets
The key thing to remember about offsets is that it represents a capital investment. Where ever the capital is invested will create new jobs. IECA companies want to create jobs in the US. But, as stated earlier, under cap and trade, companies will have no choice but to protect their shareholders and invest, if necessary in foreign countries to create offsets to stay in business.

In general, manufacturing companies would rather invest in projects to reduce GHG emissions and increase energy efficiency in their domestic facilities than buy carbon offsets from potentially our competitors in countries like China. The United Nation's "Clean Development Mechanism" (CDM) has approved projects in the manufacturing sector. For the last several years a large number of European countries have purchased CDM and Joint Implementation offsets to help meet their EU reduction requirements. We feel confident the US tax payer is not going to do the same for us.

Countries like China have turned the CDM into a money maker by adding a substantial tax to CDM credits and some companies have turned generation of CDM credits into increased sale of products.

A trade issue, a WTO issue - equals uncertainty and competitiveness risk
Because of this multiple exposure reality of the industrial sector, the congress and the industrial sector must evaluate any proposed carbon policy through the filters of both international trade competitiveness impact and cost impact.

Depending on the sector involved, this can lead to different answers on what type of policy is best suited to reducing greenhouse gas emissions and protecting domestic jobs and competitiveness. This is why a one size fits all cap and trade program is problematic for the manufacturing sector as a whole and why the industrial sector attitudes toward every alternative policy must be nuanced. Moreover, we are very concerned that the entire climate policy debate may become confused and tangled with a larger public finance debate.

As such, it is imperative that any legislative approach to dealing with the greenhouse gas issue include a strong and effective border mechanism to ensure that imports face the same costs and burdens as domestic production. Regardless of what Congress may do in terms of allocating allowances or otherwise reducing costs for trade-sensitive industries (which is critical), it is inevitable that such industries will face higher (and likely growing) costs associated with climate legislation. If we do nothing to ensure that foreign firms selling in this market bear these same costs, the result will simply be more imports from countries without similar environmental measures – a catastrophic result not only for our industries, but for the environment as well.

No one is suggesting a border mechanism that penalizes foreign production. Imports should be subject to the same costs of carbon that are imposed on domestic producers – no more and no less. This is essential to level the playing field until there is a uniform, global approach in place to address the climate issue. While a number of the bills that have been introduced in the House and Senate include border provisions, they have unfortunately included any number of loopholes and deficiencies that would undermine their effectiveness. The worst thing we could do is to put in place some type of "fig leaf" to purportedly address the problem without actually resolving it.

There have been a lot of questions about whether a border provision in the context of climate legislation would be compatible with WTO rules. The truth is that nobody knows for certain how WTO rules will be applied in this area because there is simply no binding precedent. Several points are clear, however.

First, there are very strong arguments that we can impose equivalent burdens on both domestic production and imports, so long as imports are treated no worse than domestic producers.

Second, given that any border mechanism is almost certain to be the subject of examination at the WTO it makes no sense to put in place an ineffective provision. We should enact a meaningful mechanism that will truly impose equivalent burdens on imports and domestic production, and then see how the issues are resolved internationally.

Third, if it turns out that WTO rules are interpreted so as not to permit an effective border provision, that information will be critical to Congress as it considers climate policy. The fact is that no climate measure can or will be successful if it cannot ensure that imports bear the same burdens as domestic production.

The EU ETS did not work

There is an assumption that the EU ETS was a success. That is not the case. Carbon dioxide emissions in the United States fell by 1.8 percent in 2006, compared to a 0.3 percent increase in emissions in the European Union (EU), according to the U.S. Energy Information Administration. Both economies grew at a near-identical pace in 2006, about 3 percent for the year.

The EU ETS has served as an expensive means of establishing emissions baseline data on the few industrial sectors to which it has been applied. It also helped create huge windfall profits for most of Europe's electricity producers. And, it created another set of winners in the financial trading community. (As of 2008, almost 100 billion euro in annual trades within a five year period).

A few manufacturing companies also made money through trading but most likely due to over allocation of initial allowances. Most of the trading volume represents a new set of transactional costs, which only add to global competitive cost pressures.

Although Europe is only in the second phase of its emissions trading scheme, there is already evidence of serious economic and carbon leakage among manufacturers. This is evidenced by the serious debate underway in Europe that is aimed at preventing further erosion and protecting remaining manufacturing jobs and future capital investment in competitive sectors.

Our industrial sector colleagues in Europe point to several concerns with the EU ETS.

- Uneven playing field within and outside EU
- Distortion by the Burden Sharing agreement
- Allocations not based on performance targets
  - ✓ Creates wealth transfer without improving environmental effectiveness
- Electricity market not properly liberalized – Windfall profits for sector
  - ✓ Highly oligopolistic; inelastic demand; no price convergence between countries; very different primary energy sources for electricity production
- Extremely volatile carbon price – no clear signals
- Heavy monitoring, reporting & verification requirements costs
- Carbon market operating risk

President Obama's Cap and Trade Budget Proposal

President Obama's budget blueprint would establish a 100% auction based system, the revenues from which have been promised to an assortment of uses -- some related to achieving climate policy objectives and some completely unrelated. We strongly encourage the congress to not use climate policy as a federal revenue raiser.

Our interpretation of President Obama's budget proposal would mean that only the industrial and commercial sector would pay for the higher energy/carbon compliance costs. The electric and natural gas utilities will be able to pass the costs onto consumers under state utility regulation in states that are regulated. In those states, the electric utility sector will experience an increase in the average cost of producing electricity. In deregulated states there will be an increase in the cost of production for the marginal generation unit which clears the market. The Obama plan

would provide rebates to some retail consumers to cover their increased costs. If this is correct, this means that only a small portion of the economy will bear the costs. This is not sound climate policy.

Improvements to existing manufacturing technology can reduce GHG intensity but not absolute GHG emissions
Given existing manufacturing processes, GHG intensity can continue to be improved as capital stock turnover occurs. This is why a positive investment environment is necessary. As we invest in energy efficiency projects, GHGs are also reduced. However, a declining GHG cap makes it impossible to produce larger quantities of product without increasing absolute GHG emissions. It is not physically stoichometrically possible. New yet undeveloped technology will be needed.

While some fuel switching can still be done within the sector, it is not significant. Regulatory and financial barriers present a problem for greater use of CHP and waste energy.

A cap and trade policy does not address the underlying barriers to increasing a cost effective low carbon supply of energy
An economy-wide cap and trade will be costly because it overlays a one-size-fits-all approach. Each sector of the economy is significantly different and a one-size fits all economy wide cap and trade system is insensitive and thus less cost effective than a targeted sector approach. The SO2 program had cost effective alternatives like low-sulfur coal and existing technology.

Energy intensive products are integral to the growth of the U.S. economy
The list of examples below illustrates how dependent literally every sector of the US economy is upon the industrial product sector.

Examples:

- The aerospace/defense industry uses steel, aluminum, plastics and chemicals.
- The air transport industry uses steel, aluminum, plastics and chemicals.
- The auto and truck industries use steel, aluminum, plastics, chemicals.
- The beverage industry uses aluminum, steel, paper, glass and plastic.
- The biotechnology industry uses chemicals.
- The commercial and home building construction industry uses brick, steel, aluminum, wood, cement and glass.
- The oil and gas industry uses steel, chemicals, cement.
- The chemical industry uses chemicals, steel, cement and glass.
- The computer industry uses plastics, chemicals, and glass.
- The electrical equipment industry uses steel and plastics.
- The electric and gas utility sector uses steel and cement.
- The food industry uses fertilizer, chemicals, plastics and paper.
- The home furnishing industry uses wood, glass, chemicals, and plastics.
- The heavy construction industry uses steel and rubber.
- The home appliance industry uses steel, aluminum, glass, chemicals, plastics and wood.
- The household products industry uses chemicals, plastic; paper, glass.
- The machinery industry uses steel, chemicals and plastics.
- The maritime industry uses steel.
- The packaging industry uses plastics, paper, aluminum and steel.
- The paper / forest products industry uses steel and chemicals.
- The refining industry uses steel, chemicals and cement.
- The pharmaceutical industry uses chemicals, glass and steel.
- Railroads use steel.
- The toiletries/cosmetics industry uses chemicals, plastics, paper, and glass.
- Anhydrous ammonia, the basic building block for nitrogen fertilizers is also an essential raw material for plastics, nylons and fibers, reagent for clean our emissions from electric and gas utilities, and chemical manufacturing.

Lessons learned from SO2-NOx trading do not apply to carbon trading
There seems to be widespread belief in the power of a cap and trade regime to bring about relatively low-cost reductions in greenhouse gas emissions. From a manufacturer's perspective, there is admittedly some theoretical appeal to the underlying logic of such a system. The problem is - the devil is in the details. Few dispute the concern that an economy wide cap-and-trade system will be a very-expensive and large-scale experiment. There are large risks and uncertainty.

There are a noteworthy example where the cap-and-trade approach has been tried and there are important differences that must be acknowledged between those efforts and the possibility of imposing such a system on the entire US economy.

The U.S. SO2 trading program applied to really only one domestic industry with near monopoly power, the electric utility sector. The purpose of that program was to allow a trading scheme within the sector that was designed from the beginning to allow a flexible, low-cost transition path to technology implementation. The goal was to move all emitters to a common level of reduced SO2 emissions. On that point, it has largely succeeded.

Unlike the manufacturing sector, however, utilities are insulated from international competition. Furthermore, only (123) facilities were covered by the original program launched as part of the 1990 amendments to the Clean Air Act -- an economy-wide cap-and-trade program would encompass more than 10,000 facilities.

Technology solutions already existed to reduce SO2 power plant emissions and low sulfur coal provided a low cost option. For many industrial sector participants, breakthrough technology programs are almost non-existent.

Manufacturers already have strong incentives to cut energy usage, so incremental emissions reductions are hard to come by and dramatic reductions will require transformational technologies not yet developed. On the other hand, experimenting with an expanded cap-and-trade program that only applied to utilities could be an incremental step forward, albeit one that still poses considerable risk and cost to downstream electricity users.

As stated earlier, one of the major problems that the industrial sector has is its inability to pass costs on due to global competition. Most electric utilities have regulatory cost pass-through. Below is a good example of the difficulties manufacturers face when competing with electric and a reason when we are concerned about cap and trade and our competitiveness.

The example is the RECLAIM (Regional Clean Air Incentive Market) NOx and SOx program run by the South Coast Air Quality Management District (SCAQMD) for the Los Angeles air basin. Under this RECLAIM NOx and SOx cap and trade program, both industry and utilities were provided with no-cost allocations. Each operating entity's (utility or industry) allocation stream was reduced in operating permits over the course of some 25 years.

After several years, the utilities realized that it was in their best interest to purchase all available allocations, to ensure that they were not adversely affected by any future changes. The utilities realized they could just pass their increased costs onto customers. The NOx and SOx RECLAIM prices skyrocketed. Many industrial concerns could not afford to buy any allocations they needed to continue their business operations, because they could not just pass on their increased cap and trade costs to the marketplace. SCAQMD then pulled the utilities out of the program to drop the allocation market prices and allow LA-based industry to more effectively compete. The market stabilized and air quality improved.

Recommendations to reduce GHG emissions
Below are several very important steps that can be taken by congress that will result in significant GHG reductions without use of cap and trade and can be acted upon immediately.

1. **Increase performance standards on electricity and fossil fuel consuming devices**

Setting higher energy efficiency standards for industrial equipment and technology associated with consumption of electricity or fossil fuels is cost effective and will provide a sustained long term improvement GHG reductions. This also has the effect of setting performance standards for imported products that will compete for US business. Just as regulations have and are being promulgated to improve appliance standards, the same can be done with industrial equipment. As companies do maintenance on existing facilities or build new facilities, more energy efficiency equipment will be utilized.

2. **Mandate an increase in utility purchases of electricity from manufacturing and commercial building waste heat and combined heat and power (CHP) projects**

A December 1, 2008 Department of Energy report entitled "Combined Heat and Power – Effective Energy Solutions for a Sustainable Future" indicates that if the US increases CHP capacity from 9 percent to 20 percent of the grid by 2030, we can avoid 60 percent in the growth of US GHG emissions. Doing so also will increase the competitiveness of the manufacturing sector and increase jobs. To achieve this requires removing economic and market barriers at the federal and state levels.

3. **Jump start the clean industrial revolution by creating a industrial sector low-cost loan program**

Increased productivity and energy efficiency occurs when companies invest in existing or new facilities. Companies rarely invest during economic down turns like we are seeing today because there is uncertainty in the near-term return on investment. And, unless we act, the job creation will not occur. The solution is the development of a clean industrial revolution program that allows companies to borrow money from the Treasury at low interest rates, not require payment for four years and give ten years to pay it back. Not requiring payment for four years overcomes the short term concerns of a short term return on investment. Unlike some other business tax incentives, this program requires the investment be made in the US creating maximum benefit for the country.

4. **Increase the Investment Tax Credit for Combined Heat and Power**

Improve the applicability of the investment tax credit for waste energy and CHP projects by extending the 10% ITC.

5. **Increase depreciation rates for all manufacturing sector capital assets to increase cash flow**

Most assets fall under a depreciation schedule of 15-20 years. We recommend it be accelerated to 7 years.

6. **Establish federal energy efficiency standards for existing and new homes and commercial buildings**

Buildings consume 40 percent of US energy and they last for 80 to 100 years yet there is no federal requirement for consistent energy efficiency improvement. We support federal energy efficiency improvement standards set through collaboration with state governments.

Chart 1.

"Direct and Indirect" GHG Emissions

Table ES-3:CO_2 Emissions form Fossil Fuel Combustion by Fuel Consuming End-Use Sector (Tg CO_2 Eq.)

	1990	2007	Difference
Transportation	**1487.5**	**1892.2**	**+27.2%**
Industrial	**1525.2**	**1565.2**	**+2.6%**
Residential	**927.1**	**1198.0**	**+29.2%**
Commercial	**749.2**	**1041.4**	**+39%**
Electricity	**1809.7**	**2327.2**	**+28.6%**

*Source: DRAFT Inventory of U.S. Greenhouse Gas Emissions and Sinks :1990-2007

Chart 2.

World CO_2 Emissions by Sector

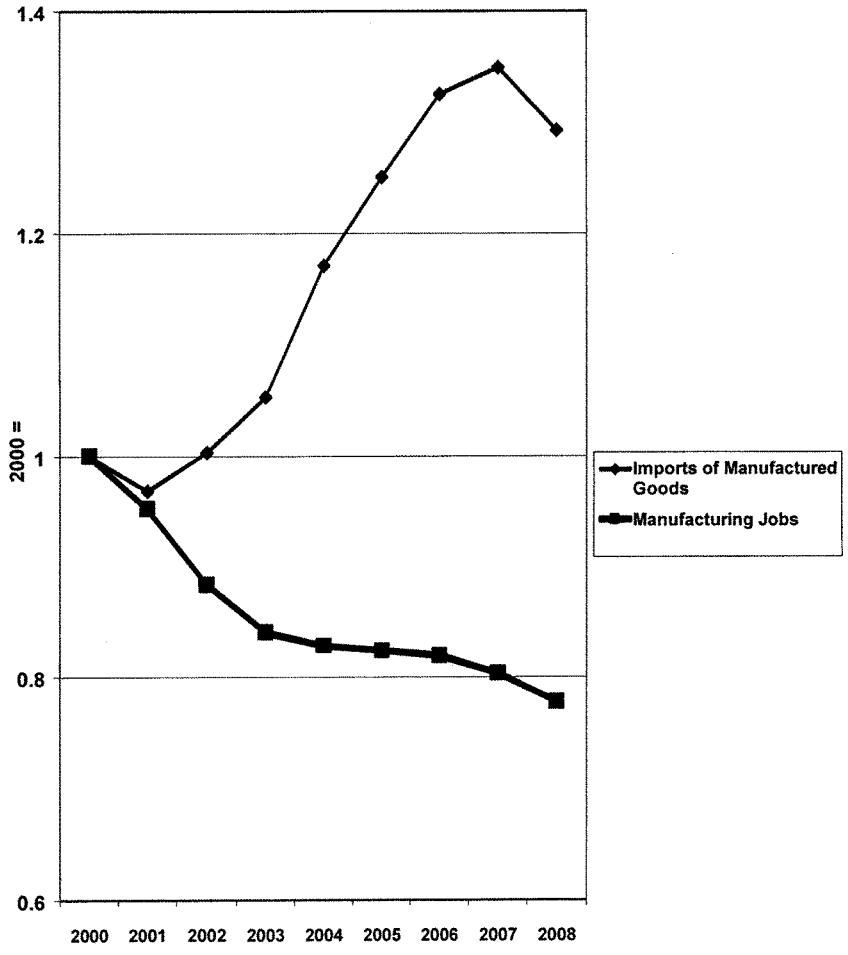
World CO_2 Emissions by Sector (GT CO_2)

Sector	1971	2006
Electricity and Heat	27%	41%
Transportation	20%	23%
Industry	27%	19%
Residential	10%	7%
Other	16%	10%
Total	14.1%	28%

**Source: IEA, 2008: CO_2 Emissions from Fuel Combustion

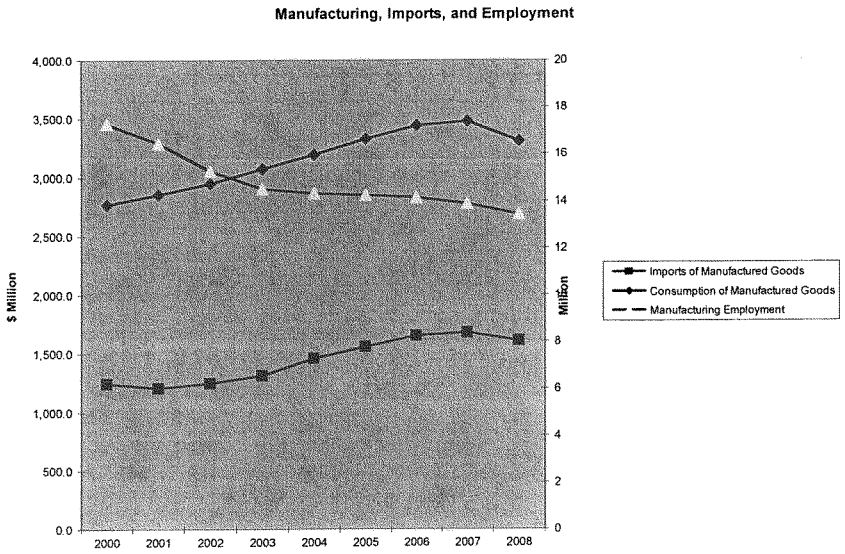
Chart 3

Imports of Manufactured Goods and Employment in Manufacturing, 2000 - 2008



Source: Bureau of Economic Analysis; Commerce Department, Bureau of Labor and Statistics

Chart 4



Source: Bureau of Economic Analysis; Commerce Department, Bureau of Labor and Statistics

Mr. MARKEY. Thank you, Mr. Cicio. We appreciate that very much. I can actually see out in the audience we have been joined by former great Republican Congressman Sherwood Boehlert, and we thank you for coming here and we wish nothing but the worst for the New York Yankees this year, at least from this seat. But we welcome you. Thank you for being here.

Our next witness is Dr. Margo Thorning, Senior Vice President and Chief Economist with the American Council for Capital Formation which promotes cost-effective environmental policies in the United States and abroad. You can move that microphone in. Whenever you are ready, please begin.

STATEMENT OF MARGO THORNING

Ms. THORNING. Thank you, Mr. Chairman and Ranking Member Upton, thank you, members of the Committee, for allowing me to appear before me. I am Margo Thorning, Chief Economist, Senior Vice President with the American Council for Capital Formation, and I respectfully request my testimony be submitted for the record.

Mr. MARKEY. Without objection it will be.

Ms. THORNING. I would like to make four points. First, policies to reduce greenhouse gas emissions such as were debated last year in Congress with the Lieberman-Warner proposal or the new Obama Administration proposal are virtually certain to reduce jobs and to increase unemployment. May I draw your attention to Table 1 of my testimony which presents a survey of different modeling results on the Lieberman-Warner bill from the ACCF–NAM study, Charles River, the Energy Information Administration, the Environmental Protection Agency, and MIT. There is a range of estimates for the impact of the loss of jobs and GDP which, in 2020, which, the lowest is .7 percent of GDP, the highest from EPA is 1.5 percent loss in GDP. Job losses in 2020 range from 270,000 fewer jobs to as many as 3.2 million fewer jobs. And these modeling results do take account of new, green jobs that are thought about as we move more into renewables and alternative technologies. By 2030, the results are even more striking. So I think the evidence suggests that cap-and-trade proposals such as are being discussed now will certainly have a negative impact on U.S. employment and job growth and will speed leakage of jobs abroad.

Second point, the Obama Administration's revenue estimates are seriously understated. Their new budget suggests that revenue yield from carbon allowance auctioning would be about $80 billion a year. I believe that is a serious understatement. We looked at the numbers that the Energy Information Administration released last year when they analyzed the revenue yield of the Lieberman-Warner bill which is not that different from the Obama Administration proposal in terms of ultimate targets.

As you see in Figure 3 in my testimony, the blue bar is the estimate of $675 billion over the 2012–2019 period that the Obama Administration says their cap-and-trade proposal would bring in. EIA's estimates, we recalculated EIA's numbers on Lieberman-Warning assuming 100 percent auctioning. Those numbers, the hash mark numbers, are significantly higher, three to four to five

times higher than the yield that the Obama Administration is showing.

We then recalculated using the lower initial targets in the Obama plan which is the red bars in my Figure 3. Those show revenue cost to taxpayers and business of three to four times higher. So I am guessing that actually the Obama plan would bring in a trillion to over $3 trillion over the 2012–2019 period. So that is a very significant cost that would have the impact, of course, of slowing job growth and GDP growth, and in fact the Administration recognizes that. If you look at their budget, page 129 of their budget, footnote five, it says that if additional revenues are raised, those will be rebated to the public. So it is clear that they know 100 percent auctioning proposal that they have would yield much more revenue.

Third point, the environmental benefits of achieving the Obama plan or the Lieberman-Warner plan are very small, and if you talk about cost-benefit analysis, I think a look at the table that the Administration released in their Council of Economic Advisors' report, which is Figure 5 of my testimony, the Administration says that if we achieve the Lieberman-Warner targets, which again are similar to the Obama Administration, by the end of this century, there will be virtually no environmental benefit. So if you look at costs and benefits, it is clear that going it alone is not likely to yield any meaningful environmental benefit, but it will impose significant cost.

Final point, there are positive strategies that the United States can adopt to reduce greenhouse gas emissions. There are things we can do here. I commend you to look at Table 2 of my testimony which shows how slow the capital cost recovery is in the United States for new energy investments. Our Ernst and Young study which is on our ACCF Web site shows that the United States has the worst capital cost recovery and the highest effective tax rate on new energy investment of major industrial countries. We could also continue to promote international cooperation that previously administrations have started through the Asia-Pacific Partnership, the Global Nuclear Energy Partnership, Clean Technology, and the Major Economies Initiative. These international agreements are designed to promote technology transfer.

Finally, if we do impose a mandatory regime, I would suggest a carbon tax rather than a cap-and-trade system. It would provide more certainty to the business community and households than the cap-and-trade. Thank you, Mr. Chairman.

[The prepared statement of Ms. Thorning follows:]

Competitiveness and the Climate Change Policy: Avoiding Leakage of Jobs and Emissions

By:

Margo Thorning, Ph.D.
Senior Vice President and Chief Economist
American Council for Capital Formation
Before the
Subcommittee on Energy and Environment
Committee on Energy and Commerce
U.S. House of Representatives
March 18, 2009

Executive Summary

Impact of Climate Change Policy on the U.S. Economy and Competitiveness

Recent private and government analyses of the impact of cap and trade proposals such as the Lieberman-Warner bill(S.2191), which sets targets to reduce GHGs to 15 percent below 2005 levels by 2020 and to 70 percent below by 2050, show that there are likely to be significant adverse consequences for the U.S. economy and job growth. Higher energy prices slow economic growth. An ACCF/NAM study shows that GDP declines by as much as 1 percent in 2020 and by up to 2.7 percent in 2030. Total U.S. employment (net of new jobs created in green industries) declines by 1,210,000 to 1,800.000 jobs in 2020 and by as many as 4,100,000 in 2030, compared to the baseline forecast.

