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**UNITED STATES SENATE
Committee on Foreign Relations
Room SD-423, Dirksen Building**

November 16, 1992

TO: SENATOR GORE

Attached is your copy of the hearing transcript of
**SEPTEMBER 18, 1992, U.N. FRAMEWORK
CONVENTION ON CLIMATE CHANGE (TREATY DOC.
102-38).**

**Please make such minor factual and
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1 THE UNITED NATIONS FRAMEWORK CONVENTION
2 ON CLIMATE CHANGE
3 TREATY DOC. 102-38
4

5 Friday, September 18, 1992
6

7 U.S. Senate
8 Committee on Foreign Relations
9 Washington, D.C.
10

11 The committee met, pursuant to notice, at 10:17 a.m., in
12 Room SD-419, Dirksen Senate Office Building, Hon. Claiborne
13 Pell, chairman of the committee, presiding.

14 Present: Senator Pell, Sarbanes, Kerry, Moynihan, Robb,
15 Wofford, McConnell, and Jeffords.
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1 OPENING STATEMENT OF HON. CLAIBORNE PELL, U.S. SENATOR
2 FROM RHODE ISLAND

3 The Chairman: The Foreign Relations Committee will come
4 to order. We have before us consideration of the UN Framework
5 Convention on Climate Change.

6 The issue of the climate change policy presents
7 policymakers with a difficult choice. First, the time frames
8 involved in climate change are much longer than we are
9 accustomed to dealing with, ranging from decades to centuries.
10 The general tendency of political systems, as we see in so
11 many instances, is to favor the short-term fix over the course
12 of the long-term solution.

13 Secondly, it requires us to make decisions in the face of
14 scientific uncertainty. For this reason, there are those who
15 would counsel we take no action, that we wait until the
16 science of climate change is better understood, that we wait
17 until the magnitude and timing of change can be predicted with
18 certainty.

19 In this light, I believe the convention we have before us
20 today is an accomplishment, a significant one, but also only a
21 minimum first step. I regret that the administration opposed
22 the inclusion of stronger measures to reduce greenhouse gas
23 emissions. I do not believe the citizens of the United States
24 or the world were served by this opposition.

25 I look forward to hearing from our witnesses today. The

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1 first witness will be Senator Al Gore. I would add in this
2 regard that Senator Helms and Senator McConnell both asked
3 that Senator Gore be invited, and Senator Gore asked if he
4 could come himself. So it is one time when the views of the
5 majority and minority coincided.

6 And I would add that I had the pleasure of voting for
7 Senator Gore when he was running for President in 1988 and
8 look forward to repeating the exercise for Vice President in a
9 few weeks.

10 The Ranking Republican Member is not here. I think we
11 should get underway. Senator Gore.

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1 STATEMENT OF HON. ALBERT GORE, JR., U.S. SENATOR FROM
2 TENNESSEE

3 Senator Gore: Well thank you so much, Mr. Chairman and
4 Senator Kerry and members of the committee. I am honored to
5 be here and thank you for your generous personal comments.
6 And may I say before I begin my statement to the committee
7 that it was an honor for me to serve as chairman of the
8 Senate's delegation to this Earth Summit.

9 But it was just as much of an honor to be able to serve
10 with you, Mr. Chairman, because your experience as one of the
11 two delegates to the original conference on environment and
12 development 20 years earlier in 1972 in Stockholm was of
13 invaluable assistance to all of us on this bipartisan
14 delegation in placing the discussions in which we engaged in
15 the proper historical context. And we all appreciated your
16 leadership and advice and counsel throughout our deliberations
17 there.

18 The Chairman: Thank you.

19 Senator Gore: So may I also say, since Senator Kerry is
20 present, that he and I have had a particularly close
21 partnership on these issues and I have enjoyed working with
22 him over the years on it, along with Senator Tim Wirth and
23 others.

24 And may I also compliment and acknowledge the work of the
25 vice chairman of our delegation to the Earth Summit, your

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1 colleague, Senator John Chafee, who did an outstanding job.
2 The other members of the delegation were Senator Baucus,
3 Senator Graham, Senator Kerry who I mentioned, and Senator
4 Lautenberg, Senators Pressler, Symms, Wellstone, and Wirth,
5 whom I had also mentioned.

6 Mr. Chairman, let me give you the bottom line first and
7 then a brief discussion of why I make the recommendations that
8 I do.

9 I would urge that we take the following actions: Number
10 one, we should move quickly and ratify the treaty. Number
11 two, the United States made a commitment to produce a so-
12 called action agenda on climate change that is called for in
13 the treaty by January of 1993. We should initiate immediately
14 a process that is open to the public to produce that document.
15 There should be full opportunity for public comment on the
16 development of that plan, and all background documentation
17 should be made publicly available.

18 Number three, we should call for a meeting of the parties
19 to the convention in January of 1993 to review progress.
20 Number four, since our negotiators have likened the climate
21 treaty to the Vienna Convention, which this committee
22 remembers well, we should make good on that comparison by
23 moving now to develop a protocol to the convention that will
24 assure meaningful reductions in emissions. We should move
25 forward on this front at the December meeting of the

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1 intergovernmental negotiating committee of the convention.

2 And number five, we need to insure the continued work of
3 the IPCC at its next meeting in November. A subsidiary
4 science and technology body is set up under the convention.
5 It is imperative that that body merely serve as a liaison to,
6 and in no way displace, the IPCC. We need to have the
7 objective, unpoliticized advice of scientists on these issues,
8 and we can only insure that that will be the case if the
9 independent scientific work of the IPCC is continued.

10 Now, Mr. Chairman, the process leading to the conclusion
11 of the climate change treaty was initiated and driven by the
12 virtually unanimous opinion of the world scientific community
13 that by overloading the atmosphere with carbon dioxide and
14 other greenhouse gases, we are risking disruptions in the
15 climate balance more severe than any in the past 10,000 years.

16 Moreover, these disruptions could take place in
17 relatively short time periods over the next several decades.
18 More severe storm systems in some areas, intense bouts of
19 drought in others, rising sea levels and flooding of coastal
20 communities would be some of the consequences predicted by the
21 scientific community.

22 The imperative to most of the world community was clear.
23 We need to take action now. What became clear during the
24 course of the discussions, again to most of the world
25 community, was that taking action to combat climate change is

1 also an economic imperative. The fact is that cutting carbon
2 dioxide emissions can most readily and effectively be achieved
3 by improving efficiency in every sector of the economy. And
4 improving efficiency means reducing waste, enhancing
5 productivity and profits at the same time.

6 Apparently all of this, unfortunately, was lost on
7 President Bush. As we all are now all too well aware, the
8 Bush administration was, throughout these negotiations, the
9 single largest obstacle to progress. In the end our
10 intransigence meant that the final agreement is completely
11 devoid of any legally-binding commitments to action.

12 The real meaning of the Earth Summit itself was also lost
13 on President Bush. It was a true turning point in history.
14 Leaders of nearly every nation on earth gathered together for
15 the first time in a profound awareness of the true nature and
16 magnitude of the global environmental crisis we face.

17 Perhaps even more significantly, they realized that the
18 alleviation of human suffering around the globe is
19 inextricably intertwined with our efforts to relieve the
20 building pressure on the environment. They understood that to
21 combat the poverty, suffering, and pain that afflicts so many
22 in the world today we have to pursue economic growth that is
23 not harmful to the environment.

24 In addition, while clearly a milestone in terms of
25 international diplomatic relations, the Earth Summit was also

1 a powerful coming together of concerned citizens from all
2 parts of the world. There were parents concerned about the
3 quality of life their children will enjoy. There were also
4 children determined to clean up the damage that has been done
5 and move forward to a brighter future.

6 So many U.S. citizens were there too. They were proud of
7 the many positive steps we have taken in this country to clean
8 our air and water, and they wanted to share our insights and
9 experiences with other countries that are now just beginning
10 to come to grips with these problems.

11 But they were also well aware of the much larger
12 challenges we now face. And they knew, as the citizens and
13 leaders of other countries there knew, that leadership from
14 the United States of America is essential if we are to meet
15 this challenge.

16 They were disappointed. Together with the distinguished
17 chairman, Senator Pell, the other members of the delegation,
18 Senator Chafee, I travelled to Rio hoping to amplify the
19 voices of citizens throughout our nation who were there, that
20 the United States has accomplished a lot and we are ready to
21 lead the charge toward further progress. However, all of our
22 voices were drowned out by the firestorm of protest against
23 actions by the Bush administration in the first days of the
24 Rio meeting.

25 Administrator Reilly -- who will testify here shortly and

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1 who, incidentally, in the unanimous opinion of our bipartisan
2 delegation did an outstanding job in leading the executive
3 branch delegation to Rio -- knows all too well the outrage,
4 because he was the unfortunate target of a great deal of it.
5 And also he knows the sorrow of the world community which was
6 expressed in the wake of our disastrous performance there.

7 Mr. Reilly expressed this extremely eloquently in a
8 memorandum that he sent to his staff sharing his reflections
9 on the Earth Summit. We are familiar with this memorandum
10 now, and I would like to ask that it be introduced into the
11 committee record.

12 The Chairman: Without objection.

13 [The information referred to follows:]

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1 Senator Gore: In this memorandum Mr. Reilly likens his
2 experience as the leader of President Bush's delegation to the
3 Earth Summit to that of a bungee jumper who leaps off the
4 bridge waiting for the elastic cords to pull him back just
5 before a collision with the ground below. But he said
6 somebody cut his safety line and allowed him to crash there.

7 He also poses a question in that memorandum that we all
8 need to ask ourselves now, and I quote: Why did the United
9 States play such a low-key defensive game in preparing for
10 Rio? We assigned a low priority to the negotiations of the
11 biodiversity treaty, were slow to engage the climate issue,
12 were last to commit our President to attend Rio. We put our
13 delegation together late and we committed few resources. No
14 doubt this contributed to the negative feelings toward the
15 United States, end quote.

16 Well in response to these questions President Bush
17 presses on the American public a phony choice. He says that
18 we cannot take a lead on environmental issues if we want to
19 have a strong economy.

20 This just is not true. The truth is that we will not be
21 able to revitalize our economy unless we move aggressively
22 forward and away from the polluting ways of the past toward
23 cleaner and more efficient means of production that are the
24 way of the future.

25 Japan and Germany are sounding an economic wake-up call

1 for the United States. I have met with the leadership of the
2 Keidanren and the leadership of MITI, and the leadership of
3 companies in Europe. And they are all proclaiming that the
4 biggest new market in the history of world business is the
5 market for the new products and technologies that foster
6 progress without environmental destruction.

7 Let me quote from a recent interview in Business Week
8 Magazine with a managing director of a large, multi-national
9 Japanese corporation, Sukasa Sakai. He says, and I quote: In
10 the future access to international markets will depend on who
11 has the most environmentally sound technologies. If U.S.
12 companies don't move aggressively, we will see the same
13 conflict in environmental technology that we see today between
14 General Motors and Honda.

15 Another recent article in Science Magazine describes
16 Japan's strategy for tackling global warming. Their answer to
17 the threat is aggressively to export its energy-efficient
18 technology. To accomplish this, they have set up a new
19 center, the International Center for Environmental Technology
20 Transfer. And they plan to bring 10,000 people to the center
21 over the next 10 years to train them in the use of Japanese
22 technology.

23 Mr. Chairman, there is a precedent for the business
24 challenge facing the United States of America as a result of
25 the issues we grappled with at the Earth Summit. In the late

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1 1960's and early 1970's, Japanese products still had a
2 worldwide reputation for being the shoddiest and most poorly
3 constructed in the world.

4 At the same time many American business leaders were
5 convinced that the level of quality achieved in the advanced
6 industrial economies was pretty well established by market
7 forces, and that any effort to improve levels of quality
8 further could be done only at the expense of the bottom line.
9 Productivity, jobs, and profits would surely be lost if
10 quality levels were significantly improved.

11 Partly because of that false assumption, many American
12 business leaders were deaf to the advice of experts like Dr.
13 W. Edwards Deming, the legendary specialist on quality who,
14 not finding an audience in the United States, took his
15 insights to Japan. By redesigning the production process from
16 the first steps to the end and introducing new levels of
17 quality in each step along the way, Japanese industry was able
18 to prove that we could simultaneously attain higher levels of
19 quality and productivity at the same time.

20 Well we were slow to recognize the magnitude of this
21 discovery. And partly as a result, Japanese business leaders
22 began an onslaught on several key industries in which they
23 now, not we, dominate the world market.

24 Now in many ways the challenge we currently confront is
25 identical. Because once again, some are arguing that market

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1 forces have efficiently established the level of environmental
2 efficiency that makes sense. And any effort to reduce
3 emissions, to reduce the level of pollution, will necessarily
4 be able to come only at the expense of the bottom line. And
5 that jobs, productivity, and profits will certainly be lost if
6 we improve environmental efficiency.

7 Well, once again Japan, this time joined by Europe, is
8 moving aggressively to challenge that conventional wisdom.
9 And by redesigning their processes from the bottom up and
10 introducing new levels of environmental efficiency at every
11 step along the way, they are once again showing that we can
12 have improvements in environmental efficiency and profits
13 simultaneously.

14 Luckily, some American companies are also leading the way
15 toward this new realization. But one reason why the largest
16 Japanese business organization, the Keidanren, is calling for
17 tougher environmental standards than those embodied in U.S.
18 law is that they have discovered that the market for
19 environmentally-efficient products is growing far more rapidly
20 than our leaders in the Bush White House now realize.

21 They are also discovering that it is good business sense
22 to try to drive that creative process. Because when you
23 eliminate waste in the form of pollution, you also eliminate
24 economic waste.

25 Let me give you one brief example. In my home State

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1 Northern Telecom has its largest concentration of employees.
2 This corporation, without having any idea of how they were
3 going to do it, made a firm commitment to be the first in
4 their industry to eliminate chlorofluorocarbons, those
5 chemicals which, as this committee well knows, are the prime
6 culprits in the destruction of the stratospheric ozone layer.

7 Well, they set about this task and beat the deadline by 9
8 years. They asked different questions than they would have
9 otherwise asked. What do we need these offending chemicals
10 for? Well, to clean the circuit boards. How do the circuit
11 boards get dirty in the first place, they asked as a follow up
12 question? Is there a way to prevent them from ever getting
13 dirty in the first place?

14 By seeking a creative answer to that question, they not
15 only eliminated the offending chemicals, they also came up
16 with a brand new process that is cheaper and produces
17 significantly higher quality products. As a result, they are
18 employing more, not fewer, people. They are leading the
19 industry, and their competitors are now trying to figure out
20 how in the world they did it.

21 There are so many similar success stories across of the
22 breadth of industry that the Japanese and Germans are now
23 selecting this as a strategy for creating jobs. If we, by
24 contrast, take the advice of the Bush-Quayle administration,
25 drag our feet and try to hold on desperately to the old

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1 inefficient polluting ways of the past, we might once again
2 find ourselves outflanked by competitors who have seized upon
3 the opportunities inherent in new circumstances.

4 A recent study by the Department of Energy entitled U.S.
5 Competitiveness in the Environmental Technology Industry
6 reports, for example, that, and I quote: The numbers
7 demonstrate a consistent decline in the preeminence of U.S.
8 anti-pollution products. And the report, from the Bush
9 administration, goes on to warn that because the Japanese
10 appear to have realized first that the environmental market
11 will offer a profit, they will continue to chip away at U.S.
12 dominated markets.

13 The market for environmentally-sound products and
14 processes is now at \$200 billion annually and growing rapidly.
15 We simply cannot afford to have these opportunities pass us
16 by. Specifically with regard to climate change, we know that
17 cutting carbon dioxide emissions by improving efficiency will
18 enhance, not hamper, our competitiveness.

19 Japan uses roughly half the energy that we do for the
20 same domestic output. If the U.S. were just as energy
21 efficient as Japan, we would save over \$200 billion per year,
22 money that could be used to save jobs and reinvest in America.
23 Again, the administration's only analyses demonstrate this.

24 The document entitled U.S. Views on Climate Change that
25 the administration released at the final negotiating session

1 demonstrated that cost-effective energy-efficiency investments
2 abound in the U.S. economy, and that carbon dioxide emissions
3 could be stabilized through purely voluntary measures and at a
4 profit.

5 Indeed, I understand that some very recent analyses of
6 these initiatives show that they will add some \$30 to \$40
7 billion to our gross national product and create thousands of
8 new jobs. These results will come from steps that the Bush
9 administration has opposed.

10 Before I conclude, Mr. Chairman, let me add that the
11 National Academy of Sciences, the Office of Technology
12 Assessment, and other private analyses all point to the same
13 conclusion; job creation, increased efficiency, and enhanced
14 productivity and competitiveness depend on our taking action
15 to confront the threat of climate change by reducing carbon
16 dioxide emissions.

17 Instead of relying on these studies, the President has
18 relied on analyses that have been widely criticized and
19 discredited. The Department of Energy, for example, has
20 published a study showing high costs of stabilization. But
21 they put out that study even though the preliminary version of
22 it had been sharply criticized by the National Academy of
23 Sciences.

24 In addition, I learned in a hearing which I chaired on
25 the study that it is based on the assumption that our economy

1 currently operates with perfect efficiency, and that any
2 change is necessarily a net cost. This harkens back to the
3 point that I made earlier. If you assume that everything is
4 perfect then, yes, you are going to incur a cost when you
5 change. But if you assume that we can do better, then you
6 find it more easy to see the opportunities for increased
7 profits and more jobs as we improve.

8 I noticed that the Global Climate Coalition in their
9 testimony later today cites a study showing high costs for
10 stabilizing carbon dioxide emissions also. What they do not
11 tell you, however, about the study is that the Commerce
12 Department, which commissioned the study, rigged it, rigged
13 its conclusions to ensure a negative conclusion.

14 The consultants who did the study, DRI, noted the
15 constraints they were operating under in the fine print and
16 said that if they were not ordered to adopt the assumptions
17 that they felt were unwise, they could have produced a much
18 more honest and, incidentally, positive report.

19 So, Mr. Chairman, for those who arrived after I began,
20 let me just say that I came to my conclusion first and
21 recommended that the Senate move quickly to ratify this
22 treaty. But that we also urge a commitment by the
23 administration to produce an action agenda on climate change
24 that is called for in the treaty by January 1993. I also
25 listed a series of three other recommendations, but in the

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1 interests of time I will not repeat them.

2 Mr. Chairman, in conclusion I would like to formally
3 present to the committee the report by our bipartisan
4 delegation on the United Nations Conference on Environment and
5 Development and ask your consent that it be included with the
6 materials that the committee considers.

