EARTH'S FUTURE: TAMING THE CLIMATE
April 23, 2004

Eileen Claussen
Facilitating Change: A Practical Approach to a Low-Carbon Future

Introduction by John Mutter

John C. Mutter: Good morning and welcome to the second day of our conference "Earth's Future: Taming the Climate." Today we have an exciting line-up of speakers and panelists. Today, as you heard yesterday, but for anybody who was not here yesterday, we'll be honored with the presence of the governor of New York, George Pataki. George Pataki is a Columbian, but unlike those mentioned in the material you've been handed out, he is not a Columbian ahead of his time, in fact, he's gonna be late. Instead of coming at 1:00, which I think your program identifies, he will be here at 2:30, unless he's late. I don't expect he'll be ahead of his time.

So what we're hoping to do is run the program more or less as you've seen it, but with immediately after lunch there'll be a panel and then the governor will give a speech.

Like the rest of you, I sat in the audience yesterday and listened with fascination to the talks being given. And I did, since I am a Columbian myself, it says so on my badge, I read the material that the 250th people would hope I would read, and I was looking at the pictures on the bottom of the program we have that has five Columbians ahead of their time. And it occurred to me as I was reading the little quotes there that although all of these people lived well before climate issues came to the front, some of the quotes they have made are highly pertinent and echo into this debate. So, going from the right, Margaret Mead said, and I quote, "It's all one world. There are no islands any more." So although she may, or undoubtedly would have been talking about an anthropological notion, she could equally have been talking about the climate system, because we do live in one world. I had the opportunity to briefly chide Admiral Lautenbacher, who is the head of the National Oceans and Atmospheres Administration, by telling him that there are no national oceans, and there is no national atmosphere. There is only one atmosphere and there is only one global ocean. We were made significant emphasis of that several times yesterday by Mike McElroy, Wally Broecker, Mark Cane, and others. Therefore we really are all in it together.
Believe it or not, the atmosphere is so well mixed that if your nostrils were good enough, you could actually smell daffodils growing in the Netherlands today. Maybe Sharper Image will build a machine that lets you do that one day, but if your nose was good enough you could do that.

It's fairly amazing. I didn't know this until a few years ago. I'm a geophysicist, but I'm a solid-earth geophysicist. I deal with the mantle, and the deep mantle of the Earth is nothing like that; we think it's more like a marble cake, with great streaks of material of different composition held in place. The atmosphere is truly well mixed. That means that our atmosphere is everybody else's atmosphere; we don't own any piece of it. That's why we can trade, that's why the problem can't be ours, it has to be everybody's. And Franklin Roosevelt seemed to know that, and he said, "The test of our progress is not whether we add more to the abundance of those who have much; it is whether we provide enough for those who have too little." Now I think he was talking about people in the U.S., but he could just as well have been talking about global inequalities.

So just as you and I could smell the daffodils from Holland, a child, say, 6 months old living in a country like Chad, for instance, would've been born into a world where that child's mother had 1/250th chance of surviving pregnancy as a woman in this country, and that child of 6 months old has 1/40th of the chance to reach the age of 12 months. That child, if his nostrils were good enough, would be able to smell the exhaust of the SUVs driven around in this country. A teenage girl in Malawi carrying a head load of wood, undoubtedly illiterate, very likely orphaned by AIDS, required not to go to school in order to carry the only energy product she has, that is, the biomass from the products, back to her home. She, too, could smell the smoke from the power plants that generate energy in this country, that power our televisions and our electric toothbrushes. We heard from many people on what direction the science compass points in telling us about science and how it can help us inform decisions with respect to climate change. We heard about economics, but we also heard from Atiq Rahman which way the moral compass might point. Hopefully today, by the end of the day, we'll learn that science, economics, and moral compasses all point in the same direction. I dearly hope so.

I had to skip two of the people. I didn't know how to make relevance of Paul Robeson's comment, and I didn't know how to make relevance of Zora Hurston's either, but John Jay's I think is particularly relevant. Jay was governor of New York. He was also a chief justice of the U.S., and he said, "We must teach useful truths, however harsh." And I think today and yesterday we heard a lot about truths, and some of them were quite harsh. The notion of a useful truth is interesting.

