



**TESTIMONY OF TIMOTHY H. PROFETA
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before the

**SUBCOMMITTEE ON PRIVATE SECTOR AND CONSUMER SOLUTIONS TO
GLOBAL WARMING AND WILDLIFE PROTECTION
of the**

U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

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Chairman Lieberman, Senator Warner, and members of the subcommittee, thank you for the opportunity to testify before the Subcommittee today. It is an honor to be here.

Two years ago, I left Washington to found the Nicholas Institute for Environmental Policy Solutions at Duke University. The Institute is intended to be a two-way bridge between the knowledge and convening power of Duke and decision-makers such as yourselves. The Institute has focused its resources on the key environmental challenges facing our planet, and no topic has demanded greater attention than global climate change.

In particular, the Institute has concentrated on addressing what we have perceived to be the “sticking points” that have prevented the passage of mandatory climate legislation. No issues have been more difficult than the two raised by today’s hearing:

(1) the first, which I will call cost containment, pertains to how we could provide economic relief if a program to reduce greenhouse gases resulted in unexpectedly high costs across the economy; and

(2) the second, which I will term “competitiveness protections,” is the question of how we can create a U.S. greenhouse gas control program that does not lead to a competitive disadvantage for U.S. firms as compared to firms in nations that have not limited greenhouse gas emissions.

The importance of these two concerns to the broader climate change issue is underscored by last Congress’ Sense of the Senate resolution on climate change, in which 53 Senators voted that the Congress should create a mandatory system to address climate change so long as it:

(1) will not significantly harm the United States economy; and

(2) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions.

Thus, the issues that you seek to address today are the same ones that the Senate set as preconditions to action on climate change legislation – true “sticking points” if ever there were ones.

To tackle these two challenging issues, the Institute went beyond traditional academic circles. We engaged congressional offices, corporate CEO’s and nonprofit leaders to appraise the issues, to guide our research in answering them, and to engage in the development of the answers. On the Institute’s end we engaged Duke law, economics, and science faculty. I am happy with our progress, and believe that this group collectively has designed policy solutions that can work to address these “sticking points” in the legislation that the subcommittee is developing.

So permit me to address these issues one at time, discussing first the challenges inherent in each, then the approach the Institute has taken to address them, and finally some proposals and concepts for tackling these concerns in final legislation.

I. Cost Containment

When you consider the challenge of addressing global warming, it is not surprising that there is great concern about the cost. Climate change is no ordinary environmental challenge. As opposed to other relatively localized environmental challenges, the problem of global warming is in many ways a direct result of our way of life. Fundamentally, processes that produce greenhouse gases exist in every corner of our economy. Most of our energy sources produce substantial amounts of greenhouse gases. Other major sectors of our economy, such as the forestry and agricultural sectors, control the ebb and flow of greenhouse gases in the atmosphere.

But, of course, no other environmental problem promises to be as costly to us as climate change if we allow it to go unabated. As the science has mounted, it is clear that the costs of our inaction will dwarf the costs of a greenhouse gas reduction program. So it is now inevitable that our government, likely under the leadership of this Committee, will act.

Thus, as the nation tackles this daunting issue, it must take care to ensure that it is done in a way that embraces the economic opportunities that change undoubtedly will beget, and minimize any economic harm. This sentiment was clear in the 2005 Sense of the Senate Resolution, which stated that the Congress must act to reduce greenhouse gas emissions, but impose that limit in such a way that “will not significantly harm the U.S. economy.”

The Institute’s view is that these goals are not necessarily in conflict and can be achieved with careful attention to them both. We must set the course toward reducing our nation’s greenhouse gas emissions, and we can use that leadership to encourage developing nations to do the same. We must also provide measures to avoid imposing excessive costs on our industries, companies, and consumers. And finally, we need to encourage investment in the solutions that will reduce costs and present opportunity over time. We need a plan that will do all three of those things.

Fortunately, several members of this Committee already have embraced a number of policies that will ensure that we achieve our greenhouse gas reductions as efficiently as possible. In the Lieberman/McCain bill, there are a number of cost containment provisions. Just the fact that the legislation embraces a cap-and-trade system may be the most significant cost containment provision in any final legislation.