7 The Chairman: Without objection.

8 [The information referred to follows:]

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1 The Chairman: And we thank you very much for being with
2 us. In view of the interest shown by the attendance here and
3 the fact that we have got six witnesses this morning, I think
4 we ought to limit ourselves to the 10 minute rule. And those
5 of us who do not need the 10 minutes would do well in not
6 using it.

7 But in any case I had one question and that is in
8 connection with the point you were just making about
9 environmental competition. Do you think that there is any
10 conflict between employment opportunities and the environment?
11 In other words, would that money be better spent in other
12 fields, or do you feel that it is job productive by being
13 invested in the environmental field?

14 Senator Gore: I believe the United States of America can
15 create millions of new jobs by leading the environmental
16 revolution, building, manufacturing, selling the new products
17 and technologies that foster economic progress without
18 environmental destruction.

19 It is the wave of the future. In fact, if you look at
20 our exports last year, 35 percent went to developing
21 countries: countries like Mexico, for example. And in Mexico
22 City, as you know, Mr. Chairman, they are shutting down some
23 factories, not because of their economy but because they are
24 choking to death on the pollution.

25 They are desperately seeking, not new laser-guided

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1 missiles, but new, more efficient machinery. And new
2 products, new technologies, that will allow them to compete
3 effectively in the world economy without adding to the already
4 horrendous burden of air and water pollution in which they now
5 suffer.

6 The fastest growing markets in the world are located in
7 cities that have the most rapid population growth and the
8 heaviest burden of pollution. This is why the entire Japanese
9 business establishment is saying they are moving aggressively
10 to meet and exceed the toughest environmental standards in the
11 world.

12 In fact, MITI just 3 weeks ago released a new directive,
13 not only to Japanese businesses in Japan but to Japan
14 businesses in other nations, telling them that the strategy
15 now was to exceed by as much as possible the environmental
16 standards of every nation in the entire world in which they
17 were located. Because they see their future ability to
18 prosper in the world marketplace as depending upon their
19 ability to lead the way toward more environmentally-efficient
20 products.

21 So if we decide to reclaim our heritage, because we have
22 in the past led the world on environmental matters. If we
23 abandon this go slow, protect the polluter approach of the
24 Bush-Quayle administration, we will create a lot of new jobs
25 in the process.

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1 The Chairman: In moving ahead in this field, where do
2 you see the main leads?

3 Senator Gore: I think that efficiency improvements and
4 new approaches to conservation are likely to be the most
5 promising strategies, at least in the short term. Some new
6 technological breakthroughs that are relatively simple will
7 have a large impact.

8 For example, the application of microprocessing to the
9 flows of fuel and the mixture of gases in combustion chambers,
10 just to cite that as one example, can have a dramatic impact
11 on the efficiency with which fuel is used. The application of
12 super-computers to the design process, to make use of new
13 carbon fiber technology, new ceramic technology, just to name
14 two brief examples, can dramatically reduce the consumption of
15 natural resources associated with the manufacture of most of
16 the products in world commerce today.

17 Those nations and those companies which move most
18 aggressively to adopt these new techniques are almost
19 certainly going to be the ones that profit and create new
20 employment in the process.

21 Let me use a homespun analogy, Mr. Chairman, to
22 illustrate this. This might be viewed as a nonenvironmental
23 analogy, but if you are hunting for a bear and you go into the
24 woods and do not see the bear, you look for the bear's tracks
25 or you use a dog trained to follow the bear's scent.

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1 Similarly, if you are an industrialist and you look for
2 inefficiency in the operations of your factory and you have
3 eliminated all the ones that are clearly visible and you do
4 not see the inefficiencies that still remain, what do you do?
5 You try to follow the tracks or follow the scent.

6 And it turns out, as the Japanese are saying in their
7 business journals, that pollution is the most salient marker
8 of invisible inefficiency. So that intelligent and creative
9 efforts to track down the pollution and find the most
10 efficient ways to eliminate it result in the elimination of
11 inefficiencies that might never have been discovered
12 otherwise.

13 The Chairman: I see an analogy here between, on the
14 world level, the elimination of pollution, on the human level,
15 the elimination, for example, of cholesterol. Natural means
16 and medical means of intervention are needed. Same thing here
17 where you can have natural means like the Chinese are doing in
18 the planting of trees, and by the same token, more
19 importantly, the machinery that we manufacture to scrub
20 pollution.

21 Senator Gore: You could take the analogy even further,
22 Mr. Chairman. I think your comment is an insightful one. But
23 if you looked at the inefficiency in social programs, for
24 example, you might be provoked to look at the earliest stage
25 of the problem as it developed. And you would be led to a

1 greater appreciation for such measures as prenatal nutrition
2 and childhood immunization and Head Start and good early
3 education programs.

4 Whereas if you looked only at how to reduce the crime
5 rate among a criminal population addicted to crack and
6 illiterate and not having any job skills, you might not find
7 the best and most efficient way to deal with that problem
8 unless you looked at the entire process by which the problem
9 developed.

10 It is the same thing in eliminating these pollutants that
11 are now posing global threats. And those nations, again,
12 which take a holistic view of the entire process by which
13 these pollutants are introduced into the environment are
14 finding much more efficient, cost effective, productive and
15 profitable ways to accomplish old goals in a much better way.

16 The Chairman: Well I thank you. And I guess a
17 concluding comment in this exchange is that by being a leader
18 in environmental technology, we become a leader in a high
19 technology world. We have to be a leader in environmental
20 technology if we are going to be a leader in the other kinds
21 of technology.

22 I thank you very much for being with us and would now
23 turn to our Ranking Republican.

24 Senator McConnell: Thank you, Mr. Chairman.

25 The Chairman: And mention also, Senator, that before you

1 came in I said that you had suggested that Mr. Gore be
2 invited, and -- you and Senator Helms, and he also wanted to
3 be here. So here we are.

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1 STATEMENT OF HON. MITCH McCONNELL, U.S. SENATOR FROM
2 KENTUCKY

3 Senator McConnell: Thank you, Mr. Chairman. Welcome
4 back from the campaign trail, Al. It is good to see you.

5 Senator Gore: Thank you, Senator. And I appreciated the
6 courtesy of your invitation.

7 Senator McConnell: And I am glad you are here.

8 Senator Gore: Even though I had previously sent a letter
9 to the chairman asking if I might lead off these hearings, and
10 I am grateful for the opportunity.

11 Senator McConnell: Well we are glad to have you hear.
12 After reading a number of your interviews before and after the
13 Earth Summit and reviewing Earth in the Balance, it seems to
14 me that you have a very definite vision of the environment.
15 Frankly, I am not sure whether I would call it a nightmare or
16 a hallucination.

17 I just cannot accept that Americans were embarrassed by
18 the President or that the summit was a disaster waiting to
19 happen. Actually, to put it in your own words as you told the
20 Post, you said it is like a Greek tragedy, everyone can see it
21 coming. The only thing left is for him -- I guess referring
22 to the President -- to invite the executives of a few coal
23 companies to come along.

24 Well in my State coal means over 100,000 jobs, when you
25 consider direct and coal-related jobs; in the Nation it means

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1 1.1 million jobs more. So they are not particularly impressed
2 by that kind of categorization of the problem. And when you
3 told the press and public we cannot wait for all the evidence
4 before we launch the most expensive attack on jobs and economy
5 in this century, frankly, I think the facts are important.

6 It seems to me that the central criticism you have had of
7 the President, his environmental agenda and this convention,
8 is the fact that the 156 signatories to the treaty did not
9 agree on a schedule for the reduction of carbon dioxide
10 emissions.

11 Now as I understand your position, these carbon dioxide
12 emissions are the root cause of global warming, to you, quote:
13 the most serious threat we have ever faced, end quote. In
14 fact, at least half the scientific community thinks the
15 concern about global warming is greatly exaggerated. At best,
16 many think it is an issue that deserves watching but presents
17 no immediate danger.

18 But while the problem may be in scientific doubt, you
19 have called for absolute solutions. You demanded at the
20 summit and in legislation, the Global Climate Protection Act,
21 stabilization of carbon dioxide emissions. The question is
22 how do we get there?

23 Clearly the only way to do that, it seems to me, under
24 your proposal would be a tax, a tax on carbon. Never mind the
25 600,000 workers who would lose their jobs because of this tax.

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1 Never mind a 300 percent rise in the price of coal or a 58
2 percent rise in oil prices. American industries, our farmers,
3 our families, would rather suffer these hard costs than risk
4 the possibility -- the possibility of global warming.

5 I was glad to learn that you had joined a lot of us in
6 agreeing with the President on some of his most important
7 initiatives such as the Clean Air Act. I think it was
8 unanimously viewed as the toughest and most innovative air
9 quality legislation ever passed in our country. But I must
10 confess I am troubled, and many I know are, by virtually all
11 your other major environmental recommendations.

12 You would tax a family's garbage. You would rapidly
13 increase the fuel economy standards for cars, threatening one
14 of the key industries in your State and in my State. And you
15 have said the Government should have the right to stop a
16 fertilizer company from buying a seed company, in the interest
17 of the environment.

18 Finally, let me say, Senator Gore, you praised Japan
19 greatly in your comments. I am sure you are aware that Japan
20 is going nuclear as their clean energy route. They currently
21 have their power -- about 35 to 40 percent of their power
22 production is by nuclear plants. And their goal is to have 50
23 to 60 percent of their power produced by nuclear plants by the
24 year 2000.

25 At the same time you praised the Japanese, the Democratic

1 campaign, I gather, is in favor of a moratorium on the
2 building of new nuclear power plants. So I am somewhat
3 confused on that particular point with reference to your own
4 position.

5 In any event, we are happy to have you here.

6 [Laughter.]

7 [The prepared statement of Senator McConnell follows:]

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1 Senator McConnell: And, Mr. Chairman, I would like to
2 propose --

3 Senator Gore: I can tell, Senator.

4 Senator McConnell: A few questions. Yeah, we were
5 thrilled.

6 [Laughter.]

7 Senator Gore: And I think I identified about 10
8 questions in that statement.

9 Senator McConnell: Well I have not asked any yet, but I
10 will be glad to if you will give me a chance.

11 [Laughter.]

12 Senator Gore: Well you have made a number of
13 misstatements which need to be clarified. If you have
14 concluded, I will be happy to begin the task of unravelling
15 the misstatements.

16 Senator McConnell: Yeah, we can begin the debate in just
17 a moment, if you would like. Let me just start off by asking
18 one question, and then feel free to respond to other things as
19 well.

20 Senator Gore: Sure.

21 Senator McConnell: Do you support the United Nations
22 target discussed at the Rio Summit, that developed nations
23 should set aside .7 percent of their gross national product in
24 foreign aid by the year 2000?

25 Senator Gore: Well the language was not one which

1 applied to the United States. You may not be able to tell
2 that from the rather tricky construction of the language
3 itself. But it was intentionally presented as a way to
4 satisfy those Scandinavian countries, principally, which have
5 historically viewed a percentage of GNP as the appropriate
6 benchmark for what assistance programs ought to be, while at
7 the same time not having the same application to very large
8 industrial economies like those of the United States, Japan,
9 and Germany. And the language was negotiated in a way that
10 accomplished both of those results simultaneously.

11 Senator McConnell: Is that a no?

12 Senator Gore: Yeah -- well.

13 Senator McConnell: You do not support that.

14 Senator Gore: Well I am trying to clear it up for you,
15 because you seemed to appear to believe that the statement, as
16 written, would require that of the United States, and it does
17 not. I support the statement as it is written.

18 I think that we need to play a leadership role in
19 coordinating the efforts of other nations in the industrial
20 world to go about this task in a much more efficient way. I
21 think that we can open up a lot of markets for our products if
22 we simultaneously take the advice that I was offering earlier,
23 namely that we should take a leadership role in pioneering,
24 innovating, developing, and bringing to market the new
25 technologies and products that the world is demanding.

1 And so I would -- I think that that is very much in our
2 interests. But the language specifically that you are talking
3 about there was crafted in a way as to apply to those nations
4 that are currently doing what the language refers to, but it
5 excludes those that are not.

6 Now I want to respond to some of the other things that
7 you said in your statement before, if I may. You said, for
8 example, that you were convinced that the only way to
9 stabilize carbon dioxide emissions at 1990 levels is with a
10 large tax.

11 Quite to the contrary, the Bush administration itself
12 produced a rather comprehensive study of the options available
13 to us to stabilize carbon dioxide emissions and found that not
14 only would a tax be unnecessary, but no Government mandated
15 requirements would be necessary of any kind. That we could
16 all but meet the goal with purely voluntary measures if we had
17 leadership from the executive branch with a series of new
18 initiatives that are outlined in that study.

19 Now secondly, you talked about what you called the
20 scientific doubt about whether or not this problem needs to be
21 addressed.

22 I would like to provide for the committee a whole series
23 of statements. It is not too long because I have summarized
24 it in 6 pages. Statements of leaders from around the world
25 about the role of the Bush administration at the Earth Summit.

1 Just as an example, the delegate from the European Community
2 says: Many countries are deeply disappointed in the United
3 States. The delegate from France said: The Americans would be
4 more credible if they heard the world's message on the
5 environment, which will be one of the essential themes. I
6 will not quote extensively from this, but I will supply it for
7 the record.

8 [The information referred to follows:]
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1 Senator Gore: Now finally, on this question of
2 scientific doubt. You know there has been a 4 year process by
3 which scientists from all over the world were asked, under the
4 auspices of the United Nations with the United States
5 participating, to study this question in depth.

6 And they ranked their conclusions in three categories.
7 The top category was: of this we are certain. And in that top
8 category they said that the world scientific community is
9 certain that this is a challenge that we must confront, that
10 human induced global warming will result from the continued
11 accumulation of carbon in the atmosphere.

12 And the Bush administration accepted these views of the
13 IPCC in its U.S. views document. And I think part of the
14 disconnect is that the President's science advisor testified
15 that he has never briefed President Bush specifically on the
16 problem of global warming. President Bush has been responding
17 to political calculations, but he has not sat down with his
18 science advisor to get a full and thorough briefing.

19 Now finally on coal, we should be taking the lead in the
20 development of clean coal technologies. And if you look at
21 the Japanese strategy, which is incredibly comprehensive and
22 elaborate, they are also now seizing the lead on carbon
23 sequestration technologies. So we are going to be using coal
24 for a very long time, and neither Kentucky nor Tennessee need
25 have much concern about that. The question is how we can use

1 it more efficiently, how we can create jobs in the process of
2 developing the new technologies that enable us to continue
3 using it well.

4 Senator McConnell: Let me just say, quickly, that with
5 regard to the carbon tax, that was not me speaking, that was
6 you. You advocated a carbon tax in your book and in your
7 legislation.

8 Senator Gore: ~~What~~ I have proposed -- first of all your
9 statement was that the only way to stabilize carbon dioxide
10 was with a tax.

11 Senator McConnell: I guess what I am asking you is did
12 you or did you not advocate a carbon tax.

13 Senator Gore: If I could conclude my response to the
14 Senator. What you asked in your question was prefaced with a
15 statement that the only way to stabilize carbon dioxide
16 emissions was with a tax. And my response was, and is, that
17 the Bush-Quayle administration has itself put out a lengthy
18 and comprehensive study showing that that is not necessary.

19 Now, as to what I have proposed in my book, I believe
20 that we ought to reduce taxes on things that we need more of,
21 like work. And I think that we ought to shift the burden away
22 from work and toward pollution. If we have incentives for
23 more work and disincentives for more pollution, I think that
24 is a rational direction in which to proceed in the future.

25 Senator McConnell: So the answer was yes that you did

1 advocate a carbon tax in your book and in your legislation.

2 Senator Gore: You know, I am surprised you have not read
3 it yet, Senator McConnell.

4 Senator McConnell: I am sure you read it since you wrote
5 it. Could you just answer the question; did you or did you
6 not advocate a carbon tax in your book?

7 Senator Gore: I have proposed a combination of measures,
8 including a reduction of taxes on work, a reduction in payroll
9 taxes, to be replaced by taxes on pollution, including carbon
10 dioxide.

11 Senator McConnell: You are saying read my lips; no new
12 carbon taxes.

13 Senator Gore: No I am not. No, I am not at all. I am
14 saying read the pollution and discover ways to gain more
15 efficiency.

16 The Chairman: Senator Sarbanes.

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1 STATEMENT OF HON. PAUL SARBANES, U.S. SENATOR FROM
2 MARYLAND

3 Senator Sarbanes: Thank you very much, Mr. Chairman.
4 First of all, I want to welcome our colleague, Senator Gore,
5 here before the committee. I would be remiss, I think, if I
6 did not publicly thank you for the very strong leadership you
7 showed in Rio as the chairman of the Senate observer group
8 that had been sent down to that conference.

9 And I think actually our Republican colleague, Senator
10 Chafee, was the vice chairman with you, if I am correct.

11 Senator Gore: He was indeed, and distinguished himself
12 in that capacity.

13 Senator Sarbanes: And I think it was a very effective
14 bipartisan group that went. And I think the voice you sounded
15 in terms of American concern for addressing the problems of
16 pollution and moving towards a cleaner world environment were
17 very important, especially important in view of the abdication
18 of leadership on the part of the administration.

19 I am not going to make my own comments about that because
20 I think the most effective comments are contained in the
21 memorandum that the administration's head of the EPA, Mr.
22 Reilly, sent to his EPA team, to all EPA employees after he
23 returned, Reflections on the Earth Summit. And in the course
24 of which he says, and I am now quoting, quoting him:

25 Another key question, frankly, is why did the United

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1 States play such a low-key defensive game in preparing for
2 Rio? We assigned a low priority to the negotiations of the
3 biodiversity treaty, were slow to engage the climate issue,
4 were last to commit our President to attend Rio. We put our
5 delegation together late and we committed few resources. No
6 doubt this contributed to the negative feelings towards the
7 United States.

8 Now my recollection is that at the time you were urging
9 the administration to be more forthcoming and more positive in
10 preparing for that conference. And I would be interested in
11 your observations about at how much of a disadvantage we were
12 placed at Rio by failure to make those preparations -- the
13 very things that Mr. Reilly referred to here.

14 Senator Gore: We were placed at a severe disadvantage as
15 a nation by the actions on the part of President Bush which
16 led to a real embarrassment there. The day before our
17 delegation arrived, the Bush-Quayle White House had publicly
18 humiliated the leader of their negotiating team.