I was given some very good advice once by somebody who works on the science staff in the Senate, who no longer does, in trying to explain how it is that scientists should engage with the public. Most scientists think that this is a difficult job. Most scientists think that it's very difficult to communicate the subtleties, the nuances, of
science to people who don't know it. And he said, "Look, it's not difficult at all, but there's something you must do." He said that knowledge as perceived by him falls into three categories. There are things that one can regard as facts: an asteroid is going to hit the Earth, it's simple, it's a fact. There are things that are immediately derivable from those facts, a fact: if an asteroid's going to hit the Earth, people in the way are going to die. So there are simple facts and things that are immediately derivable from them. But then there are things that one can say that are consistent with the facts but not required by the facts. So an asteroid is going to hit the Earth, some people will die, but perhaps there will be the equivalent of a nuclear winter and everyone will die. Well that's consistent with the facts but it's not required by them.

I think one of the things that we have a problem with is that almost everything we talk about is in this third area of knowledge, because nothing about the future can ever be a fact, it is always in the third area. But what we believe the future could be like, consistent with the facts, is very dark, particularly for those people in the poorer parts of the world. So if dire consequences can be derived from a plausible analysis of inferences from facts, then we must pay attention. What this person told me was that you don't need to dumb it down, you don't need to be clever, you just need to be clear. Tell people what are the facts, what derives from the facts, and what is not a fact but is a useful conjecture based on those facts.

There is probably nobody who has brought more clarity to the climate change debate than our speaker this morning. This is Eileen Claussen. She is president of the Pew Center on Global Climate Change and [also] Strategies for the Global Environment. She's former assistant secretary of state for Oceans and International Environmental and Scientific Affairs. Prior to joining the State Department, she served for three years as special assistant to the president and senior director for global environmental affairs at the National Security Council. She also served as chair of the United Nations Multilateral Montreal Protocol Fund. In your materials you'll find much-extended biography that gives many more of her achievements, accomplishments, but for us the most important thing she will do is provide clarity and insight into the consequences we must listen to with respect to the climate-change debate. Eileen Claussen.

**The Excuse of Scientific Uncertainty**

**Eileen Claussen:** Thank you very much. It's a great pleasure to be here to celebrate Columbia University's 250th anniversary, so let me begin by saying happy birthday to one of the world's finest institutions of higher learning.

Yesterday, as we all know, was Earth Day, or as the Bush administration referred to it, Thursday, April 22. The 34th anniversary of Earth Day, I believe, provides an important opportunity to acknowledge how far we've come since the 1970s. But while we have made progress we have obviously not made enough, and I commend you for commemorating Earth Day yesterday in such an appropriate and
public-spirited way by focusing your attention on an issue where we really have not made significant progress, global climate change.

During the first day of this symposium, you heard from a number of distinguished panelists about the state of our knowledge regarding the climate-change issue. You heard about trends in global temperature and what this means for the climate, you heard about ways we can possibly adapt to the predicted changes, and you heard some ideas about what can be done to slow down or stop climate change.

My job in this symposium is to try to explain why we are doing so little to prepare for the certainty of climate change, and because I'm genetically programmed to focus on solutions, I will also lay out some ideas for an overall approach that might help us to chart a productive path forward on this issue. But first a very brief refresher course on why we are here.

We are here because there is overwhelming scientific evidence on three basic points. One, the Earth is warming. Two, this warming trend is likely to worsen. And three, human activity is largely to blame. And so the question is, If we know these three things, why are we not acting on that knowledge? Why are we not doing more to limit those human activities that are driving force in climate change, namely our emissions of greenhouse gases, stemming primarily from the burning of fossil fuels?

The answer, very frankly, is because we have allowed ourselves to be swayed by a number of tired excuses, excuses put forward, for the most part, by people and interests who plainly want nothing to happen to address the problem of climate change. The reason more often than not is that they have an economic interest in the status quo.

