THE BROOKINGS INSTITUTION

CLIMATE CHANGE POLICY: NEXT STEPS

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P R O C E E D I N G S

MR. PURVIS: Climate change policy has many paradoxes and ironies. Let me highlight two potentially controversial ones to kick off our next session, which involves four distinguished top climate change negotiators. I'd like to ask our speakers to remain in their seats while each of them comes to the podium individually to present their remarks, and then we'll have a moderated discussion here in these seats.

The first paradox is the following: International climate cooperation begins at homes, not abroad. Yes, addressing climate change will require coordinated international action. The United States cannot solve the problem alone. Yet, U.S. participation in international initiatives usually hinges on the existence of a prior domestic consensus. The United States led the global drive to repair the earth's ozone layer, for example, by reaching agreement first with U.S. industry on the domestic phase-out of ozone-depleting substances. Only then did the United States export the U.S. approach to the rest of the world.

Also, most successful trade negotiations begin with the Congress approving trade-promotion authority. Presidents then negotiate with the confidence that if they bring back an agreement that conforms to the congressional mandate, the odds of approval are high. Kyoto failed in part because no domestic agreement existed in the early 1990s, when the negotiations began, about how to deal with the global warming

problem. That domestic disunity continues today, and overcoming it is a prerequisite for American leadership abroad.

Second: Global negotiations are often obstacles to, not the path toward, global solutions. One of the lessons of Kyoto may be that global climate negotiations are too hard. There are too many countries with too many interests and too many ideological obstacles. Plus, global talks empower nations, like Saudi Arabia, that view action against climate change as a threat to their economic interest, and they wish only to block progress.

The alternative, of course, is to grow a global regime slowly, starting with bilateral and regional arrangements. The Bush administration is sometimes criticized for pursuing this approach. The real problem with the administration's policy is not its flexible architecture, but rather that its initiatives lack substance and funding. The global trade regime, a real success story, began with only a handful of like-minded countries. Those nations agreed to simple rules and created incentives for other nations to join. New countries and rules were added over time. Working for progress with like-minded nations does not require abandoning U.N. talks, but it suggests that not placing all of our eggs in the U.N. basket is the wisest course.

What follows from these two unconventional insights? In sum, the United States objective should be to build an international climate cooperation regime from the bottom up, starting first at home

with meaningful policies, then extending its approach to like-minded nations and eventually the rest of the world. That model stands in sharp contrast to Kyoto, which sought to create a global regime from the top down. If these observations are correct, then the most critical question for U.S. climate policy is what more needs to be done to hammer out a bipartisan domestic approach.

For several other perspectives, we turn now to a group of American statesmen with enormous experience in climate policy. Each of our discussants has agreed to speak here at the podium for approximately 10 minutes and then participate together in a moderated discussion based on your questions. For efficiency's sake, I will introduce all four of the gentlemen now, in the order in which they will speak.

William Reilly has been for several decades one of the country's foremost leaders on environment and energy issues. He is currently the chairman of the National Commission on Energy Policy, a bipartisan group of prominent energy experts, that has just released a blueprint for a national energy strategy, including on climate change. Copies of the commission's report are available for free outside the auditorium. Mr. Reilly founded Aqua International Partners, a private equity fund, investing in water projects in the developing world. Mr. Reilly is also chairman of the board of the World Wildlife Fund, and previously he served as its president. From 1989 to 1993, of course, he was administrator of the Environmental Protection Agency. While at

EPA he led the U.S. delegation to the 1992 Rio Earth Summit, and he played a major role in shaping the U.N. Framework Convention on Climate Change, which was concluded at Rio and ratified by the United States the following year.

Stuart Eizenstat is widely recognized as a skilled negotiator with almost limitless intelligence and stamina. Currently he heads the international practice group at the law firm Covington & Burling. From 1977 to 1981, Mr. Eizenstat was Jimmy Carter's chief domestic policy advisor. In the Clinton administration, he was at various times deputy treasury secretary, undersecretary of state for economic affairs, undersecretary of commerce for international trade, and ambassador to the European Union. In these roles, Mr. Eizenstat had a prominent role in the development of major U.S. economic initiatives. In 1997, he served as the chief U.S. negotiator at the Kyoto Conference on Global Warming. Mr. Eizenstat also successfully negotiated major agreements with European governments on Holocaust-era assets. The renewal of interest in these World War II-era issues owes much to his efforts. For his work and contributions, Mr. Eizenstat was awarded honors from the United States and several foreign nations.

Frank Loy has been an inspirational leader and tireless advocate of centrist environmental policies for many decades. Mr. Loy was undersecretary of state for global affairs from 1998 to January 2001. During his tenure, he served as chief U.S. climate negotiator, winning

bipartisan praise, as you just heard from Senator Hagel, for his efforts to finalize economically and environmentally sensible rules for the Kyoto Protocol. Previously, Mr. Loy was president and chairman of the board of the League of Conservation Voters and chairman of the board of Environmental Defense. He is presently a member of the board of Environmental Defense, the Pew Center on Global Climate Change, and vice chairman of Resources for the Future. From 1981 to 1995, Mr. Loy was president of the German Marshal Fund of the United States. Previously he served in senior State Department positions, practiced law at O'Melveny & Myers, and ran the reorganized Penn Central Company and was senior vice president for Pan Am international operations.

David Sandalow is one of the most talented and liked environmental scholars in Washington. Currently an environmental scholar here at the Brookings Institution, Mr. Sandalow's commentaries and policy recommendations appear regularly in leading newspapers. Before arriving at Brookings, Mr. Sandalow was executive vice president of the World Wildlife Fund. In the Clinton administration, Mr. Sandalow held several top international posts, including assistant secretary of state for oceans, environment, and science; senior director for environmental affairs at the National Security Council; associate director for global environment at the White House Council on Environmental Quality. In each of these assignments, Mr. Sandalow helped coordinate U.S. government policies on global warming talks. From the 1997 Kyoto

Conference to The Hague in 2000, Mr. Sandalow represented the United States in sensitive climate change diplomacy. Earlier in his career, Mr. Sandalow was an attorney at the Environmental Protection Agency, where he became expert on a broad range of environmental law and policy issues.

For the record, the Bush administration's chief climate negotiator, Paula Dobriansky, and President Clinton's first climate negotiator, Timothy Wirth, had scheduling conflicts and could not be here today. I should also disclose that I have worked with each of our discussants in the past, and I admire them tremendously. But I promise that that will not stop me from pressing them for serious answers to what I'm sure will be your probing questions.

So let's get started. Ladies and gentlemen, Bill Reilly.

[Applause.]

MR. REILLY: Thank you, Nigel.

Well, in what he has written about climate change, Nigel has been, I think, thoughtful, prudent, very perceptive; and all of the nice things he said about me, absolutely right on. I am grateful to him for helping organize this conference, for the way he framed the issues, and the people he's gotten to address them. We sat here wondering what's a nice conservative Republican senator like Senator Hagel doing wading into the tar pit of current sympathy for addressing the climate problem.

I met with Senator Hagel yesterday evening in his office, and he explained in a little more detail some of what he's going to propose. And I would say that I welcome it very much. I think that he is fundamentally correct in judging that the country does not get this issue despite polls that suggest otherwise. There are other measures that suggest that it has not penetrated to the point where there is public support for significant response to the climate problem or to other aspects of our energy supply and security issue.

I pressed Senator Hagel to go a little further than he said he would yesterday. I happened to fly down on a plane from Boston to Washington, where I picked up a magazine, Spectator magazine, at one of those magazine racks on the shuttle. He was on the cover of it--the first really negative press I've ever seen about Senator Hagel. I think it was called "Senator McHagel." And there are some heavy accusations there that are likely to be exacerbated by his remarks here and introduction of this new legislation--heavy accusations that he has suspect friends, like Colin Powell, and that he is reasonable on some issues that worry the author of that article.