Obama Administration Climate Change Proposal: Impact on the U.S. Economy

The climate change plan outlined in the Administration's FY 2010 budget sets a target of 14 percent below 2005 levels by 2020 and 83 percent below by 2050 with 100 percent auctioning from the beginning. The Administration appears to expect the price of a carbon allowance to be approximately $13 to $16 dollars per ton of CO2 and that its cap and trade proposal would yield $675 over the 2012-2019. Based on the various studies cited above, the estimated payments to the Federal government for carbon permits seem far too low.

Role of Border Tax Adjustments in Addressing Competitiveness and Leakage from U.S. Climate Change Policy

While some policymakers suggest that combining a U.S. climate change proposal with import restrictions(called Border Tax Adjustments or BTA's) could reduce the U.S. job loss and emission leakage from higher energy prices, others experts say that BTA's would pose a serious threat to the international trading system and could violate provisions of the WTO.

Strategies to Reduce Global and U.S. GHG Emission Growth

Two initiatives, a cap and trade approach and a tax on carbon emissions are currently receiving support from policymakers. A cap and trade system puts an absolute restriction on the quantity of emissions allowed (i.e., the cap) and allows the price of emissions to adjust to the marginal abatement cost (i.e., the cost of controlling a unit of emissions). A carbon tax, in contrast, sets a price for a ton of emissions and allows the quantity of emissions to adjust to the level at which marginal abatement cost is equal to the level of the tax. Many experts conclude that there are substantial advantages to employing a tax on emissions rather than a cap and trade approach. Technology development and transfer can play a key role in slowing the growth of GHGs. Improving U.S. cost recovery allowances for energy efficient and less emitting technologies and continuing to develop international programs like the Major Economies Initiative and others are cost effective approaches to improving the environment as well as strengthening the U.S. economy.

Competitiveness and the Climate Change Policy: Avoiding Leakage of Jobs and Emissions

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Introduction

Mr. Chairman and members of the Subcommittee on Energy and Environment of the Committee on Energy and Commerce, my name is Margo Thorning, senior vice president and chief economist, American Council for Capital Formation (ACCF),* Washington, D.C. I am pleased to present this testimony to the Subcommittee.

The American Council for Capital Formation represents a broad cross-section of the American business community, including the manufacturing and financial sectors, Fortune 500 companies and smaller firms, investors, and associations from all sectors of the economy. Our distinguished board of directors includes cabinet members of prior Democratic and Republican administrations, former members of Congress, prominent business leaders, and public finance and environmental policy experts. The ACCF is celebrating over 30 years of leadership in advocating tax, regulatory, environmental, and trade policies to increase U.S. economic growth and environmental quality.

Chairman Markey, Ranking Member Barton, and the members of the Subcommittee Committee on Energy and Environment are to be commended for their focus on how policies to reducing the growth of greenhouse gas emissions so as to mitigate the threat of human-induced climate change may affect job growth and competitiveness. Given the extremely weak state of the U.S. economy, a cautious approach to reducing. greenhouse gas emission growth is clearly warranted. The questions we need to ask are first, what are the likely impacts of cap and trade or carbon tax proposal on the U.S economy, job growth and competitiveness and second, what are

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* *The mission of the American Council for Capital Formation is to promote economic growth through sound tax, environmental, and trade policies. For more information about the Council or for copies of this testimony, please contact the ACCF, 1750 K Street, N.W., Suite 400, Washington, D.C. 20006-2302; telephone: 202.293.5811; fax: 202.785.8165; e-mail: info@accf.org; website: www.accf.org*

cost effective strategies to slow both U.S. and global GHG growth? My testimony will address these key issues.

I. Impact of Climate Change Policy on the U.S. Economy and Competitiveness

Recent private and government analyses of the impact of cap and trade proposals such as the Lieberman-Warner bill(S.2191), which sets targets to reduce GHGs to 15 percent below 2005 levels by 2020 and to 70 percent below by 2050, show that there are likely to be significant adverse consequences for the U.S. economy and job growth. **(See Table 1)**. For example, an analysis by the American Council for Capital Formation and the National Association of Manufacturers of S.2191 showed that by 2020, the cost of an emission allowances that industry would need to purchase that year for each ton of CO2 emitted would range from $55 and $64 dollars(see study at http://www.accf.org/pdf/NAM/fullstudy031208.pdf).

Results of other modeling efforts from CRA International, DOE's Energy Information Administration, the U.S. Environmental Protection Agency and the Massachusetts Institute of Technology show a similar range of allowance prices, especially when the availability of carbon capture and storage and new nuclear generation capacity are constrained **(see Table 1)**. By 2030, carbon allowances prices are higher due to the tightening of mission reduction targets, increased demand and U.S. population growth.

Higher energy prices slow economic growth, the ACCF/NAM study shows that GDP declines by as much as 1 percent in 2020 and by up to 2.7 percent in 2030. GDP losses in the other studies reported in **Table 1** show losses of up to 1.5 percent in 2020 and 2.3 percent in 2030.

The ACCF/NAM analysis shows that the drag of higher energy prices caused by the cap and trade system in S.2191 reduces total U.S. employment (net of new jobs created in green industries) by 1,210,000 to 1,800.000 jobs in 2020 and by as many as 4,100,000 in 2030, compared to the baseline forecast. In other analyses cited in **Table 1**, job losses range from 270,000 to 3,269,000 in 2020 and up to 2,393,000 by 030.

II. Obama Administration Climate Change Proposal: Impact on the U.S. Economy

- **Administration Revenue Estimates**

The climate change plan outlined in the Administration's FY 2010 budget sets a target of 14 percent below 2005 levels by 2020 and 83 percent below by 2050 with 100 percent auctioning from the beginning. The magnitude of the effort is shown in **Figure 1**, by 2020 CO2 emissions will have decline by over 1 billion tons, by 2030 the gap is approximately 3.5 billion tons (see **Figure 1**). Required reductions in per capita emissions will mean large changes in consumer behavior and in business practices. Currently, the average U.S. citizen is responsible for about 23 tons of CO2

per year. Under the Obama Administration proposal per capita emissions would have to fall to 18 tons in 2020 and 12 tons per capita by 2030(See **Figure 2**). Such large, rapid changes in emissions would mean sharp cut backs in energy use by households and business and significant changes in consumption patterns.

The Administration appears to expect the price of a carbon allowance to be approximately $13 to $16 dollars per ton of CO2 and that its cap and trade proposal would yield $675 over the 2012-2019. Based on the various studies cited above, the estimated payments to the Federal government for carbon permits seem far too low. In fact, the Administration's FY 2010 budget, "*A New Era of Responsibility, Renewing America's Promise*" appears to recognize that carbon auction revenues could exceed the projected $80 billion per year. Footnote 5 on page 129 of the Administration's budget states, in reference to the proceeds from the auctioning of carbon allowances that "All additional net proceeds will be used to further compensate the public".

A comparison of the revenues, based on DOE-EIA analysis, that would have been generated under the Lieberman/Warner bill (S.2191), if all allowances were auctioned further supports the idea that the Administration's revenue estimates are significantly understated. As shown in Figure 3, if all allowances were auctioned under Lieberman Warner, total revenues to the government would have ranged from $1,200 billion to $3,000 billion over the 2012-2019 period. (see bars with hash marks). Adjusting the Lieberman-Warner data for the fact that the Obama Administration target is less stringent in the early years than the L/W target, shows that even under EIA's core case, which assumes carbon capture and storage (CCS) is available, rapid expansion of new nuclear generation capacity, large use of domestic and international offsets, etc. shows that government revenues would exceed those estimated by the Administration (red bars). Using EIA's more realistic cases, where costs are higher, CCS is not readily available and nuclear generation capacity does not expand rapidly, shows that government revenues from the carbon auction would be double or triple the $675 billion revenue estimate for 2012-2019 in the Administration's budget.

- **Energy prices and U.S. Growth and Competitiveness**

The importance of getting the estimates of auction revenue (or carbon trading allowance proceeds) right from any climate change proposal is that higher energy prices will make it harder to restart U.S. economic and job growth. Each one percent increase in U.S. GDP growth is accompanied by a 0.3 percent increase in energy use: therefore, the higher the price of energy, the slower the rate of economic recovery.

A real world example of the effect that increased energy prices have on U.S. industry and employment can be observed by examining trends in the U.S. chemical industry. For example, chlorine is an essential chemical building block used in the production of pharmaceuticals, medical devices, safety equipment, computers, automobiles, aircraft parts and crop protection chemicals. Chlorine production in based on electro-chemistry and is one of the most energy-intensive production processes. In recent years, U.S. chlorine capacity has been shut down because of record high electricity costs arising from high natural gas prices, according to the American Chemistry

Council. In addition, a report by SRI Consulting indicates that ammonia capacity fell from 14.8 million tons in 1999 to 13.6 million tons in 2007, an 8% reduction. Data on global natural gas prices for the third quarter of 2008 show that U.S. producers face much higher prices than many other countries (see **Figure 4**), thus it is not surprising that much chemical production has migrated to lower cost locations.

Similarly, nitrogenous fertilizers play a major role in boosting crop yields and ammonia is the key raw material for these fertilizers. Ammonia production has also been affected by sharply rising natural gas prices. According to The Fertilizer Institute, from 1999-2007, 25 ammonia plants have been closed and a report by SRI Consulting indicates that ammonia capacity fell from 15.5 million metric tons in 1999 to 9.8 million metric tons in 2003, a 37% reduction. Approximately 120,000 jobs have been lost in the U.S. chemical industry since 1999, when natural gas prices began their sharp rise, according to the American Chemistry Council.

III. Role of Border Tax Adjustment in Addressing Competitiveness and Leakage from U.S. Climate Change Policy

While some policymakers suggest that combining a U.S. climate change proposal with import restrictions(called Border Tax Adjustments or BTA's) could reduce the U.S. job loss and emission leakage from higher energy prices, others experts say that BTA's would pose a serious threat to the international trading system and could violate provisions of the WTO.

As noted by the Forum for Atlantic Climate and Energy Talks (June 2008), there are several ways for a country to offset production cost differentials. First, imported energy sources containing CO2 may be taxed at the same rates that apply to domestic energy sources. Second, imported goods could be taxed at the border at a rate which reflects the costs that the emission trading system puts on domestic producers. Third, foreign exporters may be required to purchase emission rights for the carbon content of their goods in order to meet the required offsets.

There are significant challenges in implementing any of the three BTA options described above as Jason Bordoff writes in a recent paper prepared for a Brookings forum, " *International Trade Law and the Economics of Climate Policy: Evaluating the Legality and Effectiveness of Proposals to Address Competitiveness and Leakage Concerns*". Bordoff concludes that the consistency of border tax adjustments with WTO law is in doubt and the expected environmental benefits of border adjustments for carbon-intensive manufactured goods is likely to be quite small compared to the trade and WTO risks the pose.

IV. Strategies to Reduce Global and U.S. GHG Emission Growth

Climate change is a global issue which can not be solved unless all major countries curb their GHG emissions. In the U.S. there is strong interest in adopting a nationwide program to limit emissions. There are also initiatives to accelerate the adoption of cleaner, less emitting technologies through improvements to the U.S. tax code and to promote cleaner technology abroad.

- **Pros and Cons of a Cap and Trade System compared to a Carbon Tax**

Two initiatives, a cap and trade approach and a tax on carbon emissions are currently receiving support from policymakers. A cap and trade system puts an absolute restriction on the quantity of emissions allowed (i.e., the cap) and allows the price of emissions to adjust to the marginal abatement cost (i.e., the cost of controlling a unit of emissions). A carbon tax, in contrast, sets a price for a ton of emissions and allows the quantity of emissions to adjust to the level at which marginal abatement cost is equal to the level of the tax.

Price volatility for a permit to emit CO_2 can arise under a cap and trade program because the supply of permits is fixed by the government, but the demand for permits may vary considerably year to year with changes in fuel prices and the demand for energy. As mentioned above, price volatility for energy has negative impacts on economic growth. In contrast, a CO_2 tax fixes the price of CO_2, allowing the amount of emissions to vary with prevailing economic conditions. A carbon tax, as a system of inducing emissions reductions, is not without drawbacks. First, revenues from a CO_2 tax (or auctioned permits) might end up being wasted; for example, if the revenue went toward special interests, rather than substituting for other taxes. Second, progress on emissions reductions is uncertain under a CO_2 tax because emissions vary from year to year with economic conditions. However, a CO2 tax could be adjusted gradually upward if the desired reductions in emissions were not occurring.

As a study by Dr. Michael Canes, senior research fellow at LMI, points out, volatility in fossil energy prices have strong adverse impacts on U.S. economic growth. Even a reduction in the rate of growth from such a shock of as little as 0.1 percent per year implies costs of over $13 billion per year. (*Why a Cap &Trade is the Wrong Policy to Curb Greenhouse Gases for the United States,* The Marshall Institute, July, 2007).

Furthermore, it makes economic sense to allow nationwide emissions to vary on a year-to-year basis because prevailing economic conditions affect the costs of emissions abatement. This flexibility occurs under a CO_2 tax because firms can choose to abate less and pay more tax in periods when abatement costs are unusually high, and vice versa in periods when abatement costs are low. Traditional permit systems do not provide similar flexibility because the cap on economy wide emissions has to be met, whatever the prevailing abatement cost.

Regardless of how the auction revenues or 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 would wealthier households (see testimony by Terry M. Dinan of the Congressional Budge Office, March 12, 2009 before the Committee on Ways and Means Subcommittee on Income Security and Family Support). CBO's Dinan concludes that designing programs that protect low income households could be challenging and that no one program could address all the regional and household specific circumstances.

Finally, caps on U.S. emission growth are unlikely to succeed unless all the relevant markets exist (in both developed and developing countries) and operate effectively. All the important actions by the private sector have to be motivated by price expectations far in the future. Creating that motivation requires that emission trading establish not only current but future prices, and create a confident expectation that those prices will be high enough to justify the current R&D and investment expenditures required to make a difference.

Motivating new investment requires that clear, enforceable property rights in emissions be defined far into the future so that emission rates for 2030, for example, can be traded today in confidence that they will be valid and enforceable on that future date. The EU's experience over the last four years, with the price of CO_2 emission credits fluctuating between 8 and over 32 euros per ton of CO_2 does not inspire confidence in companies having to make investment decisions. The international framework for climate policy that has been created under the UNFCCC and the Kyoto Protocol cannot create that confidence for investors because sovereign nations have different needs and values.

A new study by Lee Lane and David Montgomery, *Political Institutions and Greenhouse Gas Controls* for the AEI Center for Regulatory and Market Studies (December 2008) concludes that institutions limit the extent to which efficient policies to reduce GHGs are likely to be adopted. The authors note that there are no third parties to enforce climate policy agreements and nations differ widely in their interest in restricting GHG emissions. Therefore, high transaction costs will attend efforts to reach and maintain broad GHG controls. So far, these transactions costs have blocked agreement and there seems little reason to expect that these constraints will soon vanish. The most likely course for future climate policy is drift and fragmentation, the authors conclude.

- **Environmental Impact of Mandatory U.S. GHG Emission Reductions**

As described above, meeting the mandatory reduction targets of proposed legislation such as the Lieberman Warner bill or the Obama Administration proposal is likely to have a significant impact on U.S. economic and job growth due to the sharply higher energy prices needed to bring down emissions. However, the U.S. climate change policies will have virtually no environmental benefits unless developing countries, whose emissions are growing strongly also participate. An noted in the new 2009 Council of Economic Adviser's Report to the President, global concentrations of CO2 in 2100 will be almost unaffected by U.S. emission reductions(See **Figure 5**). Thus, without strong international participation to reduce GHGs, the slower U.S. economic and job growth that would result from the emission reduction targets being debated by U.S. policymakers would yield little environmental benefit.

- **Role Technology Development**

Technology development and deployment offers the most efficient and effective way to reduce GHG emissions and a strong economy tends to pull through capital investment faster. There are only two ways to reduce CO_2 emissions from fossil fuel

use - use less fossil fuel or develop technologies to use energy more efficiently to capture emissions or to substitute for fossil energy. There is an abundance of economic literature demonstrating the relationship between energy use and economic growth, as well as the negative impacts of curtailing energy use. Over the long-term, new technologies offer the most promise for affecting GHG emission rates and atmospheric concentration levels.

- **Accelerating the Uptake of New Technology by Private as Well as Nonprofit Entities.**

The development of various high technology programs can be accelerated through government programs as well as by encouraging private sector investment. For example, some policies may be of particular help to taxable entities while others would be of more benefit to cooperatives (which pay little or no federal income tax).

- **Companies Subject to the Federal Income Tax**

The efforts of U.S. industries to increase energy security and efficiency and to reduce growth in GHG emissions are hindered by the slow rate of capital cost recovery allowed under the U.S. federal tax code and by the high U.S. corporate tax rate. As a new Ernst & Young international comparison shows, the U.S. ranks last or nearly last among our trading partners in terms of how quickly a dollar of investment is recovered for many key energy investments. For example, a U.S. company gets only 29.5.cents back through depreciation allowances for each dollar invested after 5 years for a combined heat and power project (see **Table 2**). In contrast, in China the investor gets 39.8 cents back, in Japan, 49.7 cents, in India, 55.6 cents and in Canada the investor gets 79.6 cents back after 5 years for every dollar invested. (See full report at: http://www.accf.org/pdf/Energy-Depreciation-Comparison.pdf.)

In addition to slow capital cost recovery allowances, U.S. industry faces the highest corporate income tax rates among our primary trading partners. Of the 12 countries in the E&Y survey, only Japan had a higher corporate tax rate than the U.S. Reforms to the U.S. tax code to speed up capital cost recovery allowances and reduce the corporate tax rate would reduce the cost of capital and could have a positive impact on energy sector investment, help "pull through" cleaner, less emitting new technology, increase energy efficiency and promote U.S. industrial competitiveness.

- **Non-Taxable Entities**

For non-taxable entities such as electric utility cooperatives other incentives could be provided to encourage the more rapid adoption of new technologies to reduce GHG emissions. For example, electric cooperatives and their consumers can not apply or benefit from traditional tax incentives because as not-for-profit utilities, they do not have significant federal income tax liability to offset. However, to ensure that the not-for-profit electric utility sector is able to participate in incentives for advanced low carbon technologies, incentives comparable to those offered to for profit entities can be created. One example is the successful Clean Renewable Energy Bond program that permits electric cooperatives and others to issue bonds that act as interest-free

loans for the purpose of building qualified renewable generation. The CREB program can be adapted for other technologies that achieve carbon reduction goals." Grants are another avenue to assist not-for-profits in adopting new technology.

- **The Role of International Partnerships in Promoting Institutional Change and Favorable Investment Climate in Developing Countries**

Research by Drs. David Montgomery and Sugandha Tuladhar of CRA International makes the case that agreements such as the Asia-Pacific Partnership on Clean Development and Climate (AP6), an agreement signed in 2005 by India, China, South Korea, Japan, Australia and the United States, offers an approach to climate change policy that can reconcile the objectives of economic growth and environmental improvement for developing countries. (See www.iccfglobal.org for the full paper.) Together, the AP6 partners have 45 percent of the world's population and emit 50 percent of man-made CO_2 emissions. The projections of very strong growth in greenhouse gases in developing countries over the next 20 years mean that there is enormous potential for reducing emissions through market-based mechanisms for technology transfer.

Drs. Montgomery and Tuladhar note that there are several critical factors for ensuring the success of an international agreement which relies strongly on private sector investment for success. Their research shows that institutional reform is a critical issue for the AP6, because the lack of a market-oriented investment climate is a principal obstacle to reducing greenhouse gas emissions in China, India and other Asian economies. China and India have both started the process of creating market-based economic systems, with clear benefits in the form of increased rates of economic growth. But the reform process has been slow and halting, leaving in place substantial institutional barriers to technological change, productivity growth, and improvements in emissions. The World Bank and other institutions have carried out extensive investigations about the role of specific institutions in creating a positive investment climate. These include minimizing corruption and regulatory burdens, establishing an effective rule of law, recognition of intellectual property rights, reducing the role of government in the economy, removing energy price distortions, providing an adequate infrastructure and an educated and motivated labor force.

- **Quantifying the Importance of Technology Transfer for Emission Reductions**

As described above, technology is critically important because emissions per dollar of income are far larger in developing countries than in the United States or other industrial countries. This is both a challenge and an opportunity. It is a challenge because it is the high emissions intensity – and relatively slow or non-existent improvement in emissions intensity – that is behind the high rate of growth in developing country emissions.

Opportunities exist because the technology of energy use in developing countries embodies far higher emissions per dollar of output than does technology used in the United States; this is true of new investment in countries like China and India as well

as their installed base **(See Figure 6.)** The technology embodied in the installed base of capital equipment in China produces emissions at about four times the rate of technology in use in the United States. China's emissions intensity is improving rapidly, but even so its new investment embodies technology with twice the emissions intensity of new investment in the United States. India is making almost no improvement in its emissions intensity, with the installed base and new investment having very similar emissions intensity. India's new investment also embodies technology with twice the emissions intensity of new investment in the United States.

CRAI calculations show that emission reductions can be achieved by closing the technology gap. The potential from bringing the emissions intensity of developing countries up to that currently associated with new investment in the United States is comparable to what could be achieved by the Kyoto Protocol. These are near-term opportunities from changing the nature of current investment and accelerating replacement of the existing capital stock. Moreover, if achieved through transfer of economic technologies it is likely that these emission reductions will be accompanied by overall economic benefits for the countries involved.

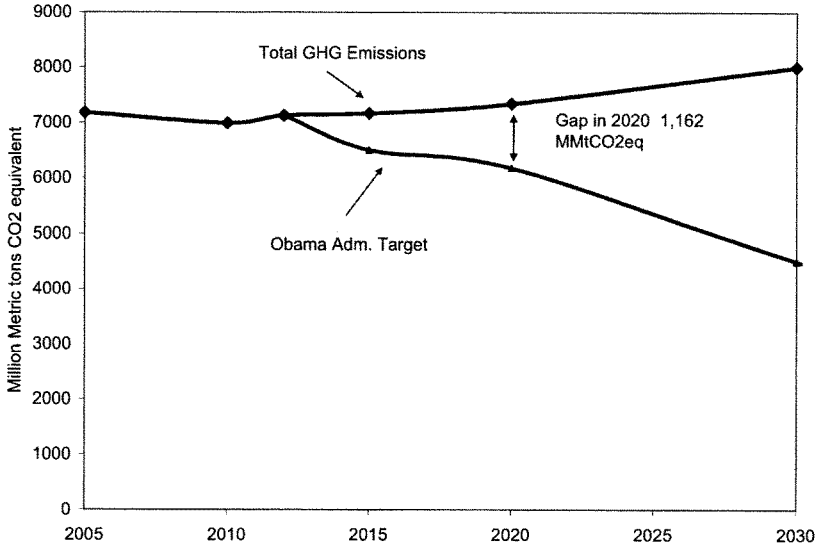
For example, making progress on implementing international programs such as the Asia Pacific Partnership, the Major Economies Meeting process, the Clean Technology Fund and the Global Nuclear Energy Partnership can create new investment opportunities, build local capacity and remove barriers to the introduction of a wide range of cleaner, more efficient technologies that promote both economic growth and a cleaner environment.

- **Conclusions**

To be effective, policies to reduce global GHG emission growth must include both developed and developing countries. Polices that enhance technology development and transfer are likely to be more widely accepted than those that require sharp, near term reductions in per capita energy use. Extending the framework of the Asia Pacific Partnership on Clean Development and Climate and other international partnerships will allow developed countries to focus their efforts where they will get the largest return, in terms of emission reductions for the least cost.

Finally, if the United States does adopt a mandatory greenhouse gas emissions reduction program, serious consideration should be given to implementing a carbon tax rather than an EU style cap and trade system. A key component of any mandatory U.S. program should be allowing emissions to increase as both economic growth and U.S. population increase.