19 Just a word of background to explain this. We are
20 gathered here to discuss ratification of the climate change
21 convention. There was a second treaty also prepared for
22 signature at the Earth Summit on biodiversity, the protection
23 of living species, now disappearing, incidentally, at a rate
24 1000 times faster than at any point in the last 65 million
25 years.

1 In any event, during the preparatory sessions on the
2 biodiversity convention, sharp divisions and bungling within
3 the Bush administration had created a poisoned atmosphere.
4 And on the eve of the Earth Summit the document still needed
5 some changes. Virtually every other nation was ready to sign
6 it. But the Competitiveness Council in the Bush-Quayle
7 administration was holding out, and in the last preparatory
8 session in Nairobi they intentionally leaked to the press a
9 document which resulted in an uproar there and put our nation
10 at a disadvantage.

11 Senator Sarbanes: That is the council which Vice
12 President Quayle chairs.

13 Senator Gore: That is correct. It has been extremely
14 destructive to the process by which U.S. policy has been
15 organized. It publicly embarrassed Administrator Reilly, who
16 headed our official delegation there, and sought to torpedo
17 the conclusion of agreements. We would be here today seeking
18 ratification of a much more meaningful climate change
19 agreement except for the activities of the Competitiveness
20 Council. We would also be talking about ratification of a
21 biodiversity convention.

22 In any event, before the Earth Summit started, just a few
23 days before, Administrator Reilly arrived in Rio and quickly
24 realized the danger inherent in the situation. He found --
25 because the United States was going to be isolated in the

1 world community.

2 He found an imaginative way to change a couple of
3 problems in the biodiversity text which would have allowed us
4 to sign it. He cleared it with the Commerce Department
5 representatives there in Rio, cleared it with the State
6 Department, cleared it with the rest of the official
7 delegation. He did a wonderful job.

8 And then in a confidential memorandum cabled to the White
9 House he asked for permission to take the steps that would
10 have prevented the tremendous embarrassment to the United
11 States, and incidentally to President Bush. That confidential
12 memorandum was intentionally leaked to the press by opponents
13 of the Earth Summit in the Bush administration, reportedly in
14 the Competitiveness Council. They were leaked with derogatory
15 and demeaning comments about Administrator Reilly's efforts.

16 As a result, when our bipartisan delegation arrived the
17 firestorm was underway and nations from every part of the
18 earth were saying how in the world can President Bush send a
19 competent negotiating team and then publicly humiliate them
20 and threaten to torpedo the entire Earth Summit. It was quite
21 embarrassing. We spent a great deal of our time attempting to
22 explain what was, frankly, difficult to defend, because it
23 should not have happened that way.

24 But the other point is it has economic consequences.
25 This kind of approach from the Bush-Quayle partisans is

1 costing jobs here in the United States. At a time when Japan
2 and Europe are aggressively moving to create new jobs and take
3 the bull by the horns and lead the environmental revolution,
4 we are having this old foot dragging, more of the same
5 approach, hanging desperately to the old inefficient polluting
6 ways of the past, and pretending that by protecting the
7 biggest polluters, we are going to do ourselves a favor.

8 It is an outrage. It is an outrage, and one of many
9 reasons why I, of course, believe that we must have new
10 leadership in this country.

11 [Laughter.]

12 Senator Gore: Other than that, it went pretty well.

13 [Laughter.]

14 Senator Sarbanes: Mr. Chairman, I want to underscore the
15 importance of this last point that Senator Gore has just made.

16 [Laughter.]

17 Senator Kerry: You mean the change?

18 Senator Sarbanes: Well, certainly the change. But also
19 the substance of his point about the environment and the
20 economy. Because what happens is people try to put them as
21 though they are in conflict with one another, and the fact is
22 if you have the imagination and the leadership, they in fact
23 can work together in a very positive way, so that we get
24 economic advancement and environmental enhancement at the same
25 time.

1 Now you know there are any number of articles. This is
2 out of Business Week, the green giant, it may be Japan.
3 Environmental equipment and skills could be its hot new
4 products. Out of Science Magazine, Japan bids for global
5 leadership in clean industry. Down Germany's road, precisely
6 because it is so -- and I am just reading the headings to
7 these articles -- precisely because it is so environmentally
8 advanced, Germany is lean, mean, competitive, and poised to
9 dominate the global marketplace.

10 Now what these countries have seen is that by moving to
11 the forefront of the effort to clean up the environment, they
12 give a tremendous boost to their economic competitiveness.
13 And then they move around the world. We used to be in that
14 position, as a matter of fact. We were the leading edge on
15 the technology and we were going around the world selling our
16 systems and our products. They saw that opportunity; we
17 faltered in exercising that leadership and they have moved in
18 on us now.

19 And I do not see how -- well the President said we could
20 become an export superpower. How are we going to do that if
21 we give Japan and Germany a clear shot at the field in the
22 environmental area?

23 Senator Gore: Well, President Bush, unfortunately, is
24 locked in the past. I mean here is a man who sees 20-year-old
25 technology at the supermarket checkout line and looks like an

1 ape discovering fire.

2 [Laughter.]

3 Senator Gore: No wonder when the Japanese and Europeans
4 come up with the ideas of marketing these new technologies to
5 clean up the environment and create jobs, he just cannot
6 imagine that this is going to benefit our country. But it
7 will, and what will hurt our country is continued adherence to
8 more of the same.

9 And incidentally, I have been very grateful to you,
10 Senator Sarbanes, for the opportunity to work with you in
11 exploring these issues in their economic dimension very
12 thoroughly at the joint economic committee. As you, of
13 course, know, we have had a whole series of in depth, lengthy
14 hearings analyzing why this new approach to the environment is
15 economically beneficial.

16 The Chairman: Thank you very much. Senator Kerry.

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1 STATEMENT OF HON. JOHN F. KERRY, U.S. SENATOR FROM
2 MASSACHUSETTS

3 Senator Kerry: Thank you very much, Mr. Chairman. I
4 join my colleagues and welcome you, Senator Gore, though I
5 think my welcome may be a little bit different from Senator
6 McConnell's welcome.

7 I want to thank you also for your leadership down in Rio.
8 I had the privilege of being down there as a member of the
9 delegation and I know that Senator McConnell's references to
10 that are perhaps based partly on a sense of responsibility to
11 carry the sword here today. I think it is a particularly
12 heavy --

13 Senator Sarbanes: To fall on it, I think would be a more
14 apt description.

15 [Laughter.]

16 Senator Kerry: I was about to say it is a particularly
17 heavy and short sword. It is a tough one to wield on this
18 issue.

19 I can remember when we were in Rio. I know this is the
20 political season, which may make it a silly season for some,
21 but I think the American people are really looking for a
22 reality dose here. And as a member of that delegation, I was
23 dumbstruck, and I know you and I talked about it down there
24 with Senator Wirth and others, about the level of
25 disappointment that was expressed by delegation after

1 delegation that we met with.

2 I remember sitting down with a number of important
3 industrial nation ambassadors that we sat with who really
4 could not understand where we were coming from, what our
5 position was, why we were reluctant. And contrary to what the
6 Senator from Kentucky has suggested about this conference and
7 global warming and its uncertainties, the conference was about
8 so much more than that: about deforestation, about biological
9 diversity, ocean pollution, the drastic reduction of fishing
10 stocks around the world, the countless ecological disasters
11 that we face.

12 And I also saw the respect with which you were received
13 personally and the degree to which there was an appreciation
14 of a sense that there are people in this country who have a
15 different approach and a different set of desires. So I thank
16 you for the leadership that you brought to that effort, which
17 underscored to me some of the missed opportunities down there.

18 I would like to also thank you for trying in the course
19 of this campaign, as well as your testimony this morning on
20 this convention, which is why we are really here, to
21 underscore that this is a document, this is a new
22 international effort which will allow the United States to
23 create jobs and not loose them.

24 One of the other most dramatic things that hit me down
25 there, and this is not a political statement at all, but there

1 were 700 Japanese companies, entities, formally accredited to
2 this conference. There were 35 from the United States, maybe
3 half of which were from my State. And again, we were
4 dumbstruck by the lack of American presence in the face of
5 this onslaught, this major commitment with their realization
6 that there are jobs to be created here.

7 Now you have been to my State on many occasions. You
8 have been involved with some of our technology companies; you
9 were just there recently. And we have an environmental
10 technology community we have now organized as that kind of
11 community. And there are some 35,000 jobs in Massachusetts
12 today, there are going to be 70,000 in the next 3 to 4 years;
13 it is the single fastest growing sector of our economy.

14 Now, again, I think your leadership and efforts to try to
15 wake America up to a recognition that you do not have to have
16 competition between environmental interests and economic
17 interests -- they are the same, they go hand in hand -- is
18 vital in terms of the leadership of this country. And I thank
19 you for that and I obviously want to underscore that in our
20 approach to this this morning.

21 But in terms of Rio, I would like to just ask you a
22 couple of quick things, because I think it is important for
23 the record to be clear on it. And I listened to Senator
24 McConnell who, again, I say has a tough task, I think. I
25 respect him in his efforts on this.

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1 But the Clean Air Act even. I mean I remember those
2 meetings over in Room 224 with Boyden Gray and other
3 representatives of the administration. And every time we
4 thought we had taken a step forward, there was an effort by
5 the administration to take one or two back.

6 So the President is quick to try to take credit for
7 finally allowing Congress to do something it had set out to do
8 anyway. And even in the process as we went through it, we saw
9 them trying to take away what we were doing. And afterwards
10 the Competitiveness Council has, frankly, gutted the
11 implementation of it and the regulations have not been set.
12 So I think there is a huge gap between what people assert has
13 been accomplished and what really has.

14 My question to you is with respect to this treaty and
15 with respect to the efforts in Rio, I wonder if you could be a
16 little more specific with the committee on two parts of the
17 question of the global warming goals set here. Number one,
18 could we not have achieved more specific targets and more
19 specific timetables? And could we not have achieved them
20 without any economic loss to the United States, even by the
21 administration's own assessment?

22 Senator Gore: Oh, absolutely. Not only could we have
23 achieved them without economic loss, the studies indicate that
24 there would be significant and measurable economic gain from
25 setting and meeting these targets and timetables.

1 Now one of the ways targets and timetables contribute to
2 economic health is that it gives the marketplace certainty
3 that the demand for the products they are gearing up to
4 develop and sell will be there, and that their competitors
5 will not be able to cut corners and push some of the costs off
6 on the general public in the form of pollution.

7 So with that extra certainty, the companies commit more
8 resources to the research and development, the engineering,
9 the innovative process, the product development process, and
10 pretty soon competition is furious in developing new and
11 better, more efficient products.

12 The National Academy of Sciences report in this regard
13 concluded that the United States could reduce its greenhouse
14 gas emissions by between 10 and 40 percent of 1990 levels,
15 possibly with net savings. The Office of Technology
16 Assessment has testified that carbon dioxide emissions could
17 be held at 1987 levels, even lower than 1990 levels, through
18 2005 at no net cost to the economy. The Alliance to Save
19 Energy, the American Gas Association, a number of electric
20 utilities, all have put out economic studies showing how these
21 targets and timetables can benefit the economy.

22 Now could we have had them? Of course. Every other
23 nation was ready to move in that direction. During the
24 preparatory sessions during the 2 years preceding the Earth
25 Summit, President Bush and Vice President Quayle dug in their

1 heels and order our negotiators to prevent agreement on any
2 binding targets or timetables, and that is the reason it ended
3 up as it did.

4 Finally, Senator Kerry, I wanted to respond to your
5 thoughtful statement at the beginning. Yes, the Earth Summit
6 was about much more than just this climate convention. It was
7 the emergence of a new organizing principle in the post-Cold
8 War world.

9 It was the beginning of a new chapter in the relationship
10 between the industrial world and the developing countries of
11 the world. It marked the emergence of a new way for nations
12 to relate one to another, coupling the issues of economic
13 progress on the one hand with environmental protection on the
14 other and pointing the world in the direction of a more
15 productive, and healthier, more profitable future.

16 And, at such a time, for the United States of America to
17 be burdened with leaders who refuse to lead did serious damage
18 to our Nation in the world community. It can be undone. And
19 as some first steps I recommended in my statement, I will not
20 repeat them, that we not only quickly ratify this treaty, but
21 that we move forward to develop a protocol to the treaty.
22 That we take the other steps that will lead quickly to
23 improvements to the document that was weak, primarily because
24 of President Bush's insistence that it be weak.

25 Senator Kerry: I appreciate that comment, especially.

1 And I also appreciate the clarification you made to Senator
2 McConnell with respect to the question of taxes that what we
3 need to do is shift the burden from the activities that we
4 want to encourage and put it onto the activities that we want
5 to discourage. And you are not talking about a whole new set.
6 It is a question of reallocating the current burden. And that
7 is a very, very different thing.

8 I would just say, finally, Mr. Chairman, that I had
9 wanted, and maybe in the course of future questions, the
10 Senator would have an opportunity to respond to the legitimate
11 concern that coal workers and oil workers and other people
12 have who say, well, that technology may be down the road. I
13 kind of am concerned about what I am doing right now.

14 And I think that is obviously a concern and, if the
15 Senator has an opportunity as he goes for questions --

16 Senator Gore: Yes. Well let me just say right now, of
17 course it is a concern as it is in other countries. And the
18 way to create jobs in those industries is by leading the way
19 instead of being surprised by the advances made on the part of
20 others.

21 By leading the way, we can create new jobs in those
22 industries as well as in others.

23 The Chairman: Senator Wofford.

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1 STATEMENT OF HON. HARRIS WOFFORD, U.S. SENATOR FROM
2 PENNSYLVANIA

3 Senator Wofford: Senator, I especially wanted to thank
4 you for your book as well as all the other leadership you have
5 given in the Senate and in Rio on the environment.

6 I have read the book. I learned from it. I hope those
7 who hear extreme partisan criticisms of it will read it
8 because it seems to me to show how you can strike the balance
9 on each one of these issues in favor of both the revolution in
10 environmental protection and in jobs.

11 In Pennsylvania, we have proved that you can do both. We
12 are proving it right today. We are a leader both in the
13 production of coal and in the development of clean coal
14 technology. We have two major facilities producing scrubbers
15 to reduce air pollution. Jobs at those facilities are highly
16 skilled and well paid. We can have coal development and
17 environmental protection at the same time, as we are seeing
18 right now in Pennsylvania.

19 I have one, among many, questions. But one question I
20 would put to you, and that is: Do you have any steps that you
21 would propose to Congress or to a new president to help U.S.
22 companies that are trying to develop and export environmental
23 technology?

24 Senator Gore: Yes. Well first, Senator Wofford, let me
25 personally thank you for your kind words about my book. In

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1 one of the business publications that reviewed it, there was a
2 comment very much like the one you just made when they said
3 that the Bush-Quayle campaign team must be counting heavily on
4 the fact that most people will never read it, because it is
5 unrecognizable from some of the partisan descriptions to which
6 you referred. And I thank you very much for taking the
7 opportunity.

8 Senator Wofford: I hope that those attacks will make it
9 a best seller.

10 Senator Gore: I hope that they will read it, but I am
11 not going hold my breath. Now, yes, what steps will I
12 recommend? I would like very much to supplement my brief
13 response here for the record, because one of the members of
14 your committee, Senator Biden, and I are going to be
15 introducing within the next several days legislation involving
16 the Exim Bank, the Department of Commerce, OPIC, and others
17 that will prioritize the environmental technologies that we
18 believe can most benefit from a coordinated approach to assist
19 U.S. exports.

20 I have also worked with my colleagues, including Senator
21 Domenici of New Mexico, to reorient part of the work done at
22 our national laboratories to the task of developing new
23 advances in the key technologies that will enable us to export
24 more of these products.

25 I also believe that we can make wise steps in the form of

1 investment tax credits. And Governor Clinton and I have made
2 suggestions on targeted investment tax credits that would
3 stimulate the investment in and development of new products
4 and technologies that are especially promising in this area.

5 ~~I will supplement my response here for the record because~~
6 ~~I, as you may know, have given a lot of thought to this, and I~~
7 ~~have a lengthy series of recommendations and suggestions which~~
8 ~~I will include in the record.~~

9 ~~[The information referred to follows:]~~

10 [COMMITTEE INSERT]

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1 The Chairman: Thank you very much, indeed. I understand
2 that you, Senator Gore, have an appointment. We thank you for
3 being with us. I point out, incidentally, that your book, I
4 think, is fourth on the best seller list.

5 Senator McConnell: I might say, Mr. Chairman, I am sure
6 I am speaking for the Bush campaign as well. We would like to
7 thank Senator Gore for the book, too.

8 Senator Gore: Now, if you will follow that up by reading
9 it, I will be very pleased. Thank you very much, Mr.
10 Chairman.

11 The Chairman: Thank you very much for being with us.
12 And now we turn to the next witness, Bill Reilly,
13 administrator of the EPA.

14 Welcome, Mr. Reilly. Welcome Mr. Reinstein. We look
15 forward to hearing your statement and asking you some
16 questions afterwards.

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1 STATEMENT OF WILLIAM K. REILLY, ADMINISTRATOR,
2 ENVIRONMENTAL PROTECTION AGENCY; ACCOMPANIED BY ROBERT A.
3 REINSTEIN, DEPUTY ASSISTANT SECRETARY FOR ENVIRONMENT, HEALTH
4 AND NATURAL RESOURCES, DEPARTMENT OF STATE

5 Mr. Reilly: Thank you, Mr. Chairman. I appreciate the
6 opportunity to appear here this morning to urge that the
7 Senate give consent to the ratification of the Framework
8 Convention on Climate Change.

9 I am tempted to discuss that treaty at this time. I
10 think I will resist the temptation for the moment at least in
11 starting here to respond a little bit to some of the things
12 that have been said before me.

13 I should at the outset ask that my formal statement be
14 included in its entirety in the record, please.

15 The Chairman: Without objection that will be done.

16 Mr. Reilly: I am accompanied on my left by Robert
17 Reinstein, who is the Deputy Assistant Secretary of State for
18 environment, health and natural resources. He was, as you
19 know, the chief negotiator for the United States. He carried
20 out a very delicate and complex mission with great skill and
21 effectiveness. And he is also chairman of the
22 intergovernmental panel on climate change, panel on policy
23 responses.

24 A lot has been said here this morning that does not have
25 a great deal to do with the issue before you. I think the

1 only reason to rehash some of the Rio experience is political.
2 The question of my having written a memorandum to my staff, I
3 think, needs some explanation; a little more than it has had,
4 even though it has been quoted at least twice here in some
5 detail. One paragraph has been quoted.