If designed appropriately, a “cap and trade” system is the market-based policy design that helps control costs. Because companies must purchase emission permits, or “allowances” to account for the emissions they generate, the "per ton" cost of emitting carbon and other greenhouse gases above the limit is an expense that a company can work to eliminate. A company that develops ways to reduce emissions below the limit will generate emission credits it can sell for profit to companies with higher emissions.

Designing a cap-and-trade program that will limit costs and increase profits also will stimulate the development and deployment of technologies to either reduce emissions or capture and store them away from the atmosphere. As long as there appears to be a potential that greenhouse gas reductions will be valuable in the future, investors will seek to own the technologies that create those reductions. This will drive the innovation and deployment of advanced technologies necessary to meet our objectives of reducing or mitigating greenhouse gas emissions. Moreover, that driver could provide economic stimulus, and competitive advantage, for the most innovative sectors of the U.S. economy.

As a result, an efficient cap-and-trade system will naturally seek out the lowest- cost greenhouse gas reductions in the economy – and it will avoid the costs that would come from less efficient, source-by-source regulations. To achieve the greatest efficiencies, a cap and trade system should at least contain these key features:

First, the policy must provide the ability to bank and borrow emission allowances. Specifically, banking would allow any emitting firm that, at the end of a year, held more

allowances than it needed to cover its own emissions the choice of “banking” the allowances for future years. Borrowing is just the reverse, allowing emitting firms to “borrow” emission allowances from future years if they are short the allowances they need in the present year. If emitters have the freedom to bank or borrow allowances, the ability of entities to find the cheapest compliance option is increased. This is so because it allows emitters not only to seek the cheapest opportunities for reductions in the present year, but also across time.

Second, the approach should allow some ability to offset emissions from sectors of the economy that are not included in the cap, like agriculture and forestry. Some are concerned that too many offsets in the market will allow the major sources of greenhouse gas emissions to buy their way out of their compliance obligation and refrain from investing in transformational technologies or processes necessary to create the needed long-term reductions. Yet a sufficiently aggressive long-term emissions goal should dissuade any company from such a strategy. In the interim, some ability to access these offsets should provide a bridge to the next generation of technological innovation.

What is more, a strong long-term emissions goal – if it is handled with flexibility and phased in on a reasonable schedule – also will stimulate the development and deployment of technologies to either reduce emissions or capture and store them away from the atmosphere. As long as there appears to be a potential that greenhouse gas reductions will be valuable in the future, investors will seek to own the technologies that create those reductions. That driver could provide economic stimulus, and competitive advantage, for the most innovative sectors of the U.S. economy.

In sum, designing a cap-and-trade system with these features will go a long way toward helping the market naturally avoid excessive costs in the short term, and develop the solutions that will keep costs down in the long-term. In many policy-makers’ view, however, more robust measures are still needed to manage costs and promote investment in the long-term solutions. That is where the Institute’s work comes in.

Earlier this year, the Institute was engaged by four Senate offices – two Republican, two Democrat. All of these Senators had voted in favor of the 2005 Sense of the Senate Resolution to act on climate change, but none had ever voted in favor of a mandatory climate proposal. All four offices were focused on their desire to develop some new and innovative means of providing protection against any unforeseen high costs of a cap-and-trade system to the economy.

All four offices were familiar with the proposal to cap the price in the carbon market, using what is called a “safety valve.” A safety valve creates a parallel carbon tax regime, whereby an entity always has the ability to pay a set fee to the government rather than have to go to the market to buy allowances. While all the offices were sympathetic to the safety valve’s goal of controlling the overall costs to the economy, all were concerned about the safety valve’s potential to frustrate the program’s environmental goals, to quell investment in climate-friendly technologies, and to limit the ability to link the U.S. system to international markets. Thus, they sought an alternative means to address unanticipated costs.