Figure 1. Greenhouse Gas Emissions: Under EIA Baseline Forecast* and Obama Administration Proposal (Million Metric Tons CO2 Equivalent)**



* Baseline forecast calculated by adding energy related CO2 emissions from Annual Energy Outlook 2009 and total other greenhouse gases as forecasted in EIA's S.2191 Analysis

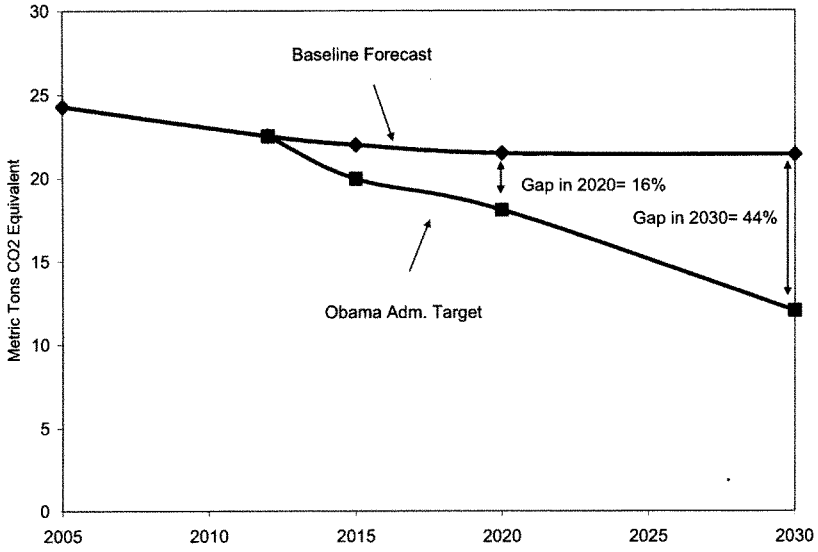
** President Obama's budget proposal specifies a reduction of greenhouse gas emissions 14% below 2005 levels by 2020 and 83% below 2005 levels by 2050.

Sources: "Annual Energy Outlook 2009," Energy Information Administration, Department of Energy, Table 19, http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html

"Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007," Energy Information Administration, Department of Energy, Reference Case, Table 20, http://www.eia.doe.gov/oiaf/servicerpt/s2191/excel/aeo2008.xls

"A New Era of Responsibility, Renewing America's Promise," Office of Management and Budget, pg 21, http://www.whitehouse.gov/omb/assets/fy2010_new_era/A_New_Era_of_Responsibility2.pdf

Figure 2. Per Capita Greenhouse Gas Emissions: Under EIA Baseline Forecast* and Obama Administration Proposal (Metric Tons CO2 Equivalent Per Person)**



* Baseline forecast calculated by adding energy related CO2 emissions from Annual Energy Outlook 2009 and total other greenhouse gases as forecasted in EIA's S.2191 Analysis and by dividing by population numbers from U.S. Census.

** President Obama's budget proposal specifies a reduction of greenhouse gas emissions 14% below 2005 levels by 2020 and 83% below 2005 levels by 2050.

Sources: "Annual Energy Outlook 2009," Energy Information Administration, Department of Energy, Table 19, http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html

"Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007," Energy Information Administration, Department of Energy, Reference Case, Table 20, http://www.eia.doe.gov/oiaf/servicerpt/s2191/excel/aeo2008.xls

"National Population Projections," U.S. Census Bureau, http://www.census.gov/population/www/projections/files/nation/download/NP2008_D1.xls

"A New Era of Responsibility, Renewing America's Promise," Office of Management and Budget, pg 21, http://www.whitehouse.gov/omb/assets/fy2010_new_era/A_New_Era_of_Responsibility2.pdf

Table 1. Economic Impact of the Lieberman-Warner Bill: Summary of Key Modeling Results

	2020		
	Allowance Prices (2007$ per metric ton)	GDP Impact (% Change from BAU)	Impact on Jobs (%Change from BAU)
ACCF/NAM-Low Cost[1]	$55	-0.8%	-1,210,000
ACCF/NAM-High Cost[1]	$64	-1.1%	-1,800,000
CRA/NMA[2]	$47	-1.2%	-3,269,000
EIA- NEMS Core Case[3]	$31	-0.3%	-270,000
EIA- NEMS Limited[3]	$44	-0.5%	-450,000
EPA- Scenario 2[4]	$39	-0.7%	-
EPA- Scenario 7[4]	$73	-1.5%	-
MIT- No Offsets, No CCS Subsidy[5]	$72	-0.7%	-
MIT- 15%, CCS Subsidy[5]	$61	-0.8%	-

	2030		
	Allowance Prices (2007$ per metric ton)	GDP (% Change) (% Change from BAU)	Impact on Jobs (%Change from BAU)
ACCF/NAM-Low Cost[1]	$228	-2.6%	-3,100,000
ACCF/NAM-High Cost[1]	$271	-2.7%	-4,100,000
CRA/NMA[2]	$68	-1.0%	-2,393,000
EIA- NEMS Core Case[3]	$62	-0.3%	-280,000
EIA- NEMS Limited[3]	$93	-0.7%	-710,000
EPA- Scenario 2[4]	$64	-0.9%	-
EPA- Scenario 7[4]	$118	-2.3%	-
MIT- No Offsets, No CCS Subsidy[5]	$105	-0.3%	-
MIT- 15%, CCS Subsidy[5]	$89	-0.4%	-

1. "Analysis of The Lieberman-Warner Climate Security Act (S.2191) Using The National Energy Modeling System
(NEMS/ACCF/NAM)," A Report by the American Council for Capital Formation and the National Association of Manufacturers, March 2008.
2. "Economic Analysis of the Lieberman-Warner Climate Security Act of 2007 Using CRA's MRN-NEEM Model," by CRA International, April 2008.
3. "Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007," by the Energy Information Administration, U.S. Department of Energy, April 2008.
4. "EPA Analysis of the Lieberman-Warner Climate Security Act of 2007," by
the U.S. Environmental Protection Agency, March 2008.
5. "Appendix D: Analysis of the Cap and Trade Features of the Lieberman-Warner Climate Security Act," by MIT.

Figure 3. Obama Administration Climate Revenues (2012-2019) and EIA's Analysis of Lieberman/Warner (S.2191, assuming all allowanced auctioned) ($ in billions)

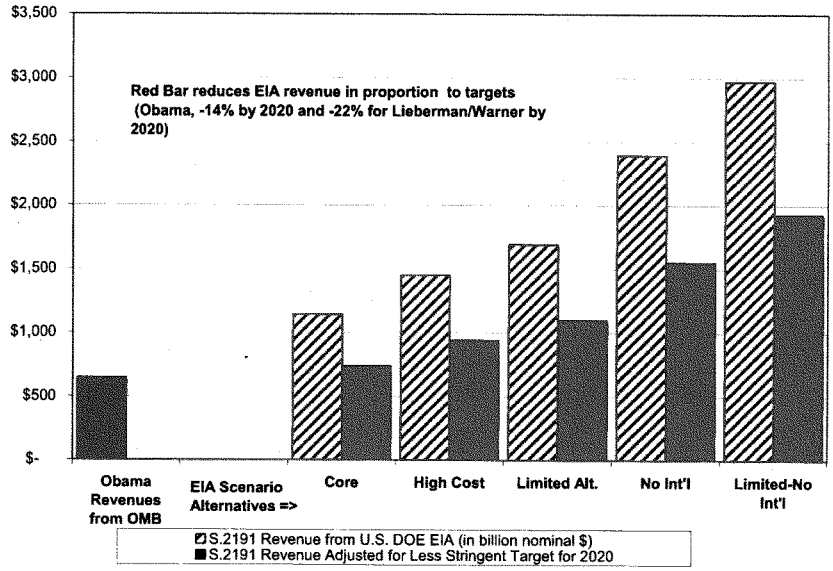
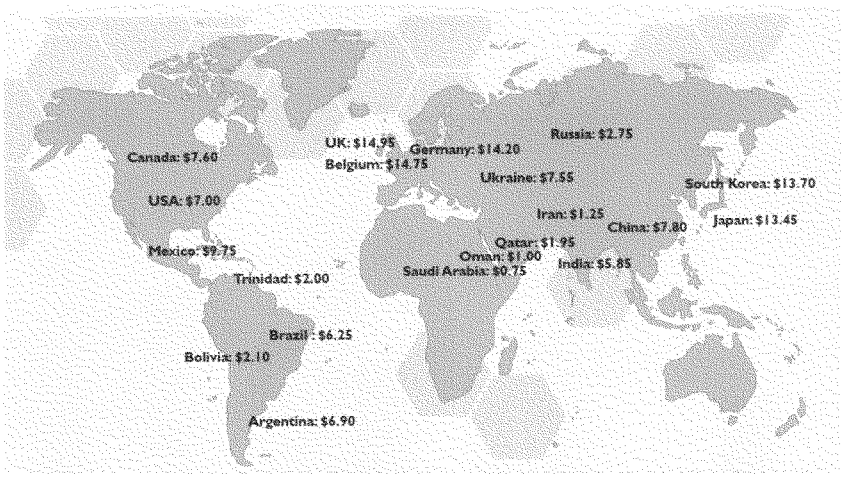
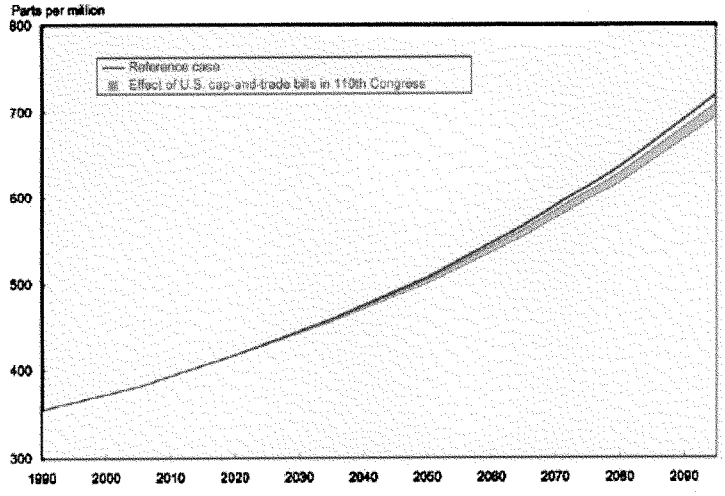


Figure 4. Global Natural Gas Costs - 3rd Quarter 2008 ($US per millions BTUs)



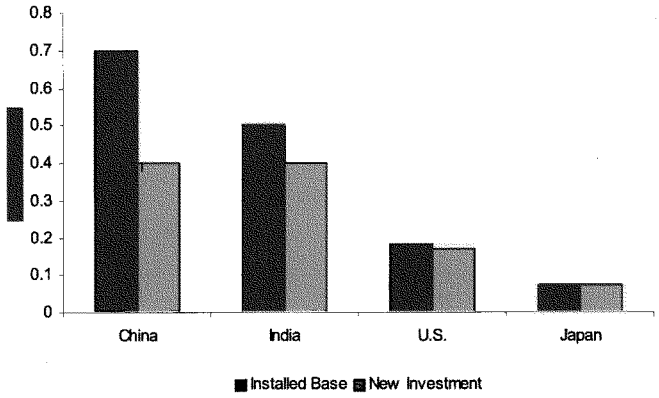
Note: Prices generally reflect domestic wellhead/hub prices or imported prices via pipeline. Some nations (e.g., Japan and Korea) import LNG. Thus, the higher prices. Other nations import LNG but these prices aren't generally reflected in the above.
Source: American Chemistry Council

Figure 5. Global CO2 Concentrations
Carbon Emissions are projected to rise over the next several decades



Source: Economic Report of the President, Annual Report of the Council of Economic Advisers, January 2009, Chart 3-6, pg 124.

Figure 6: Greenhouse Gas Emissions Associated with Existing and New Investment in 2001 (Million tons of Carbon per $Billion of Gross Domestic Product at Market Exchange Rates)



Source: Promoting A Positive Climate for Investment, Economic Growth and Greenhouse Gas Reductions, W. David Montgomery and Sugandha Tuladhar (see www.iccfglobal.org.)

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Table 2. International Comparison of Nominal Capital Costs Recovered After Five Years for Selected Energy Investments, 2006

	Electric Generation					Electric Transmission & Distribu Lines		
	Gas	Coal	Nuclear	Combined Heat & Power Generation	Self-Generated Electricity	Transmission Lines	Distribution Lines	Sn Me
United States	37.7%	29.5%	37.7%	29.5%	37.7%	37.7%	29.5%	6
Brazil	37.7%	47.5%	N/A	37.7%	63.1%	20.6%	20.6%	
Canada	79.6%	79.6%	79.6%	79.6%	79.6%	31.2%	31.2%	
China	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	
Germany	30.0%	30.0%	37.5%	30.0%	30.0%	33.1%	33.1%	
India	55.6%	55.6%	55.6%	55.6%	55.6%	55.6%	5	1
Indonesia	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	
Japan	49.7%	49.7%	49.7%	49.7%	45.6%	37.4%	37.4%	
Rep of Korea	57.7%	57.7%	57.7%	57.7%	57.7%	57.7%	57.7%	
Malaysia	100.0%	100.0%	100.0%	100.0%	100.0%	90.0%	90.0%	
Mexico	46.2%	46.2%	46.2%	46.2%	46.2%	23.1%	23.1%	
Taiwan	49.7%	49.7%	49.7%	49.7%	49.7%	49.7%	49.7%	

Source: Prepared by the Quantitative Economics and Statistics Group, Ernst & Young LLP, April 25, 2007.

1. Original Ernst & Young study was updated with the change in H.R. 1424 "Emergency Economic Stabilization Act of 2008" reduced the cost recovery period from 20 to 10 years.

Mr. MARKEY. Thank you Dr. Thorning very much. Our next witness is Dr. Richard Morgenstern. He is a Senior Fellow at Resources for the Future. His research includes work on economic analysis of environmental policies. Prior to joining Resources for the Future, Dr. Morgenstern was a Senior Economic Counselor at the Department of State and participated in the negotiations of the Kyoto Protocol. So we welcome you, sir, and whenever you are ready, please begin.

STATEMENT OF RICHARD D. MORGENSTERN

Mr. MORGENSTERN. Mr. Chairman, I appreciate the opportunity to appear here and address you and members of the Committee. I would note for the record that Resources for the Future is both an independent and non-partisan organization, and the views I present here today are mine alone.

I would like to summarize a few basic points in my written testimony. First of all, the aggregate impact for proposed legislation are relatively small. Using the Lieberman-Warner bill as a benchmark, the Energy Information Administration has estimated GDP reductions in 2030 that range from .3 to .8 of 1 percent of GDP, and 2030 is the time period where GDP levels are expected to approximately double over today's levels.

There are other modelers besides EIA who have other results. Some are similar, some are different. I would note that the ones that differ usually, not usually, but in fact, the differences are related to three factors. Number one, other modelers have much more conservative assumptions about technology development than the Energy Administration. Secondly, other modelers ignore domestic and international offsets which are in fact a part of most of the bills. And thirdly, other modelers ignore banking of allowances which is in fact the basic proposition in all the bills. These are factors which can influence model results, and you can see significant differences along these lines.

Secondly, despite the small aggregate impacts of these legislation on the sale of Lieberman-Warner, there are potentially significant employment and output effects in some industries, particularly energy-intensive and trade sensitive industries as this Committee is well aware.

Third, modeling analysis by myself and others indicates that the impacts decline over time, as firms adopt new technologies, they change processes, they vary outputs. So some of the impact numbers we see are based upon initial impacts and do not always reflect these changes. Additionally, I would note that the modeling that has been done, including my own, is based upon unilateral action, and this is a convenient technique we use in doing calculations, but in fact other countries are adopting, certainly the Europeans are adopting changes, and in all likelihood, the estimates generated by this modeling approach of unilateral action overstates the impact on the United States industry.

Fourth, a key challenge to this Committee and to all of us is to identify particular industry segments that are most affected. Calculations that I have done suggest that when you look at a broad industrial category, typically referred to as a two-digit industrial category, you can see within that category variation that can vary

by a factor of 10. So different sub-elements of broad categories of industries can have quite different impacts, and that is a challenge in devising appropriate remedies.

Fifth, a missions leakage is clearly a concern in some industries, and this is particularly a concern over the long term.

Turning to possible solutions, there are basically two approaches to address this problem. One approach is to exempt certain industries or provide special regulations for them, and the second approach is to try to level the playing field between domestic and international competition, and the mechanisms for that are the border tax, mechanisms that have been referred to, or free allowance allocation. As regards to exemptions, this was tried in the BTU tax days that were back in the days when President Clinton introduced this notion, and other than simplicity, I would say this approach has very little to recommend it. It ignores some low-cost reduction opportunities that exist in some industries. It makes CO_2 reductions more expensive for others, and it encourages what we call rent-seeking behavior which is not justified by the fact.

Turning to the border tax and free allocation mechanisms, they are both contained as you have discussed in several bills. The emphasis to put on one versus another depends on several factors. Trade law is certainly a big issue. I am not a trade lawyer, but I do read the literature on this subject and certainly many have raised questions about the defensibility and the timing of border tax adjustments. And I would note that none of the bills addresses exports which is in fact an important consideration in international trade. Additionally, a border tax adjustment is going to require more information on the part of Government about foreign companies and foreign countries, and this can be very difficult to obtain, and as has been noted by earlier commentator, this could lead to trade wars.

Almost done, Mr. Chairman. Free allowance allocation is certainly a very attractive mechanism, particularly the output-based allocation that has been discussed here. It can address both import and export issues. The Inslee-Doyle approach is a very pragmatic mechanism for addressing this. I understand that some revisions are under consideration, and I would be happy to answer questions on that. Thank you.

[The prepared statement of Mr. Morgenstern follows:]

Competitiveness and Climate Policy: Avoiding Leakage of Jobs and Emissions

Richard D. Morgenstern
Senior Fellow, Resources for the Future

PREPARED FOR THE COMMITTEE ON ENERGY AND COMMERCE
U.S. HOUSE OF REPRESENTATIVES

March 18, 2009

Mr. Chairman: I am pleased to appear before this committee to discuss the impact of potential climate mitigation policies on carbon-intensive industries and possible remediation options.

I have been involved in climate change policy issues for the past two decades, having served in senior policy positions at the U.S. Environmental Protection Agency under prior Republican and Democratic administrations, and participated in both the Intergovernmental Panel on Climate Change and several rounds of international climate negotiations. Previously a tenured economics professor, I currently am a senior fellow at Resources for the Future (RFF), a 56-year-old research institution headquartered here in Washington, DC, that specializes in energy, environmental, and natural resource issues. RFF is both independent and nonpartisan, and shares the results of its economic and policy analyses with members of both parties, as well as with environmental and business advocates, academics, members of the press, and interested citizens. The views I present today are mine alone and do not necessarily reflect that of RFF.

I believe it is essential for the United States to adopt a mandatory system to reduce its greenhouse gas (GHG) emissions. Numerous studies have demonstrated that the

cost of a well-designed policy is likely to be quite modest overall. At the same time, due to the enormous diversity of GHG sources, efforts to address climate change will—of necessity—have impacts at many different levels, including nations, industries, and individuals. Pursuing a cost-effective approach that minimizes the overall cost to society of achieving a particular emissions-reduction target will tend to reduce the burden imposed on businesses and consumers.

Broad, market-based strategies that effectively attach a price to GHG emissions, such as a cap-and-trade program or an emissions tax, offer significant cost and efficiency advantages. As a result, it is widely assumed that some sort of policy that increases the costs of carbon will be part of the core U.S. policy response. Legislation introduced in the last session of both Houses of Congress embodies such an approach, and the Obama administration has specifically endorsed a cap-and-trade program.

As part of a broad emissions-pricing policy, additional flexibility mechanisms to limit hardships on selected industries may be required. These could include recognizing offset credits from sectors or gases not included under the cap and/or from projects undertaken in other countries. Such flexibility can lower overall program costs further while also ameliorating the potential for adverse impacts on particular sectors or the economy as a whole. Close attention to cost and efficiency considerations in overall policy design should be considered the first step to addressing competitiveness concerns.

Nonetheless, even with a cost-effective strategy for reducing U.S. GHG emissions, some domestic producers will incur increased production costs. As a result, they will also face increased challenges to their ability to remain competitive globally, especially where they compete against foreign suppliers operating in countries where emissions do not carry similar costs. These concerns are likely to be most acute in trade-sensitive, energy-intensive sectors. The question that will likely be asked: why should U.S. firms be disadvantaged relative to overseas competitors to

address a *global* problem? The difficulty, moreover, is not just political: if, in response to a mandatory policy, U.S. production simply shifts abroad to unregulated foreign firms, the resulting emissions "leakage" could wipe out some of the environmental benefits from domestic action. Various policy options have been advanced to address these concerns, although none is without its own problems.

My comments today draw on my own recent research as well as work with several of my RFF colleagues on the impacts of a unilateral policy that establishes a price on carbon dioxide (CO_2) emissions and on various options for offsetting these impacts.

A recent paper done in conjunction with Mun Ho and Jhih-Shyang Shih estimates the likely economic impacts based on adjustments that firms can make over different time scales:

1. In the very short run, firms cannot adjust prices or production techniques and profits fall accordingly.
2. In the short run, firms can raise prices to reflect the higher energy costs, with a corresponding decline in sales as a result of product or import substitution.
3. The medium run, when in addition to the changes in output prices, firms can change the mix of energy, labor, and other inputs in their production processes, but capital remains in place; economywide effects are considered.
4. In the long run, capital may also be reallocated across the economy.

Our analysis assumes a unilateral CO_2 price of $10 per ton and considers the impacts on industrial output, employment, corporate profits, as well as the potential for international leakage of emissions.

Measured by the reduction in domestic output, a readily identifiable set of industries is at the greatest risk of contraction over both the short and long terms. Within the manufacturing sector, the hardest-hit industries are chemicals and plastics, primary metals, and nonmetallic minerals. Another hard-hit industry,

petroleum refining, will likely be able to pass along most cost increases, thereby muting the impacts.

Although the short-run output reductions are relatively large in these industries, the reductions shrink over time as firms adjust inputs and adopt carbon- and energy-saving strategies. The industries that continue to bear the impacts are generally the same ones affected initially, albeit at reduced levels. While profits drop in the short term, competitive markets adjust to ensure market rates of return in the longer run.

Focusing on the nearer-term time frames, the largest cost increases are concentrated in particular segments of affected industries. For example, petrochemical manufacturing and cement see very short-run cost increases of more than four percent while iron and steel mills, aluminum, and lime products see cost increases exceeding two percent. While a more complete picture of industry impacts at a disaggregated level would clearly aid in the design of policy remedies, limitations on the publicly available data hamper such efforts.

In nonmanufacturing companies, the overall size of the production losses also declines over time in most sectors, although a more diverse pattern applies. The initially significant impact on electric utilities, for example, does not substantially change over time compared to an industry such as mining, which experiences a continuing erosion of sales as broader adjustments occur throughout the economy. Agriculture faces modest but persistent output declines over time due to higher prices for fertilizer and other inputs.

In terms of employment, short-term job losses are modeled as roughly proportional to those of output. Over the longer term, however, when labor markets are able to adjust, the remaining, relatively small losses are fully offset by gains in other industries, leaving no net change in employment.

Leakage across Borders

In time, most experts agree, the best solution to addressing climate change will be to devise binding international agreements that create parity in global markets. But in the interim, unilateral actions must be taken to begin addressing the global challenge. A consequence of this approach is emissions "leakage," wherein domestic reductions are partially offset by increases abroad, as production, demand, and energy supplies are reallocated globally. While domestic consumption of carbon-intensive products will clearly decline in the presence of a price on carbon emissions, some leakage will also occur. Over the long term, we estimate that the leakage rate for the few most-vulnerable industries can be as high as 40 percent in the case of a unilateral $10 per ton CO_2 price.

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 from the United States will drive down fossil fuel prices globally and expand consumption elsewhere. This driver of leakage can only be addressed by ensuring that all major international players take on comparable carbon policies and prices.

Policy Tools for Addressing Competitiveness and Leakage

A first response is to ensure that climate policies are cost-effective. For example, carbon pricing through a tax or cap-and-trade policy will ensure access to inexpensive mitigation opportunities throughout the United States (and potentially around the world), minimizing the economic costs of achieving any given emissions target. Beyond that, policymakers have a number of options.

A weaker overall policy—less stringent emissions caps and/or lower emissions prices—would offer relief, but to all industries, not only those facing increased competition. Meanwhile, environmental benefits and incentives for technology innovation would be smaller. More generous use of offsets from either or domestic or international sources can lessen domestic impacts in similar fashion, albeit without the same loss in environmental benefits.

Exempting certain sectors provides more targeted relief but eliminates incentives for those sectors to deploy even inexpensive measures. More traditional forms of regulation, such as emissions standards, can be used to deliver some emissions reductions while avoiding the added burden of allowance purchases (under auctioned cap-and-trade programs) or tax payments for their remaining emissions. However, the overall cost to society will tend to be higher than under an economy-wide pricing policy.

Pending legislation has focused mostly on free allowance allocation and trade-related "border adjustment" policies. In particular, import-adjustment proposals would require importers to purchase allowances based on actual or estimated embodied emissions, leveling the playing field between imported and domestic consumer goods. Full border adjustment via use of an export rebate is another option to lessen impacts on domestic industries.