The first excuse for inaction usually revolves around the issue of scientific uncertainty. Even though we may know that the climate is changing, the fact that we can not accurately predict exactly how much warming we will see or how quickly it will happen is used unfailingly as a reason for inaction. But I submit to you that uncertainty in the science is not a valid reason to hold off on addressing this problem, given what we do know. The fact that we are uncertain about exactly how climate change will proceed may actually be a reason to act sooner rather than later. So let me tell you why.

First, current atmospheric concentrations of greenhouse gases are the highest in more than 400,000 years. This is an unprecedented situation in human history, and there is real potential that the resulting damages will not be incremental or linear, but sudden and potentially catastrophic. Acting now is the only rational choice under those circumstances. A second reason to act now is that the risk of irreversible environmental impacts far outweighs the lesser risk of unnecessary investment in reducing or mitigating greenhouse-gas emissions. Third, it's going to take time to figure out how best to meet this challenge, both in terms of technology
and policy. We must begin by learning now. Fourth, the longer we wait, the more likely it is that the growth in greenhouse-gas emissions will continue and that we will be imposing unconscionable burdens and impossible tasks on future generations. Fifth, there is an obvious lag time between the development of policies and incentives that will spur action and the results, so even if we do not wait, we will be waiting. And last but not least, we can get started now with a range of actions and policies that have very low or even no costs to the economy.

The Excuse of High Cost

And this brings me to the second tired excuse that is used to argue for inaction in the face of climate change: the costs will be too high. This argument ignores the fact that if we do this right and if we start sooner rather than later, we can minimize those costs, and more important we can minimize the very real economic costs of doing nothing. Next week the Pew Center will be releasing a report that weighs the potential costs of climate change in relation to the potential benefits. Yes, in the short term there may be scattered economic benefits in sectors such as agriculture resulting from higher temperatures and more rainfall. However, research shows that these benefits begin to diminish and eventually reverse as temperatures continue to rise. In other words, the potential economic damage from climate change far outweighs any short-term economic gain.

What kind of economic damage are we talking about? In 2002 the United Nations Environment Program released a report done in collaboration with some of the world's largest banks, insurers, and investment companies. The report found that losses resulting from natural disasters appear to be doubling every ten years, and if this trend continues will amount to nearly 150 billion dollars over the coming decade. Over the last two years alone we have seen wildfires in the western United States and devastating flooding in central Europe and China. These are the kinds of events scientists predict will occur more frequently or with more intensity in response to climate change. Of course it's impossible to conclusively link any one of these disasters to the broader warming trend, but we may be getting an idea of what's to come, and we can not allow those who argue that addressing this problem will cost too much to ignore the potentially devastating costs of allowing climate change to proceed unchecked.

What's more, the costs of acting to address climate change can be kept at a manageable level if we use economic instruments wherever possible, if we act thoughtfully and in phases so that we allow for capital stock turnover in the development of new technologies, and if we provide certainty for the private sector to make wise investments and create new climate-friendly businesses.

Responding to climate change does not have to wreck economic havoc. A recent MIT study assessing the costs of the Lieberman McCain Climate Stewardship Act found that a modest national emissions trading system would cost less than twenty dollars per household per year. In addition a significant number of companies are
showing that they can meet ambitious targets for reducing their emissions, targets of 10 percent, 25 percent, even 65 percent below 1990 levels, at minimal or no cost. I repeat, at minimal or no cost. Some companies are even saving money. BP, for example, recently announced that it had achieved its target of a 10 percent reduction in emissions eight years ahead of schedule and at a savings of roughly 600 million dollars, due to more efficient energy use and streamlined production processes. So while I would not argue that addressing climate change over the next fifty years is free, I do believe that with care and pragmatism we can do what we need to do without breaking the bank. Cost should not be a reason not to act.