So I welcome the initiative and I think that it's a very constructive and important one and may help the country move toward doing something more substantial and more serious with respect to the climate problem.

Well, I want to talk about the National Commission on Energy Policy report, "Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges." This is the product of two and a half years of marvelous staff work, headed by Jason Grumet and Lisel Loy, and a group of members from very diverse sectors--from the energy industry, the auto industry; from science, Nobel Prize-winning scientists; from the electric utility industry, the Consumers Federation of America, National Resources Defense Council--a commission I was privileged to co-chair with John Holdren, Heinz Professor at Kennedy School at Harvard, and John Rowe, chairman of the Excelon Corporation, the major electric power utility based in Chicago.

The report represents our consensus on energy issues, a package of proposals and recommendations to put the country on course to sound energy policies. We address vulnerability to oil supply disruptions and climate change, as well as the need for much greater efficiency in use of renewables, for better vehicle fuel economy--a subject I will testify on later today before the House Science Committee, Congressman Boehlert, for cleaner-burning coal, for next-generation nuclear, for additional conventional infrastructure, including LNG and reliability standards for the electricity grid, and for investments in research and development to secure the new and better technology we need.

We confront today challenges that have been, many of them, a century or more in the making, and solutions to them will require that we be long-distance runners. Since I headed that U.S. delegation to Rio in 1992, much has changed in the debate over climate. Much remains the same. The evidence is much stronger today, and our commission accepted the preponderance of scientific opinion, that human activity is changing the earth's climate, with some uncertain risk to our future. In response, numerous nations and businesses have begun to take action to reduce their emissions. Dupont Company, for one, whose board I have served on as chair of the Environmental Policy Committee since 1993, has reduced its greenhouse gas emissions by more than 60 percent. And that's just one example of a major industrial company that has confronted this problem and found that it hasn't wrecked its bottom line.

Here in the United States, however, many of the arguments against taking action are the same as they were 15 years ago--concern about the uncertain costs of emission limits and impacts on the economy; concern about placing the United States at a competitive disadvantage; concern that initiating a program with a hard cap on emissions will not give energy-intensive industries and energy producers sufficient time to adapt. The commission grappled long and hard with these concerns and developed a meaningful, practical first step in tackling a century-long challenge posed by global warming.

Before getting into the details of the proposal, I want to cite three themes that bottomed our deliberations.

First, the long-term risk is real. We agreed that there is a real long-term risk getting started now. Providing businesses with greater certainty, we believe, will avoid larger economic costs later.

Second, using market signals is the best way to spur innovation, effectively putting a modest yet increasing price on greenhouse gas emissions. Our plan seeks to effect decision making about new capital without undermining the value of existing capital infrastructure.

Third, this is a global problem. Only a global effort, including participation by developing countries, can succeed. U.S. efforts must be designed to encourage global participation while protecting U.S. competitiveness if our trading partners do not take commensurate actions.

As for our proposal, first, we propose mandatory intensity-based limits. Similar in design to the Bush administration's plan, the commission proposes first to slow the growth of carbon emissions, then to stop, and finally to reduce them. Like the administration, we propose to achieve reductions by limiting the carbon intensity of the U.S. economy. Our proposal to reduce U.S. carbon intensity by 2.4 percent annually would greatly slow, though not fully stop, the growth of emissions. After a decade, beginning in 2010, we propose that the level

of intensity reductions be increased to the point expected to stop emissions growth. This approach would enable the economy to adapt to carbon constraints cost-effectively and without unnecessary dislocation.

Second, we propose an economic cap to remove uncertainty over economic impacts as an issue in a climate debate, by creating a safety valve that would set an upper limit on costs by allowing companies to purchase compliance credits from the government at a set price. We propose to set that price initially at $7/ton of carbon dioxide equivalent, and have it go up by 5 percent per year. Some credits would be auctioned to new entrants and the money would be used to help finance investments in new technologies and other incentives to improve energy use.

I hasten to add that the commission's initiatives, in total, are revenue-neutral, drawing on the auction proceeds to finance what we propose.

The third key feature, that further action by the United States would be contingent on action around the globe. After five years, in 2015, the system we propose would pause unless, after a formal assessment, the United States concluded that the major trading partners and developing countries were implementing comparable emission-control programs. Consistent with the 1992 Rio Framework Convention on Climate, our commission recognized that the United States must take a credible first step, but should not go further unless China, India, and Brazil, and others are part of the solution.

The administration has not sat still on climate after rejecting Kyoto. U.S. research has been funded at a substantial level and continues to drive a lot of the emerging science. The Bush administration has usefully built on bilateral climate discussions started during the Clinton years. These consultations, now with 20-some countries accounting for about 70 percent of greenhouse gas emissions, serves several objectives.

One, the help build relationships between U.S. negotiators and key officials in other countries. We know the players better, we know their circumstances. This can only help future negotiations.

Two, they can help especially the developing world build the capacity to conduct analyses and understand implications of a changing climate for their countries.

And three, in some places opportunities may emerge to alter the country's trajectory of energy supply and demand, through technology transfer or cooperative R&D, for example. And China is one place where the support of the Packard Foundation, through the Energy Foundation--now the Hewlett Foundation as well--has played a critical role in leading China to adopt the vehicle fuel emission controls that exceed those of the United States.

Finally, consultations will provide critical insight and will better position the United States policymakers to conduct the assessment the commission calls for as a requisite for continuing the U.S. program.

Well, much more is under way in other quarters on climate. The European Union has set off on an ambitious course, with an emissions trading system affecting about 12,000 sources in four industrial sectors. It was just launched. I think we need to watch their experience closely. I continue to read that few, if any, of the EU countries are likely to meet their Kyoto target. Many, nonetheless, do want to begin talking about a post-Kyoto strategy. I can't help saying, as someone who was exposed to a lot of aggressive criticism in Rio for the United States not then endorsing serious targets and timetables, that some of the most explicit and outspoken, such as the Netherlands, didn't come close to achieving their own goals by the 2000 period that had been set.

Nevertheless, on this I think the United States has taken a firm position by the administration--no new negotiations, a willingness to talk about current efforts, nothing beyond, as consensus grows that a difficult problem needs to be addressed.

American history has seen very frequently the states pioneer responses. And states across the country are beginning to act on climate change. California adopted an ambitious carbon dioxide reduction program for automobiles that other states are watching closely and may well adopt. This was presented to the commission and had some influence on our thinking.

The regulations would require new vehicles in 2012 to emit 22 percent less carbon dioxide than today's vehicles and 30 percent less

by 2016. California is responsible for something like 10 percent of the automobile market in the United States, with obvious significant impact on the potential for other states to do the same. That measure is being challenged in court by auto makers. Eleven states, through other litigation, are trying to force the national government to regulate CO2 emissions, while still other states have intervened in support of the administration's position that regulation of CO2 was never intended under the Clean Air Act.

Well, some companies, as I mentioned, are taking issue very seriously themselves, committing to reductions or developing their own strategies--manufacturers, utilities, and more. And multi-national energy companies are already calculating the costs--which, incidentally, are coming out just around $7, according to preliminary analyses, $7 per metric ton of CO2--of complying through their refineries in countries subject to the Kyoto Protocol.

I think a good many countries seem to grasp the inevitability of a carbon-constrained future economy but have yet to act.

But I know some of my colleagues in the environmental community are disappointed that the energy commission did not call for more aggressive action now, in particular for an explicit cap on emissions. We did cap emissions of sulfur dioxide in the Clean Air Act of 1990, and I would only point out that there we were dealing with a pollutant, sulfur dioxide, much less central to the civilized world and our

economy than carbon dioxide. And secondly, we were concerned to regulate at the outset 1,100 sources, 1,100 electric power companies, utility companies. By contrast, the Europeans are beginning to address some 12,000 sources in four industry sectors. This is a vastly more complicated problem than regulating and controlling sulfur dioxide that I think is going to require a more sensitive solution adapted to that complexity.