Alternatively, an allocation policy that keeps domestic costs from rising in the first place would also balance things out. Under such an approach, allowance allocation would need to be updated in accordance with output. The value of that allocation would function like a domestic production rebate. This type of benchmarking with ongoing adjustments stands in contrast to the fixed allocations that were used in Title IV of the Clean Air Act, which do nothing to lower variable costs.

A recent paper by Carolyn Fischer and Alan Fox has examined both trade-related and free allowance allocation options. Not only may different border adjustment policies raise concerns within the World Trade Organization (WTO), but they also

pose different economic tradeoffs. While all the options promote domestic production to some extent, none of them would necessarily be effective at reducing leakage in a given sector. That is because while they reduce emissions abroad, they expand the emissions of domestic firms. For most U.S. sectors, a full border adjustment, combining an import adjustment based on actual embodied carbon emissions with an export rebate, is highly effective at reducing global emissions. Especially when import (or export) adjustments are limited for reasons of WTO compatibility to a weaker standard, that is, the domestic emissions rate net of any free allocation, the domestic rebate via free allowance allocation can be more effective at limiting emissions leakage and encouraging domestic production. It also has the advantage that more of the data needed for implementation can be obtained from domestic sources.

H.R. 7146, the Inslee Doyle Amendment, introduced in the last session of Congress, attempts to develop a pragmatic approach to free allowance allocation updated in accordance with output. Eligibility for the program, and the basis and frequency of updating allocations, are key issues in the design. Similarly, the provisions for program phase down or phase out are also relevant, as it makes little sense to continue the rebates once our trading partners have adopted comparable policies. Further, there are a number of important data issues associated with program implementation, as well as general concerns about the degree of specificity in legislation vs. discretion that is left to the implementing agency.

Some caveats are especially relevant: First, although an emissions cap can be effective in limiting domestic emissions, awarding additional allowances to certain sectors to compensate for competitiveness concerns will tend to raise allowance prices overall, and shift costs among sectors. Second, border adjustments or other trade-related policies risk providing political cover for unwarranted and costly protectionism and may provoke trade disputes with other nations. Third, many of our largest trade partners are implementing emissions pricing; the European Union already has a cap-and-trade program and Canada has policies developing at the

provincial level. For most energy-intensive manufacturing, these trade partners represent a quarter or more of the leakage from lost competitiveness. Consequently, actual leakage is less of a concern than estimated in our modeling.

Finally, I return to the choice of adopting a broad-based carbon pricing scheme, presumably cap and trade versus a more tailored policy wherein key sectors are fully or partially exempted. In that context, I would emphasize that sector-specific policies are more difficult to implement than economywide approaches and can require hard-to-obtain data. Furthermore, they can create quite strong incentives for rent seeking as individual industries now look for special protection under the available mechanisms without necessarily being at significant competitive risk.

In sum, broad-based approaches, such as an economywide cap-and-trade program, offer the greatest prospect for cost-effective emissions reductions. Yet, there is a real prospect that a unilateral or near-unilateral carbon-pricing approach will cause adverse impacts on certain energy-intensive, import-sensitive industries, particularly in the short to medium term. Over the longer term, emissions leakage is a concern as well. Until a more global approach can be adopted, a transitional measure for the adversely impacted sectors is appropriate. While border adjustments may also be a viable option, free allowance allocation with updating has much to recommend it.

Thank you.

Mr. MARKEY. Thank you Mr. Morgenstern very much. Our final witness is Eileen Claussen. She is the President of the Pew Center on Global Climate Change where she specializes in international issues. She is the former Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs. Whenever you are ready, please begin.

STATEMENT OF EILEEN CLAUSSEN

Ms. CLAUSSEN. Mr. Chairman, Mr. Upton, and members of the Subcommittee, thank you for the opportunity to testify.

Addressing global climate change presents policy challenges at both the domestic and the international levels, and the issue of competitiveness underscores the very close nexus between the two. In the long term, a strong multilateral framework ensuring that all major economies contribute their fair share to the global climate effort is the most effective means of addressing competitiveness concerns. In designing a domestic climate program, the question before Congress is what to do in the interim, until an effective global agreement is in place.

A first step in addressing competitiveness is assessing the potential scope and magnitude of potential impacts. Our focus must be on energy-intensive industries whose goods are traded globally such as steel, aluminum, cement, paper, glass, and chemicals. As heavy users of energy, these industries will face higher costs as a result of domestic greenhouse gas constraints. However, as the price of their goods are set globally, their ability to pass along these price increases is limited.

To empirically quantify the potential magnitude of this competitiveness impact, the Pew Center commissioned an analysis by economists at Resources for the Future. This work, which we will be publishing shortly, analyzes 20 years of data in order to discern the historical relationship between electricity prices and production, consumption, and employment in more than 400 U.S. manufacturing industries. Our analysis found that at the price levels studied, the projected competitiveness impacts, as well as the broader economic effects on energy-intensive industries, would be modest but not insignificant, and in our view, readily managed with a range of policy instruments.

In a domestic cap-and-trade system, competitiveness concerns can be addressed in part through banking and borrowing and the use of offsets, which can help reduce the costs to all firms. However, other transitional policies may be needed to directly address competitiveness concerns for energy-intensive industries for the period preceding the establishment of an effective international framework.

Allow me to mention a couple of options we would not recommend and then a few that we would. One option is to exclude vulnerable sectors from coverage under the cap-and trade program. Exclusions however would undermine the goal of reducing greenhouse gas emissions economy-wide and reduce the economic efficiency of a national greenhouse gas reduction program. They also would give exempted industries an economic advantage over non-

exempt competitors and provide no incentive for improved performance.

A second option is to try to equalize greenhouse gas-related costs for United States and foreign producers by impost or other requirement on energy-intensive imports from countries with weaker or no greenhouse gas constraints. Such measures would apply however only to imports to the United States and would not help level the playing field in the larger global market, which is where U.S. manufacturers compete. In addition, if the United States were to impose border requirements there is a greater likelihood that it would become the target of similar measures. There is a significant risk that border adjustments would engender more conflict than cooperation, in the end making it more difficult to reach agreements that could more effectively address competitiveness concerns globally.

The Pew Center believes that Congress should seek to address competitiveness concerns by strongly encouraging the executive branch to negotiate a new multilateral climate agreement establishing strong, equitable, and verifiable commitments by all major economies and including in cap-and-trade legislation transitional measures to cushion the impact of mandatory greenhouse gas limits on energy-intensive trade-exposed industries and the workers and communities they support. These transitional measures should be structured as follows: In the initial phase of a cap-and-trade program, allowances should be granted to vulnerable industries to compensate them for the costs of greenhouse gas regulation. For direct costs, allocations should be based on actual production levels. For indirect costs, allowances should reflect an emitter's production-based energy consumption, taking into account the greenhouse gas intensity of its energy supplies.

Allocations should be set initially so a producer whose emissions intensity is average for the sector is fully compensated for regulatory costs, while those who are above or below-average receive allowances whose value is greater or less than their costs, respectively. This factor should be adjusted over time as an incentive to producers to continually improve their performance. This is similar to the approach proposed by Congressmen Inslee and Doyle.

Allowance levels should decline over time, gradually transitioning to full auctioning, although at a slower rate than for other sectors. A review should be conducted periodically to assess whether sectors are experiencing competitiveness impacts and, if warranted, to adjust allowance levels or the rate of transitioning to full auctioning. A portion of allowance auction revenue should be earmarked for programs to assist workers and communities in cases where greenhouse gas constraints are demonstrated to have caused dislocation. Transition assistance should be curtailed for a given sector upon entry into force of a multilateral or sectoral agreement establishing reasonable obligations for foreign producers, or upon a Presidential determination that such measures have been instituted domestically.

We believe this approach addresses the transitional competitiveness concerns likely to arise under a mandatory cap-and-trade program, while maintaining the environmental integrity of the pro-

gram and providing an ongoing incentive for producers to improve their greenhouse gas performance.

Thank you very much.

[The prepared statement of Ms. Claussen follows:]

Competitiveness and Climate Policy: Avoiding Leakage of Jobs and Emissions

Testimony of
Hon. Eileen Claussen, President
Pew Center on Global Climate Change

Submitted to
the Energy and Environment Subcommittee
Energy and Commerce Committee
U. S. House of Representatives
March 18, 2009

Mr. Chairman, Mr. Upton, members of the subcommittee, thank you for the opportunity to testify on the topic of competitiveness and climate policy, and avoiding leakage of jobs and greenhouse gas emissions. My name is Eileen Claussen, and I am the President of the Pew Center on Global Climate Change.

The Pew Center on Global Climate Change is an independent non-profit, non-partisan organization dedicated to advancing practical and effective solutions and policies to address global climate change. Our work is informed by our Business Environmental Leadership Council (BELC), a group of 44 major companies, most in the Fortune 500, that work with the Center to educate opinion leaders on climate change risks, challenges, and solutions. The Pew Center is also a founding member of the U. S. Climate Action Partnership, a coalition of 25 leading businesses and five environmental organizations that have come together to call on the federal government to quickly enact strong national legislation to require significant reductions of greenhouse gas emissions.

Addressing global climate change presents policy challenges at both the domestic and the international levels, and the issue of competitiveness underscores the very close nexus between the two. The immediate task before this subcommittee, and before the Congress, is developing and enacting a comprehensive domestic program to limit and reduce U.S. greenhouse gas (GHG) emissions. Moving forward with a mandatory program to reduce U.S. emissions in advance of a comprehensive international agreement presents both risks and opportunities. On the one hand, domestic GHG limits may lead to a shift of some energy-intensive production to countries without climate constraints, resulting in "emissions leakage" and posing competitiveness concerns for some domestic industries. On the other hand, a mandatory domestic program in the United States is an essential step towards the development of an effective global climate agreement.

In the long term, a strong multilateral framework ensuring that all major economies contribute their fair share to the global climate effort is, I believe, the most effective means of addressing competitiveness concerns. Achieving such an agreement must be a fundamental objective of U.S. climate policy. In designing a domestic climate program, the question before Congress is what to do in the interim – until an effective global agreement is in place. In

considering this question, it is important to distinguish two distinct but closely related policy challenges: how best to encourage strong climate action by other countries, and in particular, by the major emerging economies; and how best to minimize potential competitiveness impacts on U.S. industry. I believe that each of these two objectives is most effectively addressed through a different set of policy responses, and it is important to ensure that our efforts to address one do not undermine the other.

I will focus today primarily on the second of these challenges: designing transitional policies to minimize potential competitiveness impacts on U.S. industry.[1] Our analysis of the underlying issues leads us to conclude that the potential competitiveness impacts of domestic climate policy are modest and are manageable. In my testimony, I will: 1) present our analysis of the nature and potential magnitude of the competitiveness challenge; 2) discuss a range of options for addressing competitiveness concerns; and 3) outline what we believe would be the most effective approach. This approach would employ output-based emission allocations to vulnerable industries, phased out over time, and other transition assistance to affected workers and communities.

Understanding Competitiveness Concerns

A first step in considering options to address competitiveness is assessing the potential scope and magnitude of potential competitiveness impacts. It is not the competitiveness of the U.S. economy as a whole that is at issue. (According to an MIT analysis of the Lieberman-Warner Climate Security Act of 2007,[2] the cost of meeting the bill's emission reduction targets in 2050, by when the U.S. economy is projected to triple in size, would result in GDP being 1% less than would otherwise be the case.[3]) Rather, the concern centers on a relatively narrow segment of the U.S. economy: energy-intensive industries whose goods are traded globally, such as steel, aluminum, cement, paper, glass, and chemicals. As heavy users of energy, these industries will face higher costs as a result of domestic GHG constraints; however, as the prices of their goods are set globally, their ability to pass along these price increases is limited.

Competitiveness impacts can be experienced as a loss in market share to foreign producers, a shift in new investment, or, in extreme cases, the relocation of manufacturing facilities overseas. In assessing the economic consequences of past environmental regulation in the United States, most analyses find little evidence of significant competitive harm to U.S. firms. Many studies conclude that other factors—such as labor costs, the availability of capital, and proximity to raw materials and markets—weigh far more heavily in firms' location decisions. One comprehensive review—synthesizing dozens of studies of the impact of U.S. environmental regulation on a range of sectors—concluded that while new environmental rules

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[1] For a discussion of how best to encourage strong climate action by other countries, see the testimony on *The Roadmap from Poznan to Copenhagen – Preconditions for Success* by Elliot Diringer, Vice President for International Strategies for the Pew Center on Global Climate Change, submitted to the Select Committee on Energy Independence and Global Warming, U.S. House of Representatives, February 4, 2009. (http://www.pewclimate.org/testimony/diringer/02-04-09)

[2] S.2191 of the 110th Congress.

[3] Paltsev, Sergey, et al., *Assessment of U.S. Cap-and-Trade Proposals*, MIT Joint Program on the Science and Policy of Global Change Report 146, Appendix D, February 2008.

imposed significant costs on regulated industries, they did not appreciably affect patterns of trade.[4]

In the case of GHG regulation, the additional cost to firms could include the compliance cost of purchasing allowances to cover direct emissions; indirect compliance costs embedded in higher fuel or electricity prices; further demand-driven price increases for lower-GHG fuels such as natural gas; and the costs of equipment and process changes to abate emissions or reduce energy use.

In gauging the potential impacts of GHG regulation, it is important to distinguish the "competitiveness" effect from the broader economic impact on a given industry or firm. A mandatory climate policy will present costs for U.S. firms regardless of what action is taken by other countries. In the case of energy-intensive industries, one potential impact of pricing carbon could be a decline in demand for their products as consumers substitute less GHG-intensive products. This is distinct, however, from the international "competitiveness" impact of GHG regulation, which is only that portion of the total impact on a firm resulting from an imbalance between stronger GHG constraints within, and weaker GHG constraints outside, the United States.

To empirically quantify the potential magnitude of this competitiveness impact, the Pew Center commissioned an analysis by economists at the Resources for the Future. This work, which we will be publishing shortly, analyzes 20 years of data in order to discern the historical relationship between electricity prices and production, consumption, and employment in more than 400 U.S. manufacturing industries. On that basis, the analysis then projects the potential competitiveness impacts of a U.S. carbon price, assuming no comparable action in other countries. (The analysis assumes a CO_2 price of $15 per ton. The Energy Information Administration's core case analysis of the Lieberman-Warner cap-and-trade bill estimated a 2012 allowance price of $16.88 per ton CO_2.)

The analysis finds an average production decline of 1.3 percent across U.S. manufacturing, but also a 0.6 percent decline in consumption, suggesting a competitiveness effect of just 0.7 percent. For energy-intensive industries (those whose energy costs exceed 10 percent of shipment value), the analysis projects that average U.S. output declines about 4 percent. However, consumption declines 3 percent, so that only a 1 percent decline in production (or one-fourth of the total decline) can be attributed to an increase in imports, or a loss of competitiveness. For specific energy-intensive industries, including chemicals, paper, iron and steel, aluminum, cement, and bulk glass, the analysis projects a competitiveness impact ranging from 0.6 percent to 0.9 percent, although within certain subsectors, the impact could be higher. What this analysis demonstrates very clearly is that most of the projected decline in production stems from a reduction in domestic demand, not an increase in imports. In other words, most of the projected economic impact on energy-intensive industries reflects a move toward less emissions-intensive products—as would be expected from an effective climate change policy—not a movement of jobs and production overseas. At the price level studied, the projected competitiveness impacts, as well as the broader economic effects on energy-intensive

[4] Jaffe, A.B., S.R. Peterson, P.R. Portney, and R.N. Stavins, *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?*, Journal of Economic Literature, Vol. 23, March 1995.

industries, are modest and, in our view, can be readily managed with a range of policy instruments.

Policy Options

In the design of a domestic cap-and-trade system, competitiveness concerns can be addressed in part through a variety of cost-containment measures, such as banking and borrowing and the use of offsets, which can help reduce the costs to all firms, including energy-intensive, trade-exposed industries. However, other transitional policies may be needed to directly address competitiveness concerns in the period preceding the establishment of an effective international framework. Options include: fully or partially exempting potentially vulnerable firms from the cap-and trade system; compensating firms for the costs of GHG regulation through allowance allocation or tax rebates; transition assistance to help firms adopt lower-GHG technologies, and to help communities and workers adjust to changing labor markets; and border measures such as taxes on energy-intensive imports from countries without GHG controls. In addition, a domestic policy could be designed to encourage and anticipate international sectoral agreements establishing the respective obligations of major producing companies within given sectors.

Exclusion from Coverage – One option is to fully or partially exclude vulnerable sectors or industries from coverage under the cap-and-trade program. For instance, under the Lieberman-Warner Climate Security Act of 2008,[5] the direct "process" emissions of many energy-intensive industries would not be subject to GHG limits. Exclusions would relieve trade-exposed industries of any of any requirement to hold emission allowances and thereby eliminate direct regulatory costs, shielding them not only from competitiveness impacts but also from some of the broader economic effects of pricing carbon. However, by limiting the scope of the cap-and-trade system, exclusions would undermine the goal of reducing GHG emissions economy-wide, and would reduce the economic efficiency of a national GHG reduction program. They also would give exempted industries an economic advantage over nonexempt domestic firms and sectors, including competitors. Moreover, firms whose emissions are exempted would still face the indirect costs of higher energy prices.

Compensation for the Costs of GHG Regulation – Another option is to include these sectors in the cap-and-trade system but compensate them for the costs of GHG regulation. Key design considerations include the scope, form, and means of calculating such compensation, and whether and how it should be phased out.

As noted earlier, firms covered by the cap-and-trade system face both direct and indirect costs of regulation. The direct, or compliance, cost is the cost of purchasing any allowances needed to cover direct emissions regulated under the cap. Indirect costs include higher prices for electricity and natural gas (reflecting an embedded carbon price and, in the case of natural gas, rising demand for this less GHG-intensive fuel), and the costs of equipment and process changes to abate emissions or reduce energy use. For energy-intensive industries, the indirect cost of higher energy prices represents a significant portion of the total potential cost.

[5] S.3036 of the 110th Congress.

One form of compensation is providing free emission allowances. In the case of direct emissions, allowances could be granted on the basis of historic emissions ("grandfathering") and energy-intensive sectors could receive a more generous allocation than other emitters. For instance, energy-intensive industries could receive a full free allocation while others receive allocations for 80 percent of their historic emissions. Over time, the energy-intensive sectors could continue to be treated more generously—for instance, continuing to receive a higher proportion of free allowances as the allocation system transitions to fuller auctioning. Because free allocation provides the same economic incentive to reduce emissions as does an auction, keeping energy-intensive sectors under the cap, but providing free allowances, provides for greater environmental effectiveness and economic efficiency than excluding them.

Additional allowances could be provided to compensate for indirect costs. However, as future energy prices cannot be predicted, there is no way of determining in advance whether this allocation matches the firms' actual costs.

Another form of compensation for direct and/or indirect costs could be tax credits or rebates. One potential source of revenue for such measures is proceeds from the auction of emission allowances. A tax rebate would be a direct payment to compensate a firm for GHG regulatory costs; a tax credit could alternatively offset those costs by reducing a non-GHG burden such as corporate or payroll taxes, or healthcare or retirement costs.[6]

Whatever form the compensation takes, one critical issue is the basis for calculating the appropriate level. In the case of direct compliance costs, granting allowances on the basis of historical emissions can effectively penalize early action and reward relatively heavier emitters within an industry. In addition, it does not necessarily guard against emissions leakage or a loss of jobs, as a firm could choose to maximize profits by selling its free allowances and reducing production. There is also the risk that firms will be over-compensated and realize windfall profits.

Alternatively, compensation could be "output-based," pegged to actual production levels and/or energy consumption. Firms could be compensated in full for direct or indirect costs; or an output-based approach could apply a performance standard (i.e., emissions or energy use per unit of production) to encourage and reward lower GHG intensity production. The Inslee-Doyle Carbon Leakage Prevention Act[7] introduced in the 110th Congress would have allocated allowances to compensate for both direct and indirect costs based on a facility's level of output, adjusted by an "efficiency factor" which could be adjusted over time to provide firms an ongoing incentive to switch to lower-GHG processes and energy sources. The compensation would shield them from regulatory costs, lowering the risk of emissions leakage and competitiveness impacts, while maintaining an incentive for improved environmental performance and continued operation.

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[6] Houser, Trevor et al., *Leveling the Carbon Playing Field: International Competition and US Climate Policy Design*, Peterson Institute for International Economics and World Resources Institute, May 2008.

[7] H.R. 7146 in the 110th Congress.

As with the exclusion of trade-exposed sectors from the cap, the remedy provided by these compensation approaches extends beyond any actual competitiveness effect. Whether based on output or historical emissions, most of the proposals offered to date aim to compensate firms for most or all of the increased costs associated with GHG regulation, not just for the impacts they may face due to the asymmetry between GHG constraints within and outside the United States. To limit compensation to competitiveness impacts alone would require in-depth financial knowledge of each firm and/or complex calculations that could be reliably performed only once the impacts have occurred. A drawback of a compensation approach is that the financial resources required—whether drawn from auction revenue or other sources—are not available for other climate- or non-climate-related purposes.

If compensation is provided, one important consideration is how long it should be maintained and at what level. Phasing out the compensation would give firms additional incentive to improve their GHG performance but would also make them more vulnerable to competitiveness impacts. A mandatory program could provide for periodic review of any allowances or other compensation to vulnerable sectors to consider adjusting them on the basis of new information. For instance, if the legislation establishes a specific timetable for moving from free allocation to auctioning, this transition might be slowed for specific industries if there are clear indications of competitiveness impacts. Alternatively, compensation could be phased out or ended if other countries take stronger action or new international agreements are reached. The review could focus narrowly on the issue of trade-related impacts or it could be a broad-based review also looking at new science, technology, and economic data.

Transition Assistance – Another option is to provide transition assistance to vulnerable firms to help them adopt lower-GHG technologies, and to communities and workers affected by competitiveness impacts. In the case of firms, measures could include tax incentives such as accelerated depreciation to encourage the replacement of inefficient technologies, or tax credits for the development or adoption of lower-GHG alternatives. Firms could also be incentivized to switch to low carbon energy sources, for example through subsidies for purchases or generation of renewable energy.

Where competitiveness impacts are unavoidable, assistance can be provided to both workers and communities. Previous government efforts to help communities adjust to economic changes resulting from national policies provide lessons for shaping similar efforts as part of climate change policy.[8] At the level of individual workers, policies such as the Workforce Investment Act providing income support and retraining to help move workers into new jobs can provide a blueprint for transition programs to assist workers adversely affected by competitiveness imbalances under a climate policy.[9]

Border Adjustment Measures – Another strategy is to try to equalize GHG-related costs for U.S. and foreign producers by imposing a cost or other requirement on energy-intensive imports from countries with weaker or no GHG constraints. One option is a border tax based on an import's "embedded" emissions (equal to the compliance costs for a domestic producer of an

[8] Greenwald, Judith M., Brandon Roberts, and Andrew D. Reamer, *Community Adjustment to Climate Change Policy*, Pew Center on Global Climate Change, December 2001.
[9] Barrett, Jim, *Worker Transition and Global Climate Change*, Pew Center on Global Climate Change, December 2001.

equivalent good). An alternative approach, described by proponents as more likely to withstand challenge under international trade rules, would instead require that imports be accompanied by allowances for their associated emissions. The Lieberman-Warner bill would have required allowances for energy-intensive imports from countries not determined by an appointed commission to be undertaking "comparable" action to reduce emissions. To avoid driving up allowance prices for U.S. firms, importers would buy from an unallocated pool of "reserve allowances" at a price set by the government. In the 110th Congress, the Bingaman-Specter bill, the Dingell-Boucher discussion draft, and Chairman Markey's ICAP bill all adopted variations of this approach.

One major shortcoming of this approach is its limited effectiveness in reducing competitiveness impacts. As the border adjustment measures would apply only to imports to the United States, they would not help "level the playing field" in the larger global market where U.S. producers may face greater competition from foreign producers.

Among the other issues raised by unilateral border measures is their consistency with World Trade Organization (WTO) rules. The legality of a given measure would depend in part on its specific design and on the types of climate policies in place domestically. As such approaches have not been previously employed, there are no definitive rulings, and experts differ in their interpretation of relevant WTO precedents.[10] The legal uncertainties ultimately would be resolved only through the adjudication of a WTO challenge, a likely prospect if unilateral border measures were to be applied by the United States or another country.