The Excuse of Disproportionate Burden

A third excuse that we have allowed to stifle action against climate change is that the United States should not be asked to bear the economic costs of reducing our emissions while other countries, notably China and India, get a free ride. In other words, why should we have to do all this hard work if other people do not? This argument is weak enough when you consider that we can consider our emissions in economically feasible ways. It’s weaker still when you recognize that the United States already is lagging behind the global technology race with implications for U.S. jobs. Our dallying over climate policy is ceding to Europe and Japan the lead in developing climate-friendly technologies. And it seems to me that we should worry less about China and India attracting the polluting technologies of the twentieth century and worry more that we won’t be selling them the technologies of the twenty-first century.

The fact that developed countries should act first to reduce their emissions is enshrined in the United Nations Framework Convention on Climate Change, to which the United States is a party, thanks to the signature of our first President Bush, George H. W. Why did the United States agree to this? Because developed countries are responsible for most of the greenhouse gases in the atmosphere and therefore should reduce their emissions first. And because developed countries are far wealthier than developing countries, we have the means to take action now. This is not to say of course the developing countries should have no responsibilities. Just as the United States and other developed nations will need to become more carbon-friendly as we turn over our capital stock, so must developing countries develop in more carbon-friendly ways. But to expect or even to wish that developing countries should face emission limits at the same time and on a similar scale as we do is folly.

We have now touched on three main excuses for doing nothing: science is uncertain, the costs of addressing the issue are too high, and developed nations should not be asked to bear this burden first. All of these excuses are used to delay action on this issue. In pushing for such a delay people often resort to a fourth excuse that underlies all of the others. We can solve this problem if and when we really have to, but until then leave us alone. This is what I call the silver bullet defense. Americans by nature are an optimistic people who have a deeply
held faith in their ability to apply their down home ingenuity to solve every problem that comes along. We live in a world of wrinkle-erasing Botox injections, iron-free shirts and cellular phones with cameras built in. We've got to be able to come up with an equally wondrous technology to solve this problem of global warming, just tell us when.

There are two problems with this argument. First, we don't have time. You can not launch an industrial revolution overnight, and that is exactly what we need, another industrial revolution. And second, climate change is too big a challenge for any one solution. It's going to take a wide ranging portfolio of technologies from energy-efficiency technologies and hydrogen to carbon sequestration, renewable fuels, coal-bed methane, biofuels, and biotechnology. Developing these technologies and getting them to market is going to take a lot of hard work. We cannot just snap our fingers and make it happen. What we need to do is replace our existing energy system. Businesses, however, continue to receive mixed signals from policy makers about whether or not we are serious about getting on with the challenge of moving to a low carbon economy. What's more, the federal government spends even less than the private sector on energy-related R&D, which is particularly disappointing when you consider the importance of energy to our economy, our security, and our environment. We must be clear about where we are headed, and we must begin to develop the full complement of technologies that will begin to deliver real reductions in greenhouse-gas emissions. And in the same way that we need a broad portfolio of technologies, we will need an array of policy solutions as well.

Among the most important of these is an economy-wide cap-and-trade system. This is a policy that sets targets for greenhouse-gas emissions and that allows companies the flexibility to trade emission credits in order to achieve their targets in the most economic manner. This is the approach used in our acid-rain program, and also taken in the Climate Stewardship Act introduced last years by senators Joseph Lieberman and John McCain. Their bill garnered the support of 43 U.S. senators, and prompted the first serious debate in Congress about exactly what we need to be doing to respond to the problem of climate change. A companion measure was introduced in the House of Representatives just last month by ten Democrats and ten Republicans. But a cap-and-trade policy alone is not enough. We also need an aggressive R&D program, government standards and codes, public infrastructure investments, public-private partnerships, and government procurement programs, and I'm sure that there are policies and approaches we haven't even thought of yet.

However, despite needing all these policies, we still seem to be waiting for an easy catchall answer that will get us out of this mess, just as we are waiting for a technology silver bullet to make the problem go away overnight. And waiting itself becomes yet another excuse for doing nothing. But in doing nothing we are making a choice, we are choosing to ignore what we know to be true about the reality of climate change. We are choosing to leave as our bequest to future generations a
world that will in all likelihood be very different from the world we live in today. We are choosing to saddle our children and our children's children with an array of problems that may well be beyond their ability to solve. This is not a case, in other words, where inaction can be explained in terms of benign neglect. We just didn't know. Atmospheric levels of carbon dioxide, the major greenhouse gas, have reached an all-time high according to a report last month from the National Oceanic and Atmospheric Administration. By putting off serious action, we are essentially making a conscious decision to make the problem worse. And for that there really is no excuse.