Well, we did not--we could not--arrive at a position on what constitutes the desirable end game of all this, the scientifically valid concentration of CO2 in the atmosphere, or other metric. Personally, I do not wish to impede progress nor undermine support for the constructive efforts by others to achieve this objective. I have very high regard for the work by senators McCain and Lieberman to craft a serious climate change policy for the country, and for the active involvement now of Senator Hagel.

But our commission has constructed a proposal we believe can broaden the constituency to support initial steps. Our proposal was drafted with the Senate's 1997 resolution on Kyoto, the Byrd-Hagel resolution, very much in mind--economic uncertainty and competitiveness with respect to rapidly growing developing countries. We concluded that getting started, getting the architecture set, is the most critical near-term objective. As more evidence accumulates, as experience builds with the costs of greenhouse gas reductions and the trading system, as the

political constituency for action broadens and deepens, the trading regime we propose can be adjusted to achieve more ambitious results.

In short, I believe that our commission's climate proposal charts a prudent course on a very complex issue through a passionate time.

Thank you.

[Applause.]

MR. EIZENSTAT: Thank you very much, Nigel and David Sandalow, for making this possible. I think it's a very important exchange.

I want to discuss post-Kyoto realities from the standpoint of American business and with the conclusion that the movement is inexorable in the direction of taking climate change seriously and beginning to put in place, even in the United States, policies that at least make an initial effort and an initial bow to the problem.

In response to what Senator Hagel said--and he is, I think, one of the two or three best United States senators--Kyoto is a start, it's not a finish. It has flaws. Those of us who negotiated it are all too familiar with them. The absence of developing-country targets was not something that we invented at Kyoto; it was something handed to us as a reality from the Berlin mandate two years earlier. That was the framework in which we had to negotiate. We had a choice at that point: Either walk away from all the talks and conclude that nothing should be

done by developed countries, or try to make the best of the situation, find ways to engage them, take a leadership role by developed countries, and go from there. And that's the course that we chose, with President Clinton's and Vice President Gore's leadership.

But it is a flaw. And I know that those of us who are part of the team know how frustrating it is and frustrating it was, during that climactic four- or five-day period when the ministerial level began, to deal with the Chinas and Indias of the world, who not only refused to take their own targets, but tried to build into Kyoto a disallowance of developing countries who wished to take targets doing so. This, to me, was beyond the pale, but that was the reality.

The second criticism, I think, has much less fact behind it, and that is the senator's notion that this would include too great a burden on the U.S. economy. I believe that what we built into Kyoto--the combination of credits for sinks, for the clean development mechanism projects with developing countries, and, most important, for emissions trading, which I will discuss in a little more detail--as well as the encouragement that Kyoto provides for new technology will severely limit the negative impact of Kyoto. Our Council of Economic Advisers estimated only a few-cents increase in fuel costs. So I think, really, the economic impact argument is not well founded.

I want to make five points in my talk. The first is that there is no longer a united front by business leaders against recognizing or

acting upon the threat of climate change. The Pew effort and the companies involved with that--companies like Royal Dutch Shell and BP--are examples of the fact that more and more companies are taking climate change seriously and acting upon it. In the words of Lord Brown, the chairman of BP, companies composed of highly skilled and trained people can't live in denial of the mounting evidence gathered by hundreds of the most reputable scientists in the world.

Point number two. Policies that would control or mitigate climate change have other factors and reasons in their favor that might broaden the coalition of those concerned with climate change, although they may come independently of the same finish line. Two examples: Neoconservatives like, for example, Frank Gaffney of the Center for Security Policy, worry, and rightly so, about the national security implications of our continued dependence on fossil fuels from the most unstable areas of the world. And as they seek to develop U.S. policies, to develop less dependence on Middle Eastern oil, they do so in ways that are commensurate with actions for climate change.

In addition, as the Washington Post article indicated and one of the questioners from the evangelical Christian movement just today demonstrated, there is a growing interest in the religious community in the recognition of the need to protect the world in all of its manifestations. And climate change is certainly one of those.

Improved fuel efficiency standards for automobiles, for example, can be justified without reference to climate change, but on national security grounds. One of the reasons that I testified in favor of Senator Kerry's bill several years ago, before him, to raise fuel efficiency performance to 40 mpg over the next 10 years, was that it would cut passenger vehicle oil demand by about a third, or 4 million barrels per day, by 2020. By 2015, increased fuel efficiency would save 2 million barrels of oil each day, roughly equal to the current daily imports from Saudi Arabia and Kuwait.

Renewable and cleaner energy technologies are becoming increasingly affordable. The argument that there's no alternative to continued and increased consumption of fossil fuels is losing ground. For example, a utility-scale wind turbine now produces electricity for 3 to 4 cents/kWh, after tax incentives are taken into account. That is down from 20 cents/kWh in the early 1980s. That is increasingly competitive with coal or natural gas plants in various parts of the country.

Point number three. U.S. businesses are already living, whether they like it or not, or realize it or not, in a carbon-constrained environment in the United States. There are several milestones in this respect. The entry into force of Kyoto in a week, following Russia's ratification--and what an irony it is that it was Russia that pushed us over the top--is certainly one. But let me mention some others. The launch of the European Union emissions trading scheme will affect 12,000

facilities, as Bill Reilly mentioned, many of which are owned by U.S. companies.

I have to say, I get a certain perverse pleasure, and I'm sure my Kyoto team does as well, in seeing that after trying to block emissions trading, Mr. Ambassador from the United States, being a central method by which we would comply, saying that it had to be done largely through domestic measures, arguing that they should keep their own bubble over what was then the 15 countries--now 25--allowing them to shift emissions and take care of East German hot air, they now have made--and welcome to the club--emissions trading as a central feature of European compliance. But this will also have implications for U.S. companies. U.S. multinational companies that have facilities in Europe, and for that matter in any country which is a party to Kyoto, will have obligations for those power plants and for those facilities. And that's very important.

There's a likelihood in a matter of months that Canada will mandate improvements in carbon intensity for utilities and other major emitters, the so-called large final emitters rules. This will also have implications for U.S. companies with investments in Canada. Since we are the largest investors in both Europe and Canada, this will mean that, by definition, U.S. companies will be subject to Kyoto and they'll have a determination as to whether also to make their U.S. plants, for efficiency

purposes, comply in the same way that their European or Japanese or other plants will have to do.

In addition, there are now 30 states that have adopted some form of environmental limitation, most notably, as Bill Reilly mentioned, California's auto rules, but there's also a regional greenhouse gas initiative whereby nine Northeastern and Mid-Atlantic states will impose emissions caps on major utilities. And by this April, only in a few months, rules will be developed for registration by individual power plants in these nine states, and there may be a possibility of them in some way purchasing allowances in the European system. There's also litigation being launched by eight state's attorneys general against five large utility emitters on a public nuisance theory.

The fact is that this kind of patchwork of conflicting regulation, which is in a way the genius of our federal system, is also what ends up prompting business, which demands certainty, to want uniform federal standards. This will grow over time. I won't happen tomorrow, but it will happen, because they will not be able to tolerate conflicting state requirements, let alone living under one set of rules for their European and Japanese investments and another for American.

And this is not all. Companies in the business of assessing, allocating, and pricing different risks are already putting pressure on the rest of the business community to address climate change. Swiss Re, for example, the world's second-largest reinsurer, issued a recent report

noting that the economic cost of natural disasters, aggravated by global warming, will double to $150 billion a year n 10 years, hitting insurers with $30-40 billion annually in claims.

Institutional investors are also beginning to assess risks associated with greenhouse gas emissions. For example, the carbon disclosure project is a coalition of institutional investors that seeks the disclosure of information on greenhouse gas emissions from many of the Fortune 500 companies. The 143 institutional investors requesting that information manage $20 trillion in assets.