Trade measures also present significant administrative challenges—in particular, calculating the GHG intensity of imported goods. Would the imported good's GHG intensity be calculated at the sector, firm, or plant level? Would such an assessment rely on data from the exporting country? In addition, criteria are needed to determine whether a country is meeting a "comparability" or other standard. Under the Lieberman-Warner bill, "comparable action" would have been defined as either a) a percentage reduction in GHGs equivalent to that achieved by the United States, or b) as determined by the commission, "tak[ing] into consideration... the extent to which" a country has implemented measures and deployed state-of-the-art technologies to reduce emissions. A literal application of a "comparability" standard to developing countries—particularly if border requirements are imposed upon or very soon after mandatory domestic limits are put in place—would likely be viewed internationally as inconsistent with the principle of "common but differentiated responsibilities" agreed to by the United States in the UN Framework Convention on Climate Change (UNFCCC).

Another important consideration is the potential impact on trade and international relations. If the United States were to impose border requirements, there is a greater likelihood that it would become the target of similar measures. European policymakers also are weighing the use of border measures and have argued that the emission targets under consideration in the United States are not comparable to those adopted by the European Union. U.S. trade officials and others also have voiced strong concern about the potential for retaliatory trade measures by

[10] For a discussion of WTO-related issues, see Bordoff, Jason E., *International Trade Law and the Economics of Climate Policy: Evaluating the Legality and Effectiveness of Proposals to Address Competitiveness and Leakage Concerns*, Brookings Institution, June 2008.

targeted countries, leading to escalating trade conflicts.[11] Proponents argue that the threat of unilateral trade measures would give the United States greater leverage in international climate negotiations. However, there is a significant risk that they would engender more conflict than cooperation, in the end making it more difficult to reach agreements that could more effectively address competitiveness concerns.

International Sectoral Agreements – All of the preceding options are measures that would be implemented domestically. Another approach that would help reduce emissions within and outside the United States, while addressing competitiveness concerns, is to negotiate international agreements setting GHG standards or other measures within energy-intensive globally-traded sectors. For example, major steel-producing countries could agree on standards limiting GHGs per ton of steel, which could be differentiated initially according to national circumstances and converge over time. Sectoral agreements could take a number of forms, depending on the specific sectors, and could be negotiated as stand-alone agreements or as part of a comprehensive climate framework.[12]

Within the domestic context, a purely sector-by-sector approach would sacrifice the broad coverage and economic efficiency of an economy-wide cap-and-trade program. However, sectoral agreements could exist alongside a cap-and-trade program, and the system could be designed to encourage U.S. producers to work toward their establishment. One option would be to provide for a sector's exclusion from the cap once an international agreement of comparable stringency is in place (although, as noted, diminishing the scope of the cap-and-trade system by exempting one or more sectors would limit its economic efficiency). An alternative is to keep the sectors under the cap but align their obligations under the domestic program and the international sectoral agreement. For instance, a firm's emissions allowance under the trading system could be based on the GHG standard that is agreed internationally.

In keeping with the principle of "common but differentiated responsibilities," an international sectoral agreement may not set fully equivalent requirements for all countries, particularly at the outset. In that event, compensation for energy-intensive industries could be maintained at some level and phased out as the requirements for other countries rise to those borne by the United States.

Recommendations: An Allowance-based Approach

Based on our assessment of the available options, the Pew Center believes that Congress should seek to address competitiveness concerns by: 1) strongly encouraging the executive branch to negotiate a new multilateral climate agreement establishing strong, equitable, and verifiable commitments by all major economies; 2) including in domestic legislation incentives for such an agreement, including support for stronger action by major developing countries; and 3) including in cap-and-trade legislation transitional measures to cushion the impact of

[11] Remarks of U.S. Trade Representative Susan C. Schwab to U.S. Chamber of Commerce, January 17, 2008.
[12] Bodansky, Daniel, *International Sectoral Agreements in a Post-2012 Climate Framework*, Pew Center on Global Climate Change, May 2007.

mandatory GHG limits on energy-intensive trade-exposed industries and the workers and communities they support. These transitional measures should be structured as follows:

- In the initial phase of a cap-and-trade program, free allowances should be granted to vulnerable industries to compensate them for the costs of GHG regulation. For direct costs, allocations should be based on actual production levels. For indirect costs, allowances should reflect the emitter's production-based energy consumption, taking into account the GHG intensity of its energy supplies.
- Based on an analysis of GHG performance within a given sector, allocations should be set initially so that producers with average GHG performance are fully compensated for regulatory costs, while those performing above or below the norm receive allowances whose value is greater or less than the their costs, respectively. This factor should be adjusted over time as an incentive to producers to continually improve their GHG performance.
- Allowance levels should decline over time, gradually transitioning to full auctioning, although at a slower rate than for other sectors.
- A review should be conducted periodically to assess whether sectors are experiencing competitiveness impacts and, if warranted, to adjust allowance levels and/or the rate of transition to full auctioning.
- A portion of allowance auction revenue should be earmarked for programs to assist workers and communities in cases where GHG constraints are demonstrated to have caused dislocation.
- Transition assistance should be curtailed for a given sector upon entry into force of a multilateral or sectoral agreement establishing reasonable obligations for foreign producers, or upon a Presidential determination that such measures have been instituted domestically.

We believe this approach addresses the transitional competitiveness concerns likely to arise under a mandatory cap-and-trade program, while maintaining the environmental integrity of the program and providing an ongoing incentive for producers to improve their GHG performance. We commend the subcommittee for focusing the attention of Congress on this critical issue, and would be happy to work with you as you develop legislation to address this and other dimensions of the climate challenge.

I thank you for your attention and would be happy to answer your questions.

Mr. MARKEY. Thank you, Ms. Claussen, very much, and that concludes our opening statements from the witnesses. We will now turn to questions from the Subcommittee members, and the chair will recognize himself for a round of questions, and I am going to start with you, Mr. McMackin and you, Mr. McBroom. Is there a way in which we can reconcile, you know, the two approaches which you present, that is, the free allocation approach which Mr. Doyle and Mr. Inslee are proposing or, you know, some border protection measures, which are taken as well. Is there a way to do them in concert, sequentially? What would be your recommendation if they could be put together as complimentary policies?

Mr. MCMACKIN. Mr. Chairman, our working group doesn't have a formal position on the border equalization provision, so I guess that means we don't have a formal position on the interface of the two, but let me say this sort of for myself at least that I think it is reasonable to say that most people who would support doing both would say that there is a role for border equalization at least as a backup measure and as one of the weapons of armamentarium of our negotiators. For instance, kind of as a necessity, the allowance grants takes priority because if we eliminate the cost differential at the source, there is no cost differential to be equaled at the border. But what if the allowances are inadequate? What if some future Congress decides to eliminate allowance grants? Well, then some believe that rather than let leakage proceed which is unacceptable that at that point consideration of a WTO compliant border equalization process or at least negotiations that involve those might be good policy.

Mr. MARKEY. Mr. McBroom.

Mr. MCBROOM. Well, I want to begin by associating myself with the remarks of Mr. McMackin. I think we are in complete agreement. Both should be utilized, both can be utilized. They serve complimentary purposes but somewhat different purposes. Some have noted the issue that the IBEW–AEP would not deal with exports. A grant of free allowances would, in fact, accomplish that because you are providing the direct grant of allowances or subsidy to industries that are impacted by competitiveness, and that helps solve both of those issues at the same time.

Mr. MARKEY. So let me go down to you, Ms. Claussen. Do you agree with that? Can they be made complimentary as policies?

Ms. CLAUSSEN. You could, but I would like to take issue a little bit with what Mr. McMackin said that having all of these things in your quiver as you go and do an international negotiation, I think actually the border measures would have the opposite effect and make it very difficult to negotiate an international agreement. So I think if you were going to include them, they should absolutely be a last resort.

Mr. MARKEY. OK. Let me go back to Mr. McBroom. You heard what Ms. Claussen just said.

Mr. MCBROOM. No, not entirely. I would make two points both referencing both her comment and other comments that have been made by many members. Recently as Mr. Whitfield acknowledged, Chinese officials came to the United States and they protested very loudly on two points. One is that they don't want a border adjustment mechanism. In that I would say they protest too much. The

fact that they are protesting as vigorously as they are would indicate that it is in fact effective leverage because at the same time they are saying that they don't want to be held accountable for any of the emissions from any products that they make that export to the United States, so they want the jobs, they want the factories, they want the economic growth.

Mr. MARKEY. So let us come back to Ms. Claussen. What is your answer, Ms. Claussen?

Ms. CLAUSSEN. Yes, actually, it was The Pew Center event at which the Chinese Director General spoke.

Mr. MARKEY. Congratulations on having such an interesting event.

Ms. CLAUSSEN. And I actually think it was misreported. I mean, they did raise the issue of their goods, but you know, this has been common in international negotiations. I mean, the Canadians raise it all the time. So they weren't actually making it as a proposal, they were just sort of making a point. Unfortunately, I think the AP story was slightly off.

Mr. MARKEY. And Mr. Cicio, Ms. Claussen, suggests that we should wait to cap greenhouse gas emissions until we have a global agreement. What do you think of that approach?

Ms. CLAUSSEN. I do not think we can get a global agreement unless we act first.

Mr. MARKEY. Mr. Morgenstern, do you agree with that?

Mr. MORGENSTERN. Yes.

Mr. MARKEY. Mr. McMackin, do you agree with that?

Mr. MCMACKIN. Mr. Chairman, I think that we will be aided in getting a global agreement if we do an Inslee-Doyle type measure for this simple reason.

Mr. MARKEY. So you agree that it would be good if we pass something first before we begin to negotiate?

Mr. MCMACKIN. Our group is solely limited to working constructively on that.

Mr. MARKEY. That is great. Thank you. Mr. McBroom.

Mr. MCBROOM. The most likely scenario is that Congress will pass something first, but I think it will be too difficult in a very short period of time to negotiate an international agreement that will include mandatory binding commitments on the large emitters in the developing world. The negotiation will simply take too long, so as a practical matter in terms of chronology, you are most likely to see domestic legislation to move first.

Mr. MARKEY. Thank you, Mr. McBroom. My time has expired. The Chair recognizes the gentleman from Michigan, Mr. Upton.

Mr. UPTON. Well, thank you, Mr. Chairman. I want to make a couple points. First I want to talk a little bit about coal. Mr. McBroom, I am glad that you are here. Although you didn't say this specifically, it was in your testimony. I just want to reiterate it. China's coal use as a percentage of world consumption increased from about 20 percent in 1985, and it will almost double by the year 2025. We know that China is bringing on line almost two new plants every single week. In fact, in 2006, China brought into service 90,000 megawatts of new coal-fired generating capacity which amounts to two large coal-generating units every week as I said, and we also know that emissions have increased by 80 percent

since 1990 and they are projected to rise by another 65 percent by 2020. Now, it is my understanding that they have made some strides, and I think they are using the low-sulfur coal, but obviously they are not using the new technique that we would like to see happen, carbon capture. And because we haven't developed the carbon capture technique fully yet in this country, I don't think we brought a single new coal plant on line in the United States at all last year.

So what is happening is that they are imitating what we have done on coal. They have another, in all likelihood, about 50 or 60 years probably of generating capacity with current technology that we have, and obviously that is one of the big reasons why they have become the number one emitter in the world. Now, this statement that is in today's Wall Street Journal that has been referenced a couple times by my colleagues dating back to the conference earlier in the week. This is from Secretary Chu who says, "If other countries don't impose a cost on carbon, then we will be at a disadvantage and we would look at considering perhaps duties that would offset that cost." Li Gao, a senior Chinese negotiator from the National Development and Reform Commission told Dow Jones news wires Monday that a carbon tax would be a "disaster," would prompt a trade war and wouldn't be legal under the WTO. And then he says this, "It does not abide by the rule of the WTO, and secondly it is not fair," adding that his delegation would relate China's concerns to U.S. officials.

Now, as we look at manufacturing in this country and the charts in terms of the loss of jobs, we see what China is doing without real clean-coal technology and we see what I think will be a real migration of jobs, and as much as we would like to say, well, we can use the WTO to make sure that they have to purchase offsets, we had heard last year from Susan Schwab that in fact that would provide real difficulty and we see what the Chinese are saying. And furthermore, we had testimony last year, and India and China, neither one of them, thought that they would really want to participate.

So to me it sounds a little bit like pie in the sky. I don't know how we achieve what we would all perhaps like to see happen, and we just see a further migration of the jobs. Mr. McMackin is a board member on OI. I don't know how much production is in this country. I know that OI has international facilities all around the world. I mean, you are in the State of Ohio. Eighty-six percent of your electricity comes from coal. So if you impose these burdens, and I don't know Ohio all that well, but I don't know if you have production in Ohio. Do you?

Mr. MCMACKIN. We have some production in Ohio, yes.

Mr. UPTON. Well, how much of a base in Ohio do you have in terms of total production that you have got? Twenty percent? Fifty percent?

Mr. MCMACKIN. No, about a third of our worldwide production is in the United States. Our major states of production are Pennsylvania and California.

Mr. UPTON. And what will happen if we have something like this that will have a cap-and-trade and increase those costs, knowing in fact that—you know, as we look at China, I think they are about

currently, if we send all those jobs there, they don't export all that much here but it will be a higher burden for us.

Mr. MCMACKIN. Mr. Upton, I am from the little town of Brockway, Pennsylvania, which has two of these glass plants, and my main motivation is to get those people a fair level playing field to compete against foreign location suppliers. So I do agree. Unless we do something, something that mitigates the cost that would be imposed on energy-intensive, trade-exposed industries like glass, that employment will suffer and jobs around the country, including in Brockway, Pennsylvania, will be at risk.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Pennsylvania, Mr. Doyle.

Mr. DOYLE. Thank you, Mr. Chairman. You know, I would just say to my colleagues, I think we all accept the fact that if we implement a cap-and-trade system and both put in some provisions in the bill to deal with issues of leakage or issues with coal-fired utility plants, of course it is going to end up being a very expensive proposition, and jobs are going to be lost and it is not going to be a good way to go and we aren't going to pass a bill because I don't think many members will vote for a bill like that.

What we are trying to do and what we are trying to learn more about today is how we can put provisions in the bill that deal with some of these issues so we don't have some of the things that we are afraid may happen if we do nothing. So it is the whole part of this hearing. Mr. Chairman, I appreciate it and I look forward to continuing to work with you on this bill.

Mr. McBroom, thank you for your testimony today. I was glad to hear you say and to see that there is a widespread agreement on the panel that the border tax and the proposal that Jay and I have been working on, you know, don't compete with one another or are not mutually exclusive of one another. Both can be done, and one does not, you know, negate the effects of the other. And I agree. I think we need as many weapons in the arsenal, so to speak, as we can. So I was happy to hear your testimony today.

Ms. Claussen, Mr. McMackin shared a report with us that is offering some suggestions as the best way to answer the eligibility question, you know, what industry should or shouldn't be covered by this policy. What do you think about the energy-intensive trade exposures benchmarks that his report suggests? Have you had a chance to see it?

Ms. CLAUSSEN. No, I am sorry, I haven't had a chance to look at it. We will look at it. I would be happy to get back to you on what we think of it.

Mr. DOYLE. Thank you. And Mr. McMackin, we appreciate you saying that our proposal is a breakthrough, but we know we still have some more work to do and probably this whole issue of eligibility of, you know, looking at these industries and these industries subsect. There is still a lot more work to be done, and we need some more data. But I look forward to seeing the report that you have on the subject. I haven't had a chance to read it yet, either, but we are looking forward to do that.

I wonder for the benefit of our colleagues here on the Committee if you could just take a moment and express to our colleagues here

the process as you view it that helps lead us to this latest version of the proposal.

Mr. MCMACKIN. Mr. Doyle, I have been doing policy work in Washington for about 30 years, and the process on crafting to this point the energy-intensive foreign trade exposed relief provision has been as constructive as I have been engaged in. It has been transparent. It has been open and inclusive. We had the advantage of course that the leakage problem is every bit as much an environmental problem as it is an economic problem. So all stakeholders had a real incentive to solve it, and we have made very good progress because everyone has been able to engage in a constructive dialogue.

Mr. DOYLE. Thank you. Mr. Morgenstern, I think your testimony also made a strong case for why, you know, certain industries face unique challenges with leakage and loss of competitiveness, and you talked a little bit about the free allowance allocation as part of the solution to the problem. I just want to give you an opportunity if you wish to expand on what you see as the strengths or weaknesses of our approach and how it could be improved.

Mr. MORGENSTERN. Well, I think the idea that you have identified energy intensity and trade sensitivity as the key issues is absolutely right, and I commend that completely. I think in any of these approaches there are details that need to get sorted through, and there are major data issues as you and others have referred to that kind of limit the ability to have a very precise answer as we sit here. And presumably, some additional information will be forthcoming in, for example, the EPA Registry which is forthcoming.

I think the idea that Congress would ultimately give very precise guidance to the agencies is really important and not leave this open to a great deal of discretion because I think that can cause problems down the road.

Mr. DOYLE. Thank you. Mr. Chairman, thank you very much. I yield back my time.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Texas, Mr. Barton.

Mr. BARTON. Thank you, Mr. Chairman. I want to acknowledge in the audience we have a former colleague and chairman of the Science Committee, Congressman Sherwood Boehlert of New York, a nemesis of this Committee when he was on the Science Committee, but a good friend and an avid baseball player, baseball fan.

Mr. Chairman, I have two articles from today's papers I would like to put in the record, a Washington Times article, Obama Climate Plan Could Cost $2 Trillion and the Washington Post article, Trade Barriers Could Threaten Global Economy.

Mr. MARKEY. It sounds like two things we want in the record, so without objection we will include them.

[The information follows:]

Mr. BARTON. Well, it is two things that need to be in the record, and I appreciate you and the members of the Committee allowing them to be in the record.

Mr. McMackin, you talked about an efficiency standard in your testimony. Would you and your group support such a standard absent a mandatory cap-and-trade program?

Mr. MCMACKIN. Mr. Barton, I think that most of the members of the group would be very reluctant to. Efficiency standards are more in the nature of the command and control type regulation than the more market-oriented cap-and-trade, and we think that Mr. Inslee and Doyle have found a way to make it work within the context of an allowance grant of cap-and-trade, but that is a very different consideration in its absence.

Mr. BARTON. Mr. Cicio, you point out in your testimony that industrial emissions in the United States have only gone up about 2½ or 2.6 percent while residential, commercial and transportation emissions have gone up between 27 and 29 percent. In your opinion, is it possible to cap-and-trade those parts of the economy that continue to go up more rapidly than the economy itself?

Mr. CICIO. The question is, can we cap the other sectors?

Mr. BARTON. Yes, sir.

Mr. CICIO. Just those sectors?

Mr. BARTON. Yes, sir. I mean, it seems kind of silly to cap industrial emissions when they are going up less than the rate of growth of the economy but commercial, residential and transportation are going up 10 times as rapidly. If you really want to cap it, that is where you have to do it but I don't think you can do it.

Mr. CICIO. No, capping all of those sectors wouldn't make sense. In our view that there are many, many cost-effective ways to improve the efficiency and reduce the greenhouse gas emissions of those sectors without cap-and-trade. And the thing that we have to as a country continue to look toward in this important debate is cost effectiveness, and an economy-wide cap-and-trade approach is not necessarily in our view not cost effective. There are better ways.

Mr. BARTON. OK. Ms. Claussen, first let me say I enjoyed our dialogue at the Congressional Quarterly breakfast. You are actually a very pleasant person when you are not testifying, disagreeing with me on whatever the subject happens to be. My question for you, because we talked about it at the CQ breakfast, would the groups that you represent support meeting our electrical generation targets with natural gas plants, even though natural gas, when you consume it or burn it, it does create CO_2. It just creates less CO_2 than coal plants?

Ms. CLAUSSEN. Well, I enjoyed our breakfast, too, and you are a very nice person when you are not asking me hard questions.

Mr. BARTON. That is my easy question.

Ms. CLAUSSEN. First of all, I should clarify that I don't represent anybody other than The Pew Center. We work with lots of companies ourselves, we work within U.S. CAP so we work with lots of companies.

Mr. BARTON. Well, would they accept natural gas as an element of our——

Ms. CLAUSSEN. I think most would agree that natural gas could be a transition because of course burning natural gas does result in greenhouse gas emissions but far less than coal. On the other hand, we are very sensitive to what we could call a dash-for-gas because we really think coal is going to be part of our future.

Mr. BARTON. We put you down as undecided on that? Anytime somebody answers a question on the other hand——

Ms. CLAUSSEN. On the other hand——

Mr. BARTON. I have got one more question I want to——

Ms. CLAUSSEN. I just want to say there is no single solution here. You need all of it. We have to do carbon capture and sequestration. In my opinion we have to do nuclear, we have to use gas, we have to do efficiency, meet everything.

Mr. BARTON. I will take that as a yes. Dr. Thorning—can I ask one——

Mr. MARKEY. Please, yes, please.

Mr. BARTON. I tried to get it in before it went to zero, Mr. Chairman. I was starting to ask the question.

Mr. MARKEY. You were wasting a lot of time being gracious to each other, OK? Just stick to the subject.

Mr. BARTON. I have learned that from you, though. It is a good trick. Dr. Thorning, you go into some of the economic consequences of reducing our CO_2 emissions below the 1990 baseline and other baselines. The Obama budget would reduce by the year 2020 emissions 14 percent below the 2005 baseline and 83 percent by the year 2050. I am told if we adopt the Obama budget and actually meet those targets, by 2050 we will have an absolute emissions level in this country last seen in 1910 and a per capita emissions level last seen in this country in 1875. 1875. Do you think the American people would support those types of lifestyle changes to get those draconian reductions?

Ms. THORNING. I think the American public would be reluctant to make the drastic changes in lifestyles that would be necessary under any of the major plans. In my testimony I have a couple of charts, one of which shows the per capita emission reductions that would be required by 2020 and 2030 to comply with the Obama plan. Cutting emissions from an average of 23 tons per person right now down to approximately 18 by 2020 and down to perhaps 12 by 2030 would require the kind of changes that the American public simply would not go along with. So I think we need to be very cautious as we approach this issue because if you can't sell it politically, it is just not going to happen.

Mr. BARTON. Thank you, Mr. Chairman.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Texas, Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman, and I appreciate the time and the hearing. Let me first say before I get into my questions, I am concerned, Ms. Claussen, about the dash-for-gas also but that is also because I have a chemical industry that provides a lot of jobs that is really in tough shape right now. But just for the panel, last year is probably the first year we actually increased our production of domestically produced natural gas. There has been some great discoveries in the Gulf of Mexico, obviously in the shales and in other parts of the United States. So there is a way that we can produce that and literally cut our emissions much down. And I understand the transitional phase and that is true, but the transition may last a few years until our economy can absorb it.

The other issue I think that if we do not have something like that Inslee-Doyle amendment that is enforceable, I don't think we will see cap-and-trade. I can't vote for it because I can't see a fake to the blue-collar workers of our country that we are really going

to control not exporting your jobs. Again, coming from a blue-collar area that is refinery and chemical jobs, those products could easily be made in India or China. In fact, I had this discussion with a diplomat from India, and I said, you can't expect me to want to send my jobs to you while we are concerned about climate change. Whether it goes up in India or China or in Texas, it still creates carbon in our atmosphere. And so that is why that amendment and as strong as possible—I think our country can provide leadership in climate change and still say this is the way we want to do it. And we haven't had that leadership for a number of years, and I would like to see the leadership but also want to make sure it also goes in the right direction.

Mr. McMackin, in your testimony you state that "a true cost negating anti-leakage provision would address indirect or other direct costs and that the Inslee-Doyle approach would not compensate for cost increases on feedstocks or other inputs, nor would it compensate for the demand and demand-curve cost increases in natural gas." Unlike you, I believe in all the higher costs contribute to the costs of competitiveness. Should the compensation program take these and other indirect cost impacts into account?

Mr. MCMACKIN. Congressman, it is true that the Inslee-Doyle provision would leave a significant gap in making up for these regulation-caused cost increases, and that does raise the risk of leakage. And that is one of the reasons we are looking forward to continue to working with Congressman Doyle and Inslee and others on the provision to try and make sure we get that balance right.

Mr. GREEN. Do you have an idea what we would need to cover those full and direct costs?

Mr. MCMACKIN. It is very difficult to know because the one you mentioned that is the most troublesome, the most difficult to measure, is that part of the increase in natural gas which is not just a function of the allowances that need to be submitted for its combustion but that part of the increase that increases because demand for it will go up and the demand curve will shift precisely because it is carbon advantage. It would be very difficult to know how to measure that.