With some assistance from the Institute, the four Senate offices developed principles to guide their deliberations. The offices determined that whatever proposal was created should meet five criteria:

1. It should maintain environmental integrity.
2. It should avoid unexpectedly high costs to the economy.
3. It should focus on sustained price departures rather than short-term volatility.
4. It should maximize the use of market-based mechanisms.
5. It should provide effective incentives for long-term investment.

Using these criteria, Institute staff met with these four offices regularly since January, providing necessary analyses and feedback as they developed their proposal. We are now ready to discuss that proposal.

Fundamentally, the proposal provides the market with cost-relief measures and an oversight board to employ them. The measures are focused on adjusting the market to relieve sustained – not short term – high prices that threaten economic harm. The oversight board, which would be called the Carbon Market Efficiency Board, would have the discretion to use these measures to influence the market price for greenhouse gases. It would operate in a manner similar to the Federal Reserve, charged with protecting the market from runaway prices while preserving the market’s stability and continuity for investors.

Specifically, the proposal would empower the Board with three authorities to administer relief when it finds that economic conditions require it to act:

- First, the Board would be given the authority to increase companies’ flexibility in determining when and how to meet their emissions reduction goals – by broadening their ability to borrow permits against future years. This lets individual firms make decisions based on the availability of technology that is expected to come on line and give the flexibility to make a transition to new technology with timing more in line with their own capital planning. For example, if a company is having trouble meeting a current year’s goal, but is investing in a low-carbon solution that will be ready in years hence, it might decide to borrow a little more against those years. This remedy would increase the company’s ability to do that, by increasing the amount of allowances it is permitted to borrow, lengthening the time into the future from which an allowance can be borrowed or altering the interest rate that applies to the payback of the allowances.
- The second lever at the Board’s disposal would be the ability to adjust the pace of national emissions reductions temporarily – while still achieving overall reductions over time – by increasing emission allowances available in the short term. Again, this remedy would be employed by borrowing against a future year or years, but at a nationwide level, guided by the Board, rather than at a firm level, and always keeping in mind overall reductions in the long term. Increases in allowances in the short term would result in

reduced allowances available in later years, thus preserving the long-term environmental goal while providing short-term economic relief.

- A third remedy was also considered, by which the ability of emitters to account for their emissions through real and verified offsets could be expanded, provided these offsets were somehow limited in the underlying legislation. But because not all offices wished to assume that such limits would exist in final legislation, we have not included the concept. However, if offsets are limited, it could provide a third lever for controlling costs.

Each of these measures would be taken incrementally, minimally, and temporarily by the Board to preserve market certainty and continuity.

Finally, we also considered the ability of Board oversight to reduce costs. The Board would be required to report quarterly on the status of the market – on investment trends, technology availability, and economic effects in different regions of the country. This type of information should greatly aid the market in seeking out the best efficiencies, calm the market from overreaction to short-term changes, and aid Congress in understanding the effect of the program.

After determining the means by which the Board would provide relief in the event of potential harm to the economy, the group discussed at length the means by which the Board could be made a neutral, trustworthy and knowledgeable overseer of the market, with a particular view to the precedent of the Federal Reserve. As a result, under the proposal, the Board's primary mission would be to uphold the ultimate environmental and investment goals of the legislation while having the ability to make market corrections as needed to protect the economy. It would not be empowered to change the goals of the underlying legislation, or engage in administering relief to individual firms or sectors.

To carry out these goals, the Board would be appointed by the President and serve full-time terms in which it would behave similarly to the Federal Reserve. It would observe and report regularly to Congress on the status of the market, and it would be empowered with these limited tools to help regulate the market when necessary.

Moreover, the proposal provides an initial period in which the Board could study the market to learn its trends, but still provide some means of relief. Thus, to avoid overreaction to normal short-term price spikes, and to preserve investment certainty, the proposal recommends using an estimated *price range* as a benchmark during the first two years, with the intention of applying the market remedies only when spot market prices are sustained on average above the range.

To establish the range, the proposal requires that Congress request an estimate of expected price ranges during the first two years of the market, estimated through trusted economic models and based on the terms of the underlying legislation. It was our view collectively that the range of numbers that the Congressional Budget Office (CBO) could provide would be the most appropriate on which to base the program, as those numbers would be based on the economic studies that were before Congress when it chose to pass a mandatory climate policy.