6 That memo was, in fact, one that I wrote to my staff when
7 I returned from Rio to explain to them how, in a country and
8 with an administration that has led the world in environmental
9 achievements, our contribution was portrayed so negatively in
10 Rio.

11 The memo, in fact, spent much of its time celebrating the
12 very climate change treaty that you are considering today.
13 And those who try to turn it into an indictment of the Bush
14 record are engaged in a very political distortion, I think. I
15 would, in truth, argue the merits of our record with anyone.

16 With respect to the bungee jump analogy, that had to do
17 with a leak that occurred. A leak that infuriated President
18 Bush about which he called me at once, and which he set out to
19 locate and to punish immediately.

20 The selective quotation of my memorandum leaves out the
21 achievements that I spent the better part of six pages in that
22 memorandum reciting:

23 The conclusion of the climate change convention, in a
24 manner, in a form, that the President and the administration
25 had championed and advocated. One that is sensitive to the

1 economic concerns of American taxpayers and consumers that
2 does not tie us to rigid targets and timetables, or bet your
3 economy on the assumptions that would underlie that.

4 An agreement on a declaration of forest principles,
5 perhaps the principal concern of President Bush. He called
6 for a worldwide convention on forests in the summer of 1990 at
7 the G-7 summit in Houston. And we increased our resources for
8 forestry worldwide by 50 percent in Rio, and we got a
9 declaration of forest principles.

10 His launching of the forest for the future initiative
11 which was widely acclaimed, well received, and substantially
12 supported by a number of our allies in Europe and Japan and
13 Canada.

14 And, finally, finalization of Agenda 21, which is a
15 compilation of some 900 pages, major commitments to develop
16 environmental impact assessment procedures worldwide, to have
17 community right to know about toxic releases, to assess the
18 impacts of pollution on the coastal zone, to attend to
19 freshwater needs and increase water pollution control capacity
20 worldwide and to have better protection for the atmosphere and
21 the oceans; issues that, to a very substantial degree, the
22 United States brought to the negotiations leading up to Rio.

23 The inclusion in Agenda 21 is a great tribute to the
24 success of the administration and of the people in the country
25 who have created these environmental successes.

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1 Every informed minister in Rio knew that the United
2 States has achieved more, and the Bush administration has
3 achieved more on the environment than virtually every other
4 country. Whether it is in the field of biodiversity
5 protection, bringing back endangered species, in terms of
6 protecting the Great Lakes and bringing back our water, in
7 terms of reducing air pollution over the past 20 years and
8 particularly in an accelerated way, thanks to the President's
9 clean air initiative, over the past 2 years.

10 We are very proud of what I think is an unprecedented
11 record of environmental achievement in the administration,
12 measured in terms of budget, of enforcement records that we
13 have set, and we will stack it against anybody's in the world.

14 The Framework Convention, to turn to that, caps, I think,
15 a number of international environmental achievements of the
16 Bush administration. The London amendments to the Montreal
17 Protocol, speeding up the phaseout of ozone-depleting
18 chemicals.

19 Twice in the past 3 years President Bush has moved
20 unilaterally to commit the United States to move faster than
21 treaty obligations require to get these chemicals out of the
22 system to protect upper atmospheric ozone.

23 We have achieved an international agreement to preserve
24 the pristine character of the Antarctic. We have initiated an
25 Enterprise for the Americas program which is providing debt

1 relief and substantial new funding in the renegotiated debt
2 for the conservation of forests and parks in Latin America,
3 and we have already seen tens of millions of dollars made
4 available for that purpose in Mexico and Jamaica and Chile and
5 Bolivia and other countries.

6 We have introduced into U.S. policy debt for nature
7 swaps, something pioneered by the conservation community. We
8 have advanced environmental issues in lesser developed
9 countries. And, in Eastern Europe, established the Budapest
10 Center and helped them deal with a very ravaged environmental
11 situation.

12 So the Framework Convention builds upon a long list of
13 achievements, and I think is worthy of them.

14 The objective of the Framework Convention on Climate
15 Change is to stabilize greenhouse gas concentrations in the
16 atmosphere at a level that would prevent dangerous human
17 interference with the climate system. That is a sweeping but
18 flexible objective. It recognizes scientific uncertainties on
19 the rate and magnitude of global climate change, uncertainties
20 which are often overlooked, but which have been repeatedly
21 cited by the IPCC. And the treaty allows for a gradual,
22 considered evolution of policy, avoiding economic dislocations
23 or the need for destabilizing taxes.

24 Now, three options were considered for mitigating
25 greenhouse gas emissions in going into these negotiations.

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1 One was the Vienna Convention model, a model that
2 features no controls, a somewhat empty vessel designed to,
3 nevertheless, raise public awareness of the problem. We
4 rejected that approach.

5 The second is targets and timetables, which was favored
6 by some countries. Incidentally, many of the countries that
7 did, in fact, favor targets and timetables have as of today,
8 September 18, 1992, instituted, implemented no measures that I
9 am aware of to reduce greenhouse gases. Targets and
10 timetables could require you to slow down your economy to
11 achieve those rigid goals. We rejected that approach.

12 And third, the approach of national action plans. This
13 approach, which in fact has been embraced in the treaty which
14 is before you now, is designed to foster a continuous process
15 to assess the policies of nations, to have countries learn
16 from one another, to provide for the scrutiny of the
17 international community, and to help build trust and a
18 foundation for the future; a future that the treaty
19 contemplates can, and very likely will, change.

20 The treaty is responsive to that possibility, and it
21 allows for the accommodation of new science as it is developed
22 much as the Montreal Protocol did.

23 The convention also recognizes the need for financial and
24 technical assistance to lesser-developed countries. It
25 commits developed countries to take practicable steps to

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1 promote and facilitate and finance transfer of environmentally
2 sound technologies. And we are doing that very aggressively
3 at EPA and other departments of the executive branch with the
4 new Environmental Technology Institute, bringing people from
5 the developing world to this country to learn about waste
6 management, water pollution control, and the like.

7 In other cases, we will see -- in many cases I think we
8 will see that this emphasis on technology cooperation on which
9 the United States took the lead in the negotiations leading up
10 to Rio and in which, I think, we are a leader in the climate
11 area, is likely to foster new technologies that our own
12 businesses can design and sell, and technologies in the
13 developing world that, with our assistance, they can help
14 bring on.

15 There is a growing market for energy-efficient systems in
16 the United States and abroad. We have fostered that market
17 with our Green Lights Program at EPA, a program in which we
18 now have some dozen States and 700 or so companies committing
19 to change their lighting over the next 5 years, and companies
20 are now seeing very substantial reductions in their lighting
21 bills as a consequence of that; some 58 percent on average.

22 The effect of changing to more efficient lighting
23 technologies is to, without any sacrifice in lighting quality,
24 reduce all of the pollution associated with generating that
25 electrical energy and, incidentally, carbon dioxide as well.

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1 That is an approach that serves the economy, and it also
2 serves the environment. It is exactly the kind of initiative
3 I think we need to deal with the climate issue.

4 With computers, we are taking a somewhat similar
5 approach. We have gotten the computer industry to work with
6 us to commit to design computers that are 50 percent more
7 energy-efficient. And computers are an increasing demand area
8 for energy in the United States.

9 We are fostering pollution prevention in a number of
10 areas. Avoiding creating the pollution in the first place by
11 bringing on new environmentally benign technologies that do
12 not require end-of-the-pipe treatment.

13 With respect to climate and this convention, the United
14 States already has policies in place to meet the basic
15 commitments of the convention. They were articulated in
16 February 1991 in the action agenda. An April 1992 statement
17 in the updated action agenda entitled, U.S. Views:

18 The initiatives that we have developed are unique, I
19 think, in the world in the sense that they are not only
20 considered, they have not just been proposed, they have by and
21 large been implemented, and they are part of law or policy
22 today. This includes the Clean Air Act amendments of 1990.
23 It includes the Intermodal Surface Transportation Efficiency
24 Act of 1991. The national energy strategy, which awaits
25 action by this Congress. The America the Beautiful initiative

1 to plant a billion trees a year and sequester all of the
2 carbon that that would involve. Programs to reduce methane,
3 which I have regulatory authority to do in landfill rules that
4 are pending before me now and will be finalized soon. And to
5 reduce nitrous oxide, which we are working with the chemical
6 industry to do in the manufacture of nylon.

7 As a result of some of these initiatives of our Bush
8 administration program, we anticipate a net reduction of 125
9 to 200 million metric tons of carbon equivalent in the year
10 2000, implying a net emission increase over the 1990 base
11 period of between 1.4 and 6 percent.

12 That is not stabilization. But it is closer than many, I
13 think most, of our competitors are likely to come.

14 We have already agreed in the United States to \$25
15 million over 2 years for country studies, developing country
16 studies. This is an important mechanism to get basic
17 information on emission inventories of greenhouse gases,
18 sources and sinks, in those countries.

19 Earlier this week, the United States hosted a workshop in
20 Berkeley, California on methodologies. It included among its
21 attendees representatives of more than 50 countries,
22 two-thirds of those developing countries. We have moved ahead
23 irrespective of the situation of the climate treaty at this
24 time. We are not waiting for ratification. In fact, we
25 are -- President Bush proposed in Rio that we begin a prompt

1 start as though the treaty were in effect today.

2 The United States committed \$50 million to the core fund
3 of the global environment facility to fund increasing cost to
4 developing countries to address environmental issues. And
5 this fund would support work in the areas of climate change,
6 biodiversity, oceans, and stratospheric ozone protection.

7 That, in my view, is a responsible level of assistance.
8 It is designed to support well-conceived projects, and I would
9 contrast it with proposals for a Marshall Plan for developing
10 countries which I consider unwise on economic and
11 environmental grounds.

12 When President Bush signed the convention, the Framework
13 Convention on Climate Change in Rio, he invited colleagues
14 from industrialized countries to work with him in a prompt
15 start of the treaty. These measures that would involve a
16 prompt start to which the United States is committed include
17 the following:

18 First, sign the convention. Some 155 countries, I think,
19 have done that as of this moment.

20 Second, seek prompt consent to ratification in the United
21 States Senate, the subject of our conversation today. Only
22 one other country to my knowledge, Mauritius, has thus far
23 ratified the climate change convention. We have the
24 possibility of being the second, and I very much hope that we
25 will.

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1 Third, establish a program to monitor carbon dioxide
2 emissions. To my knowledge, the United States is the only
3 country in the world with a legal requirement at this time,
4 embodied in our Clean Air Act, to do that.

5 Expand scientific research on greenhouse gas emissions.
6 The Bush administration has proposed in the pending fiscal
7 year budget \$1.4 billion in support for research on climate
8 change. That is more than is being spent by the entire rest
9 of the world on this issue, but one measure of the seriousness
10 with which we regard it.

11 Promote developing country efforts to produce national
12 plans through country studies. We have been working closely
13 with Mexico, with Poland, and Brazil to help them develop
14 emission inventories. And we have, as I mentioned, proposed
15 some \$25 million in support for these studies.

16 And finally, prepare a U.S. national plan no later than
17 January 1991. We are committed to that goal. We expect to
18 keep to it. When President Bush made that announcement in
19 Rio, within 24 hours the president of the European Community,
20 Jacques Delors, at a press conference, declared that that
21 schedule was too rapid for the European Community, then that
22 they would require at least a year to prepare their own
23 national plans. I mention that because I think as attention
24 turns from rhetoric, where we spent a lot of the morning, to
25 real commitments, the United States will be seen to be ahead

1 of the rest of the world.

2 The Chairman: January 1, 1993, you mean.

3 Mr. Reilly: 1993. Yes, sir. Signing the convention is
4 an important first step. Ratifying it and implementing it, I
5 think, is even more important. The convention, in my view, is
6 a milestone in global efforts to protect the environment.
7 Those who categorize it as wanting in one or another respect,
8 I think, do a disservice to us and to its final successful
9 implementation and to the promise that it brings to bring the
10 world together to address a potentially significant and
11 serious problem.

12 I am proud to have played a part in the development of
13 negotiations leading up to the development of this convention,
14 and I urge quick consent to ratification by the Senate. Thank
15 you, sir.

16 [The prepared statement of Mr. Reilly follows:]

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1 The Chairman: Thank you very much, indeed. It is very
2 good to have you here with us. I congratulate you on the job
3 you are doing and the difficult position in EPA.

4 Senator Kerry: Mr. Chairman, I just want to note for a
5 moment, I apologize. I have to leave because of an
6 appointment elsewhere. I just wanted to ask if the record
7 could be left open.

8 The Chairman: The record will be left open.

9 Senator Kerry: I know it is to the chagrin of Mr. Reilly
10 that I have to leave. Thank you.

11 The Chairman: Senator Moynihan had to leave because he
12 is presiding on the Committee on Environment and Public Works
13 next door. The record will be left open.

14 I am concerned on this question and the dangers of
15 climate change. It depends on the extent to which you think
16 it is a threat. In documentation submitted to the Congress,
17 the administration presents what it describes as, quote, the
18 consensus view of a broad range of scientists, unquote, on
19 climate change.

20 That consensus with caveats about uncertainty includes
21 predictions based on climate modeling that, quote, changes in
22 the average temperature of the world's atmosphere as a
23 consequence of a doubling of atmospheric concentration of
24 carbon dioxide are likely to lie outside the range of 1.5 to
25 4.5 centigrade as a best estimate based on model results

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1 taking into account the observed climate record of 2.5
2 centigrade.

3 My question to you is, does the administration believe
4 that, as a sound basis for formulating United States policy,
5 that these figures are correct?

6 Mr. Reilly: We accept the consensus view of the IPCC,
7 Mr. Chairman, to the effect that with a substantial margin of
8 uncertainty and with the recognition of the lack of clear
9 information about the role of the oceans, the polar ice caps,
10 and some significant uncertainties about the carbon cycle,
11 that the best estimate is that we are likely to see 0.3 degree
12 centigrade increases in global mean temperature each decade of
13 the next century.

14 The Chairman: And translating that into increase in the
15 water level, how would that translate?

16 Mr. Reilly: I believe that the consensus is
17 point 6 -- is 6.0 centimeters per decade for ocean level rise,
18 sea level rise, bearing in mind that the regional disparities
19 are likely to be quite considerable.

20 The Chairman: Living as I do right on the ocean, I have
21 an interest in that.

22 Mr. Reilly: I think where you live, you are high enough
23 up to withstand those increases.

24 The Chairman: But still waiting for waves to lap at my
25 front door. But what would be the relationship of the

1 conventional, the financial mechanism and its relationship to
2 the Global Environment Facility, the GEF?

3 Mr. Reilly: The Global Environment Facility is conceived
4 as the funding mechanism, presently interim, eventually to be
5 made, presumably, a permanent funding mechanism for financing
6 four areas, including climate change work in the developing
7 world. Efforts to develop national plans and to bring them on
8 in developing countries.

9 The Chairman: Thank you. I have no further questions at
10 this time. Senator Jeffords.

11 Senator Jeffords: I thank you, Mr. Chairman. First, I
12 want to commend you for holding this hearing, and I would ask
13 that my entire statement be made a part of the record.

14 The Chairman: Without objection.

15 Senator Jeffords: Mr. Reilly, Bill, it is good to see
16 you, and I am a great admirer of yours and the work that you
17 have done over the past few years with the EPA Clean Air Act.
18 It was a pleasure working with you on that. And, to me, that
19 has more for this Nation in the areas we are talking about,
20 today, as well as others, than anything we have done in,
21 certainly, this century.

22 Also I appreciate the work the SIRI and others are doing,
23 the ultimate sources of energy and the cooperation I have had
24 from your staff in making me aware of the potential and the
25 tremendous work that is being done in that area. And also,

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1 the concept of market credits which we developed in the Clean
2 Air Act opened up doors on how we can handle other problems.

3 So, it is really good to see you here, and I want to
4 commend you for your work.

5 Mr. Reilly: Thank you, Senator.

6 Senator Jeffords: I know there has been considerable
7 controversy over the United States' position in the Rio
8 conference. And I wondered if you would let us know as to
9 what the reaction was after the dust settled and
10 whether -- what, with respect to the United States' position
11 on the Framework Convention on Climate Change is the most
12 credible and the U.S. position was -- and that the U.S.
13 position brought along recalcitrant nations, well, like the
14 Soviet Union?

15 Mr. Reilly: We have now seen something in the nature of,
16 in the range of 155 countries that have signed the Framework
17 Convention on Climate Change. Had we had a different kind of
18 treaty, had we had targets and timetables, I doubt very much
19 we would have anything like that number.

20 I think the treaty that we got represents a consensus;
21 one that does not threaten the economies either of the United
22 States or of other countries. It does, in fact, encourage a
23 collaborative effort, now, to get a fix on the problem and to
24 begin to take stock of the emissions. To begin to look at
25 options for reducing them for having more energy-efficient

1 economies. But doing so in a responsible, careful, measured
2 way, sensitive to the science, but also sensitive to economic
3 realities and needs.

4 Senator Jeffords: Would you please explain the Framework
5 Convention, how it is flexible and would allow for the
6 incorporation of new science and other dynamics including
7 economic trends?

8 Mr. Reilly: Much like the Montreal Protocol, the
9 Framework Convention on Climate Change allows for the
10 development of new science, in fact, provides for that. We
11 expect the Intergovernmental Panel on Climate Change to
12 produce another report, another review of updated science by
13 1995; preliminary report of which we will have in 1994.

14 That is likely to give us further information about the
15 urgency of the problem, the nature of our atmospheric systems,
16 how serious it is. Whether, perhaps, we need to take
17 different approaches than are contemplated in the treaty
18 itself. And that, in fact, I think is a responsible way to go
19 about it.

20 Senator Jeffords: Prior to UNCED or whatever the
21 acronym, however you pronounce it, the UNCED, President Bush
22 announced an initiative with respect to a new force for the
23 future. And I wondered how you plan to support that concept
24 and what the meaning of it is.

25 Mr. Reilly: President Bush proposed to double worldwide

1 forestry assistance to bring it from about \$1.4 to \$2.8
2 billion and to substantially increase United States
3 commitments to worldwide forestry conservation as well with a
4 new \$150 million commitment for support of forest conservation
5 efforts, particularly in the developing world and particularly
6 in the tropics.

7 The effort is designed to reduce the rate of tropical
8 forest loss which is resulting also in the losses of species
9 at a very unprecedented and alarming rate. We announced that
10 initiative in Rio and we are pleased to have contributions
11 committed to it by the Italians, Canadians, I think the
12 Germans made substantial commitments, and also to begin
13 negotiations with a number of prospective partner countries in
14 the developing world to actually bring it on.