There's also a legitimate question that will be posed as to whether directors of publicly held companies have a duty to include emissions and climate change risks in their Section 404 Sarbanes-Oxley review of their internal controls and reporting contingencies. Swiss Re, again for example, is reviewing companies' compliance with the carbon disclosure project in the context of underwriting directors and officers insurance for public companies.

Point number four. Staying out of the process, a business-as-usual head-in-the-sand approach, may result in disadvantages for U.S. companies, among which are the following: First, as I've mentioned, being subject to a patchwork of diverse and inconsistent regulations at the state and local level. In addition, as I've mentioned also, U.S. companies whose European facilities are subject to emissions caps will not get credit for costs incurred to achieve improvements in their U.S.

operations. So they will either pursue different policies in different locations, which is inefficient, or simply swallow the costs of improvement in the U.S. without getting benefit for the cost.

Wall Street may also eventually factor the cost of compliance with new regulatory regimes into the price of corporate equities and debt. Sustainable Asset Management, an investment group based in Zurich, has, for example, estimated that Ford will have to spend $403 more on each vehicle to comply with new environmental regulations that may be adopted over the next decade--General Motors, $377 per vehicle--in contrast to $24 a vehicle for Honda, and that Toyota may actually benefit from increased regulation due to its early investment in fuel-efficient technologies. Over 60 percent of the global vehicle sales in the most recent year for which data is available occurred in countries that have ratified the Kyoto Protocol. Again, will it be feasible for auto companies to produce such radically different vehicles, depending on the market?

It's also likely that other countries such as Japan or the U.K. will support or subsidize innovation in renewable energy or in other emissions-reduction technologies. As a result, U.S. companies who might otherwise have been technology innovators will now be consumers of technology developed elsewhere. Consider, for example, the penetration of Japanese hybrid cars in the United States. Moreover, European and Japanese companies will have incentives to invest in clean

development mechanism projects in the developing world and effectively offset a portion of their costs with credits generated by the investee into these. This will establish those companies as market leaders in design and implementation of CDM projects and possibly exclude or disadvantage U.S. suppliers, service providers, and financiers.

Also, money talks. Carbon markets will tend to be centered in Europe or Asia, to the disadvantage of U.S. institutions, like the Chicago Commodity Exchange. U.S.-based platforms may be viewed as marginal and my eventually atrophy. The service industries that help create and sustain many new markets and jobs--accounting, insurance, law, IT consulting, derivatives trading--will lose opportunities as trading and carbon credits move from Chicago or New York to London or Tokyo. And states, I believe, will begin, in their procurement decisions on fleets and the like, insisting on clean cars and clean technology, which will disadvantage companies not doing so.

And last on this point and then I'll come to my concluding point, additions or revisions to the existing climate change regime--that is, for example, the second commitment period--will occur without the active voice or participation of U.S. business.

Fifth and last: A better strategy for U.S. business would be constructive engagement, in effect a parallel process to Kyoto that could one day converge:

Identify and promote policy initiatives that will ease the transition to less carbon-intensive technologies, like tax credits for car owners to replace their less-efficient vehicles, accelerated depreciation for capital investments in renewable emergency, regulatory approvals for price increases to pay us on the cost of cleaner energy technologies.

Diane Whitterly [sp], the head of the California program who was with me at a program in Davos a couple of weeks ago, heads the registry for California to establish benchmarks. Companies should participate in these so they establish what their own benchmarks are for future initiatives.

They should pursue initiatives in developing countries through the CDM that will generate low-cost credits that might be applied against eventual carbon caps, at least by their European or Japanese affiliates.

They should work with the International Standards Organization, which was also represented in our panel and Kyoto, and brought up the problem that the EU and Japan might create, in effect, technical barriers to trade under the WTO if U.S. companies are not involved in seeing to it that there's some uniformity in how accounting and other standards are done under ISO.

There should be a consensus, as Bill Reilly and the senator indicated, on carbon intensity reductions. Companies should adopt, as Dupont and Pfizer and Johnson & Johnson and GE and Citigroup, their

own internal emissions trading programs, which have saved a lot of money to them individually.

It's important also that they identify and promote policy initiatives, for example through the U.S. Ex-Im Bank, to encourage the import by other countries of energy-efficient and emissions-reduction technologies developed in the U.S., or we will lose out of that whole market.

We should also encourage the U.S. to develop bilateral agreements with major trading partners--China, India, and Brazil. We're not going to get, let's face it, China and India and Brazil to ever sign on to mandatory targets under Kyoto, at least in the short term. Therefore, perhaps the best way to go is to take a country like China, which is in fact making serious efforts to reduce their emissions, and reach bilateral agreements with them.

We should also invest in trading markets like the Chicago Climate Exchange and develop an expertise in these asset classes and derivatives, or, again, we'll see business fleeing to London and elsewhere.

We should work to ensure the integrity of emissions trading markets. There will not be one overall trading market. There's going to be a European market, there will be Japanese markets and Asian markets and others. It's important these markets have integrity and transparency

among themselves, that trading among these markets be done. It's a massive job, and U.S. companies should be involved in doing so.

There also should be a coalition to address nuclear energy. It's time we took our head out of the sand and recognized that we can't have it both ways. We cannot have lower carbon intensity and no nuclear energy. There hasn't been a new power plant purchase since 1974.

And last, companies are going to recognize, as GE is doing, that it makes sense to produce emissions-friendly products. Twelve leading U.S. companies have combined with the World Resources Institute to establish a green power market developing group to help develop markets for green products.

So the long and the short of it is, we may be out of Kyoto, but we're not out of the climate change game.

Thank you.

[Applause.]

MR. LOY: Thank you. I do want to thank Nigel and David for pulling this day together and to thank Strobe Talbott for bringing them into Brookings and making Brookings a player in this forum and in this subject.

One of the advantages, or disadvantage of following three very thoughtful remarks and a very interesting introduction, a disadvantage is that a lot of stuff has been said that I was going to say.

An advantage is that you can comment on what you've heard, and I just want to take advantage of that for a moment.

Senator Hagel truly is--he is a nice guy, a smart guy, an informed person, and he cares about the subject. That puts him in a very small club in the U.S. Senate. And I, too, welcome the remarks that he made today. I hope that every one of his proposals becomes law and is funded. They are good proposals. Two of them deal with giving incentives, tax and other incentives, financial incentives, to U.S. businesses to deploy climate change technologies or to find new ways to develop technology. One deals with aiding developing countries adopt that. I think what is interesting about all of that is that they are going to require federal funds either in the form of tax breaks or in the form of actual federal monies. And I worry whether that is going to be forthcoming at a level that makes a difference.

And it strikes me that it's too bad that Bill Reilly last night wasn't more successful when he talked to Senator Hagel about considering some form of mandatory cap. Because a mandatory cap, with a trading system underneath it, provides exactly the kind of incentives that the Senator wants, without federal funds. It provides incentives to the very businesses that he wants to support and that Stu talked about.

And yet somehow or other, that seems to be out of bounds. And I think that's kind of too bad, because there are several evidences that a mandatory system need not be threatening. One of them is

McCain-Lieberman. I would hope that Senator Hagel would pursue all of his initiatives and consider, and reconsider, whether something along the line of McCain-Lieberman isn't a tool that this country could use.

And a second evidence, it seems to me is very well thought through, that a mandatory system need not be threatening is the one found in the National Commission report that Bill Reilly talks about. I want to congratulate the commission and the staff of that body for bringing out a report that seems to me to be eminently sensible--mild--eminently sensible but that has behind it this broad spectrum of political support that is reflected on the commission. I would hope that that would give courage to a number of people in the U.S. Senate, and others, to actually look at that. That support seems to me to say that if you talk about it thoughtfully you can gain adherence that you didn't think you could gain.

And I would say one thing about the business strategy that Stu so thoughtfully talked about. I would say, of all the things that the business community ought to think about supporting is some form--some form of mandatory cap with a trading system underneath it in this country. In the Pew Center on Global Climate Change, we have something called the Business Environment Leadership Council. And we talk to those businesses. And there are a lot of those businesses that would be delighted with a thoughtfully constructed cap and trade system with a mandatory cap. They would be delighted because it would provide

them, if it's done right, a level playing field and, above all, predictability.

