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Discussant for the session:

"Should Primary Emphasis be Placed on Reducing Carbon-dioxide Emissions Alone?"

Thank you Secretary Udall. It's good to be here. Thank you for inviting me; I'm one of the members of that most powerful lobby that my colleague Dr. Pat Michaels [of the University of Virginia] referred to this morning. Nancy Maynard [of the Office of Science and Technology], I hope you'll tell the President how powerful we are. And, I hope he'll believe you.

Global warming is a serious problem. Let me begin by just talking briefly on that, especially in light of this morning's lack of focus on that issue. Professor Guruswamy has talked about the comprehensive approach, points that I would otherwise have made. So I will briefly touch on some points that he did not get to. I will end by talking about the energy efficiency which we recommend as the cheapest way and an extraordinarily effective way to curb global warming. Because it deals with fossil fuel reductions, we're primarily targeting CO_2.

I've never heard a scientist say "I am certain of anything," or "We are certain the sun will rise tomorrow morning." But what we cannot deny, as in the Intergovernmental Panel on Climate Change ("IPCC") report, referred to a number of times, that the basic conclusion of the IPCC summary advice to policy makers was "We are certain that the Earth will warm due to human activities." They then go on and say, "We're a little less certain by how much, but we think it's this much." We've talked about that. But that's a pretty devastating conclusion. We are altering the atmosphere; we've already changed the concentrations of carbon dioxide in the atmosphere—up 25% in the last hundred years. So, that's an unprecedented increase in an unprecedently short period of time. One of the uncertainties that was not referred to this morning was that, indeed, global warming may not be quite as bad as is projected by the IPCC and others. The other side of that uncertainty is that it is equally likely to be worse as it is to be not as bad. And one of the risks that we face is that we would have a catastrophic global warming. I have a 19-month-old child who, as we speak, is at the zoo. I do not want to leave her with a planet that we've screwed up by taking an irresponsible approach. By taking the steps that we can to reduce the likelihood of global warming (and let's not be mistaken that we are going to see some global warming), whatever we do see should not be catastrophic.

I think it's important to remember that this debate is really very similar to the ozone debate of a few years back. At that time there was lots of discussion

of how the ozone layer would thin and that maybe it would have problems and maybe it would not have important impacts, but basically you would see a sort of uniform thinning of the ozone and, therefore, results on Earth. None of the scientists, including those who were warning of the dire consequences of this, projected the surprise that happened. And that surprise was the ozone hole over Antarctica. That's a pretty devastating surprise.

There was a hearing in Congress about a year or so ago in the Senate Commerce Committee, in which a number of scientists came in and said, "Yes, frankly we expect that there will be surprises in the global warming scenario as well, and we don't know what those surprises will be." Obviously, otherwise they would not be surprises. But we cannot sit idly by and say, "Well, let's study it some more, let's debate how we can structure the reductions and whether we should target only CO_2, or target CO_2 and methane and some other gases that we don't know how to control. Let's talk about it at a stately pace and come back in a few years."

In June of this year, the President of the United States has an obligation to our children and to our grandchildren to make the commitments necessary to begin to tackle the problem of global warming. It is probably the most serious environmental problem we've ever faced. Sierra Club does not like to waste money; I can testify to that personally. We think this is the most serious problem humans have ever faced. And in a very short period of time, basically three years, we've begun a program to try to reduce the threat of catastrophic global warming. The atmosphere is changing faster than at any other time in history. Changes in concentrations of gases that naturally take thousands or tens of thousands of years we're seeing change in only 50 or 100 years. And it's not only the degree of change in the atmosphere that concerns us, it's the speed with which that change is happening. So, we're basically running a global experiment here. The experimental body is Earth. Though modelers get criticized a lot, I would like them to continue their efforts. I would much rather see the experiment run on a computer, where if we do not like the result, we can try to change it, instead of running it on Earth were we may be stuck with a result that we cannot deal with.

As to why the U.S. is not taking action, I would frankly dispute with Howard Gruenspecht [of the Department of Energy] about whether just more research is action. Absolutely, we need to do more research, but we need to do a lot more than just more research. Of the industrialized nations on Earth, 22 of the 24 are already committed to reducing carbon dioxide. The only other one in the company of the United States is Turkey. All of the European countries, along with Japan, Australia, New Zealand and others, have agreed either to stabilize their CO_2 emissions at current levels by the year 2000 or 2005, or in the case of a number of them, to cut those levels dramatically with net reductions. Germany has been cited before as the leader of the pack. I would disagree with what was said earlier by Mr. Stewart [of Harvard

University Law School]. Actually, they had made their commitment to reduce carbon dioxide by 25% a year or two before the merger with East Germany, at a time when it was not terribly foreseeable that that merger would happen. So, there are countries in the world that are taking this problem seriously. All of the industrialized countries, except for Turkey, are targeting carbon dioxide. The reason they are targeting carbon dioxide is that we know what to do about carbon dioxide. We know much less concerning what to do about the other gases.