15 We very much hope -- President Bush made the development
16 of a worldwide convention on forests a principal priority at
17 the Houston summit in 1990 and very much hopes that this
18 process will lead to that eventually.

19 Senator Jeffords: Can you fill us in on, worldwide, what
20 is going on with the destruction of forests now? Has there
21 been any change in the attitude of the nations as a result of
22 the conference or otherwise in trying to do more about the
23 slash and burn policies, et cetera?

24 Mr. Reilly: Well, the rate of forest losses,
25 particularly in some of these species-rich forests, does, in

1 fact, continue at a worrisome level. But some of the
2 countries, most notably Brazil, have taken measures to reduce
3 the subsidies to cutting, to reduce the road building, to
4 develop economic plans that do not include tax incentives for
5 destructive practices in the forest. And those have had a
6 measurable effect. Our satellite data show that they have
7 reduced the rate of forest loss in Brazil.

8 Senator Jeffords: What role will the EPA play in the
9 development of the U.S. action plan in response to the signing
10 of the Framework Convention?

11 Mr. Reilly: We have been centrally involved in doing
12 research on policy responses and doing some scientific work on
13 the various aspects of climate change that are uncertain,
14 particularly ecosystems effects, and we will continue that
15 role. We also have contributed to the economic analysis of
16 the implications of various policy responses, their potential
17 effect on the economy, on job losses, on rates of inflation,
18 and the like. And we will continue those efforts.

19 Senator Jeffords: And what is your role in the Climate
20 Country Studies Program -- EPA's role?

21 Mr. Reilly: We are working directly on the country
22 studies of Mexico, Brazil, and Poland. We have actually
23 entered into extensive conversations with those countries on
24 how to design inventories to get some understanding of what
25 the sources of their greenhouse gases are; they are very

1 different in Brazil, say, from what they are in Poland,
2 ultimately with an eye toward affecting their policies.

3 Senator Jeffords: How important is it that we implement
4 this treaty, ratify this treaty this year?

5 Mr. Reilly: I think that the United States has played a
6 role of international environmental leadership, and our
7 opportunity to be among the very first to ratify this
8 convention will solidify that role. And that reputation will
9 signal to the rest of the world the seriousness of our
10 commitment to address this problem, and that will have
11 leadership effects.

12 I think that will cause other countries to take the issue
13 more seriously than they have. Over the past few years, we
14 have seen many countries address the issue rhetorically, but
15 only the United States and the Netherlands have actually
16 proposed measures to reduce greenhouse gases.

17 We have proposed them. We have brought them on. They
18 are now law. I think if we ratify this treaty we will
19 contribute to greater awareness of the problem in the rest of
20 the world and to a better effort on the part of the world
21 community to deal with it.

22 Senator Jeffords: How important is the implementation of
23 the Clean Air Act in fulfilling our commitments with respect
24 to bringing on alternate sources of energy that are not
25 producers of carbon dioxide? At least a net effect on the

1 atmosphere?

2 Mr. Reilly: Well, the impact of the Clean Air Act,
3 generally, on our performance in reducing greenhouse gas
4 emissions is really crucial. It is important that we adhere
5 to the statute. The acid rain titles particularly foster
6 conservation of energy. In the effort to get sulfur dioxide
7 reductions we will see more efficiency, generally, in the
8 generation of electricity. The alternative fuels provisions
9 that you point to also offer us, I think, some prospect for
10 reducing greenhouse gas emissions. The likely impact of
11 fostering more use and reliance on natural gas will be
12 beneficial in terms of reducing greenhouse gas emissions as
13 well. All of those are fostered by the Clean Air Act. So it
14 is important to our strategy.

15 Senator Jeffords: How is the market credit system
16 working?

17 Mr. Reilly: Well the market credit system, to my
18 knowledge now we have had three trades that we are aware of,
19 the rumored value of those tonnage purchases that have been
20 made of sulfur dioxide suggest that the price has come down
21 considerably from what had been estimated when the Clean Air
22 Act was negotiated. That would bring the total cost of
23 implementing the Clean Air Act down substantially also.

24 We are very encouraged by the performance to date and
25 particularly by the Chicago Board of Trade's recognition that

1 it is going to have a market in sulfur dioxides emissions
2 allowances. That is, I think, a recognition of the efforts
3 that we really set out to have which would integrate economic
4 soundness with environmental protection.

5 Senator Jeffords: Thank you very much, Mr. Chairman. I
6 took more than my time.

7 The Chairman: Thank you very much. Senator Sarbanes.

8 Senator Sarbanes: Thank you very much, Mr. Chairman. I
9 am pleased to welcome the administrator and Mr. Reinstein here
10 this morning.

11 You said in your statement and making reference to the
12 bungee jump and the President's anger about it, you said that
13 he pledged to locate the leaker and to punish the leaker. Did
14 that happen?

15 Mr. Reilly: He, in fact, ordered an investigation begun.
16 A number of people were investigated. To my knowledge, nobody
17 has been identified conclusively as of this time, which is
18 often true when you are trying to locate the source of leaks,
19 but he certainly wanted to do everything he could to identify
20 the person and make clear his very strong feelings about the
21 impropriety of what was done.

22 Senator Sarbanes: But no one has been identified?

23 Mr. Reilly: He said if he could identify the individual
24 that he would fire him. So I suspect that whoever it is went
25 underground, deep.

1 Senator Sarbanes: So they are still there, whoever it
2 is?

3 Mr. Reilly: Presumably.

4 Senator Sarbanes: I would like to ask you about this,
5 whether you agree as a number of articles have written that,
6 in fact, being at the frontier of technology on the
7 environment can also be a positive factor in economic terms.

8 Mr. Reilly: I very much believe that the kinds of
9 initiatives that are in the Bush Clean Air Act which we were
10 just discussing with Senator Jeffords are precisely the kinds
11 of approaches that stimulate the development of new technology
12 that causes the creation of new jobs.

13 In fact, in response to that act we are already seeing
14 significant investments in the whole range of automobile
15 energy, pollution reduction technologies, in alternative fuels
16 activity, in development of electric vehicles, low emitting
17 and even zero emitting automobiles.

18 Our estimate is that for every billion dollars of cost
19 associated with the Clean Air Act, we generate something in
20 the range of in excess of 20,000 jobs so that one cannot take
21 a simplistic approach to that. Obviously regulation has
22 impacts on the economy, and one has to be very careful to
23 ensure that the benefits of regulation are commensurate with
24 the cost. We do now lay out a substantial amount in this
25 country to achieve our environmental goals, but to a great

1 degree, and I think increasingly because of things like the
2 Clean Air Act, we are finding ways to dovetail our objectives.

3 Senator Sarbanes: Well now, I am quoting from an article
4 about Germany, and they say, more than anywhere else on Earth,
5 Germany is demonstrating that the greening of industry, far
6 from being an impediment to commerce, is in fact a stimulus.
7 From Bonn to Berlin, Germany's citizens, businesses, and
8 government have concluded that a robust economy and a safe
9 environment are like the chicken and the egg. One leads to
10 another. I take it that, essentially, you agree with that
11 observation?

12 Mr. Reilly: I don't. I wouldn't say that Germany is
13 necessarily ahead of us in that. I think we have something
14 like 40 percent of the worldwide market for environmental
15 technologies and services. That is a very respectable number,
16 and it is, I think, a tribute to the fact that we have found
17 ways, because of our high standards in the United States, to
18 exploit the economic advantages of these technologies.

19 Senator Sarbanes: But we used to have a larger
20 percentage, did we not?

21 Mr. Reilly: I am not aware that we ever have. It is
22 possible. I do not know that we did.

23 Senator Sarbanes: I thought only a few years ago we were
24 at a 70 percent figure.

25 Mr. Reilly: I am not familiar with that.

1 Senator Sarbanes: Well, we do not have to argue. Do you
2 agree that the Germans and the Japanese have, in a sense, sort
3 of targeted the environmental market and made major efforts in
4 that direction?

5 Mr. Reilly: I think the Japanese to my knowledge
6 increasingly have targeted energy efficiency as a major area
7 of emphasis. Whether that translates into emphasis on some
8 other of the technologies for treating waste, hazardous waste,
9 I think we undoubtedly lead the world in that. I am not so
10 sure.

11 Senator Sarbanes: Earlier you said, another key
12 question, frankly, is why did the United States play such a
13 low-key defensive game in preparing for Rio? That is your
14 question, and I wondered what your answer is to the question.

15 Mr. Reilly: Well, if you would go on, one of the things
16 that is -- that there was a negative reaction to the United
17 States because of our commitment of less resources than many
18 of the developing countries had been led to hope and even
19 expect at Rio.

20 We committed some \$250 million in new funds. The
21 Japanese committed \$2.5 billion in new foreign assistance.
22 The Germans committed a threefold increase in their global
23 environment facility.

24 Senator Sarbanes: No, no.

25 Mr. Reilly: Now, I am just explaining. This is one

1 reason for the negative feelings.

2 Senator Sarbanes: I understand you are putting it in a
3 broader context. But the question you raised is, why did the
4 United States play such a low-key defensive game. And then
5 you went on and said we assigned a low priority to the
6 negotiations of the biodiversity treaty, were slow to engage
7 the climate issue, were last to commit our President to attend
8 Rio. Now why did all of that happen?

9 Mr. Reilly: Well, let us take each of them in turn. The
10 decision of the President to attend the conference in Rio is
11 one that he withheld until we got a treaty on climate change
12 that was economically acceptable to the United States that did
13 not commit us to an economic straitjacket. That was a
14 successful technique. It had a negative public relations
15 consequence, but, in fact, was effective in the negotiations
16 on the treaty as Mr. Reinstein, I think, could attest.

17 As to the biodiversity convention, as late as March I
18 spoke at the United Nations and failed to mention biodiversity
19 as one of the likely achievements at Rio because, frankly, I
20 thought we were too far apart. What finally happened in the
21 biodiversity convention is, a number of provisions were
22 included in it that some of our allies, despite their negative
23 feelings about them, decided to accept in the hopes that they
24 can change them later, largely, I think for reasons of public
25 image and concern about the very kind of press that we got

1 when we held firm.

2 But we did not agree to things in the biodiversity
3 convention that we had resisted in the Uruguay Round of the
4 GATT; for example, constraints on intellectual property or on
5 our biotechnology industry. And those are consistent
6 positions of the United States and, going into the
7 biodiversity convention, had been positions of most other
8 developed countries as well.

9 Senator Sarbanes: Now, you say we put our delegation
10 together late, and we committed few resources. Why did we do
11 that?

12 Mr. Reilly: Well, the resource commitment the United
13 States made was, in fact, quite considerable, I think, given
14 the condition of our own budget, some \$250 million of new
15 funding.

16 It was not anything like a significant contribution to
17 the amounts of money that were bandied about: \$125 billion in
18 money was talked of by the Secretary General of the conference
19 as needed to help developing countries address their
20 environmental problems. We came up with an amount of money
21 that I think is both generous, but also very well targeted to
22 specific problems of reforestation and of energy conservation,
23 among others. That amount of money was just found
24 insufficient by a lot of the people who criticized our
25 position there.

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1 Senator Sarbanes: What about putting our delegation
2 together late? Why did we do that?

3 Mr. Reilly: Well, I do not really know why we would have
4 done that except that it was a very complex matter to pare
5 down the delegation. We wanted, basically for economic
6 reasons, to take a small delegation.

7 Senator Sarbanes: So you are telling me you would not
8 have done anything differently in the American approach, is
9 that right? You yourself, now, not the administration.

10 Mr. Reilly: I think, Senator, what we could well have
11 done is to have set out much earlier to contrast the very
12 specific, concrete, and pragmatic steps we were taking to
13 improve biodiversity, both in the United States and around the
14 world, or the steps that we were taking that were going to
15 have the impact of reducing greenhouse gases, versus the lack
16 of such measures in many other countries that have made more
17 substantial rhetorical claims. We did not do that effectively
18 and, therefore, we got the press that you are familiar with.

19 Senator Sarbanes: I have sympathy for you because I
20 think you were handed a tough brief and tried to do the best
21 you could with it and, even in the process of trying to do
22 that, were being undercut all the time --

23 Mr. Reilly: I was undercut by one unauthorized leak.

24 Senator Sarbanes: By other elements here in the
25 administration. Mr. Reinstein, I would like to put a question

1 to you. There was a report in the papers back in June at the
2 time of the conference that the U.S. had brought enormous
3 pressure to bear on the Netherlands, Austria, and Switzerland
4 on the global warming issue.

5 And I am just now quoting, top officials of those
6 countries were warned in their respective capitals over the
7 weekend that Washington considered the initiative unfriendly,
8 and the bilateral relations could suffer if it were not
9 withdrawn, diplomatic sources here said. The warnings
10 reportedly were delivered by the U.S. ambassadors to The
11 Hague, Berne, and Vienna. Quote: They treated us like we are
12 some kind of colony, said an Austrian diplomat. They put
13 pressure on our small countries. Massive intervention. It is
14 not very fair. A Swiss official here compared the U.S.
15 pressure to shooting sparrows with a cannon. What about that?

16 Mr. Reinstein: Senator, the initiative that is referred
17 to there was a draft declaration that was being promoted by
18 certain countries, including some of those countries, that
19 would, in effect, have reinterpreted the convention. This is
20 not the kind of declaration that is normally circulated at a
21 conference such as this, that urges countries to join the
22 convention, to sign it and promote it aggressively. But in
23 fact was an attempt by certain individuals to reopen the
24 negotiations. That is to say that the convention meant
25 something other than what it said.

1 We did indicate to those countries that we felt that that
2 was unfair and unwise. That the negotiations had been
3 completed. It would have created a rather difficult exchange
4 to bring all of these kinds of things out once again after the
5 completion of the negotiation. We indicated to those
6 countries that we felt this was not a particularly wise course
7 to pursue.

8 As far as the level of pressure brought on them, I do not
9 think it was that great. It was typical of the kinds of
10 interventions we make with governments of other countries if
11 they are pursuing an initiative that we feel is unhelpful in
12 the broad international context.

13 Senator Sarbanes: Well, in terms of the phrase, shooting
14 sparrows with a cannon, would you say you were shooting
15 something larger than sparrows? Or were you shooting them
16 with something smaller than a cannon?

17 Mr. Reinstein: I would say both. The concern was
18 considerably larger than a sparrow. It would have been very
19 disruptive in Rio to have this kind of initiative. And we
20 certainly used something quite -- smaller than a cannon.

21 Senator Sarbanes: Thank you, Mr. Chairman.

22 The Chairman: Thank you both very much for being with
23 us, and we appreciate your coming. As I said, the record will
24 be kept open for a week for any follow-up questions.

25 Mr. Reilly: Thank you, Mr. Chairman.

1 The Chairman: Actually, I think we may want to move
2 rather quickly. The record will be kept open for 2 or 3 days.

3 We now have a panel with Dr. John Gibbons, director of
4 the Office of Technology Assessment; Dr. Jerry Mahlman,
5 director of the Geophysical Fluid Dynamics Laboratory of
6 Princeton, New Jersey; Dr. Michael Oppenheimer, senior
7 scientist at the Environmental Defense Fund; and the Honorable
8 Michael Baroody, chairman, Global Climate Coalition of
9 Washington.

10 I would ask, Mr. Baroody, do you have to leave at a
11 particular time?

12 Mr. Baroody: I thank you for your inquiry and your
13 indulgence, but I have changed my plans because of the
14 importance of this, and I appreciate that. Thank you, Mr.
15 Chairman.

16 The Chairman: Let us start out with Dr. Gibbons of the
17 OTA of which I am very glad to be a member.

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1 STATEMENT OF DR. JOHN H. GIBBONS, DIRECTOR, OFFICE OF
2 TECHNOLOGY ASSESSMENT, WASHINGTON, D.C.

3 Mr. Gibbons: Mr. Chairman, thank you very much. I would
4 submit my formal testimony for the record and shorten my
5 remarks, although I will refer to several of the figures in
6 the testimony.

7 The Chairman: It will be inserted in full into the
8 record.

9 Mr. Gibbons: Thank you, sir.

10 I will provide the OTA's findings related to the ability
11 of the U.S. to meet the objective of the proposed Framework
12 Convention. As you know, the objective of the convention is
13 to achieve at some unspecified date stabilization of
14 greenhouse gas concentrations in the atmosphere at a level
15 quote that would prevent dangerous anthropogenic interference
16 with the climate system. And, of course, this is an uncertain
17 number and an uncertain date for the overall objective of the
18 convention.

19 Given our ignorance and the negative risks of increased
20 concentrations of greenhouse gases, experts find the present
21 greenhouse concentration very sobering, however uncertain. We
22 thus have serious and urgent reasons to address the problem.

23 At the same time, OTA's work shows that there are many
24 actions that can be taken by the U.S. to cut emissions of
25 carbon dioxide, they are definitely not Draconian and, indeed,

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1 may be economically attractive. The countries that signed the
2 convention are committed to several critical actions,
3 including preparing their own action plan to limit emissions,
4 international exchange of information and technology transfer.

5 These commitments are, indeed, important first steps. By
6 imposing these tasks on the developed countries, the
7 convention recognizes appropriately that the developed
8 countries, as the dominant contributors of greenhouse gases,
9 at least over the next 40 years or so, are best positioned to
10 develop and implement technology and policy solutions for the
11 near term. That is, over the next couple of decades.

12 Now in our 1991 report on changing by degrees, that is,
13 steps to reduce greenhouse warming, we addressed a question
14 posed by six committees of the Congress. And the question
15 was: Can the U.S. reduce the major greenhouse gas, carbon
16 dioxide? Can it reduce those emissions in the near term?

17 Carbon dioxide accounts for over half of the global
18 warming commitment that we get from these gases, and the U.S.
19 alone produces or contributes about 20 percent of the global
20 total. Thus, because of our resources and our high level of
21 economic activity, the U.S. has a very special responsibility.

22 Following our detailed engineering and cost analysis that
23 was prepared for that 1991 report, OTA reached three major
24 conclusions about reducing carbon dioxide.

25 First, while no single option, nor focus on a single

1 sector of the economy, is sufficient to significantly slow the
2 growth of carbon dioxide emissions over the next 25 years, by
3 adopting a package of low net cost measures across all sectors
4 we can make a major change.

5 Secondly, with more aggressive and potentially expensive
6 initiatives, it is conceivable that the U.S. could decrease
7 carbon dioxide emissions to from one-fourth to one-third below
8 the 1990 emissions over the next 25 years.