Why are they not--that's not all of those that are in that group, but many. And why are they not vocal? They're not vocal because they are somewhat afraid of crossing the administration on an important issue. I think that's understandable. Every one of those companies has many contacts, many regulatory relationships with the U.S. government. But it does mean that that voice is muted. And I would say that in addition to all the things that Stu said that the business community might think about, it might think about doing that.

That's in reference to what's been said. Let me take up a proposition. We've heard two propositions repeatedly in various ways today. One, Kyoto is alive but not well. It's not clear whether there's going to be a meaningful, effective second commitment period or not. Nigel's cicada analogy--it took years to hatch, got a lot of attention, and is short-lived. The second proposition we've heard several times is, The most important thing for the United States is to have a domestic program, a meaningful domestic program. I agree with both of those propositions. They are absolutely correct. There's nothing more important than a domestic program. And the good part about Senator Hagel's proposition is that it adds to it; the bad part is that it is rather modest. And the bad part--let me put that differently. The bad part is that he has not found it

possible to support, or modify and support, the most meaningful step that is in Congress at the moment, and that is McCain-Lieberman.

I have, however, a third proposition that I want to just pursue, which has been alluded to but which I want to pursue a little further, and that is this: Even if we had a good domestic program today and even if the Kyoto has a second stage, what is going to come out of that is going to be too modest to achieve, to come even close, I think, to achieving the results that we need in terms of, first, reductions of growth and then reductions of actual levels of emissions. And the reason, I think, is that--I think--that is only going to be achieved by a true international agreement. By "international agreement" I don't mean parallel agreements; I mean one in which, either in one agreement or multiple agreements, people make commitments to each other.

I think the reason for that is inherent in the nature of climate change. That is, the burdens that a country takes on--any country, just about, but certainly a country like ours, which has a high use of fossil fuel--are going to benefit in large part other people. And the burdens that China takes on are going to benefit in large part other people. And I think the incentive for taking really tough action is not there unless you have a mutuality of commitments.

So I think we need to think about a true international system. That is totally impossible without the U.S. participation, and I think the U.S. participation has to start, as we've said, with a domestic system. So

we ought to plan now a diplomatic strategy to prepare for a true international system. We ought to do that for several reasons. The first is climate. But the second is the position of the United States in the world. It is disgraceful that in a field where we have been the leader--we have been the leader in making international environmental progress happen. Bill was a huge part of that in Rio and the four years that he was in office in the '90s. We're not that anymore. Things are happening without us. And we don't shape them. And--I don't want to go into that, but I think we all recognize that the absence of us in the Kyoto negotiations, quite aside from what it does to the climate negotiations, has hurt us in our standing with other countries.

So the first reason that we have to have a diplomatic strategy is that we ought to be back in the lead. But second, I think, is that we ought to recognize that we can actually shape an agreement that I think in the end we would like. In order to decide how to do that, we have to recognize what's right about Kyoto as it's emerged and what's wrong about it. When Kyoto emerged from Kyoto, it had all the elements, I think--except one, that I'll come to in a moment--that are necessary for a good agreement, but some of them it had in the most half-hearted possible way. I mean, as Stu alluded to, the notion that you would actually have a cap and trade system, that you would actually build in flexibility to lower costs, was thought by the Europeans, thought throughout the entire period up to the time of the Marrakesh Accord; the

notion that sequestration was a legitimate part of the agreement--there were elements of it you could find in Kyoto itself, but it was thought as being a cop-out rather than an element of agreement until, finally, there was accord in Marrakesh.

There's no question that the U.S. leadership and the U.S. insistence on these elements and the U.S. persuasion of other countries that those elements were good elements produced an agreement that is substantially better than it would have been without our presence. There's no question about that. And I think that can be done in the future.

One of the results of all of that, I think, is that when Senator Hagel said earlier that Kyoto as it finally has emerged didn't meet either of the tests that the Byrd-Hagel resolution required--no harm to the U.S. economy and equal participation by developing countries--I don't think that's quite right. I think in the no harm to the U.S. economy, we had an agreement at the end that was not without cost--not without cost--but the cost, by reason of the things in the agreement, had been reduced to a level that the U.S. economy could have handled it. The thing he was absolutely right about is that the developing countries had taken no real further obligations than they took at Rio. And I think, politically in the U.S., it is not going to be possible unless that's fixed, unless the developing countries do take it farther.

How do you fix it? You start with a strategy that has about four parts. One is we need to help developing countries toward their own path toward clean energy. And I think Senator Hagel's proposal, one of his proposals, seeks to do that. I think that is right. We need that. We have some proposals like that now, but they're not funded very well. They're proposals without the money behind them. We need to help them do that in various ways that we can talk about in the panel discussion.

Second, I think--I should have put this first. First, if we're going to get the developing countries to act, the first thing is we have to act. We've talked about that. But it has a sine qua non. I don't think you will get anyplace without meaningful--meaningful--action by the U.S. You're not going to get developing countries. The second thing is we've got help them in their own path towards the development of a clean energy future.

Third, I think we've got to get the developed countries to adopt a common position. We were very much handicapped in our effort to bring the developing countries into the picture by the absence of an agreement among the developed countries that that was important, and how to do it. We were essentially, or frequently, the only people pushing for developing country participation. And that is a weak position from which to start. That requires a lot of diplomacy, a lot of further talks, but I think it is within the doable.

And the fourth thing is we need to address the equity issue. The developing countries are concerned about any plan that we come up with throttling their growth. It's a legitimate concern, it's an important concern, it is one that we absolutely have to take into account. We can't adopt anything that does that. But I think that's a relatively easy thing to fix. I think you could have meaningful participation by developing countries in a way that, in the end, you could persuade them would not damage their growth.

But the second issue that they had, which is the equity issue--which is why the hell should we take on any obligation to clean up the mess that you've created and on which you got rich? Why is that our burden?--that is a tough one. That is a tough one ideologically and politically for them. And we don't need to go into detail about that, but I think that requires a long, patient discussion. It requires also not falling into the trap of framing the issue in a way that some people would like to frame it, such as an issue that equity means equality of entitlement, every person on the earth has an entitlement to the same amount of carbon emission. If you take that road, you're done. You'll never get there. So you've got to frame it in a different way. But it is a negotiation, it is a discussion that requires two things to start: U.S. action--otherwise you can't start; and secondly, a patient discussion of the various avenues open.

Let me just finish by alluding to something that I don't think I'll have time to say much about. The other thing that is difficult and important in thinking about a diplomatic strategy leading toward an end game of a true international agreement, whether it be Kyoto, two Kyotos, or something brand-new, the problem is how to get there, is in what forum do you negotiate that. I think we need to agree that in the end it has to be a forum like the one we've been negotiating in, a U.N. forum. After all, this is a negotiation under a U.N. agreement, the Rio Agreement.

But as Nigel pointed out, that need not be the way we start. He talked, I think, about a variable architecture. And it is true that we have in other areas, in the trade area, in the national security area, we have a multiplicity of fora and we have, in both cases, a global or almost-global meeting point in the WTO in the case of trade, in the General Assembly of the U.N. in terms of other issues. We need to find ways to start without having to start with every nation that is involved. This is a very controversial statement and it's a very dangerous statement, because you can really--you run the risk of losing a lot of countries if they feel that there are negotiations going on of which they're not a part. My sense is that we have to take that risk, because I worry about getting an agreement where we start off immediately by insisting that it be negotiated in the same forum in which we had been negotiating.

Nigel has a nice phrase borrowed, I think, from Mies van der Rohe or Le Corbusier, but I'm not sure. And his version is: Forum follows function. And I think that's right. I think we need to settle some issues in a smaller forum. Then the forum, when we've done that, the forum in which to negotiate can be the world forum of the United Nations.