Mr. GREEN. Anyone else like to touch on that one before I go to another?

Mr. CICIO. Yes, sir. I would. Natural gas, increased natural gas demand and the resulting increase in the price of natural gas is only part of the increased cost. The fact is that across the country, natural gas-powered generation sets the march on the price for electricity. So as the price of natural gas goes up, because of climate policy, that will help drive up the price of natural gas also. So actually, there is two impacts that are not accounted for in the Inslee-Doyle approach.

Mr. GREEN. Thank you. Mr. Morgenstern, in your testimony you state that the hardest-hit industry is by carbon pricing for chemicals, plastic, primary metals, non-metallic minerals, and that over the long term you estimate that the leakage rate for the few most vulnerable industries could be as high as 40 percent in the case of the unilateral $10 per ton of CO_2 price, at $10 you estimate a 40 percent leakage rate. The Obama Administration estimates that carbon permits will sell for $20 on the average for their cap-and-

trade proposal. How much would you estimate the leakage change under $20 per ton for the average carbon cost?

Mr. MORGENSTERN. Congressman, we have actually not done that calculation. It might be somewhat higher, but it is certainly not double. I am pretty sure of that. We are in the process of doing that analysis right now.

Mr. GREEN. OK. I appreciate any follow-up that you could provide to the Committee. In your testimony you state that unilateral policy that establishes a price on carbon dioxide emissions, a readily identifiable set of industries is at a greater risk of contraction over both the short and long term and that the hardest hit industry, petroleum refining, would likely be able to pass along most cost increases, thereby muting the impact. On what statistics do you base your assertion that the refiners can pass through all their costs?

Mr. MORGENSTERN. Well, Congressman, the principal statistic is the percentage of product which is imported, and as opposed to certain other industries which have a much higher percentage of their product imported, petroleum refining has a relatively small number. I don't have the actual number at my fingertips.

Mr. GREEN. I would estimate, I think I heard numbers, that 60 percent of our oil is imported. So does that seem right?

Mr. MORGENSTERN. Well, Congressman, I think you have to distinguish between imported crude oil and finished product, and imported crude oil would be subject to the same charge as domestically produced crude oil. So there is not going to be any change in incentives on that side. It is strictly on the slightly additional cost of refining because refining, as you well know, is an energy-intensive activity. There would be some additional costs associated with that, and they would not be completely able to pass them along but given the relatively small percentage of the product that is imported, they would be relatively protected.

Mr. GREEN. A study by the NERA Economic Consulting on the impacts of Lieberman-Warner on the refining sector states that the level of cost passed through is highly uncertain, particularly in later years since price increases depend upon the nature of increased costs, the level and nature of international competition and other factors. One of these factors is the market and the fact gasoline stations compete and consumers make choices based on a penny a difference per gallon. Given these realities and certainties, how can you be certain that American refiners would be able to pass through all their cost? Won't competition from international products undermine the cost for recovery to a certain extent? For example, higher carbon cost and U.S. relative international sources of refined products could likely lower the pass-through of carbon costs.

Mr. MORGENSTERN. Congressman, you are correct. They would not be able to pass through 100 percent of their costs. There will be some burden placed on domestic refineries. Compared to the other industries we studied, we believe it will be relatively small.

Mr. GREEN. Thank you, Mr. Chairman.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. What happens to these coal miner jobs in a cap-and-trade regime, Ms. Claussen?

Ms. CLAUSSEN. If we can get carbon capture and sequestration up and running——

Mr. SHIMKUS. How long is that going to take us? What are the projections?

Ms. CLAUSSEN. Well, there are lots of projections.

Mr. SHIMKUS. What is the shortest time projected?

Ms. CLAUSSEN. Probably 10 years.

Mr. SHIMKUS. Ten years? Ten years. What happens to these jobs if we don't have carbon capture and sequestration immediately? You know, the difference between the Clean Air Act Amendment of '90 and now is that we could fuel switch or we had technology. Is there current technology to save these coal miner jobs?

Ms. CLAUSSEN. I mean, I believe that the first thing that happens when you put a cap-and-trade in place is that people try to become more efficient because that is the cheapest way.

Mr. SHIMKUS. But we have new legislation called New Source Review that doesn't allow coal power plants to be efficient. In fact, it delays the implementation of more efficient generators with a permitting process that takes years.

Ms. CLAUSSEN. Please don't ask me to talk about New Source Review.

Mr. SHIMKUS. It is a failure of our policy. Anyone else want to answer the question of what happens to these jobs? Mr. Morgenstern?

Mr. MORGENSTERN. Congressman, I guess I would note that in several of the analyses that have been done, I believe by the Energy Information Administration, they find, and it does depend on scenario, you are correct, but they find that actual production, domestic production in 2020, is higher than it is today.

Mr. SHIMKUS. Do you know what happened in the State of Ohio when they passed the Clean Air Amendment in 1990? We had testimony of that last week. Do you know how many jobs they lost? Thirty-five thousand. Dr. Thorning?

Ms. THORNING. I would like to mention that in Table 1 of my testimony I do present various scenarios from EPA and EIA, including scenarios that we think are more realistic. Under EPA's scenario number seven, when they analyzed Lieberman-Warner last year they assumed slow growth of nuclear generating capacity. They assumed carbon capture storage would not be available until at least 2020 or 2025, and they found that there would be a significant——

Mr. SHIMKUS. I am really running out of time. I got three more major issues. So do we lose the coal mining jobs?

Ms. THORNING. Pardon?

Mr. SHIMKUS. Do we lose——

Ms. THORNING. A significant number of coal mining jobs, and those are detailed in the ACCF study. Mr. Cicio? Sir?

Mr. CICIO. Yes, absolute correlation to your point. I can relate to manufacturing, and that is that when energy prices went up in this country relative to the rest of the world, we lost 2 million manufacturing jobs in the period of less than 2 years.

Mr. SHIMKUS. Isn't that the intent of climate change legislation, to raise energy rates?

Mr. CICIO. Yes.

Mr. SHIMKUS. It is President Obama's statement. Let me quote from the Washington Post, April 9, higher electricity rates are the intent of the whole exercise. If there were no effects, why should you have a cap-and-trade system? Now, when you addressed the manufacturing jobs, your testimony talks about the emissions side. What is a job loss because of higher energy costs?

Mr. CICIO. As I said, there is a direct correlation to the increased cost of natural gas and then electricity that started in 2000 to 2003. We lost 2 million manufacturing jobs just like that.

Mr. SHIMKUS. I am not trying to be disrespectful, I just don't have a lot of time. So higher energy cost relates to job loss. Does everyone agree with that? Yes? Everybody is nodding yes? That is the intent of this Administration and this legislation. Let me do another quote from President Obama, President-elect at the time. He was a candidate. When I was asked earlier about the issue of coal, uh, you know, under my plan of a cap-and-trade system, electricity rates would necessarily skyrocket.

So we can talk about the carbon dioxide. We are talking about leakage of jobs. I would love to engage in a debate. Let me ask you this question. From his inaugural address, we will harness the sun and wind and soil to fuel our cars and run our factories. Yes or no. Can we run a factory on wind and solar power?

Mr. CICIO. I am afraid not.

Mr. SHIMKUS. Well, are we close to it?

Mr. CICIO. Manufacturing needs reliable energy, and they run often 24/7. Solar, wind——

Mr. SHIMKUS. What is the percentage of electricity generated in this country today by renewables? Anyone know?

Ms. THORNING. Three percent if you don't count hydro.

Mr. SHIMKUS. If you don't count hydro, 3 percent? So if we doubled to six, that would be a dramatic gain. We will have massive job loss, massive job dislocation, and I challenge the democrats to move this bill because we will defeat them at the polls. I yield back.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Washington State, Mr. Inslee.

Mr. INSLEE. Well, I just want to say I always welcome my good friend, Mr. Shimkus, to come in and challenge me in the first district in the State of Washington. I will just—as they say, but that is another matter.

Dr. Thorning, I want to ask. We were comparing in any economic analysis two scenarios, one an action scenario based on a cap-and-trade bill, one an inaction scenario where we don't respond to climate change. In your assessment, what figure did you or what assumption did you make about the jobs that will be lost in the inaction scenario where we do not as a result of the significant changes to the climate in the United States? What assumption did you make?

Ms. THORNING. It is an excellent question, and I would like to draw you back to the figure in my testimony showing the impact on global concentrations of CO_2 at the end of this century. If we do adhere to the Lieberman-Warner targets, for example, and the rest of the world does not adopt strict targets.

Mr. INSLEE. Excuse me just for a minute. I only have 5 minutes. Could you just answer the question? What assumptions did you make about the job losses that would be caused by climate change if the U.S. Congress sits on its hands and doesn't do something about climate change? What assumption did you make? How many jobs would be lost by the inaction scenario? Just give me a number or a percentage, please?

Ms. THORNING. We did not specifically look at jobs lost due to inaction because climate change is a global problem. It really doesn't matter what the U.S. does because our emissions are an ever-shrinking share. The point is, how many jobs will be lost if we move down a cap-and-trade or even a tax proposal because each 1 percent of GDP is accompanied by a .3 percent increase——

Mr. INSLEE. I appreciate your answer because I think it exposes a Titanic flaw in your assessment of this problem. There are two choices America can make. It can decide not to act on this and have massive job losses in the agricultural economy, massive job losses in the sectors that depend on water because the snow pack is not going to be in the Cascades which is feeding our hydroelectric system which feeds the Boeing manufacturing plant with relatively inexpensive electricity, massive job losses in a whole host of areas. The Stern Report indicates there will be five times any jobs losses associated with action on global. Your assessment, you are coming in here and telling us we are going to have job loss when any assessment says we are going to have more job loss that has been done. The only assessment that I have seen in the course of the globe not responding to climate change. Now, I find that stunning that an economist would come in here and not compare apples to apples in this regard. Now, do I take it that the reason that you didn't do that is that you thought that because this is a global problem it just doesn't matter and the United States will just ignore it? That is pretty much your assessment, right?

Ms. THORNING. The point of my testimony is it is a global problem, and even if the United States were to hit the targets in the Lieberman-Warner proposal, the Administration's own analysis shows that it won't matter.

Mr. INSLEE. Well, let me just say——

Ms. THORNING. So we need to think about maintaining economic growth so that we can develop the technology to capture and store carbon.

Mr. INSLEE. I have hardly ever heard a more defeatist statement in this hearing that we are just going to let the world go burn, and because we can't solve it alone, we shouldn't do anything. That I would assert is not the American act of leadership. There was something that a couple other witnesses talked about that I am not sure I fully understood that may be a virtue of one of the approaches that Mike and I have suggested, and I don't mean to get into a contest between border adjustment or what Mike and I have proposed because they may be complementary. But I do want to make sure I understand something a couple of witnesses talked about. The approach that Mike and I have suggested would give a benefit on the export side of the economy. In other words, it would give the benefit to our manufacturers as they export product because they would get this benefit of a free allowance. Do I under-

stand correctly that a trade adjustment, at least to the extent that I have seen it proposed, would not give that benefit on the export side, it would give them a benefit by protecting against imports, competitive imports, but would not give a benefit to our exports which also have to compete internationally outside of our domestic markets. Is that a correct assessment?

Mr. MCMACKIN. Mr. Inslee, it is. We view that as one of the critical advantages of the Inslee-Doyle type allowance. Grant, the problem is a WTO prohibition on export rebates. There is some talk of trying to design one that is WTO compliant, but I am certainly not an expert on that.

Mr. INSLEE. Anyone else disagree with that assessment at all. Thank you. Thank you very much.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from Pennsylvania, Mr. Pitts.

Mr. PITTS. Thank you, Mr. Chairman. Mr. Cicio, China's top climate negotiator Monday said any fair international agreement on emissions reduction should not require China to reduce emissions caused by goods it exports to other countries. This doesn't sound like China wants to play by our self-imposed rules. What evidence do we have that we can convince China to go along if we make our industries less competitive?

Mr. CICIO. Congressman, that is exactly why our testimony has taken the approach that it has, is that cap-and-trade is not a viable policy option for the industrial sector in developing countries, nor is it good for us. A better approach that all industrial companies around the world understand is productivity. They can control the efficiency. They can improve the electricity improvement in their plant, the natural gas improvement, or whatever fuel. They can improve the yield, but it is very, very difficult for them to reduce absolute quantities. There is no movement on the part of the Chinese that we have seen that they will accept a cap and the absolute reduction for the industrial sector. This is why we need to jump-start negotiations across all developed and developing countries to deal with explicitly the industrial sector from a trade and from a productivity standpoint.

Mr. PITTS. Dr. Thorning, a lot of the policy discussion about effectiveness of cap-and-trade is derived from large, integrated models of the economy and international markets. It involves a model-based analysis of what we might expect if the United States and all nations work together to reduce emissions. Do these modeling exercises represent what happens in the real world?

Ms. THORNING. That is an excellent point, Congressman, and I think that we need to take account of the reality of politics. For example, stepping back and looking at China, China buys huge portions of U.S. debt. They are funding our lack of saving. If we impose a border tax adjustment on China using other imported goods, there might be some reluctance on the part of the Chinese to continue to invest in the United States. So I think we need to look at climate policy as a whole and look at how moving one part of our economy through say border tax adjustments might impact other parts of our economy. I think the models that have been developed simply do not recognize political reality. We don't have the ability to enforce international agreements. We have been working on this

for some 20 years trying to evolve that type of agreement. It hasn't come about, and according to a recent study by Lee Lane and David Montgomery, it is unlikely to. We are going to have to depend on technology. We are going to have to depend on new technology, new nuclear, carbon capture and storage if we want to continue to grow our economy as well as reduce greenhouse gas emissions.

So I think the models that have been developed simply are not reflective of reality.

Mr. PITTS. Dr. Thorning, what in a nutshell is the European industry doing to cope with its cap-and-trade system, and how does this compare with what the United States will face?

Ms. THORNING. Well, the experiment in the European Union, they have had an ETS since 2005, shows that they don't have the political will to tighten down emissions to actually hit their Kyoto target. Without strong, new measures the EU is unlikely to meet their Kyoto target because they have exempted large sectors of their economy and haven't covered enough facilities. Their new plan, their 20/20 by 2020 reduction, is unlikely to be enforced because it would require significantly higher taxes. The only way Europe will meet their new target is through economic collapse.

Mr. PITTS. Ms. Claussen, should we be concerned about a trade war if we impose tariffs on countries that don't take action on greenhouse gas emissions? Would a trade war have implications for our relationship with China and other arenas such as working to improve China's record on human rights or China's relationship with Tibet?

Ms. CLAUSSEN. We do not like trade wars. We do not like border adjustment measures, so I think if you are going to use them, they should absolutely be a last resort and we should do everything else before we get there.

Mr. PITTS. Thank you, Mr. Chairman.

Mr. MARKEY. The gentleman's time has expired. And we will end the hearing by recognizing Mr. Scalise from Louisiana for a round of questions.

Mr. SCALISE. Thank you, Mr. Chairman, and I will try to run through them quickly since the vote is going on right now on the floor. Mr. Morgenstern, in your testimony you had stated, and I will quote this, "Within the manufacturing sector the hardest-hit industries are chemicals and plastics, primary metals, and non-metallic minerals. Another hard-hit industry, petroleum refining, will likely be able to pass along most cost increases, thereby muting the impacts." When you talk about muting those impacts, clearly if they are passing them on, who have they been passing them on to and who would actually get that impact if they didn't get the impact?

Mr. MORGENSTERN. Congressman, they would pass along the impacts in the form of higher prices which in turn will enter into consumers' and businesses' calculations about their choice of technologies, new vehicles, et cetera.

Mr. SCALISE. Any estimates on how much would be passed on to consumers, let us say, when somebody goes to fill up their gas tank how much more they will pay, or when they go to the grocery store, how much more will they pay?

Mr. MORGENSTERN. Yes, I don't have a number at my fingertips, but it would be a very high proportion of the actual cost of the allowances that would be passed forward to the consumer.

Mr. SCALISE. And I have seen reports that show up to $3,000 per American family in increased costs due to these pass-throughs, whether it be from electricity bills going up because the utility companies would be able to pass those costs on or the energy-related products that would also be able to be passed on. And in fact, Mr. Orszag, the President's Budget Director, himself acknowledged that there would be increased costs to consumers because of these.

Mr. MORGENSTERN. Congressman, my colleague, Dallas Burtraw, who is not here today has actually done an extensive study on this question, and there clearly will be higher costs to consumers and to households across the country. It will vary somewhat by region, and some of the provisions in the legislation presumably would attempt to compensate for those losses.

Mr. SCALISE. Yes, and that concerns a lot of people. Ms. Claussen, if you could real briefly get on that?

Ms. CLAUSSEN. Yes, I mean, there is a wide range. It depends on the model you use. Some of them are as low as $200 per household per year. Some of them are as high as you pointed out as $3,000 per household per year. I think the most important thing to do is to make sure that there are no price spikes or really high prices for consumers which you can do by making sure that there are allowances for local distribution companies who provide electricity.

Mr. SCALISE. Yes, and I think we have seen that there are some proposals to exempt certain people which, of course, under the President's budget, he expects to generate $640 billion in new taxes from this proposal. So that would actually put an even higher disproportionate share. We used the teacher married to the police officer. That married couple would then almost see a doubling if you exempt lower income earners because that couple would earn about $80,000. And so that teacher married to the police officer would not appreciate the fact that they are considered rich under these proposals and would have to pay maybe $5,000 more.

Ms. CLAUSSEN. That is——

Mr. SCALISE. I have only got about a minute left. I apologize for that. Mr. Cicio, you had talked about U.S. industries working on efficiencies. For decades we have seen people cutting back, businesses cutting back. Are there more effective policies that can help foster innovation to provide that next generation of energy efficiency other than this tax policy?

Mr. CICIO. Manufacturing is very energy efficient, but there is always this constant effort. We need good tax policy, faster depreciation. We certainly need removal of regulatory barriers and financial barriers to utilizing, for example, combined heat and power and waste heat. These are all very positive incentives that would be very helpful to the sector.

Mr. SCALISE. And final question, how has regulatory policy such as decoupling electricity rates actually affected your industries?

Mr. CICIO. Well, I am glad you asked that question because decoupling separate volume from price, and manufacturing needs a return on investment to invest in energy efficiency with the objective of course of reducing the amount of for example electricity that

it would consume. But when you decouple, oK, there is all of a sudden a lack of incentive, financial incentive to invest because the prices will not go down.

Mr. SCALISE. All right. That is all I have. I yield back. Thank you, Mr. Chairman.

Mr. MARKEY. The gentleman's time has expired. The Chair recognizes the gentleman from—and all of the time for this hearing has expired. We thank this panel very much. Obviously in any legislation which we draft we are going to need to deal with those industries that are most affected, especially from a trade perspective, from a climate policy which we adopt and we intend on doing that. We thank this panel very much, and we would like to stay in close contact with you as we are moving along in the legislative process. This hearing is adjourned.

[Whereupon, at 11:52 a.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

Congressman Gene Green
Energy and Environment Subcommittee Hearing
"Competitiveness and Climate Policy: Avoiding Leakage of Jobs and Emissions"
March 18, 2008

Mr. Chairman, I commend you for holding today's hearing on how to avoid the outsourcing of U.S. jobs and greenhouse gas emissions abroad when crafting climate policy.

Absent a strong international framework for addressing global climate emissions, initiating mandatory carbon reductions within the United States presents major challenges for our economic sustainability and global competitiveness.

I represent the Houston Ship Channel, a petrochemical complex that stretches along the Texas Gulf Coast and is home to thousands of chemical industry and petroleum refining jobs.

These energy-intensive industries will be left vulnerable to foreign competitors not facing carbon regulations if we do not carefully craft transitional policies to prevent leakage and strengthen U.S. industries at home and abroad.

We cannot allow the petrochemical and refining industries to migrate out of America. They are vital to our economy and to our national security.

For example, chemicals are used to produce 96 percent of the goods manufactured in this country. Chemistry is vital to developing low carbon energy

solutions, including wind and solar power, building insulation, lightweight vehicle parts, and energy saving catalysts and lubricants.

We cannot outsource this capability.

I want to commend Congressman Inslee and Congressman Doyle for putting forward a proposal to provide free allowances to emissions-intensive industries regulated under a climate program.

I hope to learn more about how this proposal could mitigate direct compliance costs for affected industries as well as full indirect compliance costs, including increased electricity, fuel, or feedstock prices.

Border adjustment policies must also be closely examined to ensure they can "level the playing field" in the global market and pass WTO-muster.

None of these proposals, however, can substitute the need for a strong international agreement with binding carbon reductions amongst the world's largest emitters, including developing countries.

I also request Unanimous Consent to insert into the record a letter I received from the American Chemistry Council which highlights the need for transitional policies to help the chemistry industry remain competitive in the global marketplace.

Thank you Mr. Chairman. I yield back.

March 18, 2009

The Honorable Edward Markey
Chairman, Committee on Energy and Commerce,
Subcommittee on Energy and Environment
United States House of Representatives
2108 Rayburn House Office Building
Washington, DC 20515-2107

Dear Chairman Markey:

The American Chemistry Council (ACC) commends the Subcommittee on Energy and the Environment for holding a hearing on "Competitiveness and Climate Policy: Avoiding Leakage of Jobs and Emissions." ACC and its member companies believe this is a critical element of a national climate policy.

But American chemistry is also the largest of the energy intensive industries engaged in global trade (see Attachment 1). We can say without hesitation that a poorly designed climate policy will price more energy-intensive manufacturing out of the U.S. and that production will be replaced by goods manufactured overseas by more carbon-intensive production processes. The Leakage Paradox is real: policies designed to reduce greenhouse gas emissions domestically will result in higher GHG emissions in certain sectors of the global economy.

American chemistry is a climate solutions provider. A forthcoming McKinsey & Co. study shows that the products of chemistry reduced on average three tons of emissions for every ton produced in the manufacturing process, with products such as insulation having a 216 to 1 ratio. American chemistry employs nearly 850,000 highly trained and well-compensated Americans and indirectly supports 5 million other jobs in our supply chain.

Competing in the global economy forces energy-intensive manufacturers like chemical manufacturers to use energy efficiently. Between 1990 and 2007, our industry's energy consumption per unit of output has improved by 27 percent and our greenhouse gas emissions fell by 13.2 percent, among the largest improvements in any sector of the economy.

ACC has completed an analysis of the Administration's cap and trade proposal outlined in its FY 2010 budget plan (see Attachment 2). The plan calls for an economy-wide cap on greenhouse gas emissions beginning in 2012 and a 100 percent auction of a limited

supply of permits or allowances to emit greenhouse gas emissions. Revenues for the auction will pay for middle class tax relief with a small portion used to stimulate clean energy investments. The administration estimates that a GHG permit will cost $20 on average. But the CBO and other non-partisan think tanks believe the costs will be much higher under average circumstances, ACC calculates that basic industrial chemical manufacturers can expect to pay $5.6 billion in direct compliance costs (permit purchases) and $2.1 billion in indirect costs (higher fuel, electricity and feedstock costs) in the first year of the program. Those costs will rise to $10.8 billion in direct compliance and $7.7 billion in indirect compliance costs in 2019, or $110 billion in total compliance costs over the 8 year life of the Administration's proposed plan. **That is equal to a nearly 50 percent increase in the industry's current tax liabilities. It would wipe out margins in our more energy-intensive processes.**

Those additional costs will certainly price many of our more energy-intensive manufacturing processes out of the U.S. market. We have seen it happen before spiraling natural gas prices in the early part of the decade forced a majority of U.S. ammonia and methanol plants to close. These are globally-traded commodities. If American manufacturers try to pass through higher costs, customers can and will source these products from other countries. Displacing U.S. chemical manufacturing and replacing it with overseas manufacturing will increase the global carbon footprint of energy-intensive products.

Resources for the Future (RFF) has conducted extensive modeling and research on the issue of leakage in the context of cap and trade. Their analysis reports that unilateral actions to reduce greenhouse gas emissions must be taken to begin addressing the global challenge. According to RFF, "A consequence of this approach is emissions "leakage", wherein domestic reductions [in greenhouse gas emissions] are offset by increases abroad, as production, demand and energy supplies are reallocated globally."

Over the long term, the leakage rate for the few most vulnerable industries can be as high as 40 percent when carbon is priced at just $10 per ton CO2 price. In addition, RFF has identified a set of industries at the greatest risk of domestic contraction over both the short and the long term. These industries include chemicals, plastics, pulp and paper, primary metals and nonmetallic minerals.