Smart and Inexpensive Steps to Reduce Emissions

Of course it doesn't have to be this way. There are indeed many smart and inexpensive steps we can take beginning right now to reduce our greenhouse-gas emissions and start developing the low-carbon energy technologies of the future. How do we start? Well let me give you a few ideas.

Number one, we can require companies to track and disclose their greenhouse-gas emissions. If it is true, and I think that it is, that what is measured is managed, then this is an essential step if we ever want to move forward with any kind of program for reducing emissions. Number two, we can use a standard-setting process to set practical but progressive goals to improve the efficiency of our vehicles and our appliances. Number three, we can make significant and strategic public investments in promising technologies, working with the private sector and providing them with the certainty to make investments as well. Number four, we can provide incentives for farmers and foresters to adopt practices that take carbon from the atmosphere and store it in soil, crops and trees. Number five, we can step up efforts to determine whether we can safely and permanently sequester carbon in geologic formations deep underground at a reasonable cost. Number six, we can build an economy-wide system that sets modest but mandatory targets for reducing emissions and uses market approaches, like emissions trading, to meet them at the lowest possible cost. And seven, we can build a global framework that will move all countries toward a low-carbon global economy at a pace that reflects each country's emission profile, what its opportunities are, and what costs is can bear. That's just a random assortment of things we can do right now, and none of these activities, not one, would pose any kind of serious threat to U.S. economic performance. Indeed by creating the conditions for a new industrial revolution that encourages the development and deployment of low-carbon technologies, we can create new opportunities, new jobs, and new wealth. The key as we move forward is to set a clear long-term goal of where we want to be on this issue and then to figure out the short- and medium-term steps that will get us there. At the Pew Center we call it the 10-50 Solution. By 10-50 we mean that we believe that this is a fifty-year issue, and we should be thinking ahead and envisioning what our society and our economy will need to look like if we are to significantly reduce our emissions, that's the 50 part. Then in order to make it manageable we break it down into ten-year increments and we identify the policies and strategies we can
start pursuing in the next ten years and the decades to come so we can achieve our long-term goal. That's the 10 part.

The 10-50 approach takes a long-term view because we know it will take time to achieve the result that we need, a low-carbon economy. At the same time the 10-50 approach enables us to identify the practical steps we can take in the short-term and in the decades to come so we can achieve steady progress. If we do this right, one step at a time with a long-term goal it'll be like Calvin from Calvin and Hobbs who said, "Know what's weird? Day by day nothing seems to change, but pretty soon everything's different."

In closing let me say again that I greatly appreciate the opportunity to be here today, and I ask all of you to join with me in saying that the time is passed for making excuses about why we should not or can not take serious action to address the problem of global climate change. With an approach based on sound science, straight talk, and a commitment to working together to protect the climate while sustaining economic growth, we can achieve real progress on this issue, and we must. Columbia University is 250 years old this year. Let's work together to ensure that 250 years from now there will be a symposium at this great university on what happened at the dawn of the twenty-first century to finally get a handle on this enormous problem.

Thank you very much.

**Question 1: Renewable Energies**

**John Mutter:** Thank you so much. We do have time for questions. The drill is that you go to one of the two mikes in the aisles. Please identify yourself and your affiliation, and ask a question meaning a sentence with a question mark at the end, rather than give your own speech, please.

**Man:** In the last two days we've heard a lot more about carbon sequestration than anything else. Obviously I think there's general agreement that that needs to be part of the mix given the huge coal reserves, but I don't know why there's all this attention paid to this when wind is already here. We heard from one speaker yesterday that it could provide more than 50 percent of our electricity. We haven't heard anything in the last two days about solar. Why is ... you make one of your seven points carbon sequestration, which is still on the drawing boards, and we heard you say nothing about wind and solar.