That, in sum, is the offices' economic protection proposal: (1) to create market-based measures for cost relief, and (2) to create an independent market overseer that will provide market information critical to keeping costs low and which is be empowered to mitigate unacceptably high costs in the economy without undercutting the program's environmental performance or motivation for investment in solutions.

I must state that I believe that there is elegance in the four offices' proposal. At bottom, it is the first proposal for cost containment that does not claim to know the unknowable. We cannot know right now what the proper price of a carbon allowance will be that will successfully balance the desire to make environmental and technological progress and not harm our economy.

In fact, the Institute convened a conference of some of the nation's best economic minds just last week (available at www.nicholas.duke.edu/econmodeling), and the inability to forecast the market over the long term was the number-one take-home message. While our models are the best available, our models simply cannot know what that price is, especially when dealing with long-term projections of technology.

So this plan cleanly addresses the need to make decisions under this unavoidable uncertainty. It provides the levers necessary to stop economic harm without requiring new Congressional action, and does so in a way that preserves and enhances the market, heightens its transparency, and maintains both its environmental integrity and the stimulus for long-term investments.

II. Competitiveness Protections

If we successfully implement a market-based cost relief program, we still must address the second paragraph of the Senate's resolution – the need to ensure that the climate program “encourage[s] comparable action by other nations that are major trading partners and key contributors to global emissions.” This is a challenge on which the Institute has focused independently from our work with the four Senate offices.

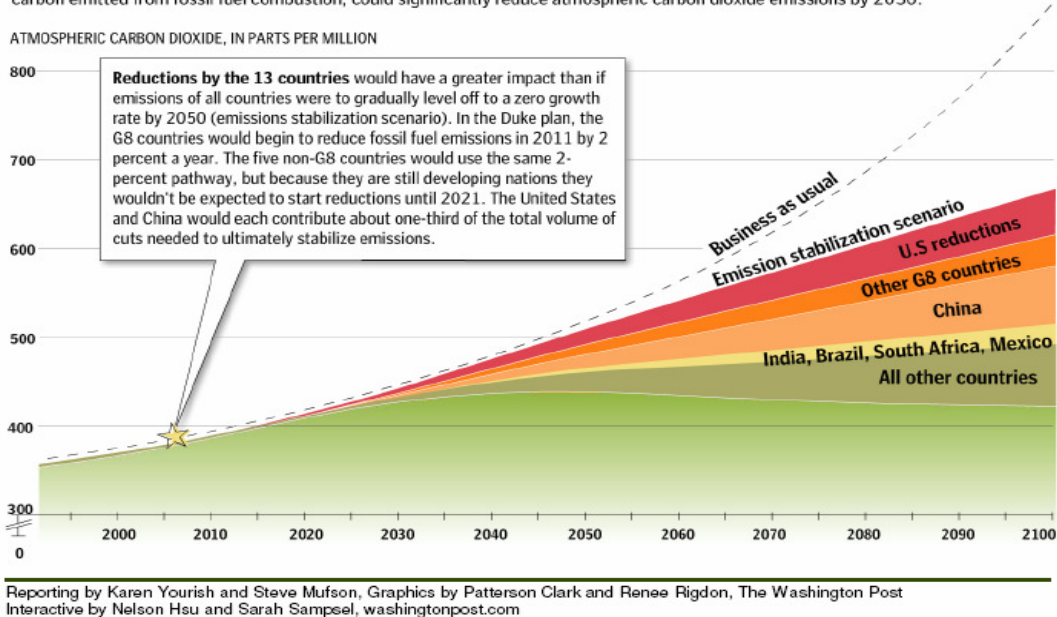
First, let me underline the importance of getting other nations and our trading partners to act, beyond the political. As the top emitter of greenhouse gases in the world, the United States is clearly a key part of the solution. And we very much need to lead the world in this area, both because we have done much to create the problem and because we have always led the world's technological advancement to address global problems.