The country has lost 2.4 million jobs in 4 months. On March 7, *The New York Times* wrote, "This rapid deterioration has prompted talk that some industries are being partly dismantled." One economist told *the Times*, "These jobs aren't coming back. A lot of production either isn't going to happen at all or it's going to happen somewhere other than the United States. There are going to be fewer stores, fewer factories, fewer financial service operations." A cap and trade program that fails to address the leakage problem will accelerate this already distressing trend.

American chemistry believes it is vital that any cap and trade program provide for the free distribution of emission credits to energy-intensive industries for as long as U.S. manufacturers are at a competitive disadvantage. Free distribution of credits under such circumstances could help avoid emission leakage, unintended increases in global greenhouse gas emissions, and erosion in U.S. competitiveness and jobs. American chemistry faces many cost pressures resulting from a cap and trade program including direct compliance costs, and the indirect costs reflected in the price we pay for purchased electricity, purchased fuel (including purchased steam) and feedstocks. We believe that all cost pressures must be addressed in preventing "leakage" under a national climate policy.

We commend the efforts of Representatives Inslee, Doyle, Dingell, Boucher and others on the Committee who have proposed policies to mitigate against the harm a unilateral cap and trade program would inflict on energy-intensive, trade-exposed manufacturers. We have seen proposals that make an honest effort to provide cost recovery to America's manufacturers during the transitional years of the program. We look forward to working to ensure these proposals reflect the unique and diverse operations of the U.S. chemical industry.

Congress may choose to develop legislation that follows the European Union's recent decision to implement a sector specific benchmarking approach to evaluate a facility's energy efficiency as compared to similar facilities. This policy would reward those facilities with a higher energy efficiency than a specified proportion of the sector's facilities. While this approach could be a suitable sector specific tool for use in the U.S., it certainly has its limits. Benchmarking works well for similar facilities and would successfully encourage improvements in energy efficiency. Some industries are good candidates for such an approach because few variances exist in these manufacturing plants and processes. However, processes that are not similar cannot be fairly evaluated against one another. The U.S. chemical industry is not well suited for such an approach.

American chemistry does **not** support policies that aim to address emissions leakage by imposing border taxes or some other trade-related cost adjustments. We compete in a global economy. We are the world's largest exporter of chemicals and the nation's largest exporter of manufactured products. Border adjustments will disrupt our trade flows and will invite retaliatory actions on the part of our trading partners. We have seen it many times before. U.S. trade sanctions invariably result in retaliatory actions against American chemistry because of the ubiquity of chemical products in global markets.

We also ask policy makers to consider the implications of climate policy for on-site heat and power units (CHP). Industrial CHP units are among the most efficient energy producers in the nation. Typically, industrial CHP uses 80 percent or more of the useful energy it consumes, making it more than twice as efficient as separately purchasing electricity and producing steam in industrial boilers. Some climate proposals would inadvertently punish businesses that use CHP and create perverse incentives to switch to the less efficient, more emission-intensive alternatives. That should be avoided at all

costs. Oak Ridge National Labs and other respected authorities have concluded that CHP and other forms of recycled energy are grossly underutilized in this country and can and should be viewed as a major contributor to low carbon power generation.

ACC also believes that national climate policy must be mindful of how this industry's hydrocarbon-based feedstocks, or raw materials, are treated. American chemistry uses roughly half of its energy inputs (70% of the costs) as raw material that we convert into chemical products found in 96 percent of all manufactured goods. When used as raw materials those hydrocarbons do not produce greenhouse gas emissions and should not be regulated as if they will produce emissions.

There are other good reasons for the free allocation of emission credits under a cap and trade program. Climate policy should encourage production in industries that contribute to climate protection. Chemistry is a climate solutions provider: our products go into some of the most widely-used products for energy efficiency and renewable energy, including building insulation, solar panels, wind turbines, lightweight vehicle parts, compact fluorescent light bulbs, lithium-ion batteries, low-rolling resistance tires, automotive and industrial lubricants, and thermal coatings, to name a few.

The business of American chemistry can help create the lower carbon economy of the future. But to do that, we need policies through a transitional phase that will enable us to compete in the global marketplace, invest in higher efficiency plant and equipment, and retain and grow one of the nation's highest trained and most productive workforces.

Sincerely,

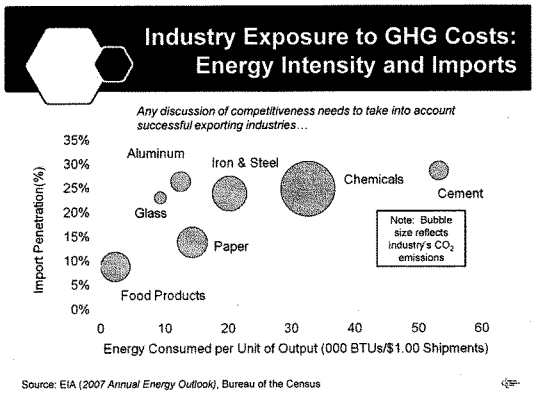
Cal Dooley

Cal Dooley
President and CEO

americanchemistry.com

1300 Wilson Boulevard, Arlington, VA 22209 | (703) 741-5000

Attachment 1



1300 Wilson Boulevard, Arlington, VA 22209 | (703) 741.5000

Attachment 2

FY 2010 Federal Budget Analysis – Highlights*

Chemistry Impact Costs (Also see chart at end of this document)

- Total Costs (tax + cap-and-trade provisions): $8.5 billion in 2012, $20.0 billion in 2019, $121.6 billion over the 10-year period (excluding pharmaceuticals)
    - Total costs are equal to 21% of chemical industry profits and equivalent to a 53% increase in taxes paid
- Cap-and-trade proposal + other energy-related provisions: $7.3 billion by 2012, $18.4 billion in 2019, $110.4 billion over the 10-year period
    - Cap-and-trade proposal: $5.7 billion in 2012, $10.8 billion by 2019, $68.7 billion over the 10-year period.
    - Effect of fuel-switching on energy feedstock cost: $2.1 billion by 2012, $7.1 billion in 2019, $42.2 billion over the 10-year period
    - Elimination of oil and gas company tax incentives: $31.5 billion over ten years.
- Repeal of LIFO, repeal of deferral, and re-imposition of Superfund taxes, combined: $1.0 billion by 2012, $1.4 billion in 2019, $9.9 billion over the 10-year period.
    - Superfund tax reinstatement: $328 million in 2011, rising over time to $2.8 billion over the ten-year period.**
    - LIFO repeal: $357 million in 2012, rising with industry expansion to $493 million in 2019, and $3.7 billion over the 10-year period***
    - Tax deferral repeal: $268 million in 2011, rising with industry expansion to $520 million in 2019, and $3.5 billion over the 10-year period.

*Highlights are based on ACC Economics & Statistics analysis: *The Cost of the President's Proposed FY 2010 Budget on the Chemical Industry*

** Based on tax rates applied to the list of 42 taxable chemicals, at the level in effect from 1986 until 1995. Nothing would prevent a legislative proposal for a change in taxable chemicals or the rates applicable.

***These figures assume legislation allowing a ten-year period for level payments of the tax liability arising from reversing LIFO reserves. A legislative proposal might require a shorter period. The current rule for recapture is four years.

Summary

- **The Administration's proposed 2010 budget proposal**** conflicts with at least three of four of ACC's Tax advocacy priorities. It would:**
    - Re-impose the Superfund tax on certain chemical feedstocks;
    - Repeal the LIFO (Last In, First Out) tax accounting method
    - Repeal rules that allow deferral of U.S. tax on earnings from foreign operations
    - Require chemical industry purchase of CO_2 emissions from the government via 100% auction

- **The budget proposal would place considerable cost burdens and competitive disadvantages on American chemistry/U.S. manufacturing sector, including:**
    - Dramatically lower economic returns and (in aggregate) failure to meet capital or opportunity costs.
    - Disproportionate burden (80% of costs) on industrial chemical companies
        - ✓ Industrial companies had combined profits of only $10.3 billion during the past four quarters. The added costs (at $6.8 billion) would effectively overwhelm any profits by industrial chemical companies. In the first year, these costs would be equivalent to 66% of profits.
    - Higher U.S.-based production cost relative to that of foreign-based production = impaired international competitiveness for U.S. manufacturing.

- **The cap-and-trade proposal would be particularly burdensome at a time of depressed economic and manufacturing activity**
    - It includes direct costs of the purchased carbon allowance, indirect costs from higher energy costs from fuel switching, as well as (separately) oil and gas tax provisions
    - Energy-intensive industries such as chemistry that use hydrocarbons as both fuel and raw material (feedstock) will be especially hard hit by the added costs of carbon allowances to the price of fossil fuels

- Trade vulnerability and border "leakage" would increase
  - ✓ Leakage = Economic activity, jobs and greenhouse gas emissions associated with manufacturing production are transferred from a nation with climate controls to another without controls (or with less stringent controls). Emissions are moved, rather than reduced.

****A New Era of Responsibility – Renewing America's Promise*, published by the U.S. Office of Management and Budget

Cap and Trade

- **The Administration's proposal aims to reduce GHG emissions 14% below 2005 levels by 2020, and 83% below 2005 levels by 2050, implemented through 100% auction of emission permits**
  - The budget proposal estimates that the (quasi-tax) revenue raised by the sale of emissions permits would be $646 billion over ten years

- **The cap-and-trade proposal would impose enormous costs on the chemical industry:**

  Carbon permit values
  - The President's budget suggests carbon permit values of about $18 per ton, rising to $21 per ton by 2019, but a review of economic literature suggests this estimate is far too low.
  - Using more realistic assumptions, after an initial value of $20 per ton, by 2019 carbon value allowances could be priced at $43 per metric ton.

  Fuel switching
  - American chemistry is energy-intensive and relies on energy inputs such as oil and natural gas not only as fuel and power in its operations, but also as raw materials
  - The proposal would have the effect of changing the mix of energy sources, and would encourage fuel switching, especially by utilities, which lack low-emission substitutes for coal
  - Because of fuel switching (from coal to natural gas) by electric power generators, natural gas costs would increase (by 5-17%), along with the cost of electricity generated by natural gas (by 4-11%).

  Feedstock cost
  - The proposal would also increase energy feedstock cost, as about 65% of U.S. petrochemicals production is based on natural gas and natural gas derivatives.

Impaired competitiveness

- This proposal would disadvantage energy-intensive industries such as the chemical industry. Although the industry has significantly improved its energy efficiency (by more than half (53%) since 1974), energy still represents a significant share of U.S. chemical manufacturing costs.
- Domestic companies competing in global markets would be disadvantaged. There could be significant adverse effects on energy-intensive, import-sensitive industries, on domestic jobs, and on the nation's trade balance. Imports would increase, and some higher cost domestic operations would be forced to close.

Administrative burden

- The proposal would impose a large administrative burden to companies, as they need to account for greenhouse gas emissions. These administrative compliance costs are in addition to the costs of carbon allowances, which are not included in this analysis.

- **This proposal has significant potential for transfer (or "leakage") of economic activity, greenhouse gas emissions and jobs to other nations**
  - A 100% auction of emission credits with no revenue returned to energy-intensive manufacturers would result in leakage
  - Leakage = Manufacturing activity moves to areas of the world where there are no (or less stringent) emissions caps, energy costs are lower, and carbon intensity is higher.

- **Little of the revenue from the auctioning of permits would be used for abatement or technology development**
  - Only 19% of the proposed climate revenues are dedicated to climate change programs.
  - Only $15 billion annually would go toward clean energy technologies
  - Auction revenue would be used primarily for funding other purposes, such as $60 billion annually for middle-class tax cuts.

- **Chemistry helps save energy and reduce greenhouse gas emissions throughout the economy**
  - Chemistry goes into a variety of energy-efficient and renewable energy products, including building insulation, solar panels, wind turbines, lightweight vehicle parts, compact fluorescent light bulbs, lithium-ion batteries, low-rolling resistance tires, automotive and industrial lubricants, thermal coatings, and many more
  - A review of the life cycle analysis (LCA) on over 100 key chemical products indicates that these products save CO_2 emissions when used in end products. Chemistry use saves an average of three units of greenhouse gases for every unit emitted during chemistry production and disposal (lifecycle).

Superfund

- **The proposed budget would reinstate the Superfund taxes at their previous levels, beginning in 2011:**
  - Excise taxes of 9.7 cents per barrel on crude oil or refined oil products
  - Excise taxes of $0.22 to $4.87 per ton on certain chemicals
  - Corporate income tax of 0.12% on the amount of a corporation's modified alternative minimum taxable income that exceeds $2 million
  - Estimated revenue raised: $17.2 billion over 10 years.

- **The burden of a reinstated Superfund chemical excise tax would primarily fall on ethylene, propylene, benzene, chlorine, and xylene**
  - This is true even though the products subject to the tax are not necessarily associated with Superfund cleanups.
  - These chemicals were among those most adversely affected by the economic crisis and manufacturing downturn.
  - These segments face slumping demand from the recession, continued high costs for energy, intense foreign competition, and razor-thin margins. The reinstated taxes would essentially offset any economic return on sales to current producers, making those segments non-competitive in the global market.
  - Re-imposing the petroleum excise tax would create an additional burden because these petrochemicals are derived from liquid refinery gases and other hydrocarbons.
  - The corporate environmental tax (CET) would impose further cost burdens on the industry.

- **Since 1981, responsible parties in the business of chemistry have paid their share for clean-up of Superfund sites for which they were responsible.**
  - As responsible parties, chemistry companies have paid to study, cleanup, and reimburse federal and state government costs at sites for which they were responsible.
  - At multi-party sites, they paid the shares of responsible parties that were defunct, bankrupt, or released from liability by Congress.
  - As corporate taxpayers, they paid again.
  - Since the taxes expired, responsible parties have continued to pay for all costs of cleanup at their sites and to reimburse EPA for all its costs related to cleanup. In 2004, EPA collected a record $1.7 billion in cleanup funds from responsible parties.
  - Reinstatement of the Superfund excise and environmental taxes is not necessary in order to assure that responsible parties pay – they already do.

Repealing LIFO

- **LIFO (Last In, First Out) is a textbook method of accounting, in common use since the 1930s, and recognized by the Congress in 1939 through a specific provision of the tax code. LIFO is used by large and small companies in all sectors of the economy.**
  - It is used by businesses including manufacturers, wholesalers, retailers and others to help mitigate the impact of inflation on inventory value.
  - LIFO assumes that the goods most recently produced or acquired by a company are the first to be sold, in contrast to the other common method, which is FIFO (First In, First Out).

- **The major advantage to LIFO is that it matches current revenues with current costs.**
  - LIFO allows companies to avoid paying taxes on "phantom" profits that are actually attributable to inflationary increases in inventory values.

- **Problems caused by repealing LIFO would include higher taxes, decreases in working capital, inaccurate inventory valuation, cash flow problems, and reduced competitiveness.**
  - Repealing LIFO would be a massive tax increase on hundreds of thousands of large and small American businesses, and could force many smaller ones to close. Even larger companies might find it necessary to borrow large amounts in order to meet the tax liability.
  - Repealing LIFO would cause higher taxes going forward from phantom profits, and enormous tax liability from reversal of LIFO accounting reserves, which in some instances are equal to a significant percentage of shareholders' equity. Reversal of the reserve results in tax liability not covered by revenues.

- **Estimated revenue raised from repeal: $61.1 billion over ten years.**

Repeal of Foreign Earnings Tax Deferral

- **U.S. tax policy is built on the principle that taxpayers don't pay tax on investment earnings until distributed as dividends or interest.**
  - This has always applied to the taxation of foreign earnings of U.S. companies operating in foreign markets as well: earnings are not taxed until distributed.
  - U.S. companies pay U.S. taxes on foreign income only when it's brought back into the United States as a dividend.
  - Virtually all industrialized countries allow deferral in some form so as to meet foreign competition in global markets.

- **The Administration's proposed repeal of deferral would have a dramatic, negative effect on U.S. companies' net income and cash flow, on their international competitiveness, and on the U.S. economy.**
  - Repeal of deferral would provide foreign competitors a significant competitive advantage over U.S. companies. Without deferral, U.S. companies would owe current U.S. tax in addition to tax in the local foreign country. By contrast, the foreign company pays only the local foreign country tax.
  - The U.S. corporate tax rate of 35% is one of the highest in the industrialized world. Imposing it on overseas profits would put U.S.-based companies at a huge tax disadvantage compared with countries with lower taxes or deferral provisions of their own.
  - The budget estimates that repealing raising an estimated $210 billion in revenue over ten years.

- **Repeal of deferral would handicap U.S. companies in serving global markets.**
  - At the end of 2007, the value of American chemistry direct investment overseas was $118 billion, 4.2% of all direct investment overseas by American companies.
  - American chemistry accounts for 4.8% of income from these overseas direct investments.

- **The U.S. foreign tax credit, which reduces tax liability on foreign earnings with respect to foreign taxes paid, helps lessen the effect of deferral repeal**
  - However, because the foreign tax credit in its current form provides significantly less than complete offset of foreign taxes, double taxation exists under the present rules.

Oil and Gas Provisions

- **The Administration's budget proposal calls for the elimination of certain oil and gas company tax incentives designed to encourage oil and natural gas development.**
  - These include the oil recovery credit, marginal well tax credit, expensing of intangible drilling costs, deduction of tertiary injectants, passive loss exemption, manufacturing income deduction, enhanced oil recovery credits, and percentage depletion, as well as increases in the amortization period for independent producers.

- **The budget proposal's oil and gas provisions would be likely to result in higher costs for natural gas in the United States, for consumers and businesses alike – possibly over $105 million per year.**

- The proposal would have the effect of reducing domestic supplies of oil and natural gas, resulting in supply/demand imbalances (especially for natural gas) in the long term.
- Because chemistry companies purchases oil and natural gas fuels and feedstocks, the chemical industry would face an additional $22 million in indirect costs as the excise tax on crude oil or refined oil products is passed on to consumers of these products. Over ten years, this chemistry industry costs could total $163 million.
- Higher costs for energy inputs would hamper the global competitiveness of American chemistry and other energy-intensive U.S. manufacturers.
- The repeal of the deduction for tertiary injectants and the enhanced oil recovery credit would adversely affect the market for oilfield chemicals. It would also affect companies involved in this performance chemistry application.

Unrealistic Economic Assumptions

- The proposed budget uses unrealistically optimistic assumptions that the economy will decline by only 1.2% this year, before growing by 3.2% next year, 4.0% in 2011, 4.6% in 2012, and 4.2% in 2013.
- More realistic economic analyses (e.g. Blue Chip Economic Forecasts) estimate a 1.9% decline in 2009, only a 2.1% recovery in 2010, a 2.9% gain in 2011 and 2012, and a 2.8% gain in 2013.
- The proposal's assumptions also overstate tax revenues and understate non-discretionary spending, such that the budget deficits will be larger than anticipated and will lead to much larger debt levels and the crowding out of private sector financial and higher interest rates. This will lead to slower economic growth.

Based on analysis from Economics & Statistics
American Chemistry Council

5 March 2009

Costs to the Chemical Industry from the Proposed FY 2010 Budget
(millions of dollars)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	10-Year
Reinstating Superfund Taxes:										
Chemical Excise Taxes	254	256	258	260	261	263	265	266	268	2,097
Chemical's Share of CET	74	77	80	82	85	87	90	93	96	690
Total - Superfund Taxes	328	333	338	342	346	350	355	359	364	2,787
Repeal LIFO		357	432	462	473	479	481	484	493	3,661
Repeal Deferral	268	315	360	409	429	450	472	495	520	3,450
Cap and Trade:										
Carbon Allowances		5,656	7,093	7,826	8,435	9,041	9,664	10,224	10,789	68,727
Higher Costs from Fuel Switching		2,135	3,206	4,076	5,400	5,955	6,542	7,183	7,680	42,175
Total - Cap and Trade		7,332	10,298	11,902	13,835	14,995	16,206	17,407	18,468	110,444
Other	90	138	149	150	150	151	159	163	174	1,234
TOTAL COST TO THE INDUSTRY	**685**	**8,476**	**11,578**	**13,264**	**15,233**	**16,426**	**17,672**	**18,908**	**20,019**	**121,577**
Addenda:										
Value of Carbon Allowances ($/MT)		20	25	28	31	34	37	40	43	

The Washington Times

Obama climate plan could cost $2 trillion

By

4:45 a.m., Wednesday, March 18, 2009

UPDATED:

President Obama's climate plan could cost industry close to $2 trillion, nearly three times the White House's initial estimate of the so-called "cap-and-trade" legislation, according to Senate staffers who were briefed by the White House.

A top economic aide to Mr. Obama told a group of Senate staffers last month that the president's climate-change plan would surely raise more than the $646 billion over eight years the White House had estimated publicly, according to multiple a number of staffers who attended the briefing Feb. 26.

"We all looked at each other like, 'Wow, that's a big number,'" said a top Republican staffer who attended the meeting along with between 50 and 60 other Democratic and Republican congressional aides.

The plan seeks to reduce pollution by setting a limit on carbon emissions and allowing businesses and groups to bu allowances, although exact details have not been released.

At the meeting, Jason Furman, a top Obama staffer, estimated that the president's cap-and-trade program could cos up to three times as much as the administration's early estimate of $646 billion over eight years. A study of an earlier cap-and-trade bill co-sponsored by Mr. Obama when he was a senator estimated the cost could top $366 billion a year by 2015.

A White House official did not confirm the large estimate, saying only that Obama aides previously had noted that the $646 billion estimate was "conservative."

"Any revenues in excess of the estimate would be rebated to vulnerable consumers, communities and businesses," the official said.

The Obama administration has proposed using the majority of the money generated from a cap-and-trade plan to pay for its middle-class tax cuts, while using about $120 billion to invest in renewable-energy projects.

Mr. Obama and congressional Democratic leaders have made passing a climate-change bill a top priority. But Republican leaders and moderate to conservative Democrats have cautioned against levying increased fees on businesses while the economy is still faltering.

Story Continues →

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The Washington Times

Obama climate plan could cost $2 trillion

By

4:45 a.m., Wednesday, March 18, 2009

House Republican leaders blasted the costs in the new estimate.

"The last thing we need is a massive tax increase in a recession, but reportedly that's what the White House is offering: up to $1.9 trillion in tax hikes on every single American who drives a car, turns on a light switch or buys product made in the United States," said Michael Steel, a spokesman for House Minority Leader John A. Boehner. "And since this energy tax won't affect manufacturers in Mexico, India and China, it will do nothing but drive American jobs overseas."

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The Washington Post

Trade Barriers Could Threaten Global Economy

World Bank Finds Protectionist Trend

By Anthony Faiola
Washington Post Staff Writer
Wednesday, March 18, 2009

At least 17 of the 20 major nations that vowed at a November summit to avoid protectionist steps that could spark a global trade war have violated that promise, with countries from Russia to the United States to China enacting measures aimed at limiting the flow of imported goods, according to a World Bank report unveiled yesterday.

The report underscores a "worrying" trend toward protectionism as countries rush to shield their ailing domestic industries during the global economic crisis. It comes one day after Mexico vowed to slap new restrictions on 90 U.S. products. That action is being taken in retaliation against Washington for canceling a program that allowed Mexican truck drivers the right to transport goods across the United States, illustrating the tit-for-tat responses that experts fear could grow in coming months.

The report comes ahead of an April 2 summit in London in which the heads of state from those 20 industrialized and developing economies will seek to shape a coordinated response to the economic crisis. Their inability to keep their November promises is another indication of how difficult it will be to implement any agreement reached next month on a global scale.

Protectionist measures may also sharply worsen the collapse of global trade, which the World Bank said is facing its steepest decline in 80 years as global demand dries up.

"Leaders must not heed the siren-song of protectionist fixes, whether for trade, stimulus packages or bailouts," said World Bank Group President Robert B. Zoellick. Noting that protectionism is widely viewed as having deepened and prolonged the Great Depression, he added "economic isolationism can lead to a negative spiral of events such as those we saw in the 1930s, which made a bad situation much, much worse."

The Bank said that, since last November, a host of nations has imposed a total of 47 measures that restrict trade at the expense of other countries. The most obvious trade restrictions -- raising tariffs, or taxes on i mports -- represent only about a third of all

The Washington Post

Trade Barriers Could Threaten Global Economy

measures taken. Some countries are taking a direct approach. Ecuador, for instance, has raised tariffs on more than 600 items. But most are taking more creative steps that fall into the gray area of what is considered legal under international trade law.