**Eileen Claussen:** I did actually talk about renewables, in which I put that. I mean I tried to make clear, and maybe it didn't come across, that I think we need a portfolio. I think it does include wind, I think it does include nuclear, I think it does include carbon sequestration if we want to keep using our coal reserves. It's only one piece of a lot of different things, so I don't know. I wasn't here to hear the
discussion yesterday, but I think it's an important piece for political reasons as much as it is for economic reasons.

**Question 2: Educating about Climate Change**

**Woman:** Good morning. Thank you very much for your incisive comments. My name is Jessica Green. I'm from United Nations University, and I wanted to make a brief comment and with a question, per the instructions. I think one of the other low-hanging fruits that needs to be examined is education at all levels, from the very beginning to postgraduate. Obviously here is a brain trust of people who know a lot about climate change, but there are many who don't. And so my question to you is, How can we as scientists and as researchers and also as educators incorporate these difficult and complex problems, as Dr. Mutter pointed out, into a more common curriculum for all people to understand the gravity of this problem?

**Eileen Claussen:** I don't think I have a really good answer for that, but there are a lot of educators in the room who probably know more about it than I. It seems to me that the greatest difficulty . . . there are two difficulties, I should say, with this issue. The first is that it's very complicated, and trying to boil it down into five points that are sort of takeaways is hard. The other thing that I think is difficult is that people view it as a long-term problem, which it is of course. It's also, however, a short-term problem, and if we don't start now I don't think we deal with it as a long-term problem. But I think the general perception is that it's way out there. It's part of what I was saying before, if you just think it's way out there, you just wait and then something will come up, and we'll do it, and that's not I think the right message. The right message: we have to get moving now and let's start with the things that we can do now. How to embed that in the minds of young people . . . as I said, I try but why don't we ask some of the professors here how to do it?

**Woman:** I invite anyone who has comments. Thank you.

**Questions 3 and 4: Corporate Reductions, and Nuclear Energy**

**Woman:** My name is Beth Browdy, and actually you and I spoke two years ago when I was doing an article, at which time you talked about your work with . . . I think you had thirty corporations signed on to reduce, voluntary reduction of emissions. I wonder how that project is going, what kinds of obstacles you've encountered to gaining more support for that program?

**Eileen Claussen:** What you're referring to is what we call our Business Environmental Leadership Council. It's now 38 companies. I think it'll be 41 in about two months, so there continues to be growth in the number of companies who believe this is a problem and would prefer to be part of the solution, rather than just part of the problem. That said, I think there are two sets of things for them to do, one of which is easy and one of which is very difficult. The part that is relatively easy is getting them to set an emission-reduction target and meet the
target. And we've actually got about 27 targets set. Some of them have already been met, as I mentioned some of them are quite ambitious and still have been met. So that part is actually not that hard because there appear to be lots of efficiency opportunities that people haven't taken advantage of and they can get moving. The more difficult part I think is getting companies to be advocates for public policy, which is critical because I don't see how you move the political process without sort of some voice from the private sector saying, you know, this is . . . it's okay, regulate us, you know, provide incentives for us, do things for us. And that is harder, although there are some who have sort of crossed that line, they're not very comfortable with it, and I think the politics of this year are particularly bad. The politics in general are so divided that it's very hard for these guys, no matter what they may think, to get out there or go up to the Senate and say we need this bill right now. So a work in progress is maybe the best way for me to put it.

**Woman:** Thank you.

**Man:** My name is John Cummings. I'm a Columbia graduate from farther back than I care to remember. I want to thank you for your comments and I think what you've said has been the most interesting so far. And I preface my question with the fact that nuclear energy has been proven to be a potential disaster for everyone. Why do learned people like yourself keep coming back to this as a solution, which is far worse than any problem we have now?