What role has the U.S. been playing in this? The U.S. government, unfortunately, has taken advantage of the proposal of the comprehensive approach. Though this makes a lot of inherent intellectual sense, they've been using it to excuse inaction. For example, one of the reasons that the comprehensive approach was criticized by European governments and environmentalists alike is that it looked as if the U.S. were trying to use it as an excuse to double count cloroflourocarbons ["CFC"] as a greenhouse gas to try to get extra credit for reducing CFC emissions rather than to reduce CO_2 emissions. Indeed, the plan that the U.S. proposed a year or so ago proposed that we reduce CFCs as we were already planning to do because of the ozone hole, and that that would allow us to increase our CO_2 emissions by up to 15% over the next 10 or 15 years. Some of us thought this was fairly appalling. Eventually, the U.S. has talked less and less about CFCs. One of the administration's leading internal environmentalists, as Boyden Gray likes to call himself, recently commented that CFCs were basically out of the picture. But the comprehensive approach was being used by some in the administration to try to sell the same horse twice. They sold the CFC reduction as an ozone depletion solution and now they're trying to sell it by doing the same thing but for greenhouse reasons.

There has been a whole series of meetings at which the U.S. has played a less-than-helpful role. Let me summarize them by showing you the talking points from the White House conference on climate change from April 17, 1990. This is a copy of the document that was given to administration officials to guide their comments at this White House conference to which 17 or 20 countries were invited. Let me just read you a couple of them. This is advice on how members of the administration should answer questions from reporters and others at this conference: "[N]ot beneficial to discuss whether there is or is not warming or how much or how little warming. In the eyes of the public we will lose this debate. A better approach is to raise the many uncertainties that need to be better understood on this issue;" "Don't let reporters position this conference as an attempt to delay serious decisions on this issue, don't use specific numbers, i.e., degrees, dollars, rates, etc." This speaks volumes about the administration's approach. Lots of excuses; lots of talk about uncertainty; no real action. I'm sure that members of the administration present will autograph it for us later.

Let's take a look one-by-one at some of the key global warming gases to see why we draw the conclusion that you've really got to focus on carbon dioxide. First of all, CO_2 is the biggest part of the problem. It is 60% of the global warming problem, 70% or so if you exclude CFCs, as we probably should. And it's the one we know best how to reduce. Methane at about 20%, is the next largest part of the problem, but we really only know how to deal with a few of the sources. We know that we've got to tighten up gas pipe lines, and we can do that. We know we've got to stop or control the leaks from coal seams, and we can do most of that, too. And EPA is considering a regulation or about to issue one to reduce methane emissions from landfills. Those are the three we know what to do about. How do we even monitor rice paddy emissions in 100 plus countries on Earth? How do we monitor the emissions from cattle? There are more sheep in New Zealand than there are people. How do we deal with the emissions monitoring problem, much less control the problem? It is extremely difficult to even quantify those problems, much less try to control them. CFCs are really out of the picture: they're being phased out. I think that the Reagan administration deserves some credit on CFCs because Lee Thomas, former head of EPA, really was the leader on that. Had he not taken a tough stand and fought within the administration to phase out CFCs beginning with the 50% phase down, it would not have happened. But CFCs are clearly out of the picture now, and we should not consider CFCs at a comprehensive approach.

Tropospheric ozone is too small and too uncertain to really deal with. We're already undertaking a series of things to reduce the emissions of ozone for smog reasons. And N_2O is really very small. It's only about 4 or 5 percent of the problem and it's very hard to quantify the sources, much less control those. Sulfates are basically acid rain pollution and emissions from volcanoes. We cannot really control the volcano situation terribly well, and we would like to and are already underway in controlling the acid rain problem. That's really a red herring.