But action by a number of other countries is almost as equally important, with action by China being particularly essential. At Duke, we have struggled with how much of the task of addressing greenhouse gases needs to fall on the shoulders of the United States, and how much on others. As the figure below indicates, all nations must play a major part for the world to get

on a path toward stabilizing greenhouse gases at safe levels. This figure represents one possible emission scenario for global emissions on a nation-by-nation basis.

One Way to Share the Burden

At their June summit, the Group of Eight industrial countries said they were committed to "strong and early action to tackle climate change." China, India, Brazil, South Africa and Mexico also participated in the summit. Duke University's Nicholas School of the Environment and Earth Sciences examined how emission reductions by these 13 countries, which account for about 70 percent of the carbon emitted from fossil fuel combustion, could significantly reduce atmospheric carbon dioxide emissions by 2050.



As the Committee knows, developing countries, including China and India, have argued that they should not be obligated to take on a cap until the United States and other industrialized countries – which have emitted most of the greenhouse gases that are currently in the atmosphere – take initial action. This situation creates a paralyzing chicken-or-egg dynamic for some policymakers, where fear over loss of competitiveness to China prevents them from supporting a domestic cap-and-trade. On the other hand, international negotiations prevent a truly global solution until the United States takes domestic action.

At the Institute, we realized that resolving this chicken-or-egg situation required special attention. About a year ago, we at the Institute engaged in high-level conversations with a number of major corporations to assess their “sticking points” on federal climate policy, and concerns about trade disparity came screaming out at us.

As we dove deeper into the companies concerns, and expanded our outreach to Senate and House offices, we realized there are in fact three factors involved in addressing concerns about international disparities:

1. Equal Treatment. At a minimum, we must develop policy that assures that any costs imposed on domestic emissions will be equally imposed on imports from countries that refuse to enact a similar cap.
2. Engagement. It is in the U.S.'s interest, and is legally required under World Trade Organization (WTO) rules, that we seek to engage our uncapped counterparts to encourage them to develop a similar domestic program before we impose any obligation on imports.
3. Opportunity. Opportunity has been the least considered and yet likely the most important in thinking about competitiveness. We know China and other developing nations will need lower-carbon technologies, particularly technologies used by the U.S.'s electric utility sector, and that they are behind us in development of those technologies and lack the capital to invest. When considering international competitiveness we should evaluate our policies to encourage the development of those technologies here, sooner, in order to facilitate their sale to developing nations. There is substantial opportunity for U.S. patents and U.S. profits generated by U.S. leadership.

The Institute began by paying particular attention to the first concern: what provisions could be made to re-level the international playing field should the U.S. create a domestic cap-and-trade program for greenhouse gases. Working with Professor Joost Pauwelyn of Duke Law School, we evaluated a range of such proposals with an eye to their compliance with the WTO. Our efforts focused on provisions under Article XX of the General Agreements on Tariffs and Trade (GATT), which allows trade measures “relating to the conservation of natural resources.”¹ In general, the legal analysis led to the conclusion that such a provision could be sustained if

¹ GATT Article XX(g).

(1) the United States first engaged in a good faith effort to achieve an agreement with any nation whose products were targeted; (2) it was applied even-handedly to domestic products and imports; and (3) it was adjusted based on local conditions in the other countries.

At the same time that Duke was undertaking this analysis, American Electric Power (AEP) and a number of unions, led by International Brotherhood of Electrical Workers (IBEW), were undertaking a similar analysis. Working with Andy Shoyer, who for years served as the United States' principal negotiator of the rules governing disputes under the WTO, and whose analysis of the AEP and IBEW proposal was submitted to the record by the Chairman, AEP and IBEW developed their own proposal under Article XX to address the same issues.

The Institute's assessment of the AEP/IBEW provision, which was incorporated into the Bingaman/Specter Low Carbon Economy Act that was introduced last week, is that it provides a good start for language to re-equalize the playing field of international trade once the United States creates its own cap-and-trade program. Under the proposal, the United States is required at the outset of the program to negotiate an agreement with all other nations to create programs comparable to our own to control greenhouse gas emissions. If it is not successful by 2020, however, the AEP/IBEW proposal would require importers to the United States to submit certificates to cover emissions released during production of the imported goods, adjusted to the emissions burden required of similar U.S. products under the domestic cap-and-trade system at the U.S. border. These certificates, called "international reserve allowances," would be set at a price equivalent to the price of domestic allowances, thereby ensuring equal treatment of domestic and foreign manufacturers of energy intensive goods under the WTO.