**Eileen Claussen:** I guess there are also learned people who disagree with you, and I don't know if I'm learned enough to have a real debate on it. I think it is possible to solve some of the problems with nuclear, just like I think it is possible to solve some of the problems with all the other technologies, and that to remove it from the range of possibilities is a mistake. I actually think we need to pursue everything we can, because we don't actually know what the right mix will be or should be. And so I don't want to pick all the winners. I just think we need to move ahead with everything, and I wouldn't exclude that, and I recommend that you look at a study that just came out of MIT, which I think is very good on nuclear and this problem, and it's quite balanced. There was a very diverse group of people working on it. I think maybe it's not quite as bad as you might think. It may not be quite as good as some others think. I don't want to exclude anything from the mix.

**Question 5: Individual Action**

**Woman:** My name is [inaudible] and continuing on the young lady's question about education for the future, I'm simply asking as a mother what message or how I can impress by 8 and 9 years old about this huge problem for them to understand?

**Eileen Claussen:** Again let me leave for a second the issue of how to describe the problem and maybe spend a minute on things that you can do or that they can understand and that they can do. Because one of the things that I think we forget in this debate is what individuals can do, what citizens can do, so let me offer a few
thoughts there. The first is the choices you make are actually very important—whether it's the car you decide to drive or what other form of transportation you use, or what washing machine you buy—because there's a huge difference in what is out there in the marketplace, and if everybody thought that they didn't make a difference we'd have a problem. You can make a difference, and so just by the way you live your life I think you can start to move things in the right direction. The other thing that people can do, and your children are too young but you may not be, is vote, make sure that this issue is on the political agenda, which it isn't really but could be if enough people wanted it to be. And then you can make a choice when you make a vote as to whether you want to move forward on this or whether you don't. So I think there is a real role for citizens, not only in the individual choices they make but in who they vote for, and for some people who they invest in. Why not invest in the companies that are making this a priority and doing things and not invest in the companies that have decided that they would like to postpone action as long as possible?

**Question 6: Considering Environmental Costs**

**Woman:** Hi, my name is Mikaela Bisutima, postdoc here at Lamont in climate research, and I'm as fond of the climate problem as any other person. But I do think that we have an ecological problem that is much bigger, and one thing that has been bothering me through the last couple of days is that we keep talking of cost in terms of GDP. And there are economists who have started doing that, who have started incorporating the environmental cost in the cost. And I would hope that everybody who is involved in this debate and who talks to the politicians, who talks to the media, the public, will start actually moving away from that box of thinking of cost just in terms of money moving around and incorporate in the losses of species, everything that is going along our means of production and our trades. And I wonder whether the Pew Institute has been thinking about it, whether you think it's a good idea, whether there are ways to do it, or if it's just such another huge piece of education that needs to be done before that it's not feasible to do it now.

**Eileen Claussen:** I actually think you have to deal with both. I mean I think it is important to look at sort of the market consequences, which is why we did this report. What it basically comes out and says is that even if you only consider the market consequences, the things you can easily quantify, it's pretty clear that climate change is negative and doing something about it is a net positive. If you add to that all the things that we don't really know how to quantify, like loss of species and a lot of other things, it's overwhelming. But I actually think you need to make the first point first as a political matter because people look at it that way, but then you can continue to make the other sets of points, which we don't know how to describe very well, which we can talk about but which we can't quantify. Maybe I'm not answering your question, but I think you actually have to do both. So we started off with the market stuff, although if you read the report you'll see that there's a lot of discussion about the non-market consequences as well.
Question 7: Economic Feasibility of Reduction

Man: I'm Brian Weiss. I'm a student at Columbia, and I just wanted to ask considering that it would take a 60-percent or so reduction in carbon-dioxide emissions to stabilize the climate, do you think that the costs are still manageable at this society, and do you think that current policies which call for modest reductions are a feasible step on the road to eventually stabilizing climate?

Eileen Claussen: Do I think it's economically feasible? Yes. But it's in part because I think you have to start with what you can do. You have to send a signal that you're really serious, and then you have to sort of move into the things that will over time become more expensive, although I also believe that if you time it right, they're not as expensive as it would be if you had to do it all at once. I mean one of the things that sort of frightens me the most is that we sit around and wait, and then all of a sudden it becomes really obvious that we have to do something here, and we do it all at once really fast, probably not very thoughtfully. And then the costs I think are huge. So I am for modest beginnings, sending a signal, getting people to internalize the fact that they've got to deal with this, and then moving in a very deliberate way down a path to get to whether it's 60 percent or 80 percent or whatever it turns out to be as the right number. But yes, I think it can be done if we do it thoughtfully. I can remember one senator when I said this is a hearing saying, "Do you think we can do it thoughtfully?" And I do, I do think we can.