Argentina, for example, has put new licensing requirements on auto parts, textiles, televisions, toys, shoes and leather goods that create a new layer of bureaucracy for overseas exporters. The European Union announced new export subsidies on butter, cheese and milk powder. China and India have increased the tax rebates for domestic exporters, seen by critics as providing a stealth subsidy that makes their products unfairly cheaper abroad.

Some measures, the report concludes, may distort global production for products like cars and trucks. National bailouts and subsidies proposed worldwide for the auto industry, the World Bank said, now total some $48 billion globally, with aid pouring out from governments including the United States, France, Canada, Germany, Britain, China, Argentina and Brazil. That could prevent the natural readjustment of the industry, which many experts say is greatly overcapacity, allowing automakers to continue to produce more cars than consumers need.

The report noted that current trade laws, however, make it tougher for nations to take the more sweeping measures that triggered the trade wars of the 1930s. The era of globalization has made countries more interdependent than ever before, with supply chains for a single car made in China or a plane made in the United States now often relying on components manufactured in many other nations. That has led to a new measure of caution when putting up trade barriers. Additionally, global treaties have made it more difficult to enact draconian barriers.

Yet that does not mean nations are not finding ways to engage in what critics call protectionist policies. Some are pointing to provisions in the $410 billion spending bill signed by President Obama last week, which ended a pilot program allowing Mexican truckers to transport goods throughout the United States. The program had long been a target of U.S. unions, which have decried the North American Free Trade Agreement as robbing Americans of jobs, and the move to end the program was seen by critics as part

The Washington Post

Trade Barriers Could Threaten Global Economy

of a trend in the U.S. Congress toward curbing years of open U.S. trade policy.

The fear, critics contend, is that actions like these could touch off countermeasures that could lead to broader trade wars. "I think the one thing that people forget is that at the end of the day, our failure to comply with NAFTA is going to result in the loss of more jobs here in America," said Sean Spicer, a official at the Office of the U.S. Trade Representative during the Bush administration. "There are consequences for this kind of action, and they tend to build upon each other and provoke more responses. Is that really the kind of path we want to go down?"

WILLIAMS & JENSEN, PLLC
Attorneys at Law

May 12, 2009

The Honorable Gene Green
2372 Rayburn House Office Building
Washington, DC 20515-4329

Dear Congressman Green:

I want to thank you for the interest you have shown on the issue of "leakage" of carbon and jobs that could be occasioned by unilateral climate change legislation. Below are answers to the written questions you have propounded to me. Please let me know if any further follow-up would be useful.

Question: (1) In your testimony you state that, "a true cost-negating anti-leakage provision would address all indirect as well as direct costs," and that the Inslee-Doyle approach "would not compensate for cost increases of feedstocks or inputs, nor would it compensate for the demand and demand-curve caused increases in natural gas." Like you, I believe that all higher costs contribute to loss of competitiveness and elevate the risk of carbon leakage:

a) Shouldn't a compensation program take these other indirect cost impacts into account?

Answer: The Energy-Intensive Manufacturers' Working Group, on whose behalf I testified, is working with Messrs. Inslee and Doyle, and others, to produce a final, compromise provision, and, once that process is finalized, we will support the product.

That said, I believe that as a general proposition an anti-leakage allowance grant program should, at least presumptively, aim to negate all unilateral costs imposed on the most energy-intensive and trade-exposed industries.

b) How do you propose the Inslee-Doyle proposal be structured to properly account for rising feedstock or natural gas demands.

Answer: The Working Group is working towards a compromise provision, and if compromise is achieved, we will support it even if it does not fully compensate manufacturers for feedstock and natural gas cost increases.

That said, a proposal could be structured to account for these costs. Because of the difficulty in measuring them, it would likely be necessary to assign the task of measuring the cost increases to administrative bodies. DOE would seem a likely choice for measuring the increase in the cost of natural gas. The legislation would

specify that these costs, as determined by the agencies, are to be rebated to the qualifying manufactures as part of the compensation process.

c) What percentage of allowances should be provided in order to cover these full indirect costs?

Answer: I think it is impossible to know in advance how many allowances would be required. The root problem is the uncertainty in predicting the price of natural gas, which will be driven by any number of factors but principally the extent of fuel switching by utilities and industrial users. Accordingly, we believe that the anti-leakage provisions should be a primary use of allowances under the bill and the number of allowances should vary with demonstrated need. Perhaps an amount of allowances could be conditionally set, which would be some number considerably in excess of that which we have estimated is required to fund the Inslee-Doyle provisions, as set out in my written testimony. Any shortfall would be made up by transferring allowances from other accounts (such as general auction accounts) and any excess would likewise be available for other uses.

Question: 2) As you know, hydrocarbon-based feedstocks, such as natural gas, are heavily used by the chemical industry to make products, and their usage produces little to no greenhouse gas emissions. Do you believe a cap and trade program should cover the non-emissive use of fossil energy, or should allowances be allotted to industries to cover non-emissive us of feedstocks?

Answer: In keeping with the testimony of our Working Group member Dow Chemical in the subcommittee hearing of April 23 (Statement for the Record, Dow Chemical Company, Submitted by Rich Wells, Vice President, Energy, Subcommittee on Energy and Environment, Committee on Energy and Commerce, April 23, 2009, at 5), I believe that a cap and trade program should not cover non-emissive uses, and that the ACES discussion draft should be changed to more clearly define non-emissive uses to refer to the extent to which the carbon content of the fossil energy remains in the substance created through the manufacturing process. It should require that EPA allow free "compensatory" allowances for the amount of carbon dioxide equivalents sequestered.

Sincerely,

John J. McMackin

Questions submitted to Paul Cicio of the Industrial Energy Consumers of America by: The Honorable Joe Barton and the Honorable Fred Upton

1. You testified that other nations provide energy subsidies and other support for their industrial base. Do you have any reason to believe those other countries will seek to increase the cost of energy on their industrial sectors?

Answer to 1: No. There is no reason to believe that developing countries will increase the cost of energy to their industrial sectors. Several countries like China and India have already made public statements that they will not impose a cap on GHG emissions for fear it will impact their economic growth. They will not impose costs on their manufacturing sector because it is their engine of economic growth, jobs and export revenues. Placing a cap on GHG emissions limits their output of manufacturing product which is not desirable.

a. **Do you have any reason to believe that those other nations will not seek to take strategic advantage of higher energy prices in the United States?**

Answer to a: There is no question that developing countries will use carbon as a competitive advantage. Their costs are already lower than ours to begin with, often because of energy subsidies and when our costs go up because of US imposed cap and trade the advantage will become even more pronounced.

Our policy of offsets is also a competitiveness problem. Allowing US companies to purchase international offsets means these investments could subsidize our competitors in developing countries. For example, the Clean Development Mechanism (CDM) has already funded projects in manufacturing sites in developing countries. This policy will also mean that offsets are creating jobs in developing countries versus here in the US. Where the capital is invested is where the jobs are created. International offsets are an incentive to developing countries to not commit to GHG reductions. If they commit to reductions, their offset revenue stream would stop. China taxes CDM projects which generates revenues for the government.

2. **How much negotiating leverage would we have with China, India, and other developing industrial economies if we unilaterally raise energy prices on our industrial production?**

Answer to 2: None. Unilaterally raising energy prices on US manufacturers is an incentive for developing countries to not take on commitments to reduce absolute GHG emissions. Higher US manufacturing costs thru higher energy and GHG compliance costs means that they can more easily compete with us, gain market share and increase their profits.

3. **You testified that each manufacturing production unit has a cost break-even point, above which the manufacture will not have any choice but to shut down. How do higher energy prices affect this break even point?**

Answer to 3: For many manufacturing companies, natural gas and electricity costs are one of its most significant variable costs and often determine whether a given manufacturing site can be competitive. For example, 1/10th of a cent per KWh has determined whether a steel company can afford to operate its plant and turn a profit. If a manufacturing facility's energy costs go up without its competitor's energy prices going up, they are at a distinct competitive disadvantage.

For example, a $50 per ton carbon price added to the price of natural gas would increase its price by $2.74 per MM Btu according to the EIA. From today's price of about $4.30 per MM Btu, that would represent about a 63 percent increase in cost. It is highly improbable that a manufacturer would be able to reduce other costs in order to be competitive, given these circumstances.

Higher energy costs also make it easier for energy intensive products that are produced in countries that subsidize energy or countries that have an abundant supply of natural gas to use it as a competitive advantage. Higher costs in the US make it easier for the likes of Russia and Middle East countries to take market share from US produced product.

a. **Do economic models accurately capture the cost break-even point? And, if not, do you think models of climate legislation impact accurately predict the economic hits on industrial jobs?**

Answer to a: No. To our knowledge, there are no economic models that can accurately determine cost break-even points for the manufacturing sector or the loss of jobs. Remember, manufacturers compete with other US manufacturers and international manufacturers. Even if the US government developed a model to determine break even points for US manufacturing, it would not be able to do so for our foreign competition.

The manufacturing sector has over 250,000 manufacturing sites that make a significant array of products that use diverse technology and the varying age of the equipment make it virtually impossible to forecast break even points.

It is even harder to model climate legislation break even impacts on manufacturing because the variables increase significantly.

Two examples:
1. Models are unable to predict the increased price of natural gas that will occur as a direct result of higher demand for natural gas by the electric utility industry since there are no new nuclear plants or coal fired power plants with CCS technology that will be available for the next 10 years. And, because the price of natural gas sets the marginal price for electricity, the model will also not be able to tell how much higher the price of electricity will go. Demand for natural gas, supply of natural gas and the marginal price of electricity are all dynamic and intrinsically linked.

2. Climate legislation will raise de-regulated electricity prices higher than regulated electricity prices. Plus, coal fired utility prices will be impacted more than nuclear. Given the examples above, each manufacturing site will be impacted differently based on its physical location and no model can predict the breakeven point and the loss of jobs.

b. Does the Energy Information Administration get the impacts on the manufacturing sector right?

Answer to b: No. Both the EIA and EPA models are unable to reliably forecast cost impacts on the manufacturing sectors.

4. Proponents of cap and trade like to cite the example of the Clean Air Act acid-rain trading program as a cost-effective example of what cap and trade would be like. Is this a reasonable test case for imposing a $CO_{2\,cap}$ and trade scheme on the entire United States? If not, why not?

Answer to 4: No it is not a reasonable test case. The acid rain trading was confined to only electric utilities which are small in number and do not have international competition. Utilities have the ability to pass higher costs onto their customers and manufacturers do not. Importantly, cost effective end of pipe SO2 removal technology was available as was low sulfur coal. Lastly, the technology existed such that SO2 emissions could be reduced without constraining the production of electricity.

GHGs are all together different and much more complex. There is no cost effective end of pipe technology. There are over 250,000 manufacturing sites and hundreds of thousands of commercial buildings. Manufacturers have international competition. Manufacturers, in general, cannot reduce absolute GHG emissions and grow. They can improve energy efficiency but not absolute emissions and increase their thru put. Imposing a carbon cap distorts energy supply and price for the entire country.

There are other policy options that can significantly achieve GHG reductions cost effectively without using cap and trade.

5. Would you elaborate on the potential problems with regulating carbon trading? Will regulators be able to prevent fraud and abuse?

Answer to 5: Unlike electric utility SO2 emissions that are monitored electronically at the smoke stack, CO2 must be calculated. Each reduction is an individual project. As such, each project is subject to error or subject to fraud. And, because we are talking about millions of projects, it is very difficult to monitor accuracy, especially if we include international offsets. Because there is billions of dollars at stake, the opportunity for fraud is high. Carbon reductions and offsets have potential credit default swap (CDS) characteristics. Once the carbon is sold and if the underlying project later fails, you have the same financial problem that caused the mortgage

crisis. In that case, the underlying asset was the mortgage market whose value declined. With millions of carbon reduction projects, who is going to monitor to ensure the carbon was reduced that someone had purchased?

The US government has been unable to prevent excessive speculation and market power in mature commodity markets like oil and natural gas. Carbon trading will be even more difficult because it does not have a product that is physically deliverable.

As an example, in 2007, the Amaranth hedge fund was found to have controlled almost 60 percent of the natural gas market before it imploded.

Secondly, from January to August 2008, the price of natural gas rose from about $7.00 mm Btu to $14.00 mm Btu. At the same time, US production rose by 7 percent, national inventories were comfortably within their five year average and demand was essentially unchanged when compared to the same time in the previous year. There was not a supply versus demand reason for the price to double, but it did. IECA has calculated the run up had cost consumers about $40 billion dollars.

Congress has still not acted to prevent excessive speculation.

a. What have we learned from past experience in Europe?

Answer to a: Cap and trade in Europe significantly drove up the prices of electricity. The higher energy costs have resulted in energy intensive businesses moving out of Europe to developing countries that are not likely to have a carbon cap. A significant number of jobs have been lost.

The EU ETS had also caused electric utilities to fuel switch from coal to natural gas, driving up the cost of natural gas.

b. How will volatility or abuse in carbon trading markets affect U.S. manufacturing?

(See number five above.) Volatility adds costs and financial risks on top of an already volatile energy commodities market. Market power abuse, which happens regularly in natural gas, increases the price.

Date: May 12, 22009

Submitted by:

Paul N. Cicio
President
Industrial Energy Consumers of America

Margo Thorning's responses to questions from Mr. Upton and Mr. Barton from the the March 18, 2009 hearing before the Subcommittee on Energy and Environment of the House Energy and Commerce Committee

1. Are there any parallels between the cost estimates for a carbon permit between the Clinton Administration and the Obama Administration?

a. How does the administration know it's an underestimate?

http://www.accf.org/media/dynamic/8/media_89.pdf

FLAWS IN THE CLINTON ADMINISTRATION CEA ANALYSIS

The Clinton Administration Council of Economic Advisers' July 1998 economic analysis of the impact of reducing carbon emissions to 7 percent below 1990 levels, mentioned earlier, is seriously flawed for three reasons.

First, CEA cost estimates assume full global trading in tradable emission permits (including trading with China and India). Most top climate policy experts conclude that this assumption is extremely unrealistic, because the Protocol does not require developing nations—who will be responsible for most of the growth in future carbon emissions—to reduce their emissions, and many have stated that they will not do so.

Second, the CEA's cost estimates assume that an international carbon emissions trading system can be developed and operating by 2008–2012. This assumption is unrealistic, according to analysis by Massachusetts Institute of Technology's Professor A. Denny Ellerman.

Third, the cost estimates are based on the Second Generation Model (SGM) developed by Battelle Memorial Institute. The SGM appears to assume costless, instantaneous adjustments in all markets; the model is not appropriate for analyzing the Protocol's near-term economic impacts, according to CRA's Dr. Montgomery. As Massachusetts Institute of Technology Professor Henry Jacoby observes, there are no short-term technical changes that would significantly lower U.S. carbon emissions.

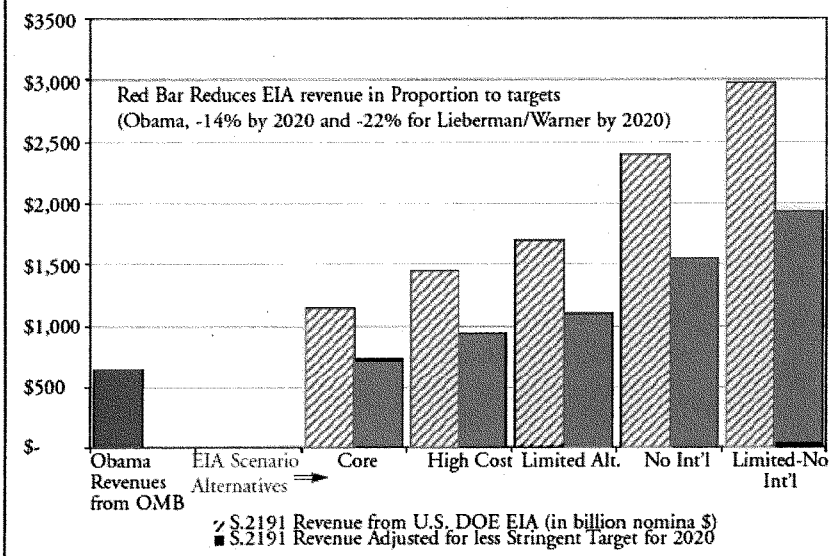
Finally, a former Clinton Administration official acknowledged that the CEA estimates understated the cost of the Kyoto Protocol by a factor of ten in a *USA Today* article (June 12, 2001). http://www.accf.org/media/dynamic/3/media_354.pdf

Similarly, based on DOE-EIA analysis, a comparison of the revenues that would have been generated under the Lieberman/Warner bill if all allowances were auctioned further supports the idea that the Obama Administration's revenue estimates are significantly understated. As shown in **Figure 4**, if all allowances

were auctioned under Lieberman/ Warner, total revenues to the government would have ranged from $1,200 billion to $3,000 billion over the 2012-2019 period. (See bars with hash marks.) Adjusting the Lieberman/Warner data for the fact that the Obama Administration target is less stringent in the early years than the L/W target shows that even under EIA's core case, which assumes carbon capture and storage (CCS) is available, rapid expansion of new nuclear generation capacity, large use of domestic and international offsets, etc. shows that government revenues would exceed those estimated by the Administration (red bars).

Using EIA's more realistic cases where costs are higher, CCS is not readily available and nuclear generation capacity does not expand rapidly, shows that government revenues from the carbon auction would be double or triple the $675 billion revenue estimate for 2012-2019 in the Administration's budget.

Figure 4: Obama Administration Climate Revenues (2012-2019) and EIA's Analysis of Lieberman/Warner (S.2191, assuming all allowances auctioned) ($ in billions)



2.How is the European Union doing in terms of meeting its Kyoto Target (8 percent below 1990 levels)? What about their new "20-20-20" by 2020 targets?

The EU 15 (the major industrial countries) has a Kyoto Protocol target of an 8 percent reduction below 1990 levels in GHGs by 2010-2012. The European

Environmental Agency's latest projections (October 2008) show that without strong new measures, EU 15 emissions will be almost 5 percent above 1990 levels in 2010, rather than 8 percent below as required by the Kyoto Protocol (see **Figure 7**). Given the challenges of meeting the Kyoto Protocol target, it seems unlikely that the EU will be able to meet its new 2020 GHG reduction goals of a 20 to 30 percent reduction in emissions and a 20 percent of energy use from renewables by 2020 (see http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/08/34 for details). EU member state politicians would face significant opposition to increases in energy prices and taxes sufficient to meet the stringent new emission and renewable targets.

1. 3.How likely are China and India to adopt strict GHG emission reduction targets if the U.S. imposes mandatory domestic reduction targets or a carbon tax?

Even if the U.S. were to adopt a cap and trade system or a carbon tax, it is unlikely that developing countries, where most of the future growth in emissions will occur, would decide to follow suit. China and India, for example have said repeatedly that they will not accept GHG emission reduction targets because increased energy use is essential for their economic growth. n fact, if the U.S. were to adopt emission caps or carbon taxes, higher energy prices will make U.S. industry less competitive vis-a-vis China, India and other developing countries. As a result, China and India, whose primary focus is economic growth, will see it in their interest to accelerate the development of industries that depend on a competitive advantage in energy prices. As this process proceeds, it will be harder and harder for China and India to reverse course and undertake policies (emission caps or taxes) which threaten these industries. Adopting GHG caps or taxes in the U.S. will, therefore, have the perverse effect of creating disincentives for developing countries to curb emissions. In addition, because developing countries use much more energy per dollar of output than does the U.S., global carbon emissions could increase due to "leakage" of U.S. industry and jobs.

4. How does the United State compare with China and India in terms of capital cost recovery? And other nations?

a. Why is this important for economic growth? Why is this important for reducing emission?

http://www.accf.org/media/dynamic/3/media_343.pdf

The efforts of U.S. industries to increase energy security and efficiency and to reduce growth in GHG emissions are hindered by the slow rate of capital cost recovery allowed under the U.S. federal tax code and by the high U.S. corporate tax rate. As a new Ernst & Young international comparison shows, the U.S. ranks last or nearly last among our trading partners in terms of how quickly a dollar of investment is recovered for many key energy investments. For example, a U.S. company gets only 29.5.cents back through depreciation allowances for each

dollar invested after 5 years for a combined heat and power project (see **Table 2**). In contrast, in China the investor gets 39.8 cents back, in Japan, 49.7 cents, in India, 55.6 cents and in Canada the investor gets 79.6 cents back after 5 years for every dollar invested. (See full report at: http://www.accf.org/pdf/Energy-Depreciation-Comparison.pdf.)

In addition to slow capital cost recovery allowances, U.S. industry faces the highest corporate income tax rates among our primary trading partners. Of the 12 countries in the E&Y survey, only Japan had a higher corporate tax rate than the U.S. Reforms to the U.S. tax code to speed up capital cost recovery allowances and reduce the corporate tax rate would reduce the cost of capital and could have a positive impact on energy sector investment, help "pull through" cleaner, less emitting new technology, increase energy efficiency and promote U.S. industrial competitiveness.

Technology is critically important because emissions per dollar of income are far larger in developing countries than in the United States or other industrial countries. This is both a challenge and an opportunity. It is a challenge because it is the high emissions intensity – and relatively slow or non-existent improvement in emissions intensity – that is behind the high rate of growth in developing country emissions.

Opportunities exist because the technology of energy use in developing countries embodies far higher emissions per dollar of output than does technology used in the United States; this is true of new investment in countries like China and India as well as their installed base **(See Figure 6.)** The technology embodied in the installed base of capital equipment in China produces emissions at about four times the rate of technology in use in the United States. China's emissions intensity is improving rapidly, but even so its new investment embodies technology with twice the emissions intensity of new investment in the United States. India is making almost no improvement in its emissions intensity, with the installed base and new investment having very similar emissions intensity. India's new investment also embodies technology with twice the emissions intensity of new investment in the United States.

CRAI calculations show that emission reductions can be achieved by closing the technology gap. The potential from bringing the emissions intensity of developing countries up to that currently associated with new investment in the United States is comparable to what could be achieved by the Kyoto Protocol. These are near-term opportunities from changing the nature of current investment and accelerating replacement of the existing capital stock. Moreover, if achieved through transfer of economic technologies it is likely that these emission reductions will be accompanied by overall economic benefits for the countries involved.

For example, making progress on implementing international programs such as the Asia Pacific Partnership, the Major Economies Meeting process, the Clean Technology Fund and the Global Nuclear Energy Partnership can create new investment opportunities, build local capacity and remove barriers to the introduction of a wide range of cleaner, more efficient technologies that promote both economic growth and a cleaner environment.

http://www.accf.org/media/dynamic/1/media_19.pdf

If the APP can encourage the kind of institutional changes in developing countries that help them acquire new and more energy-efficient equipment and production processes it would be a substantial help in reducing the growth of GHGs worldwide. If China and India had access even to current U.S. levels of technology for electricity generation, manufacturing, transportation and building heating and cooling, their carbon emission reductions would be four times larger than those of the EU-15 by 2012 (assuming the EU can meet its Kyoto target).

To Jennifer Berenholz:

From: Richard Morgenstern

Re: Response to Chairman Waxman's questions (The Honorable Gene Green)

Question #1: I have not performed the calculations for a $20 per ton CO2 price and thus I cannot offer a precise answer to your question. However, other modelers referred to in my co-authored RFF discussion paper referenced herein have used slightly higher assumptions than our $10 per ton number and their results are quite similar to ours. See: http://www.rff.org/rff/documents/rff-dp-08-37.pdf

Question #2a: As is evident from the phrase you cite in my testimony, I asserted that refiners would likely be able to pass along most of cost increases. I did not say all cost increases. According to our (2002) data, imports constitute 12.3 percent of total sales of refined product. This contrasts with considerably higher proportions in other industries such as steel (22.1 percent), fertilizer (26.7 percent), alumina refining (29.8 percent). All these data are for the year 2002 from US government sources and they are displayed in table 1 of the above referenced paper. It is true, however, that the import shares do vary somewhat by year. It is also true that there is considerable variation across the country in the import shares of refined products in individual markets. In some years and certainly in some local markets import shares are likely to be higher, reflecting a greater difficulty in passing along the higher costs. Thus, it is not inconsistent with my original statement to say there is uncertainty about the ability of refiners or others to pass along the higher costs associated with a domestic CO2 pricing policy

Question 2b): See my response to the previous question (2a).

Question 2c): I am not familiar with the price gouging proposals you reference but history suggests that energy industries have a good record in managing complex market situations. Especially if the requirements under any new climate policy are phased in gradually, there is no reason to expect the industry could not adapt to the changing business environment, as it has in the past.

If you have further questions, please do not hesitate to contact me.

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