There are a few important points to make about this proposal, as it has been outlined in the Bingaman bill. First, the proposal does not affect the pool of allowances available to domestic companies. The first version of the proposal would have let importers meet their allowance obligations at the border by buying allowances out of our domestic market, which may have driven up the price of the allowances for our domestic companies. That promised to be politically unpopular, and Senators Bingaman and Specter appear to have modified it in the bill's current version.

Second, the proposal only covers the biggest emitting nations, and it only applies to a limited class of primary products. It does not apply to final manufactured goods, but it addresses the needs of particularly energy intensive – and thus, particularly sensitive – industries such as steel, cement and pulp.

Clear rules also would be set for calculating the annual required amount of certificates for each good from each country, based in part on emissions generated during production. The amount of certificates required would be adjusted in proportion to the amount of allowances distributed for free in the U.S. system and the level of economic development of the country of production. The Subcommittee might also want to consider other means of calculating the emissions burden, such as creating a default obligation to submit an amount of allowances equal to the U.S. average emissions rates but allowing individual firms to prove their own lesser rates, if possible.

Finally, our legal reading is that this approach respects WTO ground-rules in completing its mission to ensure fair trade. Such ground rules require:

- That the U.S. first exhausts any alternative that is less trade restrictive, such as direct negotiations. The U.S. would therefore vigorously pursue a good-faith effort to negotiate bilateral or multilateral climate agreements to include these nations, and the U.S. would only implement these procedures in 2020 only if those negotiations failed;
- That imported goods be treated similarly to domestic goods because both must hold emission allowances; and
- That America's remedy be directly related to the objective of curbing greenhouse gas emissions, for example, requiring that imports that are accompanied by emission allowances actually addresses the environmental objective.

Through this proposal it is possible to successfully tackle the first concern of international competitiveness: re-levelizing the playing field. In addition, this sets the table for addressing the second concern: requiring engagement. It will be important for the Committee to

consider how to further encourage engagement with developing nations, and how to pursue competitive advantage by encouraging the development of technology for sale to those nations.

III. Conclusion

In these two provisions – the market-based cost relief and oversight proposal and the international allowance reserve – the Subcommittee has the ability to address the fundamental concerns about climate legislation expressed in the 2005 Sense of the Senate resolution. The Board will provide the oversight and ability for self-regulation and market correction measures that has been lacking to date in climate proposals, and thereby would ensure that worst cost estimates would not come to pass. The international reserve requirement proposed by AEP and IBEW will provide a backstop against fears that the program will simply result in the leakage of our greenhouse gas emissions, and jobs, to facilities overseas.

There are other costs that the system must contain, of course. The Institute has worked closely with the exceptionally broad range of religious groups concerned about the poor's ability to address global warming and will be designing policy solutions that will ensure that the "least of us" are not left behind in a climate regime. This Committee heard from the religious community about their fears on July 7, and I commend their testimony to you. Concerns about the cost to particular industries and sectors are also well founded, and Chairman Lieberman has designed programs to recycle revenue from the cap-and-trade system into the technology programs and transition assistance needed to minimize those costs.

In conclusion, in calling this hearing, you have taken head on the greatest sticking points that have prevented climate legislation to date. At the Nicholas Institute, we have tried to provide at least the beginnings of a solution to each of these "sticking points," and to do so in a way that brings not only a strong analytical basis but the political support of members of the Senate and the corporate and labor worlds.

We offer our ideas in that spirit, working first to mitigate any chance for causing harm to the economy, and second to realize the competitive opportunity before us and approach the

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development of climate legislation with an eye toward this country's strengths. Thank you again for the opportunity to testify before you today. We hope that these ideas are helpful to the Subcommittee. I would be happy to answer any questions you may have.