9 And third, that after the year 2015, U.S. carbon dioxide
10 emissions will inevitably rise again unless widespread
11 commercialization of nonfossil energy supply alternatives has
12 occurred by that time.

13 In other words, if we keep an eye on a certain date in
14 the future and not think about what is going to happen beyond
15 that date, we can fool ourselves about how well we are going
16 to be able to do.

17 To avoid such an upturn will require vigorous and
18 sustained research, development, and demonstration programs.

19 Now, we developed three scenarios, Mr. Chairman, to
20 describe the future U.S. carbon dioxide emissions, and they
21 are summarized on the chart to my left, which is Figure 1 in
22 my testimony.

23 The OTA so-called base case is a business-as-usual
24 projection of emissions. The figure illustrates the results
25 of the scenario. Thus, without any new initiatives, carbon

1 dioxide emissions is the U.S. are likely to increase up to
2 about 50 percent between 1987 and the year 2015 as our economy
3 roughly doubles.

4 Now, the base case scenario does assume continued
5 improvements in efficiency. In new homes, for example, 15
6 percent less -- more efficient by the end of this period,
7 automobiles at 37 miles per gallon and the like. So, much of
8 the base case itself does assume further improvements. And I
9 think -- therefore, we think this is a realistic projection of
10 these emissions without further actions.

11 The moderate case assumes policies to bolster market
12 forces in order to reduce emissions further. These actions
13 would result in little or no net cost to the economy in the
14 long run because the capital costs for purchasing more energy
15 efficient technology are offset by the avoided fuel costs.

16 Now this is not to say it is easy. In fact, the transfer
17 of funds between money saved by using less energy and money
18 spent in investing in more efficient infrastructure to offset
19 each other, that transfer is about \$150 billion a year.

20 Under our moderate scenario, emissions stabilize for
21 about 15 years out to the year 2005 when they then begin to
22 rise. But I would reiterate that our feeling is that this can
23 be done at no net cost and, in fact, leave us with an
24 infrastructure more efficient and therefore more competitive
25 in the world economy.

1 Now, the OTA tough case is our exploration of what you
2 could do if you really got very, very serious about carbon
3 dioxide reductions. These assume more stringent policies to
4 force fuller utilization of existing technology. That is, we
5 do not assume anything brand new by way of inventions, but we
6 do assume a full use of current available technology.

7 The tough scenario is designed to be, therefore,
8 technically feasible. But we also have it driven by normal
9 replacement rate of equipment. We don't try to wipe out power
10 plants or other things in an uneconomic, sudden way.

11 The tough scenario results in carbon dioxide emissions
12 dropping by about a third below today's level over the next 25
13 years. About 30 percent of those reductions would come from
14 commercial and residential building improvements. About 25
15 percent from manufacturing improvements, 15 and 20 percent
16 each from transportation and electric utilities, and about 10
17 percent from afforestation and reforestation.

18 The benefits from shifting to natural gas and nonfossil
19 fuels, which are going to be very important in the very long
20 term, would not make a significant impact even within the
21 timeframe up to the year 2015.

22 Now, the tough scenario may or may not be expensive. And
23 I want to emphasize that estimates of costs and job
24 dislocations are inherently uncertain because we do not know
25 at this point, for instance, what the value of energy saved is

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1 going to be because we do not know what the price of energy
2 will be during that time frame.

3 But, using the best estimates available, adding the upper
4 and lower end cost bounds of the roughly 100 technical options
5 that we looked at, we believe that the tough scenario could
6 result either in a saving of a little net money over this long
7 time period or perhaps cost up to net \$150 billion a year. Or
8 wind up somewhere in between.

9 The difference is that in this tough scenario, the fuel
10 savings that would accrue would be perhaps \$350 billion a
11 year, and the capital required to replace and to make our
12 system sufficiently efficient that we will use that much less
13 energy and still have our economic growth would be anywhere
14 from a mere \$350 billion up to perhaps \$500 billion. That is
15 the reason for the inherent uncertainty in these costs.

16 Our upper estimate of \$150 billion per year net cost
17 would be equivalent to the recent EPA estimate of what the
18 U.S. will be paying for all environmental protection by the
19 year 2000, that is a little under 2 percent of our GNP.

20 Now note that the moderate scenario is one that would
21 correspond to the numbers in the convention, that are spoken
22 about in the convention, namely, stabilizing emissions in the
23 year 2010.

24 While the case can be made, then, for achieving a low
25 cost hold on emissions by 2015, the rate at which we pump

1 greenhouse gases into the atmosphere, that is the intent of
2 the convention, the greater the challenge is to avoid
3 increases after that time. In other words, we must, in terms
4 of national policy, not only look at that time in the future
5 but think about where it moves from that point into the
6 future.

7 This will require, in thinking about the greater future
8 among other things, it will require shifting to low carbon and
9 nonfossil fuels as well as further increases in energy
10 efficiency. And that, in turn, will require sustained
11 research and development. We would note that recent Federal
12 energy research and development budgets, however, are only
13 about half of what they were in 1980. Funding for renewable
14 energy and for conservation has dropped by 80 percent in the
15 last decade. Only about 5 percent of the \$3.7 billion
16 national budget for energy technology R&D in 1991 was devoted
17 to the two promising alternatives of renewable energies and
18 energy efficiency. That is summarized in Figure 3 of my
19 written testimony.

20 While the convention recognizes the need for
21 international action to address climate change despite our own
22 high rate of carbon dioxide emissions, we alone cannot make a
23 significant difference in future concentrations of greenhouse
24 gases on the globe. It is a world issue, not just a U.S.
25 issue.

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1 We, along with other industrial nations, can assist
2 Eastern Europe, the former Soviet Union, and the developing
3 countries in four ways.

4 First, supporting a continuing climate convention.
5 Second, by encouraging technology transfer and the trade of
6 energy efficient and renewable energy technologies. Third, by
7 helping build local institutional capabilities such as energy
8 efficiency centers in these countries. And fourth, by
9 influencing energy and natural resource policies in developing
10 countries. For example, to discourage deforestation and to
11 encourage reforms in energy pricing policies. And, finally,
12 responding more positively to requests around the world for
13 family planning assistance, which will be critical in the very
14 long term.

15 Now, if -- it is suggested by the Intergovernmental Panel
16 on Climate Change, and by the EPA, and as stated as the
17 objective by the Rio Convention, if we wish to stabilize
18 concentrations of greenhouse gases at or perhaps 50 percent
19 above current concentration levels, this is a sort of feeling
20 of where we might be able to go without endangering our living
21 system, then much more serious commitment is going to be
22 required of all countries.

23 Two efforts would have to be pursued in parallel. One,
24 to further reduce greenhouse gases associated with all
25 economic activities, and second, ultimately, to stabilize

1 world population. Clearly in both instances many decades of
2 sustained effort will be required. But the longer we delay on
3 either of these, the more difficult and traumatic would be the
4 task to move toward that kind of sustainability.

5 Thus, OTA concludes, Mr. Chairman, that while the target
6 of reducing projected carbon dioxide emissions early in the
7 next century to 1990 levels is readily achievable by the U.S.,
8 the larger objective as defined in the UNCED convention is a
9 vastly larger challenge that needs careful study, including
10 much better understanding of how humankind and global
11 ecosystems can adapt to a different world.

12 The UNCED Framework Convention on Climate Change
13 represents some critical first steps. The proposed
14 commitments are not costly, but we believe will not occur
15 without supportive public policies. If judicious choices are
16 made, the actions to reduce the emissions can place the U.S.
17 at a more not less economically competitive position.

18 The commitments contained in the convention, however, do
19 not necessarily match its overall objective, so the convention
20 is best viewed as a start, not an end in itself. Continued
21 progress will depend, inside and outside that convention, on
22 strong leadership that recognizes the complementary roles of
23 the marketplace and public policy and the power as well as the
24 limits of technology to move us toward those goals of
25 sustainability. Thank you, Senator.

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1 [The prepared statement of Mr. Gibbons follows:]

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1 The Chairman: Thank you very much, Dr. Gibbons.
2 Excellent testimony. Dr. Mahlman.

3 STATEMENT OF JERRY D. MAHLMAN, DIRECTOR, GEOPHYSICAL
4 FLUID DYNAMICS LABORATORY, NATIONAL OCEANIC AND ATMOSPHERIC
5 ADMINISTRATION, PRINCETON, NJ

6 Dr. Mahlman: Mr. Chairman, my name is Jerry Mahlman. I
7 am the director of the Geophysical Fluid Dynamics Laboratory
8 of NOAA. Today I will evaluate the state of the scientific
9 estimates of climate change, in addition to the current state
10 of uncertainty in that knowledge.

11 For over 30 years our laboratory has been a world leader
12 in modeling the Earth's climate. We have long known that a
13 buildup of atmospheric carbon dioxide has the potential to
14 warm Earth's climate through the so-called greenhouse effect.

15 We now know that other greenhouse gases can contribute as
16 much to climate warming as does increased carbon dioxide.
17 These include methane, nitrous oxide, and the human-produced
18 chlorofluorocarbons. The amounts of all these gases are
19 currently increasing at a rate sufficient to have substantial
20 climatic implications.

21 Today I will emphasize only the estimated climatic
22 effects of these increasing greenhouse gasses for the middle
23 of the next century. Because I speak as a physical scientist,
24 I will not offer value judgments about these climatic effects.

25 At the onset, please recognize that a major international

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1 scientific effort to assess climate warming was completed in
2 1990. This is the so-called IPCC assessment. This report
3 involved nearly 2 years and 170 scientists from 25 different
4 countries. Also, it has been just updated in a 1992
5 supplement. This supplement reinforces the general
6 conclusions of the earlier IPCC report. The supplement has
7 reduced our uncertainty in several important areas. I feel
8 compelled to point out that these IPCC documents represent the
9 most widely accepted statements ever on climate change.

10 I strongly recommend these scientific reports to you as a
11 foundation for your own evaluations. I also recommend the use
12 of these reports as a point of departure for evaluating the
13 credibility of opinions that depart from it. Occasionally, my
14 own opinions that I offer today will differ somewhat from
15 those in these IPCC assessments.

16 I must emphasize, however, that overwhelmingly I agree
17 with the substance of these reports. This includes my support
18 for the highest priorities for climate change research.

19 My information I present today is derived mainly from
20 mathematical models of the climate system. These models in
21 many sites in the world now have improved in their ability to
22 simulate the current climate. Unfortunately, substantial
23 uncertainties do remain because of deficiencies in scientific
24 understanding and in computer power.

25 However, significant progress is expected over the next

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1 10 years. The deficiencies in such areas as ocean circulation
2 and cloud processes will gradually diminish.

3 I will give my estimates today on confidence based upon
4 simple betting odds. When I use the phrase virtually certain,
5 I mean that there is no plausible scientific alternative.
6 There is just no way to bet against that particular thing.

7 When I say very probable, I mean that there is a 9 out of
8 10 chance that this event will happen as predicted by the
9 middle of the next century. Probable, when I use that word it
10 means that I am implying a 2 out of 3 chance. And uncertain
11 means that there has been a plausible effect advanced and
12 hypothesized, but which lacks current evidence in our current
13 scientific understanding. The predictions I give follow,
14 thus, in decreasing order of confidence.

15 Human-caused increasing greenhouse gases. Virtually
16 certain. There is no real remaining doubt that the increasing
17 greenhouse gases are due to human activities. Clearly
18 identified are the burning of fossil fuels and the use of
19 chlorofluorocarbons.

20 The radiative effect of increased greenhouse gases,
21 virtually certain. Greenhouse gases indeed do absorb and
22 reradiate infrared radiation. Independent of other factors,
23 this property alone acts to produce a net increased heating
24 effect on planet Earth as we add more of these gases.

25 Large stratospheric cooling, virtually certain. The

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1 combination of reduced ozone and increased carbon dioxide will
2 lead to a marked lowering of upper stratospheric temperatures,
3 perhaps by as much as 15 to 35 degrees Fahrenheit. This
4 process has already begun and is already quite dramatic.

5 Long time-scales in the problem, virtually certain. We
6 all know that it takes decades to centuries for the carbon
7 dioxide to build up in the atmosphere due to the increased
8 emissions from burning of fossil fuels. Much less appreciated
9 in these arguments is that a return to normal due to any
10 mitigative action will require additional centuries, and
11 perhaps even millennia.

12 Global mean surface warming, very probable. For the
13 middle of the next century, global mean surface warming is
14 predicted to be in the range of 2 to 8 degrees Fahrenheit.
15 The largest uncertainty in this calculation is due to the
16 effects of clouds. My personal opinion is that this warming
17 is more likely to be in the lower half of this 2 to 8 degree
18 range.

19 Global mean precipitation increase, very probable. As
20 the climate warms, the rate of evaporation from the ocean
21 surface should increase, leading to an increase in global mean
22 precipitation.

23 Senator Jeffords: Excuse me, Doctor. I am going to have
24 to go vote. Senator Pell will be back shortly, and I will be
25 back right after I vote, so we will have a brief recess at

1 this point.

2 [Recess.]

3 The Chairman: The Committee on Foreign Relations will
4 come to order. I apologize to our witnesses, to the panel for
5 the fact these roll calls are going on, and we ask Dr. Mahlman
6 if he could resume his testimony.

7 Dr. Mahlman: I will back up just a little bit, Mr.
8 Chairman. By my assessment of probabilities, I have -- I said
9 for you benefit, sir, that when I use the words virtually
10 certain I mean that there is no way for the scientific
11 community to think of any alternative, basically. When I say
12 very probable I mean that we think that it is a 9 out of 10
13 chance, that I think it will happen in the middle of the next
14 century. When I say probable I mean it is a 2 out of 3
15 chance. And when I say it is uncertain, I mean that I believe
16 that there is a plausible hypothesis but for which the science
17 cannot pin it down very well yet.

18 So prediction of global mean surface warming, very
19 probable. For the middle of the next century global mean
20 surface warming is estimated to be in the range of 2 to 8
21 degrees Fahrenheit. By far the largest uncertainty in these
22 calculations is due to the effects of clouds.

23 My own opinion is that the warming is more likely to be
24 in the lower half of the predicted range.

25 Global mean precipitation increase, very probable. As

1 the climate warms the rate of evaporation should increase.
2 Nevertheless, some local regions would experience decreases in
3 precipitation.

4 Reduction of northern sea ice, very probable. As the
5 climate warms, total sea ice should decrease in high latitudes
6 of the Northern Hemisphere; however, recent results with our
7 interactive atmosphere ocean model calculate a resistance to
8 climate change at high Southern Hemisphere latitudes perhaps
9 for several centuries. Thus, little change in sea ice cover
10 may occur there in the Southern Hemisphere over the next
11 century.

12 Rise in global mean sea level, very probable. A further
13 rise of 4 to 12 inches in the sea level is estimated due to
14 the expansion of sea water in the warmer future climate.
15 However, predictions of sea level rise remain difficult and
16 uncertain.

17 Summer midcontinental dryness and warming, probable.
18 Several studies predict a marked decrease of the soil moisture
19 and elevated temperatures over summer mid-latitude continents.
20 This result is sensitive to assumptions about land surface
21 processes.

22 A timely one, tropical storm increases, uncertain. Some
23 model suggest that a warmer weather wetter atmosphere could
24 lead to an increased impact of tropical storms such as
25 hurricanes. Presently this hypothesis has not been properly

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1 addressed due to the limitations of current climate models.

2 Regional and temporal details of the next 25 years,
3 uncertain. I have described calculated changes to be averaged
4 over decades in the middle of the next century. At present
5 the predicted warming is still modest in comparison to natural
6 climatic fluctuations.

7 Such natural interannual fluctuations should and are
8 predicted to continue to occur. On these shorter time scales,
9 the natural fluctuations in the climate system will
10 artificially reduce or enhance measured warming signals.

11 Even though these uncertainties are, indeed, daunting,
12 important advances have already been achieved in observing,
13 understanding and modeling the climate. Today's climate
14 models can simulate many aspects of climate and its changes.
15 Indeed, it was these advances that led to today's awareness of
16 climate and its changes.

17 Indeed, it was these advances that led to today's
18 awareness of climate change and its implications. This
19 awareness has, in turn, escalated the requirement for more
20 reliable climate predictions. Although major progress has
21 been made, very important deficiencies remain.

22 For example, much more effort is needed worldwide to
23 provide a calibrated climate monitoring system. This must be
24 backed by a commitment to continue such measurements over many
25 decades. Also, focused research into climate processes must

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1 be accelerated. Theories must be reformulated and reevaluated
2 in the light of newer data.

3 To reduce uncertainty, climate modeling efforts must
4 receive resources that are in balance with the broader
5 scientific programs. In my opinion, the U.S. Global Change
6 Research Program is making excellent progress on these fronts.
7 However, even more effort will be required in the years ahead.
8 This is particularly true for climate monitoring. It needs a
9 sustained commitment that is not yet evident.

10 Without a strong monitoring system, neither our research
11 nor our predictions can be properly evaluated. Through
12 long-term research and monitoring uncertainties about our
13 climate system will decrease and our confidence for predicting
14 climate changes will increase.

15 However, surprises will continue to hit us that may
16 either increase or decrease the estimated effects.

17 Finally, I predict with confidence the society's need for
18 detailed climate change predictions will increase faster than
19 we scientists can provide them. Meeting these societal
20 challenges will require the combined forces of the world
21 leadership and the scientific community in a sustained effort
22 over many decades. Thank you, Mr. Chairman.

23 [The prepared statement of Dr. Mahlman follows:]
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1 The Chairman: Thank you, Dr. Mahlman. We now turn to
2 Mr. Baroody.
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1 STATEMENT OF MICHAEL E. BAROODY, CHAIRMAN, GLOBAL
2 CLIMATE COALITION, WASHINGTON, D.C.; ACCOMPANIED BY JOHN
3 SCHLEGY, EXECUTIVE DIRECTOR, GLOBAL CLIMATE COALITION,
4 WASHINGTON, D.C.

5 Mr. Baroody: Mr. Chairman, thank you. My name is
6 Michael Baroody. I am the senior vice president of the
7 National Association of Manufacturers and chairman of the
8 Global Climate Coalition. I should add that I am accompanied
9 today by John Schlegy, the executive director of that
10 coalition.

11 The coalition is a broad-based organization of business
12 and trade associations and companies representing virtually
13 all elements of U.S. industry including the energy producing
14 and energy consuming sectors.