Last point. This is serious stuff. A lot of us have spent enormous amounts of time on this. A lot of people on the Hill have spent a lot of political capital on this. I would say it's not wasted. We are way ahead of where we were some years ago. It's painful, it is frequently quite dismaying how hard every step of progress is. But it's important, and our children will demand that we actually persevere and succeed.

Thank you.

[Applause.]

MR. SANDALOW: Nigel, fellow speakers, ladies and gentlemen. We meet today 2,619 days since the end of the Kyoto Conference, 5,352 days since the end of the Rio Conference, and, by my calculation, roughly 40,175 days since the Swedish scientist Svante Arrhenius presented the first scientific paper on the greenhouse effect at a meeting in 1895.

In that time, we have learned some things. We have learned steadily about the science of global warming. We've learned through the patient accumulation of peer-reviewed science, with ever greater clarity

and detail, that human beings are changing the climate, with potentially dangerous consequences. In fact, a recent survey looked at all articles published in scientific journals between the years 1993 and 2003 that contained the words "global climate change." There were over 900 of them. It found that not one of these papers disagreed with the view that current climate change is caused by human activity--not one. As the author of this peer-reviewed paper wrote: "There have been arguments to the contrary, but they are not to be found in the scientific literature." We have learned that global warming is an almost uniquely wide-ranging problem affecting many aspects of human life. Discussions about possible solutions involve the power sector, agriculture, residential and commercial real estate, transport systems, manufacturing, and much more. And we have certainly learned that building complex international institutions takes time.

But in the course of these many years, I believe that some myths have developed. And as I thought about what I might usefully say today, and all the wisdom that's come before me, I decided to share with you seven statements that I have often heard in working on global warming and explain why each one of them is, in my opinion, a myth. Let me start with the first one, which is perhaps the most entrenched.

Myth No. 1: A global problem requires a global solution.

Now, this is received wisdom in climate change policy embraced by left and right alike. I've said it dozens of times, if not

hundreds of times. But the more I think about it, the more I wonder whether in fact it is true. You've heard some of the analysis already. Frank was speaking to it today, Nigel and Stu and others.

But, to start with, the smallest 90 countries in the world combined--combined--emit less than the United States. Does the solution to global warming require that each one of them be a part? In contrast, the world's 35 largest emitters release over 70 percent of the world's greenhouse gases. Couldn't substantial progress be made with a grouping such as this? The G-8 emits roughly 40 percent; U.S. and China combined emit 36 percent. Couldn't leakage concerns be handled substantially by getting together groups like this, as opposed to the world as a whole? From where did we get this insistence on a fully global solution? And by the way, there's another problem with this formulation--the use of the phrase "a solution." Experience surely teaches that there is no single solution to global warming, but a large set of overlapping and related sets that will evolve with time to bring greenhouse gases under control.

Now, don't get me wrong. As an ideal, I certainly embrace the sentiments that a global problem requires a global solution. But when we use this formulation, I fear that we push ourselves toward complex top-down approaches that require the stars to align among 180 nations before taking a step forward. Waiting for the stars to align is not a sound strategy. This problem is much too serious. We should be seeking

solutions in a range of bilateral, regional, and smaller multilateral settings.

Myth No. 2: Treaty commitments lead to domestic action.

This has been addressed as well. In some places, treaty commitments may lead to domestic action--in Europe, for example, and many parliamentary systems. But not here in the U.S. In the modern environmental era, our most successful environmental treaties have been those where domestic authority already existed or was all but assured. Treaties such as Kyoto, where domestic authority was uncertain, have not fared well. There are few, if any, examples of unratified international accords that created pressures or dynamics within our political system leading to significant changes in domestic environmental policies.

Myth No. 3--and I will not be shy here: We need to stop burning coal.

Ladies and gentlemen, we are not going to stop burning coal, at least not anytime soon. It's too cheap and too plentiful in the United States and many other countries around the world. The political forces behind it are too numerous and too powerful. Trying to stop coal in its path or pretending that it will simply go away is not a winning strategy. Improving the efficiency of coal combustion is a winning strategy. Very importantly, aggressive efforts to deploy coal gasification with carbon capture and sequestration is a winning strategy. Advanced research on carbon capture and sequestration is a winning strategy. In my opinion,

removing antiquated provisions of the Clean Air Act that keep all inefficient plants operating is a very sound strategy. And finding tools to make sure that coal prices reflect the full external costs of coal's externality, that is a sound strategy. Coal's not here forever, don't get me wrong. Like other fossil technologies, it will eventually give way to cleaner alternatives. But it's here for awhile. A lot of it is going to get burned. And we've got to find the best ways to manage it in the decades ahead.

Myth No. 4: Renewables will never make a major contribution.

Not true. During the past several decades, we've seen dramatic technical and economic advances in renewable energy. Prices for wind have dropped by 80 percent or more since 1980. Today in some parts of Northern Europe wind provides 10 to 20 percent of electricity. With the right policy tools, we can spur the growth of renewables. Governor George W. Bush famously supported such a policy in Texas with the Renewable Portfolio Standards. We need intensive research into transmission and storage. The National Commission on Energy Policy believes that, with its policy package, non-hydro renewables will reach 10 percent of U.S. generation by 2020. And according to at least one study, in the next five decades wind and solar can meet over one-third of our electricity demand. Renewables are going to be a very important part of the solution to this problem, provided we get the policy right.

Myth No. 5: Ethanol doesn't help the greenhouse gas problem.

A decade ago, that was true. It isn't any longer. A decade ago, when you looked at ethanol on a life-cycle basis, including the energy used in growing and harvesting corn, ethanol was no better than petroleum as a transport fuel when it came to greenhouse gas emissions. Today that has changed. With new efficiencies and process innovations, corn ethanol is solidly better than petroleum when it comes to greenhouse gas emissions by as much as 20 percent. Even more significant, ethanol from other feedstock, such as switchgrass--known as cellulosic ethanol--offers reductions of as much as 90 percent in such emissions. When combined with hybrid technology, we can reasonably start thinking about 200 to 300 mpg of petroleum in our vehicles. And by the way, this policy, as Stu alluded to earlier, provides tremendous security benefits. I think we should be paying farmers, not Saudi Arabia. It will have tremendous benefits for our security picture, tremendous benefits for the environment.

No. 6, let me address nuclear power, raised earlier. I believe there are two myths that are common. I don't believe either. The first is that nuclear power is the answer. The second is that nuclear power is a distraction.

Neither of those statements is true. Look, nuclear power is hardly the answer to global warming. The problems with the technology

today are immense, including high cost, unsolved problems with waste disposal, nuclear proliferation concerns regarding spent fuel, the risk of terrorist attacks on plants, and in some countries a lack of public acceptance. Ladies and gentlemen, that is not a trivial list. Anyone advocating expanding nuclear power as an important part of the solution to the problem has a very large hill to climb.

But at the same time, I do not believe that we can push nuclear off the table or ignore the potential of advanced nuclear technologies. Generation IV Pebble Bed Reactors reportedly offer low capital costs in a meltdown-proof design. I don't know enough about the technology to have a view, but global warming is an exceedingly serious threat, and I don't think we should fail to pursue any technology that offers the potential of substantial energy generation with low emissions.

And my final myth, Myth No. 7: The public will never care enough about this issue for the political system to respond.

True, this is a tough issue. Changes that are lightning-quick from a scientific standpoint seem glacial when applied to the political system. The difficulty in generating information on specific local and regional impacts makes matters much worse because, of course, all politics is local. But increasingly we are seeing clear signals of climate change in our everyday life, from the melting of the Arctic to sustained Western drought, both consistent with predictions of global warming. An interesting article in last Sunday's Washington Post on this reciting the

views of hard-bitten Arizona farmers and ranchers about their experiences with the weather lately. Computer power will continue to increase, improving our ability to make predictions.