Question 8: Low-Energy Consumption

Man: I'm Roger Ladell. I'm a Columbia business-school graduate, a Wall Street executive, and an environmental activist with a suggestion in terms of education and the low-hanging fruit. I would like to see Columbia and other educational institutions that have dormitories require the students to use compact fluorescent lightbulbs as a way of educating them every time they turn them on—in that one-fourth of the electricity consumed, peak load drops, air conditioning loads drop—it's so rare that we can find instances where you get paid to do the right thing, and compact fluorescents are the most obvious, the lowest-hanging of all fruits for us to start educating people.

Eileen Claussen: Actually there are some universities that have taken this on and set their own target, so that could be a challenge for Columbia too.

Question 9: The Voice of the United States

Woman: Thank you very much. My name is Alla Maylou Iyengar. At the outset I'd like to thank you about your comments on India and China. We do have a problem. Although there are developing countries supposedly, the wrongness of anything is wrong, whether you're developed or not. We have problem of a large population who really admire the United States so much they want to do everything that's
done here. So considering even if one-fourth of the population of a billion people, we waste one plastic bag a day. That'll be 250 million plastic bags a day. So how can we convince the rest of the world that America is a great place, but just do as we say, don't do as we do?

**Eileen Claussen:** You hit the problem right on the head.

**Woman:** There must be some way that the missionaries from this country should go everywhere, because we do listen to them, United States.

**Eileen Claussen:** I mean I have to say I think people listen less when we behave the way that we do. And that is why much as I want to see a global framework that includes everybody in a reasonable way, I think the voice of the United States is not heard on this issue because we have such a terrible record here at home. And that is why I think we have to start doing some things here at home so that any kind of a message that we have or any kind of a cooperative venture that we enter into is done knowing that we ourselves are doing what we need to do. So the policy of speaking abroad one way and not behaving consistent with that at home, which was sort of the Clinton administration policies, is not the right one. I'm not of course saying that this administration's policy is the right one. They don't talk about it anywhere or want to do anything about it anywhere, but I think the point is we have to do something serious here at the same time as we try to figure out how to get the rest of the world to do something serious.

**Woman:** Maybe we should get the MTV to help us out or something. Thank you very much.

**John Mutter:** This I think has to be the last question, but it looks like it is anyway.

**Question 10: American Consumerism**

**Man:** Hi, my name is Eric Hooks, and I was fortunate enough to attend here some years back. But to quote E. O. Wilson who appeared here several weeks ago, thank you for helping to polish the brief on behalf of life on this planet, and that I was wondering what you think about . . . you're clearly in the forefront of a very important advocacy here, but what about helping to find ways to attack the soft underbelly of American consumerism? I appreciate what you were suggesting about, you know, making it beneficial for companies to be associated with something as positive as this, but I don't know if there’s any kind of corporate or institutional money out there to start with a drum beat in the background about the existence of this as an issue itself. Thank you.

**Eileen Claussen:** I mean it's really hard. I can remember a conversation I had sort of in the very beginning of the founding of the Pew Center, which is six years ago, with a manufacturer of appliances who was manufacturing by far the most efficient appliances out there, and we were talking about washing machines where there
was a very good product, and the guy said to me, "Well, you know, we tried to do some advertising saying this would save water and it would save energy and it would be good for the environment, and consumers didn't go for it. As soon as we started saying this will give you the best wash you can get, people started to buy it and they took along all the ancillary benefits." But if that was the message people weren't quite ready to do it, and I wonder whether we don't need a different way of dealing with this that incorporates a lot of things into one and tries to push something rather than just sort of saying it's good for the environment, because I'm afraid we don't have enough people who will make those kinds of choices.

**John Mutter:** Let's thank our speaker once again.