15 Mr. Chairman, we believe it is essential that the climate
16 change issue be framed in the context of industrial
17 competitiveness in the global economic environment. The
18 Framework Convention on Climate Change affirms several
19 important principles that we consider essential to a sound
20 approach to the climate change issue.

21 The Global Climate Coalition supports prompt ratification
22 of the convention. However, we are deeply concerned about how
23 the convention will be interpreted and implemented. We
24 advocate the following principles which are embodied in the
25 convention.

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1 No targets and timetables. The convention calls upon the
2 developed nations to exert their best efforts to address
3 emissions of greenhouse gases. However, there is clearly no
4 binding commitment to achieve arbitrary emission reduction
5 targets and timetables.

6 As a second principle, economic growth is a prerequisite
7 for addressing environmental challenges. We believe that a
8 strong and growing economy in a robust industrial sector are
9 prerequisites for addressing domestic and international
10 environmental changes. With an expanding economy American
11 industry can continue to develop and produce technologies that
12 will make the American economy more efficient and, through
13 technology cooperation, make it possible for developing
14 nations to expand their economies in an environmentally sound
15 manner while benefitting American companies at home.

16 The convention affirms this principle and recognizes that
17 economic growth is essential for adopting measures to address
18 climate change. It also acknowledges that such measures must
19 take into account the need to maintain strong and sustainable
20 economic growth.

21 Greenhouse gas emission approaches must also be
22 comprehensive. And the coalition has long endorsed this
23 comprehensive approach for dealing both with greenhouse gas
24 sources and sinks on an international basis. This approach is
25 unequivocally affirmed as one of the key principles stated in

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1 the convention.

2 Efforts to address climate change the convention reads,
3 should take into account different socioeconomic contexts, be
4 comprehensive, cover all relevant sources, sinks, and
5 reservoirs of greenhouse gases and adaptation and comprise all
6 economic sectors.

7 Science must be the basis for national and international
8 policy. We believe that current scientific understanding is
9 inadequate for validating the theory of global climate change.
10 The convention affirms this view, acknowledging that measures
11 to address climate change will be most effective if they are
12 based on relevant scientific, technical and economic
13 considerations and continually reevaluated in the light of new
14 findings in this area.

15 Approaches to global climate change as another principle
16 must be based on sound policies that are economically
17 justifiable in their own right. In view of the substantial
18 economic risks of misguided policy responses, the Coalition
19 supports a comprehensive and international response to global
20 climate change based on cost effective scientifically sound
21 policies independently justifiable.

22 Indeed, the convention explicitly acknowledges that, to
23 quote, various actions to address climate change can be
24 justified economically in their own right. While we support
25 the inclusion of these governing principles and provisions in

1 the convention, we are also deeply concerned about the
2 subsequent interpretation and implementation of the
3 convention.

4 There are several provisions and elements of the
5 convention that could be interpreted and carried out in an
6 overly restrictive manner that is contrary to the spirit of
7 the convention.

8 The Coalition believes the proposed climate change
9 response strategies must be thoroughly analyzed to assess
10 their impacts on the domestic consumer and competitive impacts
11 on our overall economy. There is no question that measures to
12 sharply reduce greenhouse gas emissions would impose massive
13 costs on the United States economy.

14 Studies of capping carbon dioxide at 20 percent below
15 1990 levels have indicated the GNP would fall by over \$95
16 billion a year and that up to 600,000 jobs per year would be
17 lost. And I should note parenthetically that there are
18 several studies indicating impacts in that range.

19 More specifically other aspects of the convention are
20 also of serious concern. For example, we are troubled by the
21 issues raised by the agreement's objective which calls for the
22 stabilization of greenhouse gas concentrations to prevent a
23 dangerous interference with climate.

24 The focus on concentrations could imply Draconian to
25 severe, that is, 60 to 80 percent reductions of greenhouse gas

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1 emissions. The convention also fails to recognize that the
2 largest growth in greenhouse gas emissions is expected to
3 occur in the developing nations. Despite the significantly
4 higher contributions to greenhouse gas emissions by the
5 developing in the future, their share of the burdens in the
6 commitments section of the convention is grossly inequitable.

7 Developing countries bear few of the burdens and little
8 of the responsibility of meeting the terms of the convention
9 while developed nations bear the full responsibility of
10 submitting national plans.

11 The United States has the most stringent environmental
12 laws in the world. The American people and industry spent
13 more than \$115 billion in 1990 on protecting the environment.
14 International commitments that would require American
15 manufacturers to reduce current production capabilities, or
16 even to forgo future expansion opportunities in order to
17 address uncertain and arbitrary requirements to reduce
18 greenhouse gas emissions could be devastating to the American
19 economy, consumers, and workers. Should science ultimately
20 conclude that adverse global climate change is occurring, we
21 believe appropriate action, at a minimum, should include
22 reducing the rate of growth of emissions from developing
23 nations through the introduction of cost-effective technology
24 while providing protection of intellectual property rights
25 rather than to penalize the economies of the United States and

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1 of other developed nations.

2 [The prepared statement of Mr. Baroody follows:]

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1 The Chairman: Thank you very much, Mr. Barody. Now we
2 turn to Dr. Oppenheimer.
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1 STATEMENT OF MICHAEL OPPENHEIMER, SENIOR SCIENTIST,
2 ENVIRONMENTAL DEFENSE FUND, NEW YORK, NEW YORK

3 Dr. Oppenheimer: Thank you, Mr. Chairman. I will submit
4 my complete statement for the record and abbreviate it for
5 these purposes. I would like to thank the committee for this
6 opportunity to testify on the UN Framework Convention on
7 Climate Change.

8 I am an atmospheric physicist and a senior scientist with
9 the Environmental Defense Fund, a national nonprofit
10 organization with approximately 200,000 members.

11 But, today I am testifying on behalf of that organization
12 and 11 others who are members of the Climate Action Network,
13 U.S.

14 Mr. Chairman, our reaction to the treaty is mixed. With
15 firmer leadership from the U.S., a more effective instrument
16 could have resulted from these negotiations. The impending
17 global warming presents unprecedented risks for nature and for
18 society.

19 We regret that the specific commitments outlined in this
20 treaty are not commensurate with this challenge. Due to
21 efforts by the U.S. to weaken its provisions, there is a
22 yawning chasm between the treaty's explicit long-term
23 objective of ending the buildup of greenhouse gases in the
24 atmosphere and its meager nonbinding initial goals for
25 industrial nations.

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1 We welcome the treaty's focus on all greenhouse gases,
2 but we are troubled by the possibility that in combination
3 with its modest initial goals, this focus could allow some
4 industrial nations to avoid coming to grips with their
5 excessive environmentally damaging dependence on fossil fuels
6 and their emissions of carbon dioxide.

7 We are also concerned that the means to encourage and
8 even obligate reductions by developing nations remain vague
9 and insubstantial despite the fact that some of these nations
10 are already significant contributors to the global burden of
11 greenhouse gases.

12 Nevertheless the document does provide a mechanism which
13 could lead to significant reductions in the emissions of
14 greenhouse gases. Specifically, the treaty provides an
15 international benchmark against which the actions of the U.S.
16 and other governments will be measured. In the words of EPA
17 Administrator Reilly it creates a, quote, moral obligation to
18 move towards stabilization of emissions of greenhouse gases.

19 With the expectation that the U.S. Government will honor
20 the obligations implicit in the accord by attaining the
21 international standard of returning emissions of greenhouse
22 gases to 1990 levels by the end of this decade, and with the
23 additional expectation that this treaty represents only an
24 initial step toward ending the growth of atmospheric
25 concentrations of greenhouse gases through substantial

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1 reductions in emissions, we support expeditious advice and
2 consent by the Senate to ratification of this treaty.

3 Mr. Chairman, from a historical perspective, the treaty
4 before you represents the outcome of a 13-year process of
5 assessment and negotiation which drew on almost a century of
6 scientific research on climate change and global warming. The
7 treaty must be recognized as a product of extended
8 deliberation. It is not a spur of the moment political
9 response.

10 Furthermore, these diplomatic efforts have a firm basis
11 in nearly a century of scientific research on global warming.

12 Recently, a series of assessments by the National Academy
13 of Sciences and by the Intergovernmental Panel on Climate
14 Change have established that a warming, unprecedented in the
15 history of civilization, is likely to occur over the next
16 century if measures to eliminate emissions are not
17 implemented.

18 I will refrain from summarizing the high points of the
19 scientific findings because Dr. Mahlman has already done such
20 an excellent job. But I would just highlight three matters.
21 That if emissions of these gases continue to increase at their
22 current rates of growth, that we can expect a continuous
23 warming which is effectively irreversible on the human time
24 scale. That there is a significant lag between the emissions
25 of these gases and the manifestation of their full effects in

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1 the atmosphere, and that must be of grave concern because we
2 will never see the consequences of our actions until, in some
3 sense, it is too late to do much about it.

4 Finally, on the science, we should be just as wary of
5 what we do not know as we are of that which we understand
6 clearly. Throughout the treaty negotiation process, our
7 Government has tended to regard scientific uncertainty as a
8 reason for delay, as if the narrowing of uncertainty over time
9 could only change risk downward. But the one global example
10 of underestimation of risk occurred far in the other
11 direction; the rapid and unexpected decrease in the ozone
12 layer over Antarctica and now over the globe can be taken as a
13 warning of the dire consequences of the way nature operates.

14 Uncertainties in the projected rate of warming are large.
15 Uncertainties in our understanding of the regional and local
16 consequences of warming are even greater, but these
17 assessments are consistent in noting that the potential exists
18 for warming at a rate which would overwhelm the ability of
19 many societies to adapt and which would spell doom for many
20 natural ecosystems. Prudence dictates that measures be
21 implemented expeditiously to reduce the emissions of the
22 greenhouse gases. Rapid implementation of such measures is
23 necessary to meet the long-term objectives of this treaty.

24 Unfortunately, the treaty falls short of providing
25 legally-binding commitments to reduce emissions of the

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1 greenhouse gases by a date certain, but it does establish a
2 framework which could be used to address the problem in the
3 future. More important and despite its obfuscating language,
4 the treaty implicitly creates an international benchmark
5 against which actions of the U.S. and other nations will be
6 measured.

7 Among the specific aspects of the treaty of which we
8 approve are the following five points. The convention states
9 as its long-term objective to end the buildup of greenhouse
10 gas concentrations in the atmosphere in order to prevent
11 dangerous anthropogenic interference with the climate system.
12 Second, the treaty also recognizes the need to protect the
13 climate system for the benefit not only of the present, but
14 also future generations.

15 Third, the treaty establishes an international goal for
16 industrialized nations of returning greenhouse gas emissions
17 not controlled by the Montreal Protocol to 1990 levels by the
18 year 2000. As I shall note later, our approval on this point
19 is qualified because the goal is neither legally binding nor
20 sufficiently ambitious.

21 Fourth, the treaty calls for national plans to address
22 greenhouse gas emissions and, finally, the treaty provides a
23 process for ongoing review and strengthening of limits on
24 greenhouse gas emissions starting with the meeting of the
25 international negotiating committee in December of 1992.

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1 Despite these constructive elements in the treaty, its
2 potential value is compromised by its many serious flaws.
3 Among these is the following.

4 The near-term goal of the treaty, return of greenhouse
5 gas emissions to 1990 levels by the year 2000, falls short of
6 the reductions warranted by our scientific understanding.
7 Second, the apparent obligation of industrialized nations to
8 limit emissions, particularly the goal of returning emissions
9 to 1990 levels is not legally binding. Because the treaty
10 lacks the force of a binding obligation, some parties may feel
11 unconstrained by its goals. This is a prescription for
12 failure.

13 Third, there is no recognition of the special importance
14 of carbon dioxide emissions and of their major source, fossil
15 fuels. The developing countries rightfully call for the
16 industrialized nations to lead the way with firm obligation.
17 As the three points above demonstrate, such obligations are
18 absent from the document. Consequently, obligations of the
19 developing nations are nearly absent as well.

20 Fifth, the treaty offers the possibility for joint
21 implementation of obligations and for meeting emissions goals
22 through increasing the strength of greenhouse gas sinks; both
23 these approaches are unobjectionable in theory, but the treaty
24 fails to spell out criteria for their application and they
25 could subsequently be turned into large loopholes.

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1 Finally, and this is very important in light of
2 Mr. Baroody's comments, in contrast to the earlier Vienna
3 Convention on protection of the ozone layer, there is no
4 specific commitment to negotiate strengthening protocols by a
5 particular date. The Vienna Convention in an associate
6 resolution immediately called for the parties to get back
7 together and start negotiating; that's absent in this case and
8 it makes it critical for the U.S. Government to take a
9 leadership role in assuring that protocols are forthcoming.

10 As deficient as the treaty is, it nevertheless provides a
11 foundation on which to build. But several steps must be taken
12 quickly in order to breathe life into the process which could
13 otherwise expire. Most important, the U.S. Government must
14 reverse its dilatory approach and begin to provide leadership
15 in the effort to slow global warming.

16 During the negotiating process, the U.S., the world's
17 largest emitter of greenhouse gases, resisted the efforts of
18 the European Community, Japan and nearly every other country
19 in the OECD to formulate the treaty in terms of binding
20 obligations. There is little hope of meeting the challenge of
21 global warming successfully if the U.S. continues to obstruct
22 the negotiating process.

23 Among the immediate steps the U.S. Government should take
24 are implementation of an aggressive program to meet its
25 domestic obligations under the accord, the implicit

1 obligations, and to call for negotiations of protocols to
2 mandate further reductions in emissions of the greenhouse
3 gases.

4 In conclusion, it is fair to say that although the treaty
5 guarantees nothing, it does present the world community with
6 an opportunity to begin the journey toward effective action on
7 global warming. If nations, particularly the United States,
8 take their responsibility to future generations seriously,
9 they will move rapidly to ratify the treaty, mend its gaps
10 through protocols and initiate diligent domestic efforts to
11 reduce emissions.

12 On the other hand, if the U.S. and other governments take
13 refuge in the hazy language of the treaty and resist their
14 quote, moral obligation, then all of us will have lost the
15 last opportunity to get ahead of the warming curve. Thank
16 you, Mr. Chairman.

17 [The prepared statement of Dr. Oppenheimer follows:]
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1 The Chairman: Thank you, Dr. Oppenheimer. I defer at
2 this point to the Ranking Minority Member, Senator Jeffords.

3 Senator Jeffords: Fine, thank you. I would appreciate
4 it if you could give me some rather broad understanding of the
5 problems we face so that we can guide ourselves in the policy
6 perspective. As I understand it, one problem certainly is
7 bringing carbon from underground and bringing it above-ground
8 and throwing it up into the air. Another one is the
9 increasing use of the present above-ground carbon, not in the
10 gaseous form, and converting it into gas, and the third is the
11 decrease in the carbon-conversion capacity in the earth to
12 bring it out of the air and back to the ground, so I would
13 like to get a little better feel. Suppose we were to stop use
14 of all fossil fuels, would that end the problem?

15 Dr. Mahlman: It is really a superb question because it
16 points out the degree of difficulty in the problem in a way,
17 because all of the discussion is stopping the rate of increase
18 in emissions. You have asked a far more fundamental question.
19 Now, suppose we stop tomorrow, what would happen? Well, right
20 now, the atmospheric concentration of carbon dioxide is about
21 355 parts per million. Arguably, the preindustrial values
22 were around, say, 275. We do not know that exactly, but that
23 is pretty close. So if we were to magically, tomorrow, stop
24 all emissions of carbon dioxide into the atmosphere.

25 Senator Jeffords: No, I did not say that, that is

1 another question.

2 Dr. Mahlman: Oh, I am sorry.

3 Senator Jeffords: If we did not add any more to the
4 above-ground carbon, in other words, if we did not bring
5 anything up, if we just kept recycling what was above the
6 ground.

7 Dr. Mahlman: That is equivalent.

8 Senator Jeffords: Do we still have a problem?

9 Dr. Mahlman: Yes, because that would drastically, if I
10 understand your question correctly, that would drastically
11 reduce the net emissions of carbon dioxide. For example, if
12 you are burning biomass, that is rapidly recycled and does not
13 contribute to the net growth. It is the liberation of buried
14 carbon which is the issue, as you properly point out, so if we
15 were to do that and essentially recycle the carbon, say,
16 through biomass activities, then the 355 parts per million
17 would begin to decrease back down.

18 It may take 200 years for that to go back to
19 preindustrial values or it may take 1,000 years. We are quite
20 uncertain as to how long it would take the biosphere to
21 recover to essentially rebury that extra carbon which has been
22 liberated, but the only debate is whether it is a century or
23 millennia that it requires for that to disappear. That is one
24 of the fundamentally troubling aspects of this problem, is the
25 incredibly long time it takes for the system to repair itself.

1 Senator Jeffords: Well yes, but are we so bad now that
2 we have to go back or if you stabilize at present levels of
3 what is above ground now, would you be concerned about the
4 future?

5 Dr. Mahlman: Well, if you instantly stabilize at present
6 levels, we would expect further warming for another 20 to 30
7 years or so, because the system is still trying to catch up
8 with the increasing greenhouse gases and the answer to that is
9 a fundamentally nonscientific issue because it is essentially
10 a sociological issue. Is today's climate already with its 1
11 degree Fahrenheit warmer earth than a century ago, is that
12 good or is that bad? Those are fundamentally nonscientific
13 issues, so I defer to other members of the panel.

14 Senator Jeffords: I ask that because we have the
15 capacity in this country, for instance, for motor fuels to use
16 ethanol or something which would totally recycle without the
17 use of fossil fuels. So if that, the decrease in the use of
18 fossil fuels is the most critical aspect, then our policy
19 ought to be oriented more than it is towards decreasing the
20 use of fossil fuels, as well as, of course, more efficient
21 uses of energy or other sources of carbon energy. That is why
22 I asked it.

23 I know just from looking at our energy situation -- I am
24 deeply involved in our energy policy and trying to figure out
25 what we should be doing and it seems to me there are so many

1 advantages to finding different ways for the use of energy
2 other than fossil fuels for this Nation. Of course, it would
3 have to be worldwide when you get to the global warming
4 aspect, not just from a policy perspective. It would be
5 important for us to find something other than fossil fuels
6 from your perspective. Now, of the three that I mentioned, is
7 that the most serious one, bringing more up out of the ground,
8 the fossil fuels aspect?

9 Dr. Oppenheimer: What was number two? Could you remind
10 me what number two was?

11 Senator Jeffords: One was increasing the use of present
12 above-ground which is in the solid form and throwing it up in
13 the air, and the third one is a decrease in the absorption
14 capacity of bringing carbon back down.