And most important, we have seen shifts in public opinion in this country in the past, where an issue suddenly becomes looked at in a fundamentally different way. During the 1980s, recycling, for example, went from an activity practiced by a fringe to a part of the mainstream everyday life in cities, suburbia, and rural America alike. During the first part of this decade, programs to fight AIDS were widely embraced, in ways they had not been in the previous decade, across the political spectrum, gaining new champions, including Jesse Helms, in ways that had been unimaginable before.

Such a shift will happen with regard to global warming. Today, seven days before the entry into force of the Kyoto Protocol, the only question is when.

I'd like to close this on a quick personal note. Working with Nigel here at Brookings is a constant pleasure. And Bill Reilly, Stu Eizenstat, and Frank Loy, there are three of the most extraordinary public servants and senior officials that I have ever known. It's been my great privilege to work with each of them over the years, to work for each of them over the years, and it's a great honor to be on stage with them here today.

Thank you very much.

[Applause.]

MR. PURVIS: If I could invite the panelists to take any seat here on the stage. We'll have our executive staff help you wire yourself. Let me just announce a slight change in program, as we're running a little bit late. I know that we have such a distinguished panel here that I want to give you plenty of opportunity to ask questions. I'm going to forego the moderator's privilege of asking the first question, and turn directly to your questions. We have microphones that are available. Please raise your hands to be recognized and then wait until the microphone arrives. Speak loudly, since we're trying to develop a comprehensive transcript for this session, which will be available in approximately 48 hours on the Brookings Web site, which is listed right here.

So let me ask for questions from the audience.

QUESTION: How can a shift of public awareness of this issue be accelerated?

MR. PURVIS: Any of our panelists who would like to take that? David Sandalow has begun to answer that questions. Do others have views on that? Frank Loy.

MR. LOY: Well, I think part of the answer is very obvious--it's education; and part of it you can see in the attitude, I think, of our children, our own children and other people of that age, compared to where we were at that stage. But I think, in the end, that's a very slow process, and the only way to really accelerate that is political leadership.

I mean, the way we make policy in the United States starts with somebody saying something, generally, and having it accepted at political levels. That's what we don't have at the moment. We have almost the opposite. We have such cautious statements and such failure to make this the issue it ought to be, that it makes it harder. I'm hoping, for example, that Senator Hagel will become one of the leaders of that educational effort.

MR. : I'd just add, if I may, one point on that. It just reminds me a little bit of the deregulation movement in the '70s but, more broadly, how public policy is made in this country. David is quite right. With this vast continent, the deregulated system with states having such authority, it's very rare that policy is made top-down. The optimum way of building visibility would be to have the president of the United States make this an issue. That's not going to happen in the next four years. It's just not. Let's face that reality. But that is not the only way in which policy is made, and indeed the way policy is made in this country is in fact from the ground up. It's press stories, like the story in the Washington Post about the drought in the West. It's realities that people begin to see in their daily lives. It's having a leading senator who has a committee chair which gives him a platform, like Senator McCain. Even though he probably will get a few less votes in this session, given the new composition of the Senate, than he did last time, having the capacity to hold hearings, to bring experts in, itself raises the visibility. The

states themselves, the fact that, as has been mentioned, some 30 states have their own system itself leads to an education of the public.

So all of these are ways in which this issue begins to bubble up to public opinion. And there will come a point, a tipping point, when all of these issues converge--the science, the realities of what people see, senators, governors, and others, like, for example, the governors of two Republican-controlled states, the two largest states in the union, California and New York, two Republican governors both making this a major issue. That's the way policy is made in this country, and this is no exception.

MR. : I would simply add that we've discussed here the communication about this issue and the coverage in the press. I have long admired the press's ability to explain extraordinarily complicated questions, like ozone depletion, on my watch in the late '80s. But I have to say that the coverage in the mainstream press of the climate issues, through an effort, I think, at even-handedness, distorts the scientific consensus that does exist on this problem. Just by that remarkable citation that David mentioned of 900 peer-reviewed scientific articles, not one of which disputed the human effect or cause, contribution, to climate change. That is not the way this issue is dealt with in the press. Typically there is a phrase, and it's essentially a qualifying phrase: "Some scientists believe" or "There is a growing conviction among scientists" or "There is a point of view, a theory on climate change." It's

gone beyond that. And it seems to be in the interest of accuracy. There should be an acknowledgement when this issue is assessed, not as a polemical issue, not as an effort to take a public opinion, simply an effort to respond to what scientific consensus exists on this issue that the National Academy of Sciences and others have addressed in a way that is more conclusive than is often communicated.

MR. SANDALOW: Real quickly--to accelerate understanding, go to where people get their information. A generation ago, we all listened to the nightly news, Walter Cronkite had [inaudible]. It's no longer true today. It's much more stratified. Go to the different media outlets where people get their information, go to their churches, go elsewhere, and you'll get people [inaudible] on global warming.

QUESTION: Thanks. Todd Stern. I've had the pleasure of working with most of the people on the stage in the Clinton administration.

I find myself, not surprisingly, in agreement with almost everything that David was saying. I wanted to focus on one particular point, which is the first myth--a global problem doesn't necessarily need a global solution. I was wondering if you had any particular thoughts about the notion--you cited the fact that some number, a fairly small number of major countries account for 70 percent of world emissions. In a project that I have been involved in recently on the International Climate Change Task Force--my participation being on behalf of the

Center for American Progress--there was one recommendation that we included that involved calling for a G-8-plus group, which is in essence a recommendation to Prime Minister Blair, sort of with the same kind of notion in mind, that if you looked at the 15 or 20 big emitters in the room, you'd be able to cover most global emissions.

I'm wondering whether you have any thoughts about how--we have one suggestion, this G-8 notion--but whether you have any notion about how that might actually come about and whether that in itself is something that you can imagine as a matter of political feasibility, to get China, India, and some of the major developed countries. Because it seems to me, at least, it has some appeal.

MR. LOY: By the way, the report that Todd referred to is a tremendous product. If any of you haven't seen it, I highly recommend it. The International Climate Change Task Force, you said, Todd?--that I'm sure can be got on the Web. It was a joint product, Center for American Progress and a think tank in the U.K. and Australia, and it came up with some tremendous results. And I think the G-8-plus recommendation in that report is tremendous. It's a great idea. It's exactly the type of thing I was talking about. One can imagine the G-8 countries getting together with a common emissions trading program, trading among themselves--at this point it would have to be integrated, obviously, in some fashion with the European Union trading system--and allowing developing countries to opt in, or portions of developing countries to opt in. It's a great example

of a type of approach. You can imagine other countries, by the way, too, the NAFTA countries particularly. You could get regional agreements in North Asia on the topic.

Another variation on that, which I think is worth exploring, would be, for example, a U.S.-China biofuels initiative. The U.S. and China have remarkably similar strategic interests here--similar concerns about reliance on petroleum, similar agricultural potential. We ought to be looking together with the Chinese, to the extent we can, on developing biofuels opportunities.

MR. PURVIS: We'll start taking two questions at a time and giving our panelists opportunity to comment on maybe two or three questions.

QUESTION: David mentioned that there will always be a role for coal, and we are seeing a resurgence right now in coal. There are about 110 proposed new coal plants, and these are not coal gasification, except for a handful of them. They're new coal plants, probably about 30,000-40,000 new megawatts, which will be operating for about the next 50 years. The only really viable alternative is probably combined cycle gas, which has about 55 to 50 percent less CO2 emissions, or if we were ever to look at nuclear power again. How does that--you know, if we do see this resurgence of a large [inaudible] of coal coming online around the states, how does that merge with trying to address CO2 over the next couple of decades?

MR. PURVIS: We'll take two more questions and then give the panelists an opportunity.

QUESTION: My name is [inaudible], al-Hayat newspaper. My question is more on the Middle East politics. I heard you address Saudi Arabia and the oil reserves. How long would it take you to get the -- go by your recommendations as a timeline to grant independence from Saudi oil? And do you see the Iraqi war as an alternative to that, being the second biggest oil--?