The good news is also the bad news. The goods news is that sulfates are diminishing the global warming problem. The bad news is that as we diminish our emissions of sulfates from human activity, mostly burning of fossil fuel, we're probably going to expose the increase of one degree celsius or so that is being hidden by the sulfate emissions now. And sulfates have, as we said at an earlier panel, a relatively short lifetime in the atmosphere. So, by a process of elimination, and I hope you'll pardon that pun, CO_2 is really where we need to focus. That does not mean we ignore methane. We do what we can do on methane, but it does not mean that we hide behind a comprehensive approach as an excuse not to take action. There are basically two aspects of that excuse. One is the possibility that theoretical or claimed reductions in some greenhouse gas emissions will be used to justify increases

in actual emissions in industrialized countries. So, for example, the U.S. says, "Don't worry about the fact that we're pumping out more carbon dioxide in our factories and utilities and our cars, because actually we've got this deal with Brazil, and they're going to reduce their emissions in the Amazon; and we've also got this other side deal with Peru, they're limiting the llama population and they're stopping the farming of llamas and the llama emissions are going to go down." We do not want to have a phony trade off. The other problem is that we do not want a delay and the excuse that we've got to work out a perfect system of how much of one gas is worth how much of another gas. How do we translate all these into CO_2 equivalents? Let's get an iron clad system, which everyone agrees we would need to have, before we take any action. And that's where the U.S. is. Let's have an iron clad system of whatever it is we agreed to before we agree to take any action on our own. That's obviously in contradistinction to what the rest of the industrialized world is doing.

Let me skip ahead, since time is short, and talk about what we recommend as environmentalists. Environmentalists do not ignore costs; we also try not to ignore problems. We can get massive reductions in carbon dioxide through energy efficiency, transportation, lighting, buildings, appliances, etc. Taking a page from the market approach, you've got to set a CO_2 standard before that market will appear. This is something that is often ignored by those who oppose so-called regulation and favor market approaches over regulation. Regulation is a kind of market approach. If we'll set a CO_2 standard and do so relatively soon, we'll also find another benefit; that is it's cheaper to take the reductions over a longer period of time at a stately pace than to wait for some crisis and have to rush reductions into the pipe line. For example, I mentioned the ozone hole and the CFC problem. An analogous situation might occur when we discover that there's been substantial bleaching of coral reefs or that there's a dramatic change in ocean currents as a result of global warming. These will result, I predict, in an urgent call for emergency action which will be more expensive than if we begin implementing strong energy efficiency steps now to slowly reduce our emissions. And then if in 10 years Pat Michaels turns out to be right, as I hope he is, and they say, "Hey, no problem. We scientists were wrong," great. We're only saving billions of dollars a year on energy and importing less of it from the Middle East. My guess is, Pat Michaels is wrong. It is a serious problem that is going to continue to nail the coffin shut. At that point, we will be substantially ahead of the game because we will have taken some of the steps that will allow us to decide how quickly to reduce CO_2.

The kinds of things we're talking about are energy efficiency steps such as CAFE [Corporate Average Fuel Economy] standards. The miles-per-gallon sticker on your car says how many miles to the gallon your car gets. That is the biggest single step to curbing global warming. If we improve the fuel

economy of our cars from the current 27 1/2 miles per gallon for new cars to about 45 miles per gallon, we would roughly halve the amount of carbon dioxide coming out of the tail pipe of cars. When you drive and burn one gallon of gas, you pump 19 pounds of carbon dioxide into the atmosphere. If you burn less gas, you pump less CO_2 into the atmosphere. It makes perfect sense. The average car on the road today gets 20 miles per gallon and emits 50 tons of carbon dioxide over its lifetime—50 tons of carbon dioxide. A 45 miles per gallon car emits less than half that much. So that's the most obvious and the biggest single step we can take. The President has threatened to veto this legislation, however. The auto companies have said, "No, no, no; we would lose money." Something tells me they do not know what's good for them. This is a good case where what's good for the environment is good for business.

A number of studies have recommended the range of reductions we could get from energy efficiencies. Let me just skip the one that I was going to talk about, which is the environmental approach. The National Academy of Sciences says, for example, you could improve the energy efficiency of residential lighting by 50% in the next 10 years by just substituting compact fluorescent light bulbs for incandescent bulbs. Water heater insulation can improve efficiency by 40 to 70 percent. We're talking about big chunks here, not just little incremental things like if you wear a sweater everything is going to be peachy but you'll be cold. We're not talking about that. We're talking about improved efficiency for our homes, our factories, our offices. And if we do not take those kinds of steps, it is ridiculous that we ask Malaysia to keep up their rain forests, or ask Pakistan to keep down their population, or ask Brazil to do both. If we do not take the tough steps that we need to take, they're going to say, "You guys aren't serious, so neither should we be."

In the coming weeks, President Bush is going to have to decide whether to continue the global warming policies that he's been pursuing for the last three years, which are basically to close your eyes and hope global warming goes away. The Sierra Club calls on the President to reject the administration's myopic approach and agree to lead the world in agreeing to a comprehensive global warming treaty that will include tough commitments to reduce CO_2 and other greenhouse gases.

Thank you very much.