15 Dr. Oppenheimer: Yes. Fossil fuels are the largest
16 single chunk of the problem.

17 Senator Jeffords: Which of the other two is next in
18 priority?

19 Dr. Oppenheimer: Well, the other two as I understand
20 what you said are related, the second one being deforestation
21 and third being reducing the capacity of the biosphere to
22 absorb carbon dioxide out of the atmosphere. Those two are
23 related, of course, because by deforesting, converting land to
24 other uses ultimately will probably make it more difficult for
25 the land to store carbon. So it is difficult to separate

1 them, but together they contribute perhaps 20 percent to 30
2 percent of the overall buildup of carbon dioxide in the
3 atmosphere and carbon dioxide itself, as of today, is about 60
4 percent of the climate forcing due to the greenhouse gases.

5 Senator Jeffords: Can you contrast between the Clean Air
6 Act and the national energy strategy approach toward solving
7 our air-quality problems?

8 Dr. Oppenheimer: Towards solving our air-quality
9 problems?

10 Senator Jeffords: Yes.

11 Dr. Oppenheimer: Well, are you referring specifically to
12 the national energy strategy as published by the Department of
13 Energy last year?

14 Senator Jeffords: Yes, right.

15 Dr. Oppenheimer: Well, the Clean Air Act is a pointed
16 effort to solve a particular part of our air-quality problems.
17 It is designed to reduce the burden of so-called criteria
18 pollutants in the atmosphere like sulfur dioxide, nitrogen
19 oxide to ozone. It is also designed to reduce the deposition
20 of sulfates. In other words, it is to reduce acid rain.

21 It is not particularly pointed towards reducing carbon
22 dioxide or increasing the efficiency with which we use energy,
23 but in fact, indirectly, some of the measures such as
24 increasing energy efficiency which do reduce carbon dioxide
25 emissions also reduce, for instance, sulfur dioxide emissions.

1 So it is a strategy which is not pointed at reducing our
2 energy use and our carbon dioxide, but it in fact will have
3 that outcome and will reduce ultimately by a few percent
4 probably our carbon dioxide emissions.

5 The national energy strategy is supposed to be pointed
6 towards, I suppose, having a rational energy policy but, in
7 fact, it is seriously deficient in that at this point, the way
8 it stands, it is a lost opportunity. There are not the
9 incentives to increase our efficiency in use of energy. There
10 are not the incentives to start looking forward over the
11 long-term towards nonfossil fuel energy sources, so the best
12 way to characterize the national energy strategy as it stood
13 in its published form is a bit of a disaster.

14 Senator Jeffords: Would anybody else like to comment on
15 that question?

16 Mr. Baroody: I would just want to point out, Senator,
17 that we are obviously talking about a series of very large
18 subjects. The subject of energy efficiency clearly has a
19 great deal to do with the issue before us and the subject
20 matter of the convention before the Senate. I just want to
21 point out that without command and control requirements
22 imposed on American industry to require that it be brought
23 about over the last 20 years, American industry has avoided to
24 the tune now of about 5 million barrels a day equivalent of
25 growth that otherwise would have taken place in the

1 consumption of fossil fuels.

2 We can all agree that energy efficiency, one, is
3 something that we need to continue to work on if, I hope we
4 can agree on at the same time, that it is something on which
5 we have made a great deal of progress already and those
6 factors have a lot to do with the issues raised by Clean Air
7 Act legislation, by a national energy strategy, and I hope
8 everyone will keep front and center in the debate over the
9 convention that we do hope will be ratified before this
10 session is over.

11 Senator Jeffords: Now, the energy bill that is presently
12 in conference, do you see any significant advantage to the
13 energy bill over the national energy strategy with respect to
14 the CO2 problem or the energy policy?

15 Dr. Oppenheimer: There will be modest improvements in
16 the efficiency with which we use energy in a variety of
17 sectors which would follow from the current versions of the
18 energy bill, so-called energy bill. But, I must say that both
19 the national energy strategy and the energy legislation as it
20 is now drafted are seriously deficient in lacking a provision
21 which was in earlier and which was pointed to in the recent
22 National Academy of Sciences' report, that is some effort to
23 increase the efficiency with which light-duty vehicles use
24 fuel.

25 There are many ways that that can be done, be it

1 fuel-efficiency standards, increased fees of various kinds,
2 so-called fee-bate systems, taxes on fuel. There are plenty
3 of ways to increase the efficiency with which cars use their
4 fuel. Government has lots of levers. Cars are the major
5 single or one of the major single places we can go to start
6 increasing the efficiency of our use of energy, and the
7 failure to come to grips with that problem in either the
8 national energy strategy or the energy legislation is an
9 abandonment of the responsibility in my view.

10 Senator Jeffords: Would you comment on the tax
11 incentives that are contained in that bill and in our national
12 energy policy as to whether or not they are helpful or
13 destructive, shall we say, in terms of trying to solve the
14 global warming problems, or the energy problems of this
15 Nation?

16 Dr. Oppenheimer: I will simply say, and maybe Jack
17 Gibbons wants to comment on that, there are lots of policy
18 levers which can help us use energy more efficiently, reduce
19 our emissions of carbon dioxide and solve or move towards a
20 solution of the global warming problem. There are freightable
21 permit systems, there are taxes, there are command and control
22 systems which have advantages and disadvantages. All of these
23 approaches are out there to be used if only the Government
24 would choose to use them.

25 We have been lacking, in this administration at least, a

1 comprehensive policy to deal with global warming to look
2 forward over several decades and really start putting a
3 structure in place, an energy policy which would start
4 reducing carbon dioxide emissions. As a result, none of these
5 levers have been pulled very aggressively and we have missed
6 an opportunity to do a lot of experimentation.

7 I am convinced that if our attitude changes on this and
8 we start trying to find ways of reducing emissions, that we
9 will find a plethora of opportunities to reduce carbon dioxide
10 emissions in a cost-effective way which will help, not hinder
11 the economy.

12 Senator Jeffords: Dr. Gibbons.

13 Dr. Gibbons: Let me add, Senator, I agree with
14 Dr. Oppenheimer's points. It seems to me the thing to think
15 about in the national energy strategy, the unsaid convention
16 in our national economic goals is to try to get our actions
17 lined up so that they are mutually supportive, they go in the
18 same direction. And, in fact, the good news is that there are
19 many, many actions that can be taken which support all these
20 goals simultaneously.

21 There are other actions which may support one, but going
22 to wrong way for another, so sorting out these while
23 simultaneously thinking about environment, not only our own
24 clean air, but the global atmosphere, our own economy and the
25 growth of the economies of the Third World, we ought to be

1 thinking about those in a package. I think one should
2 underscore the energy bill which is now coming hopefully to a
3 conclusion.

4 If it is concluded, it still is not finished because we
5 have for a variety of reasons had to abandon the notion of the
6 whole transportation liquid fuel issues in that debate. If
7 you abandon a focus on our liquid fuels consumption, our
8 imports, our enormous imports now, we are over 50 percent
9 import dependent, then you ignore one of the central issues,
10 both of our hopes to get CO2 emissions down and our hopes to
11 improve our own economy.

12 To me for instance, a trade between buying oil from the
13 Persian Gulf versus taking that money as capital investment to
14 save that oil by making more efficient automobiles is a pretty
15 good trade. It brings jobs home. It spends the money at
16 home, so I think we need to think about these things in
17 parallel, but rest assured that there are options that any of
18 us can provide the committee which are in alignment in a
19 positive way with all three goals of environment, economy and
20 our own national security.

21 Senator Jeffords: Well, it seems to me as I look at our
22 policy, our primary tax incentives are on fossil fuels,
23 providing more fossil fuels. Now, that would seem to be quite
24 inconsistent with the goals of this bill. I do not think
25 there is anyone who would disagree with that.

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1 Dr. Gibbons: To a degree, but the energy bill -- and as
2 we move toward the turn of the century, we cannot suddenly
3 shift to nonfossil fuels without great trauma and economic
4 dislocations. The alternatives simply are not in place yet in
5 any way that is economically competitive, but if we begin now,
6 it is going to take us a decade or more to get to that point
7 from wherever we start. If we wait a decade, it will be a
8 decade beyond that and the problem will be worse.

9 Senator Jeffords: Right, and it will probably take 20 or
10 30 years before you get a good start.

11 Dr. Gibbons: So the point is to try to use more
12 efficiently our current resources. This is happening in the
13 way we burn natural gas to make electricity, twice the
14 efficiency we had 20 years ago. In the advanced
15 coal-combustion methods for higher efficient use, more
16 efficient use of those resources, that means less CO2 per unit
17 of usable output, so there are a lot of things we can do with
18 our current fossil energy sources, while meanwhile, we begin
19 to prepare to move away from these fossil sources to the
20 long-terms successor energy sources.

21 You know that even before the whole global warming thing
22 came up in the debate, it was clear that the world was going
23 to have to make a transition to some nonfossil energy within a
24 couple hundred years. Now the numbers look like perhaps much
25 less than that because of some unanticipated consequences of

1 burning up all those fossil fuels. So the time is shortened,
2 but we have to do it at some point anyhow. It simply pushes
3 the timeliness back on our generation rather than our
4 great-granchildren.

5 Dr. Oppenheimer: Could I? If what you are asking is,
6 are taxes an efficient way to get people behave in a different
7 way and, therefore, reduce emissions or reduce pollution,
8 generally, I just tell a story about the town of New Shoreham
9 in Rhode Island, the chairman's State where I have spent
10 considerable time, where they instituted a dollar a garbage
11 bag tax on every bag that you brought to the landfill, which
12 did not include recycled materials.

13 You take out your recycled materials and separate them,
14 that is free, but anything in a plastic bag costs \$1. That
15 focused in the mind very quickly and the recycling rate in
16 that town is up around 60 or 70 percent right now. It is on
17 an island. It was very expensive to deal with the garbage
18 problem, so it actually saved everyone money because it
19 reduced their general taxes because they had to pay \$1 every
20 time they brought a bag to the dump, so of course taxes can
21 help us reduce emissions.

22 A stiff tax on gasoline would help encourage people to
23 drive efficient cars. Of course, it is politically difficult
24 and so it may not be the only possible solution we have out
25 there and there are lots of other alternatives, which in some

1 cases are politically more palatable like automobile fuel
2 economy standards, like marketable permit systems. We have
3 lots of ways to skin the cat.

4 Senator Jeffords: My point was that we are using most of
5 our tax expenditures on the fossil-fuel side, enhancing,
6 finding or using fossil fuels as against other alternatives at
7 this point. That is my point.

8 Mr. Baroody: At the same time, I would just add the
9 observation, Senator, that, if you will, the other side of the
10 story is that the impact of tax strategies is going to be an
11 impact on economic growth and I think that it is important to
12 keep in mind, as we said at the outset, we would urge the
13 Senate to look at this convention with the view to the context
14 of global economic competition.

15 That very fact that American industry finds itself to be
16 under increased competition from around the world has almost
17 regardless of national policy here, tax policies for example,
18 driven down or, at least, created a powerful incentive, a
19 market incentive to drive down American industry's use of
20 fuels wherever those efficiencies are realizable. Also, we
21 have imposed on them the requirement to look at new ways and
22 processes to make them more efficient regardless of energy
23 use, which makes them less polluting.

24 It is the very global competition we are involved in and
25 which we fear wrong policies in implementing this convention

1 would stifle us, that are driving us in a positive direction
2 because of the market forces. That very global competition is
3 forcing on industry disciplines and the search for
4 efficiencies which will over a period of time -- I cannot
5 predict, which is why we will be against goals and timetables
6 and is going to move us towards reduced emissions of
7 greenhouse gases, certainly CO2 included.

8 Senator Jeffords: One last question for you. You said
9 hundreds of thousands of jobs would be lost if we use the
10 wrong strategy with respect to a reduction of CO2 emissions.
11 Are you confident that the economic models that come up with
12 that conclusion are as good or better than the climate models
13 that we are talking about?

14 Mr. Baroody: I am confident that they are at least as
15 good if not better than the climate models and I think there
16 is little reason to doubt that a command and control
17 requirement of stabilization, or that goes beyond
18 stabilization would require a diminishment of economic
19 activity. Now, that is not to say that in some sectors they
20 would be relatively less harmed than others, but those sectors
21 which are energy intensive are going to be disproportionately
22 hit by any command and control strategy that requires
23 reduction of CO2 emissions.

24 At the same time that -- all the competitive pressures I
25 was just talking about is moving all of them in that

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1 direction. But the short of it is there is a remarkable
2 agreement among several economic studies about the magnitude
3 of the impact of stabilization or stabilization plus
4 strategies and they amount to the loss of something like
5 600,000 jobs by the year 2000, and they do not stop there.
6 The loss of jobs increases up to something like a million and
7 a half in just 5 years out beyond that date. These are very
8 serious matters.

9 Senator Jeffords: Dr. Gibbons.

10 Dr. Gibbons: I would just like to add to Mr. Baroody's
11 comments. One has to be very careful about the results of
12 models, whether they be global greenhouse gas or economic
13 models. If I remember correctly, the figures that Mr. Baroody
14 was speaking about had to do with the 20 percent reduction of
15 current emissions and, indeed, that lies somewhere between our
16 so-called moderate and tough scenarios, so I think we are not
17 in all that amount of disagreement about the kind of
18 dislocation that you would run into if you would go very fast
19 and very hard.

20 But the convention as described is not right below the
21 moderate line, but about the moderate and there we feel, with
22 detailed analysis, these kinds of dislocations are not going
23 to be seen if we take the right steps. We can always take
24 foolish steps of course, but if we take careful steps, we can
25 achieve the numbers being spoken of in the convention. Now

1 what is needed, it seems to me, is as recommended this morning
2 with the earlier witnesses, to proceed as quickly as possible
3 to sitting down and working out some protocols so that we
4 better understand what can be done beyond these initial steps
5 that are before the committee.

6 Senator Jeffords: Thank you, Mr. Chairman. I have taken
7 more than my share of time. I apologize for that.

8 The Chairman: No, no. Thank you very much. I have just
9 one general question concerning energy. Would we not all
10 agree that 100 years from now, a long way down the road but
11 not a long way when you are looking at the history of mankind
12 and the earth, 100 years from now we will probably have
13 infinite energy either from fusion or from the ocean, or the
14 tidal movements, the wave motions and, in view of that, should
15 we not put into our strategy the thought that this is not a
16 permanent situation we are facing, it is a temporary one,
17 whichever? Dr. Gibbons.

18 Dr. Gibbons: Well, as I mentioned earlier, I think you
19 are correct, Mr. Chairman, in that we are in a transition time
20 now and in probably the first half of this next century, to
21 move from an age of fossil fuels to an age of an energy that
22 is a successor source of energy. What that source of energy
23 will be has yet to be determined in terms of the economics.
24 We do not have a lot of choices, but it seems to me that all
25 of the evidence points out that we can ill afford to go

1 leisurely, as leisurely as we once thought towards that
2 transition.

3 We need to move more aggressively to determine, for
4 example, can renewable energy sources be developed that are
5 competitive with, for instance, nuclear. That is a thing that
6 can be proven out one way or the other within the 10 or 20
7 years. The sooner we do that, the more easily we will effect
8 this transition in decades ahead.

9 Dr. Oppenheimer: Mr. Chairman?

10 The Chairman: Dr. Oppenheimer.

11 Dr. Oppenheimer: We are in the unfortunate position that
12 the time scale over which we would be forced, in any event, to
13 find other energy sources on the order of a century or so is
14 probably somewhat uncomfortably longer than the time scale
15 over which the climate will change significantly enough to
16 have substantial affects on ecosystems and society, so we
17 cannot just let it happen.

18 It is necessary for governments to step in and try to
19 formulate in a foresighted way policies which will accelerate
20 the transition away from fossil fuels, which is inevitable in
21 any case.

22 Mr. Baroody: Senator Pell, you introduced what I think
23 is a profoundly important perspective on all of this. We must
24 not act today as if we assume that the current circumstance is
25 permanent. That has not been the experience in this country

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1 nor the experience of the world. I am not here as a
2 scientist. I am not a scientist, but I stand in awe of what
3 science and technology brings by way of change and we must not
4 act in precipitous, Draconian ways, as a matter of national
5 policy to limit our own ability to compete in the near term
6 when we know that in the long term, things are going to be
7 different, though we do not know how.

8 I cannot answer your question either yes or no. I do not
9 know whether 100 years from now we have infinite energy. I
10 know that 100 years from now and on a much shorter time frame,
11 technology will take us much further, both in our ability to
12 produce energy and in research and science, and our
13 understanding of the global climate question we have before us
14 today and we should not act as if we either are in a permanent
15 and unchanging situation, or as if we have all the answers
16 today when we clearly do not.

17 The Chairman: To come back to a more parochial or more
18 local coming to the question of the economic competition that
19 Dr. Gibbons spoke about with other nations, what do we see as
20 the market involved on a world scale for the creation of the
21 various devices that will be distributed as a result of this
22 treaty and others like it?

23 Dr. Gibbons: Mr. Chairman, Alexis de Tocqueville once
24 observed that the thing to do is to discern the inevitable
25 then exploit it. It seems to me, one can discern the

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1 inevitable situation of an energy transition, a move towards
2 much more efficient use of resources, green manufacturing, all
3 of which not only address very fundamental and troublesome
4 environmental issues, but all of which relate to the future
5 makeup of the economies of the world.

6 The size of these is difficult to determine at this
7 point, but I believe that the evidence of an emergence of
8 increased competitiveness in manufacturing and increased
9 opportunities through new technologies and new products is
10 that this environmental thrust is going to be one of the main
11 drivers in the future world economy. If we want to sit back
12 and not discern the inevitable, that would be a mistake.

13 The Chairman: I thank you all very much indeed. It has
14 been quite a long morning. You have been very patient. The
15 record will be kept open for another couple of days. I would
16 ask unanimous consent to include at the appropriate place in
17 the record a statement by Senator McConnell, as well as a
18 statement by the National Resources Defense Council.

19 Senator Jeffords: And, Mr. Chairman, I would ask you
20 unanimous consent that the statement of Senator Frank
21 Murkowski be placed in the record and also that questions of
22 Senator Murkowski for Administrator Reilly be allowed to be
23 propounded to him for answers in writing.

24 [The prepared statements of Senator and Murkowski and the
25 NRDC follow:]

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1 The Chairman: Right. I would urge that since it is only
2 going to be a couple of days, we would hope his answers would
3 come quickly.

4 [Whereupon, at 1:37 p.m., the hearing adjourned.]

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