MR. PURVIS: Thank you. Third question, in the front row. We are very fortunate to have the ambassador from the European Union with us today.

QUESTION: John Bruton, ambassador to the European Commission.

Frank Loy raised the question of the equity issue as affecting the least developed countries and their sense that they're being asked to make sacrifices to pay for a problem that we, the developed world, have created. I'd be interested to know how the panel feels that one can actually address that question. Frank had mentioned the need to be patient and to talk people, but I think will need to [inaudible] beyond that, too. So perhaps the panel would have views on that.

MR. PURVIS: Bill Reilly.

MR. REILLY: I would like to address the coal issue implicitly, I guess, and more explicitly the Saudi question.

With respect to coal, I agree with David that coal is going to be an important part of our future. It's 50 percent or more of our electricity now. And you are correct, we crafted the Clean Air Act to promote natural gas, believing at the time that--this was the general consensus, that we had a sufficient supply on into the indefinite future. It turns out not to be the case. There are new natural gas opportunities coming on with LNG and also with the pipeline from Alaska that we've just had an $18 billion federal program to ensure. But that takes about 10 years. So I think we will see more coal in our future.

Under the National Commission's recommendation on the $7/ton charge, we are looking at a 16 percent increase in coal use in the United States by about 2015, maybe 2020. Business as usual is something like 25 percent. So we see a continuing need for the resource, very definitely. It plays a key role. Having had a lot of experience in China in the last few years, they've got 40 big coal-fired power plants on the books. The priority we could give to gasification to capture and sequestration [inaudible] should be really tremendous. It's very, very important to our future and that of other countries.

Looking beyond that to the question about Saudi Arabian oil, when we--in days of the Kuwait war, I can remember discussions in the Bush cabinet that we had something like a 12 percent excess capacity at OPEC. That number is now under 2, and 90 percent of that is in one country, Saudi Arabia. If you project oil demand into the future, it's 43

percent over the next 15 years in the United States and 50 percent--I think that's a 2025 number--it's 50 percent projected--over 50 percent for the world. I asked a CEO [inaudible] the other day, how are we going to do that? We're probably not. We're simply going to have to bring on renewables, these alternative fuels, and get much more efficiency than we have.

But there's no way--just to put that in perspective, the production increase in the years from 1980 to 2000 of oil worldwide, when all sorts of new technologies were brought on--deep well exploration to go down beyond a mile, for example, for the first time; recapture of 50 percent of the hydrocarbons [inaudible], that got us a 20 percent increase over that 20-year period. The idea that we're going to have to deal over the next 20 years with a 50 percent increase, I just don't see it and people in the energy industry don't see it.

So Saudi Arabia's got nothing to worry about. That is going to be a hugely important supplier of liquid fuel. It isn't going to be enough. We simply have to develop the kinds of things [inaudible] -- biomass for ethanol. I think we now use, I think, 2.8 billion [?] gallons a year in the United States. That's going to more than double. We could find ways to probably increase even more, and I agree with David how we might go about doing that.

MR. PURVIS: Stu Eizenstat.

MR. EIZENSTAT: I'll take two points. One, if we go back to Todd's question, and Ambassador Bruton here.

The EU is always looking for areas in which it can lead. And in fact, in the climate change area, by our going on the sidelines after Kyoto, you are the leader. Let me suggest a radical thought, that a leader needs to take leadership steps. And one way to incentivize U.S. companies that through their domestic operations are not required to comply, but to incentivize them to do so is to open up your new EU Commission trading system to those American companies who wish to have credit based on domestic actions that they're willing to take. That would improve the trading system and it would incentivize U.S. companies to participate.

Second, on the question about the Middle East, Richard Nixon in 1972 declared the goal of energy independence. This was not going to happen. We're not going to be independent of Middle East oil and gas in anyone's lifetime or the lifetime of our children or grandchildren, probably. What we can do is to try to diversify. In 1980, President Carter and the Congress passed the Synthetic Fuels Corporation, and that provided massive federal loan guarantees to encourage the development of a lot of synthetic fuels, including coal-based fuels, on a pilot basis.

That died aborning in 1981, for two reasons. Number one, oil prices fell dramatically and made those projects much more

expensive. There are still some going on in North Dakota. Second, ideologically the Reagan administration said this was federal interference in the marketplace--not the commercialized project, only the new product project. We'd be a lot further down the road on a lot of these alternatives had we started back, you know, 25 years ago. We need to encourage the development of alternative fuels. We need to diversify oil and gas incentives outside of the Gulf states. And again, to come back to one way to actually save as many barrels today as we import from Saudi Arabia is to go to a fuel efficiency standard of 40 mpg over the next 10 years.

I remember as if it were yesterday, in 1977, in the Cabinet Room with President Carter and the heads of the then-Big Three, which was before Japan had such a big impact on our market. Tom Murphy was the CEO of GM at the time. All of them said it is impossible to get 27.5 mpg by 1985, which was the regs we were developing pursuant to legislation that passed on the last -- of the Ford administration. Absolutely impossible, we can't do it, the technology doesn't exist, it will make us non-competitive. The fact that we imposed that requirement was the best thing that happened to them because the Japanese were producing just that and more. Had they not been forced to do so, their products would have been even less competitive. Technologies do exist to go to 40 mpg. Again, it's something that's been [inaudible]. It would save us

an enormous amount of oil. It wouldn't make us independent, but it would make us less dependent on Middle East oil.

MR. PURVIS: Frank Loy and David Sandalow, you both raised the equity question. Any thoughts on how to engage China and India in a way that would allow them to come into an international regime?

MR. LOY: Well, you can think about equity in terms of the equality of entitlement that I referred to, which I suggested was [inaudible]. You'll never get anyplace that way. You can also think of it other ways, and one of them is an equality of effort. I think we have to focus on equality of effort, which means, Mr. Ambassador, one, we in the United States have to make a real effort. Without that, there is no solution to that problem. And real effort means more than--it means actually beginning to deal with the numbers in a realistic fashion, because they go down--the growth is really slowed, and then it goes down.

The second thing is if you do that, you can talk about--carefully--about the concept of convergence. That is, most developing countries are going to increase their actual emissions, and our aim must be to reduce the growth of that increase. But there will be--if we start to lower and they start to rise, you do have a sense of convergence which gives people a feeling that there's some element of fairness in the system.

I don't want to oversimplify that. Let me say one more thing. The European Union is absolutely critical, as Stu suggested. This is a place where it can lead and must lead, because up to now, it has, in important parts, sat on the sidelines of that issue, the issue of the developing country participation, left that to others. It won't work unless it takes a more aggressive stance.

MR. PURVIS: John Kerry is going to be joining us in 20 minutes. We have lunch for you available [inaudible]. I'm afraid we're going to have cut off questioning. I think Bill Reilly--

MR. REILLY: Just a brief point about developing countries. My impression is that the Chinese are very uncomfortable with discussing climate change as potentially requiring an initiative on their part [inaudible]. But they are very concerned to improve the efficiency of their economy. They recognize that it is not efficient. It takes something like 50 percent more energy to produce a ton of steel in China than in Japan. There are similar numbers for a whole range of industries. They have improved quite considerably. And actually, this kind of cuts the other way--they've improved quite considerably the efficiency and the quality of some of their industrial output, so much so that some members of our commission were particularly anxious about how fast they were coming on as a competitor. That's one reason for the important caveat that we placed, to reconsider our entire direction if some of them don't come along.

However, if you talk in terms of efficiency of the economy of the developing world, you get a lot more understanding, a lot more sympathy, a lot more willing to be cooperative, recognizing at the same time that you probably enhance the competitiveness of those very countries [inaudible] industrial output. So it's not an easy question, but it is, I think, a more productive way into the issue than simply to remonstrate with them to get on board.

MR. PURVIS: Please join me in thanking our distinguished panelists for an excellent discussion.

[Applause.]